YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT

1947 Galileo Court, Suite 103; Davis, CA 95618

Emission Evaluation and Statement of Basis Addendum

		ATC #	C-13-02
		SIC Code #	4953
ENGINEER:	Kyle Rohlfing	UTM E	601.7 km
		UTM N	4241.3 km
FACILITY NAME:	Recology Hay Road		

LOCATION: The equipment is located at 6426 Hay Road in Vacaville. The equipment is not located within 1,000 feet of a K-12 school and is not subject to the requirements of H&S 42301.6

PROPOSAL: The applicant is proposing to modify P-85-06(a4) to adjust the operating conditions for the enclosed flare and to increase the process limits for receiving municipal solid waste.

The prior active version of the permit contained language in the flare operating conditions requiring the flare to maintain a minimum temperature of 1,380°F and could be interpreted to require this temperature be maintained even during times when the flare is not operational due to a breakdown. The applicant proposed to revise this language to clarify requirements that apply when the flare suffers a breakdown.

The prior active version of the permit contained quarterly and annual process limits for the amount of municipal solid waste received based on a daily average acceptance of 1,200 tons. The applicant proposed to increase the quarterly and annual limits to values based on the maximum daily limit of 2,400 tons.

PROCESS: Municipal Solid Waste (MSW) Landfill

The majority of the landfilling process consists of placing waste into active waste management cells that are covered daily with soil or chipped greenwaste. Once a cell is filled to capacity, it is covered with a final layer of soil and the waste is allowed to degrade naturally. In general, as the waste decomposes it produces landfill gases that contain large amounts of methane (CH4) and carbon dioxide (CO2), as well as relatively small amounts of non-methane organic compounds (NMOC) and hazardous air pollutants (HAP's). Over time these gases migrate upward through the waste cells and are emitted as fugitive emissions. Conservatively, this evaluation assumes that all of the NMOC emissions are volatile organic compounds (VOC's). The gas collection system serves to capture and combust these gases.

FLOW DIAGRAM: See file

EQUIPMENT: MSW landfill not to exceed a total maximum design capacity of 35.6 million cubic yards (17.0 million Mega-grams (Mg))

CONTROL EQUIPMENT: Negative pressure landfill gas collection system serving up to 100 collection wells (equipped with a 1500 CFM blower at 30 HP), routed to a 45.6 MMBtu/hr enclosed flare with a 0.6 second residence time

APPLICATION DATA:

Design Parameters Summary		Units	Formula Symbol	Reference
Maximum Design Capacity =	17.0	million Mg	-	Applicant
Initial Year of Operation =	1964		IO	Applicant
Last Year of Known Acceptance =	2012		KO	District
Estimated Year of Closure =	2030		CO	District

Waste Acceptance Limits		Units	Formula Symbol	Reference
Daily Limit =	2,400	tons MSW	WD	Applicant
1st Quarter Limit =	216,000	tons MSW	W1	WA * (90 days/quarter)
2nd Quarter Limit =	218,400	tons MSW	W2	WA * (91 days/quarter)
3rd Quarter Limit =	220,800	tons MSW	W3	WA * (92 days/quarter)
4th Quarter Limit =	220,800	tons MSW	W4	WA * (92 days/quarter)
Max. Yearly Limit =	876,000	tons MSW	WY	WA * (365 days/year)
Max. Yearly Limit =	794,702	Mg/year	YM	WY / MG

Gas Collection Parameters		Units	Formula Symbol	Reference
LFG Collection Efficiency =	75.0	%	CE	AP-42, Section 2.4.4.1, (10/2008)

Gas Control Parameters		Units	Formula Symbol	Reference
Max. Gas Collection Rate =	45.6	MMBtu/hr	BR	Applicant

Exhaust Stack Oxygen Content =	10.0 %	OE	Retained from Emission Eval. C-09-87 *
Minimum Flare Control Efficiency =	98.0 %	DE	BACT Determination 680-1

* Site specific operating parameters previously established in ATC emission evaluation C-09-87 (see file for contact information).

ASSUMPTIONS:

Miscellaneous Data	Units	Formula Symbol	Reference
1 Mega-gram (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 (10/2008)
Molecular Weight H_2S =	34.0 lb/lb-mole	MWh2s	District
Molecular Weight SO_2 =	64.0 lb/lb-mole	MWso2	District

EMISSION FACTORS:

Landfill Gas Analytical Data Summary	Units	Formula Symbol	Reference
Conventional Methane Generation Rate =	0.02 (unitless)	k	40 CFR, Section 60.754 *
Regulatory Default Methane Potential =	170.0 m^3/Mg	Lo	40 CFR, Section 60.754
Uncorrected NMOC Concentration =	418.0 ppmv, as C_6	NMOC	Retained from Emission Eval. C-08-41 **
Avg. Methane (CH_4) Concentration =	572,759 ppmv	MC	Retained from Emission Eval. C-08-41 **
Avg. Carbon Dioxide (CO_2) Concentration =	390,586 ppmv	CC	Retained from Emission Eval. C-08-41 **
Avg. Nitrogen Oxide (NO_2) Concentration =	198,571 ppmv	NC	Retained from Emission Eval. C-08-41 **
Avg. Oxygen (O_2) Concentration =	21,143 ppmv	OC	Retained from Emission Eval. C-08-41 **
Landfill Gas Higher Heating Value =	450 MMBtu/MMScf	HH	District
MSW Landfill Gas F-Factor =	9,570 Scf/MMBtu	FF	EPA Method 19, Table 19.2 (02/2000)
Landfill Gas Sulfur Content =	707.0 ppmv (as H_2S)	SC	March, 2010 source test results***

* 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 this evaluation.
** Site specific operating parameters previously established in ATC emission evaluation C-08-41 (see file for contact information).
*** Site specific operating parameters as found in March 2010 source test under ATC C-10-07.

EPA LandGEM Emission Summary	Units	Formula Symbol	Reference
Max. Uncontrolled NMOC Generation Rate =	115.03 Mg/year	M_{NMOC}	Calculated for Calendar Year 2030 *
Max. Uncontrolled CH_4 Generation Rate =	45,416,145 m^3/year	Q_{CH4}	Calculated for Calendar Year 2030 *

* The landfill's total uncontrolled NMOC generation rate (in Mg/year) as calculated using the air-infiltration corrected NMOC concentration (C_{NMOC} below) in the LandGEM program Version 3.02 (released May 2005) (**see** attached calculations).

Flare Combustion	Units	Formula Symbol	Reference
VOC (as Hexane) =	31.4 ppmv @ 3% O_2	EFv@3%	Retained from Emission Eval. C-09-87 *
CO =	0.200 lb/MMBtu	EFc	Retained from Emission Eval. C-09-87 *
NOx =	0.050 lb/MMBtu	EFn	Retained from Emission Eval. C-09-87 *
TSP/PM_{10} =	0.0168 lb/MMBtu	EFp	Retained from Emission Eval. C-09-87 **

* Site specific operating parameters previously established in ATC emission evaluation C-09-87 (see file for contact information).
* Site specific operating parameters previously established in ATC emission evaluation C-09-87 (see file for contact information). Assumes that 100% of combustion TSP is particulate matter with an aerodynamic diameter of 10 microns or less.

CALCULATIONS:

1. Determine the Maximum Fuel Usage for the Enclosed Flare:

		Formula Symbol
Max. Hourly Fuel Limit = BR * (1/HH) =	0.101 MMScf/hour	FH
Max. Daily Fuel Limit = BR * (1/HH) * (24 hours/day) =	2.432 MMScf/day	FD
Max. 1st Quarter Fuel Limit = FD * (90 days/quarter) =	218.9 MMScf/quarter	
Max. 2nd Quarter Fuel Limit = FD * (91 days/quarter) =	221.3 MMScf/quarter	
Max. 3rd Quarter Fuel Limit = FD * (92 days/quarter) =	223.7 MMScf/quarter	
Max. 4th Quarter Fuel Limit = FD * (92 days/quarter) =	223.7 MMScf/quarter	
Max. Yearly Fuel Limit = FD * (365 days/year) =	887.7 MMScf/year	

2. Determine Standard Exhaust Flow for the Enclosed Flare:

		Formula Symbol
Dry Standard Exhaust Flow Rate = BR * FF * (1 hour/60 min) =	7,273 dscfm	SCFM

3. Determine Exhaust Concentrations at Actual Flow Conditions:

		Formula Symbol
VOC at Actual Flow Rate = EFv@3% * (20.9% - EO) / (20.9% - 3%) =	19.1 ppmv (actual)	EFv

EMISSION CALCULATIONS:

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

Ratio of $NO_2 : O_2$ = NC / OC = 9 (unitless)

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

Air-infiltration Corrected NMOC Concentration = (NMOC * 10^6) / (CC + MC + NC + OC) = 353.3 ppm *

* Per AP-42, Section 2.4, Equation-2 (11/1998), because the ratio of NO_2 to O_2 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 (C_{NMOC}) has been corrected for nitrogen.

3. Determine the Maximum Fugitive VOC* Emissions From Landfill:

		Formula Symbol
Max. Daily VOC Emissions = M_{NMOC} * MG * (2,000 lbs/ton) * (1 year/365 days) * (100% - CE) =	173.7 lbs/day	MD
Max. 1st Quarter VOC Emissions = MD * (90 days/quarter) =	15,632 lbs/quarter	
Max. 2nd Quarter VOC Emissions = MD * (91 days/quarter) =	15,806 lbs/quarter	
Max. 3rd Quarter VOC Emissions = MD * (92 days/quarter) =	15,980 lbs/quarter	
Max. 4th Quarter VOC Emissions = MD * (92 days/quarter) =	15,980 lbs/quarter	
Max. Yearly VOC Emissions = M_{NMOC} * MG * (100% - CE) =	31.70 tons/year	

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

4. Determine the Maximum Combustion Emissions:

VOC Emissions:		Formula Symbol
Max. Daily VOC Emissions = EFv * (10^-6) * MW * (1/MV) * SCFM * (1,440 min/day) =	44.8 lb/day	VD
1st Quarter VOC Emissions = VD * (90 days/quarter) =	4,034 lb/quarter	
2nd Quarter VOC Emissions = VD * (91 days/quarter) =	4,079 lb/quarter	
3rd Quarter VOC Emissions = VD * (92 days/quarter) =	4,124 lb/quarter	
4th Quarter VOC Emissions = VD * (92 days/quarter) =	4,124 lb/quarter	
Max. Yearly VOC Emissions = VD * (365 days/year) * (1 ton/2,000 lb) =	8.18 tons/year	
CO Emissions:		Formula Symbol
Max. Daily CO Emissions = BR * EFc * (24 hours/day) =	218.9 lb/day	CD
1st Quarter CO Emissions = CD * (90 days/quarter) =	19,699 lb/quarter	
2nd Quarter CO Emissions = CD * (91 days/quarter) =	19,918 lb/quarter	
3rd Quarter CO Emissions = CD * (92 days/quarter) =	20,137 lb/quarter	
4th Quarter CO Emissions = CD * (92 days/quarter) =	20,137 lb/quarter	
Max. Yearly CO Emissions = CD * (365 days/year) * (1 ton/2,000 lb) =	39.95 tons/year	
NOx Emissions:		Formula Symbol
Max. Hourly NOx Emissions = BR * EFn =	2.3 lb/hour	
Max. Daily NOx Emissions = BR * EFn * (24 hours/day) =	54.7 lb/day	ND
1st Quarter NOx Emissions = ND * (90 days/quarter) =	4,925 lb/quarter	
2nd Quarter NOx Emissions = ND * (91 days/quarter) =	4,980 lb/quarter	
3rd Quarter NOx Emissions = ND * (92 days/quarter) =	5,034 lb/quarter	
4th Quarter NOx Emissions = ND * (92 days/quarter) =	5,034 lb/quarter	
Max. Yearly NOx Emissions = ND * (365 days/year) * (1 ton/2,000 lb) =	9.99 tons/year	
SOx Combustion Emissions:		Formula Symbol
Max. Hourly SOx Ems. = FH * SC * (MWh2s/MV) * (MWso2/ MWh2s) =	11.9 lb/hour	SH
Max. Daily SOx Emissions = proposed by applicant =	150.0 lb/day	SD
1st Quarter SOx Emissions = proposed by applicant =	13,600 lb/quarter	
2nd Quarter SOx Emissions = proposed by applicant =	13,600 lb/quarter	
3rd Quarter SOx Emissions = proposed by applicant =	13,600 lb/quarter	
4th Quarter SOx Emissions = proposed by applicant =	13,600 lb/quarter	
Max. Yearly SOx Emissions = (1st Quarter - 4th Quarter) * (1 ton/2,000 lb) =	27.20 tons/year	
TSP/PM_{10} Emissions:		Formula Symbol
Max. Hourly TSP/PM_{10} Emissions = BR * EFp =	0.8 lb/hour	PH
Max. Daily TSP/PM_{10} Emissions = BR * EFp * (24 hours/day) =	18.4 lb/day	PD
1st Quarter TSP/PM_{10} Emissions = PD * (90 days/quarter) =	1,655 lb/quarter	
2nd Quarter TSP/PM_{10} Emissions = PD * (91 days/quarter) =	1,673 lb/quarter	
3rd Quarter TSP/PM_{10} Emissions = PD * (92 days/quarter) =	1,692 lb/quarter	
4th Quarter TSP/PM_{10} Emissions = PD * (92 days/quarter) =	1,692 lb/quarter	
Max. Yearly TSP/PM_{10} Ems. = PD * (365 days/year) * (1 ton/2,000 lb) =	3.36 tons/year	

5. Determine the Enclosed Flare's Particulate Matter Emission Concentration:

PM Conc. = PH * (7,000 grains/lb) * (1 hour/60 min) * (1/ SCFM) = 0.01 gr/dscf

6. Determine the Enclosed Flare's SOx Emission Concentration:

SOx % = SH * MV * (1/MWso2) * (1 hour/60 min.) * (1/ SCFM) * 100% = 0.02 %

7. **Determine the Total VOC Emissions:**

	Total VOC Emissions:	
Max. Daily VOC Emissions = [Fugitive Landfill] + [Flare] =	218.5	lb/day
1st Quarter VOC Emissions = [Fugitive Landfill] + [Flare] =	19,667	lb/quarter
2nd Quarter VOC Emissions = [Fugitive Landfill] + [Flare] =	19,885	lb/quarter
3rd Quarter VOC Emissions = [Fugitive Landfill] + [Flare] =	20,104	lb/quarter
4th Quarter VOC Emissions = [Fugitive Landfill] + [Flare] =	20,104	lb/quarter
Max. Yearly VOC Emissions = [Fugitive Landfill] + [Flare] =	39.88	tons/year

RULE & REGULATION COMPLIANCE EVALUATION:

District Rule 2.3-Ringelmann
The version of the rule used in this evaluation is the rule adopted on January 13, 2010, and is part of the California State Implementation Plan (SIP).

Rule Requirement #1:
A person shall not discharge into the atmosphere from any single source of emission whatsoever, any air contaminant for a period or periods aggregating more than three (3) minutes in any one (1) hour which is:
a. As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart as published by the United States Bureau of Mines; or
b. Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection a. of this condition. [District Rule 2.3]

Streamlining Demonstration: The requirements of the rule can be streamlined by the more descriptive opacity limit of Rule 3.4 (New Source Review).

Streamlined Permit Condition:
The Permit Holder shall not discharge into the atmosphere from any single source of emissions whatsoever, any air contaminant for a period or periods aggregating more than three (3) minutes in any one (1) hour which is:
a. As dark or darker in shade than No. 1 on the Ringelmann Chart; or
b. Greater than 20% opacity. [District Rule 3.4] (ATC Condition 4 /Title V Permit Condition II.A.24)

District Rule 2.5-Nuisance
The rule applies to all emission units at the stationary source. The version of the rule used in this evaluation is the rule adopted on October 1, 1971, and is part of the California SIP. The source is currently in compliance with the requirements of the rule.

It should be noted that this permit condition is Federally enforceable because it derives from District Rule 2.5 (Nuisance) that is currently part of the California SIP. The District is taking steps to remove Rule 2.5 from the SIP. Once the U.S. Environmental Protection Agency (EPA) has taken final action to remove District Rule 2.5 from the SIP, this permit condition will become state-enforceable only.

Rule Requirement #1 (Facility Wide Permit Condition):
The Permit Holder shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public or which cause to have a natural tendency to cause injury or damage to business or property. [District Rule 2.5] (Title V Permit Condition III.B.1)

District Rule 2.11 - Particulate Matter
The version of the rule used in this evaluation is the rule adopted on January 13, 2010, and is part of the California State Implementation Plan (SIP).

Rule Requirement #1:

Allowable Rate (gr/dscf)	Emission Rate (gr/dscf)	Compliance
0.1	0.01	Yes

Subsuming Demonstration: The emissions of particulate matter will be limited to the evaluated rates under Rule 3.4, New Source Review. The Rule 3.4 requirement of 0.0123 gr/dscf will subsume the Rule 2.11 requirement of 0.1 gr/dscf.

Subsuming Permit Conditions:
The PM10 emissions from the landfill gas fired flare shall not exceed 18.4 lb/day, 1,655 lb/1st calendar quarter, 1,673 lb/2nd calendar quarter, 1,692 lb/3rd calendar quarter, 1,692 lb/4th calendar quarter, and 3.36 tons/calendar year. [District Rule 3.4] (ATC Emissions Limits/ Title V Permit Condition II.A.8)

District Rule 2.12 Section A - Sulfur Compounds
The version of the rule used in this evaluation is the rule adopted on January 13, 2010, and is part of the California State Implementation Plan (SIP).

Rule Requirement #1:
A person shall not discharge into the atmosphere from any single source of emission whatsoever, any one or more of the following contaminants, in any state or combination thereof, in excess of the following concentrations at the point of discharge:
a. Sulfur compounds calculated as sulfur dioxide (SO2) 0.2%, by volume at standard conditions.

Allowable Rate (% SOx as SO2)	Emission Rate (% SOx as SO2)	Compliance
0.2	0.02	Yes

Subsuming Demonstration: The above emission rate was calculated using the daily SOx emission limit for Rule 3.4, New Source Review. The Rule 3.4 requirement of 0.0164% will subsume the Rule 2.11 requirement of 0.2%.

Subsuming Permit Condition:
The SOx emissions from the landill gas fired flare shall not exceed 150.0 lb/day, 13,600 lb/1st calendar quarter, 13,600 lb/2nd calendar quarter, 13,600 lb/3rd calendar quarter, 13,600 lb/4th calendar quarter, and 27.20 tons/calendar year. [District Rule 3.4] (ATC Emissions Limits/ Title V Permit Condition II.A.7)

District Rule 2.16 - Fuel Burning or Power Generation
The rule does not apply to this facility because the fuel burning equipment serves as air pollution control equipment by using combustion to destroy air contaminants.

District Rule 2.17-Circumvention
The rule is applicable to all emission units at the facility. The version of the rule used in this evaluation is the rule adopted on October 1, 1971, and is part of the California SIP. The source is currently in compliance with the requirements of the rule.

Rule Requirement #1 (Facility Wide Permit Condition)
The Permit Holder shall not build, erect, install or use any article, machine, equipment, or other contrivance, the use of which, without resulting in a reduction in the total release of air contaminants to the atmosphere, reduces or conceals an emission which would otherwise constitute a violation of Division 26, Part 3 and Part 4 of the Health and Safety Code of the State of California or District Rules or Regulations. [District Rule 2.17] (Title V Permit Condition III.C.1)

District Rule 2.19-Particulate Matter Process Emission Rate
The source is not subject to the requirements of the rule, since the landfill gas collected and combusted by the system does not meet the definition of "process weight per hour" in Rule 1.1, Section 229.

District Rule 2.38-Standards for Municipal Solid Waste Landfills
The source is not subject to the requirements of this rule. Per the requirements of Section 103.1 any landfill subject to the requirements of Subpart WWW (see below), is exempt from the requirements of this rule.

District Rule 3.1 - General Permit Requirements
The source is currently in compliance with the rule. The version of the rule used in this evaluation is the rule adopted on February 23, 1994, and is part of the California SIP. For reference, Page 67068 of the Federal Register, Vol. 69, No. 220 documents that the SIP approved version of Rule 3.1 was "deleted without replacement Rule 3.1, paragraphs 403 and 406." No part of the proposed Title V permit has references to either Section 403 (dealing with Denial of Applications) or Section 406 (dealing with Appeals).

Requirement #1 (Facility Wide Permit Condition) - Authority to Construct
No person shall build, erect, alter, or replace any facility, article, machine, equipment, or other contrivance, the use of which may cause the issuance of air contaminants, or the use of which may eliminate or reduce or control the issuance of air contaminants, without first obtaining an authorization to construct from the APCO as specified in Section 401 of District Rule 3.1. [District Rule 3.1, §301.1] (Title V Permit Condition III.D.1)

Requirements #2 & 3 (Facility Wide Permit Conditions) - Permit to Operate
No person shall operate any facility, article, machine, equipment, or other contrivance, for which an authorization to construct is required by District Rules and Regulations without first obtaining a written permit from the APCO. [District Rule 3.1, §302.1] (Title V Permit Condition III.D.2)

No person shall operate any facility, article, machine, equipment, or other contrivance, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, without obtaining a permit from the APCO or the Hearing Board. [District Rule 3.1, §302.2] (Title V Permit Condition III.D.3)

Rule Requirement #4 (Facility Wide Permit Condition) - Transfer of Permits to Operate
The Permits to Operate shall not be transferable, by operation of law or otherwise, from one location to another or from one piece of equipment to another. It shall be the transferee's responsibility to inform the District on assumption of ownership or operating control of any item under a Permit to Operate from the District and for which a Permit to Operate will be required. For any such transfer as hereinabove described, said transferee shall submit an application for authorization in accordance with applicable District Rules. [District Rule 3.1, §304] (Title V Permit Condition III.D.4)

Rule Requirement #5 (Facility Wide Permit Condition) - Renewal of Permits to Operate
All Permits to Operate shall be renewable annually on the individual permit's anniversary date, commencing one year after the date of issuance. The Permit Holder shall pay a fee for the annual permit renewal. If the annual renewal fee is not paid by the specified due date, the District shall assess a penalty of not more than 50% of the fee due. Non-payment of renewal fees is grounds for permit cancellation. [District Rule 3.1, §305 and District Rule 4.1, §303 and §401] (Title V Permit Condition III.D.5)

Rule Requirement #6 (Facility Wide Permit Condition) - Conditional Approval of Permits to Operate
Commencing work or operation under any Permits to Operate shall be deemed acceptance of all of the conditions so specified. [District Rule 3.1, §402] (Title V Permit Condition III.D.6)

Rule Requirement #7 (Facility Wide Permit Condition) - Permit to Operate Information
The Permit Holder shall submit an annual throughput/production report at the end of each calendar year for each Permit to Operate. These reports are due

no later than March 31 for the previous year. This report must include actual operating hours and actual amounts of materials processed (for materials that have process limits listed on the Permit to Operate). Each type of material and each type of process must be listed separately. [District Rule 3.1, §405.1] (Title V Permit Condition III.D.7)

Requirement #8 (Facility Wide Permit Condition) - Breakdown, Malfunction, or Upset Notification
The owner or operator of any facility, article, machine, equipment, or other contrivance for which a permit to operate is in effect shall notify the District office whenever a breakdown, malfunction, or operational upset condition exists which would tend to increase emissions of air pollutants or whenever any operating condition contrary to any provision of the permit to operate exists. Such notice shall be given to the District no later than four hours after occurrence during regular workday hours or no later than two hours of the District workday following an occurrence not during regular District workday hours. The notice shall provide the District information as to causes and corrective action being taken, with a schedule for return to required operating conditions. [District Rule 3.1, §405.3] (Title V Permit Condition III.D.8)

Requirement #9 (Facility Wide Permit Condition) - Excess Emission Notification
The Permit Holder shall report all excess emissions to the District within ninety-six (96) hours of the occurrence of excess emissions. [District Rule 3.1, §405.4] (Title V Permit Condition III.D.9)

Rule Requirement #10 (Facility Wide Permit Condition) - Posting of Permits to Operate
The Permit Holder shall firmly affix all Permits to Operate, an approved facsimile, or other approved identification bearing the permit number upon the facility, article, machine, equipment, or other contrivance in such a manner as to be clearly visible and accessible. In the event that the facility, article, machine, equipment, or other contrivance is so constructed or operated that the Permit to Operate cannot be so placed, the Permit to Operate shall be mounted so as to be clearly visible in an accessible place within twenty (25) feet of the facility, article, machine, equipment, or other contrivance, or maintained readily available at all times on the operating premises. [District Rule 3.1, §408] (Title V Permit Condition III.D.10)

District Rule 3.4-New Source Review

PROPOSED EMISSION SUMMARY FOR NEW OR MODIFIED PERMIT

	Daily	Yearly	
VOC	218.5 lb	39.88 tons	Use for annual billing
CO	218.9 lb	39.95 tons	Use for annual billing
NOx	54.7 lb	9.99 tons	Use for annual billing
SOx	150.0 lb	27.20 tons	Use for annual billing
PM10	18.4 lb	3.36 tons	Use for annual billing

	Quarterly			
	1st	2nd	3rd	4th
VOC (lb)	19,667	19,885	20,104	20,104
CO (lb)	19,699	19,918	20,137	20,137
NOx (lb)	4,925	4,980	5,034	5,034
SOx (lb)	13,600	13,600	13,600	13,600
PM10 (lb)	1,655	1,673	1,692	1,692

*Previous quarterly potential to emit for modified permit**

	1st	2nd	3rd	4th
VOC (lb)	17,520	17,714	17,909	17,909
CO (lb)	19,699	19,918	20,137	20,137
NOx (lb)	4,925	4,980	5,034	5,034
SOx (lb)	13,600	13,600	13,600	13,600
PM10 (lb)	1,655	1,673	1,693	1,692

* From PTO P-85-06(a4)

*Historic potential emissions for modified permit**

	1st	2nd	3rd	4th
VOC (lb)	17,520	17,714	17,909	17,909
CO (lb)	19,699	19,918	20,137	20,137
NOx (lb)	4,925	4,980	5,034	5,034
SOx (lb)	13,600	13,600	13,600	13,600
PM10 (lb)	1,655	1,673	1,693	1,692

* 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.

Over the last five operating years (2008 - 2012) the highest amount of waste accepted was 263,301 tons in 2012, which represents a 6.7% increase in the

total amount of waste-in place. The average increase in total amount of waste in place over the last five operating years is 6.0%. As such, the District considers that the landfill's acceptance rate has not significantly changed over the baseline and is operating within 80% of it's projected capacity. Therefore, the District will set the site's historic PTE equal to the previous PTE.

Pollutant	Trigger (lb/day)	BACT Proposed (lb/day)	Quarterly Increase	BACT
VOC	10	219	Yes	Yes
CO	250	219	No	No
NOx	10	55	No	No
SOx	80	150	No	No
PM10	80	18	No	No

OFFSETS

Quarterly permitted emissions for other permits at the stationary source*

	1st	2nd	3rd	4th
VOC (lb)	6,525	6,525	6,525	6,525
CO (lb)	557	557	557	557
NOx (lb)	75	75	75	75
SOx (lb)	27	27	27	27
PM10 (lb)	422	422	422	422

* See attached quarterly PTE determination

Quarterly permitted emissions for the stationary source including proposed emissions

	1st	2nd	3rd	4th
VOC (lb)	26,192	26,410	26,629	26,629
CO (lb)	20,256	20,475	20,694	20,694
NOx (lb)	5,000	5,055	5,109	5,109
SOx (lb)	13,627	13,627	13,627	13,627
PM10 (lb)	2,077	2,095	2,114	2,114

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)	2,151	2,175	2,199	2,199
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 21 the quantity of of offsets required calculated for ATC application C-13-66 (4 lb of VOC for each calendar quarter) has been added to the quantity of offsets required by ATC C-13-02 because the running total of offsets required for the entire facility is above 50 lb/quarter.

MAJOR MODIFICATION

*Facility Total Potential to Emit**	*Major Source Thresholds*
52.94 TPY VOC	25 TPY VOC
41.08 TPY CO	100 TPY CO
10.27 TPY NOx	25 TPY NOx
27.43 TPY SOx	100 TPY SOx
4.22 TPY PM10	100 TPY PM10

* See attached quarterly PTE determination. As of December 14, 2009 the District is required to evaluate emissions of PM2.5 under Appendix S to 40 CFR 51. Under Appendix S, the major source threshold for PM2.5 is 100 tpy, the same as the major source threshold for PM10. Since PM2.5 is a subset of PM10, and this facility is not a major source for PM10, it is not a major source for PM2.5 either.

*Last five year emission aggregate**	*Major Modification Thresholds*
5.62 TPY VOC	25 TPY VOC
42.56 TPY CO	100 TPY CO
10.35 TPY NOx	25 TPY NOx
27.30 TPY SOx	40 TPY SOx
3.43 TPY PM10	25 TPY PM10

* See attached 5-year determination

Result: The proposed modification is not a major modification

PUBLIC NOTICE

"Increase in historic potential to emit"	*Exemption level for notification*
2,195 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

1. Requirement:
The VOC emissions from the MSW landfill operation and the enclosed landfill gas fired flare shall not exceed 218.5 lb/day, 19,667 lb/1st calendar quarter, 19,885 lb/2nd calendar quarter, 20,104 lb/3rd calendar quarter, 20,104 lb/4th calendar quarter, and 39.88 tons/calendar year. [District Rule 3.4/C-13-02] (Title V Condition II.A.4)

2. Requirement:
The CO emissions from the landfill gas fired flare shall not exceed 218.9 lb/day, 19,699 lb/1st calendar quarter, 19,918 lb/2nd calendar quarter, 20,137 lb/3rd calendar quarter, 20,137 lb/4th calendar quarter, and 39.95 tons/calendar year. [District Rule 3.4/C-13-02] (Title V Condition II.A.5)

3. Requirement:
The NOx emissions from the landfill gas fired flare shall not exceed 54.7 lb/day, 4,925 lb/1st calendar quarter, 4,980 lb/2nd calendar quarter, 5,034 lb/3rd calendar quarter, 5,034 lb/4th calendar quarter, and 9.99 tons/calendar year. [District Rule 3.4/C-13-02] (Title V Condition II.A.6)

4. Requirement:
The SOx emissions from the landfill gas fired flare shall not exceed 150.0 lb/day, 13,600 lb/1st calendar quarter, 13,600 lb/2nd calendar quarter, 13,600 lb/3rd calendar quarter, 13,600 lb/4th calendar quarter, and 27.20 tons/calendar year. [District Rule 3.4/C-13-02] (Title V Condition II.A.7)

5. Requirement:
The PM10 emissions from the landfill gas fired flare shall not exceed 18.4 lb/day, 1,655 lb/1st calendar quarter, 1,673 lb/2nd calendar quarter, 1,692 lb/3rd calendar quarter, 1,692 lb/4th calendar quarter, and 3.36 tons/calendar year. [District Rule 3.4/C-13-02] (Title V Condition II.A.8)

6. Requirement:
The Permit Holder shall not discharge into the atmosphere from any single source of emissions whatsoever, any air contaminant for a period or periods aggregating more than three (3) minutes in any one (1) hour which is:
a. As dark or darker that No. 1 on the Ringelmann Chart; or
b. Greater than 20% opacity. [District Rule 3.4/C-13-02] (ATC Condition 4/Title V Permit Condition II.A.24)

7. Requirement:
The Permit Holder shall operate the enclosed flare with a minimum combustion zone residence time of 0.6 seconds and shall equip the flare with automatic temperature controls. The enclosed flare shall also be equipped with an automatic shutoff gas valve and an automatic re-start system. [District Rule 3.4/C-13-02] (ATC Condition 9/Title V Permit Condition II.C.8)

8. Requirement:
The minimum flare operating temperature shall be 1,380 degrees Fahrenheit (°F), as determined on a rolling three (3) hour basis. The flare combustion flame temperature shall be measured in units of degrees F and shall be monitored at the thermocouple in the exhaust stack. Flame temperature shall be monitored with a continuous recording temperature sensor, which has an accuracy of ± 1% of the temperature range, which is installed, calibrated, maintained, and operated according to manufacturer's specifications. [Title 17 CCR, Section 95469(b)(1)(A) and District Rule 3.4/C-13-02] (ATC Condition 10/Title V Permit Condition II.B.24)

9. Requirement:
The flare shall operate continuously to control emissions from the landfill gas collection system, except for shutdowns necessary for inspection and maintenance activities or due to mechanical breakdown, or when landfill gas from the landfill gas collection system is fully diverted to another device with a minimum VOC control efficiency of 98% (by weight). [District Rule 3.4/C-13-02] (ATC Condition 12/Title V Permit Condition II.B.26)

10. Requirement:
Periods of flare shutdown for inspection and maintenance activities or periods of mechanical breakdown shall not exceed five (5) consecutive days and 240 hours in any calendar year and emission of raw landfill gas to the atmosphere shall be minimized during such periods. Periods during which the landfill gas from the landfill gas collection system is fully diverted to another VOC control device shall not be included in the five (5) day or 240 hour limits. [District Rule 3.4/C-13-02] (ATC Condition 14/Title V Permit Condition II.B.28)

11. Requirement:
Only landfill gas shall be burned in the flare. No supplemental fuel may be burned in the flare, excluding pilot gas. [District Rule 3.4/C-13-02] (ATC Condition 16/Title V Permit Condition II.B.30)

12. Requirement:
A non-resettable, totalizing gaseous fuel flow meter shall be utilized to measure the quantity (in cubic feet) of landfill gas combusted in the flare. The meter shall be accurate to plus or minus five percent and shall be calibrated at least once every twelve (12) months. [District Rule 3.4/C-13-02] (ATC Condition 18/Title V Permit Condition II.B.32)

13. Requirement:
The Permit Holder shall maintain a written log of all maintenance work performed that requires the shutdown of the gas collection system. The log shall include a description of work, the date work was performed, and the amount of time needed to complete the maintenance work. Emissions of landfill gas to the atmosphere shall be minimized during each shutdown. [District Rule 3.4/C-13-02] (ATC Condition 22/Title V Permit Condition II.D.5)

14. Requirement:
The Permit Holder shall install and maintain such facilities on the flare stack as are necessary for sampling and testing purposes. The number, size, and location of sampling ports shall be in accordance with Air Resources Board Test Method 1. The location and access to the sampling platform shall be in accordance with the General Industry Safety Orders of the State of California. [District Rule 3.4/C-13-02] (ATC Condition 23/Title V Permit Condition II.B.35)

15. Requirement:
The Permit Holder shall analyze the fuel's hydrogen sulfide (H2S) content at least once every 30 consecutive calendar days and shall use the results of the analysis to calculate and record the SOx emissions for the corresponding time period. The calculation methodology shall be approved by the District and shall assume that 100% of the sulfur from H2S is converted and emitted as SOx. [District Rule 3.4/C-13-02] (ATC Condition 24/Title V Permit Condition II.C.10)

16. Requirement:
The Permit Holder shall analyze the fuel's higher heating value (wet basis) at least once every twelve (12) consecutive month period. [District Rule 3.4/C-13-02] (ATC Condition 25/Title V Permit Condition II.C.9)

17. Requirement:
The emission concentrations for the flare shall not exceed the following:
a. VOC (measured as hexane): 31.4 ppmv @ 3% oxygen;
b. CO: 0.200 lb/MMBtu; and
c. NO_X (as NO2): 0.050 lb/MMBtu. [District Rule 3.4/C-13-02] (ATC Condition 27/Title V Permit Condition II.A.9)

18. Requirement:
The Permit Holder shall perform a source test on the flare at least once every twelve (12) months in order to demonstrate compliance with the VOC, CO and NO_X emission limits. [District Rule 3.4/C-13-02] (ATC Condition 28/Title V Permit Condition II.C.13)

19. Requirement:
Source testing shall be conducted using the following test methods:
a. VOC - EPA Method 18;
b. CO - EPA Method 10 or CARB Method 100;
c. NOx - EPA Method 7E or CARB Method 100; and
d. Stack gas oxygen - EPA Method 3A or CARB Method 100. [District Rule 3.4/C-13-02] (ATC Condition 29/Title V Permit Condition II.C.14)

20. Requirement:
The Permit Holder is prohibited from adding any liquid (other than leachate and landfill gas condensate) in a controlled fashion to any waste mass in order to accelerate or enhance the anaerobic biodegradation of the waste. [District Rule 3.4/C-13-02] (ATC Condition 31/Title V Permit Condition II.B.36)

21. Requirement:
The Permit Holder shall submit a VOC emission rate report to the APCO at least once every twelve (12) calendar months. The report shall contain an annual estimate of the VOC emission rate calculated according to 40 CFR 60.754(a)(1). If the estimated VOC emission rate is less than 50 megagrams per year in each of the next five (5) consecutive years, the Permit Holder may elect to submit an estimate of the VOC emission rate for the next five (5) year period in lieu of the annual report. This estimate shall include the current amount of solid waste-in-place and the estimated waste acceptance rate for each year of the five (5) years for which a VOC emission rate is estimated. All data and calculations upon which this estimate is based shall be provided. This estimate shall be revised at least once every five (5) years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the five (5) year estimate, a revised five (5) year estimate shall be submitted to the APCO. The revised estimate shall cover the five (5) year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate. The report shall include all the data, calculations, sample reports, and measurements used to estimate the annual of five (5) year emissions. [40 CFR 60.757(b) and District Rule 3.4/C-13-02] (ATC Condition 56/Title V Permit Condition II.C.26)

22. Requirement:
The District must be notified prior to any emissions testing event (including VOC related sampling or flare source testing) and a protocol must be submitted for approval 30 days prior to testing. The results of an emissions testing event shall be submitted to the District within 60 days of the test date. The protocol and report shall be mailed to the attention of the Supervising Air Quality Engineer. [District Rule 3.4/C-13-02] (ATC Condition 43/Title V Permit Condition II.C.27)

23. Requirement:
The Permit Holder shall maintain daily records (in tons) of the total amount of MSW accepted at the landfill. [District Rule 3.4/C-13-02] (ATC Condition

49/Title V Permit Condition II.D.6)

24. Requirement:
The Permit Holder shall monitor and record on a quarterly basis the cumulative quarterly and annual landfill gas fuel usage (in cubic feet) from the totalizing meter serving the flare. [District Rule 3.4/C-13-02] (ATC Condition 50/Title V Permit Condition II.D.7)

25. Requirement:
The Permit Holder must maintain records of each startup, shutdown, or malfunction in the operation of the landfill gas collection system of the VOC control device (and any periods during which a required monitoring device is inoperative) including the date and duration of the event, the actions taken, and whether or not such actions are consistent with the startup, shutdown, or malfunction plan. The Permit Holder must also maintain records of all maintenance performed on the air pollution control and monitoring equipment. [40 CFR 60.7(b), 40 CFR 63.6(b)(2)(i)-(v), 40 CFR 63.10(d)(5), and Rule 3.4] (ATC Condition 51/Title V Permit Condition II.D.11)

26. Requirement:
The Permit Holder shall operate and maintain the affected source at all times, including periods of startup, shutdown, and malfunction, in a manner consistent with safety and good air pollution control practices. During a period of startup, shutdown, or malfunction the Permit Holder shall reduce emissions to the greatest extent which is consistent with safety and good air pollution control practices. The Permit Holder shall develop a written startup, shutdown, and malfunction plan that details procedures for operating and maintaining the source during such periods. The Permit Holder must maintain any prior versions of the plan for the same period as other required records. [40 CFR 63.6(e) and Rule 3.4] (ATC Condition 44/Title V Permit Condition II.B.41)

27. Requirement:
The Permit Holder shall keep for at least five (5) years up-to-date, readily accessible, on-site records of the current amount of solid waste in-place and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within four (4) hours. [40 CFR 60.758(a) and District Rule 3.4/C-13-02] (ATC Condition 54/Title V Permit Condition II.D.10)

28. Requirement:
Any report, or information submitted by the Permit Holder must contain certification by a responsible official of truth, accuracy, and completeness. This certification, and any other certification required under this subarticle, must state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. [Title 17 CCR, Section 95470(b)(6) and District Rule 3.4] (ATC Condition 61/Title V Permit Condition II.C.31)

District Rule 3.8-Federal Operating Permits
This rule implements the requirements of Title V of the Federal Clean Air Act (CAA) as amended in 1990 for permits to operate. Title V provides for the establishment of operating permit programs for sources which emit regulated air pollutants, including attainment and non attainment pollutants at or above the major source levels. As requested by the source, ATC C-13-02 will be processed under the Enhanced New Source Review provisions of District Rule 3.4, Section 404 (see application). This emission evaluation will serve as the Statement of Basis documenting the proposed modifications to the federal operating permit.

Rule Requirement #1 - Significant Permit Modification
The District has determined that the proposed modifications to the permitted equipment and permit conditions are considered a significant modification since they involve significant changes to monitoring conditions.

Rule Requirement #2 - Notification and Review of Proposed Decision
A significant permit modification requires that the District provide written notice, proposed permit, and District Analysis to the U.S. EPA, Air Resources Board, all interested parties and agencies, and the source. The proposed permit will have a 30 day public review period and a concurrent 45 day regulatory review period. [District Rule 3.8, §409.1]

Rule Requirement #3 (Facility Wide Permit Condition) - Right of Entry
The permit shall require that the source allow the entry of the District, ARB, or U.S. EPA officials for the purpose of inspection and sampling, including:
a. Inspection of the stationary source, including equipment, work practices, operations, and emissions-related activity;
b. Inspection and duplication of records required by the permit to operate; and
c. Source sampling or other monitoring activities. [District Rule 3.8, §302.10] (Title V Condition IV.A.1)

Rule Requirements #4 through #9 (Facility Wide Permit Conditions) - Compliance with Permit Conditions
The Permit Holder shall comply with all Title V permit conditions. [District Rule 3.8, §302.11(a)] (Title V Condition IV.B.1)

The permit does not convey property rights or exclusive privilege of any sort. [District Rule 3.8, §302.11(b)] (Title V Condition IV.B.2)

Non-compliance with any permit condition is grounds for permit termination, revocation and reissuance, modification, enforcement action, or denial of permit renewal. [District Rule 3.8, §302.11(c)] (Title V Condition IV.B.3)

The Permit Holder shall not use the "need to halt or reduce a permitted activity in order to maintain compliance" as a defense for non-compliance with any permit condition. [District Rule 3.8, §302.11(d)] (Title V Condition IV.B.4)

A pending permit action or notification of anticipated non-compliance does not stay any permit condition. [District Rule 3.8, §302.11(e)] (Title V Condition IV.B.5)

Within a reasonable time period, the Permit Holder shall furnish any information requested by the APCO, in writing, for the purpose of determining:
a. Compliance with the permit; or
b. Whether or not cause exists for a permit or enforcement action. [District Rule 3.8, §302.11(f)] (Title V Condition IV.B.6)

Rule Requirements #10 (Facility Wide Permit Conditions) - Emergency Provisions
Within two (2) weeks of an emergency event, the owner or operator shall submit to the District a properly signed contemporaneous log or other relevant evidence demonstrating that:
a. An emergency occurred;
b. The Permit Holder can identify the cause(s) of the emergency;
c. The facility was being properly operated at the time of the emergency;
d. All steps were taken to minimize the emissions resulting from the emergency;
e. Within two (2) working days of the emergency event, the Permit Holder provided the District with a description of the emergency and any mitigating or corrective actions taken; and
In any enforcement proceeding, the Permit Holder has the burden of proof for establishing that an emergency occurred. [District Rule 3.8, §302.12] (Title V Condition IV.C.1)

Rule Requirement #11 (Facility Wide Permit Condition) - Severability
If any provision, clause, sentence, paragraph, section or part of these conditions for any reason is judged to be unconstitutional or invalid, such judgment shall not affect or invalidate the remainder of these conditions. [District Rule 3.8, §302.13] (Title V Condition IV.D.1)

Rule Requirements #12 through #14 (Facility Wide Permit Conditions) - Compliance Certification
The compliance certification shall identify the basis for each permit term or condition (e.g., specify the emissions limitation, standard, or work practice) and a means of monitoring compliance with the term or condition consistent with Sections 302.5, 302.6, and 302.7 of Rule 3.8. [District Rule 3.8, §302.14(b)] (Title V Condition IV.E.2)

The compliance certification shall include a statement of the compliance status, whether compliance was continuous or intermittent, and method(s) used to determine compliance for the current time period and over the entire reporting period. [District Rule 3.8, §302.14(c)] (Title V Condition IV.E.3)

The compliance certification shall include any additional inspection, monitoring, or entry requirement that may be promulgated pursuant to Sections 114(a) and 504(b) of the Federal CAA. [District Rule 3.8, §302.14(d)] (Title V Condition IV.E.4)

Rule Requirement #15 (Facility Wide Permit Condition) - Permit Life
The Title V permit shall expire five (5) years from the date of issuance. Title V permit expiration terminates the stationary source's right to operate unless a timely and complete Title V permit application for renewal has been submitted. [District Rule 3.8, §302.15] (Title V Condition IV.F.1)

Rule Requirement #16 (Facility Wide Permit Condition) - Payment of Fees
An owner or operator shall pay the appropriate Title V permit fees on schedule. If fees are not paid on schedule, the permit is forfeited. Operation without a permit subjects the source to potential enforcement action by the District and the U.S. EPA pursuant to Section 502(a) of the CAA. [District Rule 3.8, §302.16] (Title V Condition IV.G.1)

Rule Requirement #17 (Facility Wide Permit Condition) - Permit Revision Exemption
No permit revision shall be required under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in the permit. [District Rule 3.8, §302.22] (Title V Condition IV.H.1)

Rule Requirements #18 through #20 (Facility Wide Permit Conditions) - Application Requirements
An owner or operator shall submit a standard District application for renewal of the Title V permit, no earlier than eighteen (18) months and no later than six (6) months before the expiration date of the current permit to operate. [District Rule 3.8, §402.2] (Title V Condition IV.I.1)

An owner or operator shall submit a standard District application for each emissions unit affected by a proposed permit revision that qualifies as a significant Title V permit modification. The application shall be submitted after obtaining any required preconstruction permits. Upon request by the APCO, the owner or operator shall submit copies of the latest preconstruction permit for each affected emissions unit. The emissions unit(s) shall not commence operation until the APCO approves the permit revision. [District Rule 3.8, §402.3] (Title V Condition IV.I.2)

An owner or operator shall submit a standard District application for each emissions unit affected by the proposed permit revision that qualifies as a minor permit modification. The application shall be submitted after obtaining any required preconstruction permits. The emissions unit(s) shall not commence operation until the APCO approves the permit revision. In the application, the owner or operator shall include the following:
a. A description of the proposed permit revision, any change in emissions, and additional applicable federal requirements that will apply;
b. Proposed permit terms and conditions; and
c. A certification by a responsible official that the permit revision meets criteria for use of minor permit modification procedures and a request that such procedures be used. [District Rule 3.8, §402.4] (Title V Condition IV.I.3)

Rule Requirement #21 (Facility Wide Permit Condition) - Permit Reopening for Cause
Circumstances that are cause for reopening and revision of a permit include, but are not limited to, the following:
a. The need to correct a material mistake or inaccurate statement;
b. The need to revise or revoke a permit to operate to assure compliance with applicable federal requirements;
c. The need to incorporate any new, revised, or additional applicable federal requirements, if the remaining authorized life of the permit is three (3) years or greater, no later than 18 months after the promulgation of such requirement (where less than three (3) years remain in the authorized life of the permit, the APCO shall incorporate the requirements into the permit to operate upon renewal); or

d. Additional requirements promulgated pursuant to Title IV as they become applicable to any acid rain unit governed by the permit. [District Rule 3.8, §413.1] (Title V Condition IV.J.1)

Rule Requirement #22 (Facility Wide Permit Condition) - Monitoring, Testing and Analysis
Additional periodic monitoring or testing requirements are added under the authority of other rules and regulations. Therefore, no additional monitoring, testing, and analysis conditions are required.

Permit Condition
No permit condition is required.

Rule Requirements #23 and #24 (Facility Wide Permit Condition) - Recordkeeping
The Permit Holder shall record maintenance of all monitoring and support information required by any applicable federal requirement, including:
a. Date, place, and time of sampling;
b. Operating conditions at the time of sampling;
c. Date, place, and method of analysis; and
d. Results of the analysis. [District Rule 3.8, §302.6(a)] (Title V Condition IV.K.1)

The Permit Holder shall retain records of all required monitoring data and support information for a period of at least five (5) years from the date of sample collection, measurement, report, or application. [District Rule 3.8, §302.6(b)] (Title V Condition IV.K.2)

Rule Requirements #25 through #27 (Facility Wide Permit Condition) - Reporting Requirements
Any deviation from permit requirements, including that attributable to upset conditions (as defined in the permit), shall be promptly reported to the APCO. For the purpose of this condition prompt means as soon as reasonably possible, but no later than 10 days after detection.[District Rule 3.8, §302.7(a)] (Title V Condition IV.L.1)

All reports of deviation from permit requirements shall include the probable cause of the deviation and any preventive or corrective action taken. [District Rule 3.8, §302.7(c)] (Title V Condition IV.L.3)

Each monitoring report shall be accompanied by a written statement from the responsible official that certifies the truth, accuracy, and completeness of the report. [District Rule 3.8, §302.7(e)] (Title V Condition IV.L.4)

Rule Requirement #28 (Facility Wide Permit Condition) - Reporting Requirements
Section 302.14 requires that every twelve (12) months the Responsible Official submit an accurate and complete compliance certification to the U.S. EPA and the District.

Subsuming Demonstration: The requirements of the rule have been subsumed with the requirements of Rule 3.4 which establish explicit certification periods and submittal deadlines.

Subsuming Permit Condition:
The Responsible Official shall submit a compliance certification to the U.S. EPA and the APCO every twelve (12) months unless required more frequently by an applicable requirement. The twelve (12) month period will begin on January 1 and end on December 31, and will be due by January 31 for the previous reporting year, unless otherwise approved in writing by the District. All compliance reports and other documents required to be submitted to the District by the responsible official shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. [District Rule 3.4, §409 and District Rule 3.8, §302.14(a)] (Title V Condition IV.E.1)

Rule Requirement #29 (Facility Wide Permit Condition) - Reporting Requirements
The SIP approved rule requires that every six (6) months the Responsible Official submit an accurate and complete semi-annual monitoring report to the U.S. EPA and the District.

Subsuming Demonstration: The requirements of the rule have been streamlined with the requirements of Rule 3.4 which establish explicit monitoring periods and submittal deadlines.

Subsuming Permit Condition:
A semi-annual monitoring report shall be submitted at least every six (6) consecutive months and shall identify any deviation from permit requirements, including that previously reported to the APCO pursuant to Section 302.7(a) of District Rule 3.8. The six (6) month periods shall be January 1 through June 30 and July 1 through December 31. The reports shall be submitted by July 30 and January 30 following each reporting period, respectively, unless otherwise approved in writing by the District. [District Rule 3.4, §409 and District Rule 3.8, §302.7(b)] (Title V Condition IV.L.2)

District Rule 3.20-Ozone Transport Mitigation

Annual permitted emissions for the stationary source including proposed emissions

VOC (lb)	105,880	lbs
NOx (lb)	20,544	lbs

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

VOC (lb)	20	lbs
NOx (lb)	271	lbs

* From PTO P-86-06 for an emergency engine

Post -project Stationary Source Potential to Emit (SSPE)

VOC (lb)	105,860	lbs
NOx (lb)	20,273	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)	97,329	lbs
NOx (lb)	20,689	lbs

Quantity of offsets required by Rule 3.4

VOC (lb)	8,724	lbs
NOx (lb)	0	lbs

Quantity of Mitigation required by Rule 3.20

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

District Risk Management Plan and Risk Assessment Guidelines
Although the increase in permitted process limits of municipal solid waste accepted results in a calculated increase in the generation of landfill gas, the increase in the required destruction efficiency of the VOC control device produces an increase in the potential emissions of mercury only.

HAP Emissions Prioritization:

Pollutant Prioritization [a]	CAS Registry No.	Emissions (lb / year)	Screening Value (lb / year)	Less Than Screening Level (Yes / No)
Mercury (Hg)	7439976	0.48	57.90	Yes

Since the emission from the above HAP is below the screening level, no further toxics review is required.

District Rule 8.1-New Source Performance Standards
This rule adopts by reference the Federal New Source Performance Standards (NSPS) for specific sources as promulgated by the EPA in 40 CFR 60 (including Subpart WWW). Because the source is subject to the requirements of 40 CFR 60, Subpart WWW (see below), it is subject to the requirements of this rule. Since Rule 8.1 does not establish any additional requirements not already included in Subpart WWW, the permit will not reference this rule.

Title 17 CCR Sections 95460-95476 - Methane Emissions from Municipal Solid Waste Landfills
The source is subject to the requirements of this regulation because the facility is a municipal solid waste landfill that still accepts solid waste and the current amount of waste-in-place is greater than 450,000 tons. The following conditions will be made federally enforceable by the authority of District Rule 3.4.

Rule Requirement #1 (Permit Condition) - Landfill Gas Collection and Control System Operation
The Permit Holder shall operate the landfill Gas Collection and Control System (GCCS) and route collected gas to the control system continuously except:
a. for individual wells involved in well raising provided that new waste is being added or compacted in the immediate vicinity around the well and installed gas collection well extensions are sealed or capped until the raised well is reconnected to a vacuum source, or
b. for individual GCCS system components that must be temporarily shut down in order to repair them due to catastrophic events, to connect new GCCS components, to extinguish landfill fires, or to perform construction activities provided that any new components are included in the most recent GCCS design plan and landfill gas emissions are minimized during the shutdown. [Title 17 CCR, Section 95464(b)(1)(A)] (ATC Condition 5/Title V Permit Condition II.B.20)

Rule Requirement #2 (Permit Condition) - Landfill Gas Collection and Control System Leak Standard
The Permit Holder shall operate the GCCS so that there is no landfill gas leak that exceeds 500 ppmv (as methane) at any component under positive pressure. [Title 17 CCR, Section 95464(b)(1)(B)] (ATC Condition 6/Title V Permit Condition II.B.21)

Rule Requirement #3 (Permit Condition) - Landfill Gas Flow to Control Device
The GCCS shall be designed and operated to draw all landfill gas toward the VOC control device. [Title 17 CCR, Section 95464(b)(1)(C)] (ATC Condition

7/Title V Permit Condition II.B.22)

Rule Requirement #4 (Permit Condition) - Landfill Gas Emission Control Standard
The flare shall reduce methane emissions by 99% (by weight) . [Title 17 CCR, Section 95464(b)(2)(A)(1)] (ATC Condition 8/Title V Permit Condition II.B.23)

Rule Requirement #5 (Permit Condition) - Flare Components
The flare shall be equipped with automatic dampers, an automatic shutdown device, a flame arrester, and continuous recording temperature sensors. [Title 17 CCR, Section 95464(b)(2)(A)(2)] (ATC Condition 15/Title V Permit Condition II.B.29)

Rule Requirement #6 (Permit Condition) - Flare Restart
During restart or startup there must be a sufficient flow of pilot gas to the burners to prevent unburned collected methane from being emitted to the atmosphere. [Title 17 CCR, Section 95464(b)(2)(A)(3)] (ATC Condition 17/Title V Permit Condition II.B.31)

Rule Requirement #7 (Permit Condition) - Flare Operating Standard
The flare shall be operated within the parameter ranges established during the most recent performance test. [Title 17 CCR, Section 95464(b)(2)(A)(4)] (ATC Condition 13/Title V Permit Condition II.B.27)

Rule Requirement #8 - Control Device Testing Frequency
Title 17 CCR, Section 95464(b)(4) requires annual testing for the landfill gas control device, which may be extended to once every three years after three consecutive source tests demonstrate that the control device was operating in compliance.

Streamlining Demonstration: The requirements of the rule have been streamlined by the authority of District Rule 3.4 to require testing once every twelve (12) calendar months.

Streamlined Permit Condition:
See rule requirement #18 of Rule 3.4 above.

Rule Requirement #9 (Permit Condition) - Wellhead Pressure Standard
Each wellhead in the GCCS shall be operated under a vacuum except:
a. for individual wells involved in well raising provided that new waste is being added or compacted in the immediate vicinity around the well and installed gas collection well extensions are sealed or capped until the raised well is reconnected to a vacuum source
b. for individual GCCS system components that must be temporarily shut down in order to repair them due to catastrophic events, to connect new GCCS components, to extinguish landfill fires, or to perform construction activities provided that any new components are included in the most recent design plan and landfill gas emissions are minimized during the shutdown
c. for use of a geomembrane or synthetic cover for which acceptable pressure limits for the included wellheads have been developed and included in the GCCS design plan, or
d. for decommissioned wells. [Title 17 CCR, Section 95464(c)] (ATC Condition 19/Title V Permit Condition II.B.33)

Rule Requirement #10 (Permit Condition) - Landfill Surface Methane Concentration Standards
No location on the landfill surface may exceed a methane concentration of 500 ppmv (other than non-repeatable, momentary readings) as determined by instantaneous surface emissions monitoring, or an average of 25 ppmv as determined by integrated surface emissions monitoring except:
a. for individual wells involved in well raising provided that new waste is being added or compacted in the immediate vicinity around the well and installed gas collection well extensions are sealed or capped until the raised well is reconnected to a vacuum source
b. for individual GCCS system components that must be temporarily shut down in order to repair them due to catastrophic events, to connect new GCCS components, to extinguish landfill fires, or to perform construction activities provided that any new components are included in the most recent design plan and landfill gas emissions are minimized during the shutdown
c. for the working face of the landfill, or
d. for areas of the landfill surface where the landfill cover material has been removed and refuse has been exposed for the purpose of installing, expanding, replacing, or repairing components of the landfill gas, leachate, or gas condensate collection and removal system, or for law enforcement activities requiring excavation. [Title 17 CCR, Section 95465] (ATC Condition 20/Title V Permit Condition II.B.34)

Rule Requirement #11 (Permit Condition) - Landfill Gas Collection and Control System Removal Requirements
Upon closure of the landfill the GCCS may be capped or removed provided:
a. the GCCS was in operation for at least 15 years, unless the Permit Holder can demonstrate to the satisfaction of the APCO that due to declining methane rates the landfill will be unable to operate the gas collection and control system for a 15-year period,
b. surface methane concentration measurements do not exceed the limits specified in this permit, and
c. the Permit Holder submits an Equipment Removal Report as required by this permit. [Title 17 CCR, Section 95467] (ATC Condition 58/Title V Permit Condition II.B.43)

Rule Requirement #12 (Permit Condition) - Allowance for Alternatives to Regulation Requirements
The Permit Holder may request alternatives to the compliance measures, monitoring requirements, test methods, and procedures of Sections 95464, 95469, and 95471 of Title 17 of the California Code of Regulations by submitting a written application to the APCO. [Title 17 CCR, Section 95468] (ATC Condition 47/Title V Permit Condition II.B.42)

Rule Requirement #13 (Permit Condition) - Instantaneous Surface Methane Concentration Exceedance Requirements
When any monitoring reading exceeds the instantaneous surface methane concentration limit the Permit Holder shall record the date, location, and value of each exceedance, along with re-test dates and results. The location of each exceedance must be clearly marked and identified on a topographic map of the

landfill, drawn to scale with the location of both the grids and the gas collection system clearly identified. The Permit Holder shall take corrective action and re-monitor the location within ten (10) calendar days of the measured exceedance. If re-monitoring shows a second exceedance, additional corrective action must be taken and the location re-monitored again no later than ten (10) calendar days of the second exceedance. If the re-monitoring shows a third exceedance the Permit Holder shall install a new or replacement well as determined to achieve compliance no later than 120 days after detecting the third exceedance. [Title 17 CCR, Section 95469(a)(1)(A) and (B)] (ATC Condition 38/Title V Permit Condition II.C.22)

Rule Requirement #14 (Permit Condition) - Integrated Surface Methane Concentration Exceedance Requirements
When any monitoring reading exceeds the integrated surface methane concentration limit the Permit Holder shall record the average surface concentration for each grid along with re-test dates and results. The location of the grids and the gas collection system must be clearly marked and identified on a topographic map of the landfill drawn to scale. The Permit Holder shall take corrective action and re-monitor the location within ten (10) calendar days of the measured exceedance. If re-monitoring shows a second exceedance, additional corrective action must be taken and the location re-monitored again no later than ten (10) calendar days of the second exceedance. If the re-monitoring shows a third exceedance the Permit Holder shall install a new or replacement well as determined to achieve compliance no later than 120 days after detecting the third exceedance. [Title 17 CCR, Section 95469(a)(2)(A) and (B)] (ATC Condition 39/Title V Permit Condition II.C.23)

Rule Requirement #15 (Permit Condition) - Closed Area Surface Methane Concentration Monitoring Extension
The Permit Holder shall conduct instantaneous and integrated monitoring of surface methane concentrations every calendar quarter. If the landfill has no monitored exceedances of the surface methane concentration limits specified in this permit after four consecutive quarterly monitoring periods, then any closed or inactive areas may be monitored annually. Any exceedances detected during annual monitoring that cannot be remediated within ten (10) calendar days or any exceedances detected during any compliance inspections will result in a return to quarterly monitoring of the location. [Title 17 CCR, Section 95469(a), Section 95469(a)(1)(C) and (D), and Section 95469(2)(C) and (D)] (ATC Condition 40/Title V Permit Condition II.C.24)

Rule Requirement #16 - Control Device Operating Parameters
Title 17 CCR, Section 95469(b)(1)(A) requires an enclosed flare be equipped with a temperature monitoring device equipped with a continuous recorder which has an accuracy of plus or minus one (1) percent of the temperature being measured.

Streamlining Demonstration: The requirements of the rule have been streamlined by the authority of District Rule 3.4 to include additional requirements.

Streamlined Permit Condition:
See rule requirement #8 of Rule 3.4 above.

Rule Requirement #17 (Permit Condition) - Flow Measuring Device
At least one gas flow rate measuring device, which records the flow to the control device(s) at least once every 15 minutes, must be used to monitor the landfill gas control system. [Title 17 CCR, Section 95469(b)(1)(B)] (ATC Condition 11/Title V Permit Condition II.B.25)

Rule Requirement #18 (Permit Condition) - Landfill Gas Collection and Control System Component Leak Checks
Components containing landfill gas and under positive pressure must be monitored quarterly for leaks. Any component leak must be tagged and repaired within ten (10) calendar days. [Title 17 CCR, Section 95469(b)(3)] (ATC Condition 21/Title V Permit Condition II.C.11)

Rule Requirement #19 (Permit Condition) - Wellhead Monitoring
The Permit Holder shall monitor each individual wellhead monthly to determine the gauge pressure. If there is any positive pressure reading other than as provided for well raising or repairs or temporary shutdowns of GCCS components in Title 17 CCR Section 95464 (d) and (e) the Permit Holder shall initiate corrective action within five (5) calendar days of the positive pressure measurement. If the problem cannot be corrected within fifteen (15) days of the date the positive pressure was first measured, the owner or operator must initiate further corrective action. Corrective actions must be completed and any new wells must be operating with 120 days of the date the positive pressure was first measured. [Title 17 CCR, Section 95469(c)] (ATC Condition 32/Title V Permit Condition II.C.16)

Rule Requirement #20 (Permit Condition) - Landfill Gas Collection and Control System Records
The Permit Holder shall maintain the following records:
a. all gas collection system downtime exceeding five (5) calendar days, including individual well shutdown and disconnection times, and the reason for the downtime,
b. all emission control system downtime in excess of one hour, the reason for the downtime, and the length of time the gas control system was shutdown,
c. expected gas generation flow rate calculations,
d. all instantaneous landfill surface readings of 200 ppmv of methane or greater, all leaks from components under positive pressure greater than 500 ppmv (as methane) , all instantaneous surface monitoring readings greater than 500 ppmv, all integrated surface monitoring readings greater than 25 ppmv, the location of the leak (or affected grid), leak concentration in ppmv, date and time of measurement, the action taken to repair the leak, date of repair, date of any required re-monitoring and the re-monitored concentration in ppmv, wind speed during surface sampling, and the installation date and location of each well installed in a GCCS expansion,
e. records of any positive wellhead gauge pressure measurements, the date of the measurements, the well identification number, and the corrective action taken,
f. annual solid waste acceptance rate and current amount of waste-in-place,
g. records of the nature, location, amount, and date of deposition of non-degradable waste for any landfill areas excluded from the GCCS,
h. results of any source tests,
i. records describing the mitigation measures taken to prevent the release of methane or other emission into the atmosphere: when solid waste was brought to the surface during the installation or preparation of wells, piping, or other equipment; during repairs or temporary shutdown of gas collection system

components; or when solid waste was excavated and moved,
j. records of any construction activities including: a description of the actions being taken, the areas of the landfill affected by these actions, the reason the actions are required, and any landfill gas collection system components affected by these actions; construction start and finish dates, projected equipment installation dates, and projected shut down times for individual gas collection system components; a description of the mitigation measures taken to minimize methane emissions and other potential air quality impacts, and
k. records of the emission control device operating parameters required to be monitored as well as periods of operation during which the parameter boundaries established during the most recent source test are exceeded including: all three (3) hour periods of operation during which the average flare temperature was more than 50 °F below the average combustion temperature during the most recent source test. [Title 17 CCR, Section 95470(a)(1)] (ATC Condition 52/Title V Permit Condition II.D.13)

Rule Requirement #21 (Permit Condition) - Control Device Records
The Permit Holder shall maintain the following records for the life of the emissions control device:
a. the control device vendor specifications,
b. the gas generation flow rate measured during the initial source test, and
c. the percent reduction of methane achieved by the control device during the initial source test. [Title 17 CCR, Section 95470(a)(2)] (ATC Condition 53/Title V Permit Condition II.D.14)

Rule Requirement #22 - Record Retention
Title 17 CCR, Section 95470(a)(3) requires that all records required by the regulation be maintained and provided within five business days of a request.

Subsuming Demonstration: The requirements of the rule have been subsumed by the record retention requirement of Rule 3.8.

Subsumed Permit Condition:
See rule requirement #24 of Rule 3.8 above.

Rule Requirement #23 (Permit Condition) - Closure Notification
The Permit Holder shall submit a Closure Notification to the APCO within thirty (30) days of waste acceptance cessation. The Closure Notification must include the last day solid waste was accepted, the anticipated closure date of the landfill, and the estimated waste-in-place. The APCO may request additional information to confirm that the landfill has been permanently closed. [Title 17 CCR, Section 95470(b)(1)] (ATC Condition 57/Title V Permit Condition II.C.29)

Rule Requirement #24 (Permit Condition) - Landfill Gas Collection and Control System Equipment Removal Report
The Permit Holder shall submit a GCCS Equipment Removal Report to the APCO thirty (30) days prior to well capping, removal or cessation of operation of the gas collection, treatment, or control system equipment. The report must contain all of the following information:
a. a copy of the Closure Notification required by Title 17 CCR, Section 95470(b)(1),
b. a copy of the documentation demonstrating that the gas collection and control system has been installed and operated for a minimum of 15 years, unless the Permit Holder can demonstrate to the satisfaction of the APCO that due to declining methane rates the landfill is unable to operate the gas collection and control system for a 15-year period, and
c. surface emissions monitoring results needed to verify that landfill surface methane concentrations do not exceed either the instantaneous or integrated monitoring limits. [Title 17 CCR, Section 95470(b)(2)] (ATC Condition 59/Title V Permit Condition II.C.30)

Rule Requirement #25 (Permit Condition) - Annual Report
The Permit Holder shall submit an annual report to the APCO for the period of January 1 through December 31 by March 15 of the following year. The report must contain the following information:
a. landfill name, owner and operator, address, and Solid Waste Information System (SWIS) identification number,
b. total volume of landfill gas collected (in standard cubic feet),
c. average composition of the landfill gas collected over the reporting period (reported in % methane and % carbon dioxide),
d. emission control device type, year of installation, rating, fuel type, and total amount of landfill gas combusted in each control device,
e. the date that the GCCS was installed and in full operation,
f. the % methane destruction efficiency of each control device,
g. type and amount of pilot fuels burned in each control device,
h. total volume of landfill gas shipped off-site, the composition of the landfill gas collected (reported in % methane and % carbon dioxide by volume), and the recipient of the gas,
i. the most recent topographic map of the site showing the areas with final cover and a geomembrane and the areas with final cover without a geomembrane with corresponding percentages over the landfill surface, and
j. gas collection or control system downtime required to be recorded, expected gas generation flow rate, landfill surface methane concentrations required to be recorded, positive wellhead gauge pressure measurements required to be recorded, annual solid waste acceptance rate and the current amount of waste-in-place, source test results, and equipment monitoring parameters required to be recorded including periods of operation during which the parameter boundaries established during the most recent source test are exceeded. [Title 17 CCR, Section 95470(b)(3)] (ATC Condition 48/Title V Permit Condition II.C.28)

Rule Requirement #26 (Permit Condition) - Landfill Gas Heat Input Calculation
The Permit Holder shall calculate the landfill gas heat input capacity using:
Heat Input Capacity = SCFM * 60 min/1hr * CE * GHV * 1 MMBtu/1,000,000 Btu
Where:
SCFM = methane gas generation, standard cubic feet per minute,
CE = landfill gas collection efficiency, 75%, and
GHV = gross heating value of methane, 1,012 Btu/scf. [Title 17 CCR, Section 95470(b)(5)] (ATC Condition 26/Title V Permit Condition II.C.12)

Rule Requirement #27 - Certification of Truth, Accuracy, and Completeness
Title 17 CCR, Section 95470(b)(6) requires that reports submitted by the Permit Holder as required by this regulation contain certification by a responsible official of the truth, accuracy, and completeness of the report.

Streamling Demonstration: The requirements of the rule have been streamlined by the authority of Rule 3.4 to require such certification for all reports associated with the permit.

Streamlined Permit Condition:
See rule requirement #28 of Rule 3.4 above.

Rule Requirement #28 (Permit Condition) - Methane Detector Requirements
Any instrument used for the measurement of methane must be a gas detector or other equivalent instrument approved by the APCO that meets the calibration, specifications, and performance criteria of EPA Reference Method 21, Determination of Volatile Organic Compound Leaks. For the purposes of demonstrating compliance with this permit methane replaces all references to volatile organic compounds (VOC) in Method 21 and methane shall be used as the calibration gas for the detector. [Title 17 CCR, Section 95471(a)] (ATC Condition 34/Title V Permit Condition II.C.18)

Rule Requirement #29 (Permit Condition) - Suface Monitoring Procedure
In conducting measurements of landfill surface methane concentration the entire landfill must be divided into individually identified 50,000 square foot grids. The grids must be used for both instantaneous and integrated surface emissions monitoring. Testing must be performed by holding the hydrocarbon detector's probe within 3 inches of the landfill surface while traversing the grid. The walking pattern must be no more than a 25-foot spacing interval and must traverse each monitoring grid. If there are no exceedances of the surface methane concentration standards of this permit after any four (4) consecutive quarterly monitoring periods, the walking pattern spacing may be increased to 100-foot intervals. The Permit Holder must return to a 25-foot spacing interval upon any exceedances that cannot be remediated within ten (10) calendar days or upon exceedances detected during a compliance inspection. Surface testing must be terminated when the average wind speed exceeds five (5) miles per hour or the instantaneous wind speed exceeds ten (10) miles per hour. The APCO may approve alternatives to this wind speed surface testing termination for landfills consistently having measured winds in excess of these specified limits. Average wind speed must be determined on a 15-minute average using an on-site anemometer with a continuous recorder for the entire duration of the monitoring event. Surface emissions testing must be conducted only when there has been no measurable precipitation in the preceding seventy-two (72) hours. [Title 17 CCR, Section 95471(c)(1)] (ATC Condition 35/Title V Permit Condition II.C.19)

Rule Requirement #30 (Permit Condition) - Landfill Surface Instantaneous Monitoring Records
In conducting instantaneous surface emissions monitoring the Permit Holder shall record any instantaneous readings of methane 200 ppmv or greater (other than non-repeatable, momentary readings). Surface areas of the landfill that exceed a methane concentration of 500 ppmv must be marked and remediated as required by this permit. The wind speed must be recorded during the sampling period. Landfill surface areas with cover penetrations, distressed vegetation, cracks or seeps must be inspected visually and with a hydrocarbon detector. [Title 17 CCR, Section 95471(c)(2)] (ATC Condition 36/Title V Permit Condition II.C.20)

Rule Requirement #31 (Permit Condition) - Landfill Surface Integrated Monitoring Records
In conducting integrated surface emissions monitoring the Permit Holder shall record readings and then average them for each grid. Individual monitoring grids that exceed an average methane concentration of 25 ppmv must be identified and remediated as required by this permit. The wind speed must be recorded during the sampling period. [Title 17 CCR, Section 95471(c)(3)] (ATC Condition 37/Title V Permit Condition II.C.21)

Rule Requirement #32 (Permit Condition) - Control Device Destruction Efficiency
Unless otherwise approved by the APCO, EPA Method 25, 25A, 25C, or 18 shall be used to determine the efficiency of the control device using the formula: Destruction efficiency = [1 - (mass of methane at control device outlet / mass of methane at control device inlet)] x 100%. [Title 17 CCR, Section 95471(f)(1)] (ATC Condition 30/Title V Permit Condition II.C.15)

Rule Requirement #33 (Permit Condition) - Pressure Measurement Device Requirements
Gauge pressure shall be determined using a hand-held manometer, magnahelic gauge, or other pressure measuring device approved by the APCO that is calibrated and operated in accordance with manufacturer's specifications. [Title 17 CCR, Section 95471(g)] (ATC Condition 33/Title V Permit Condition II.C.17)

40 CFR Part 60, Subpart A-General Provisions
This subpart provides general monitoring, recordkeeping, performance, and compliance requirements for sources that are subject to New Source Performance Standards (NSPS). The source is subject to this subpart because the facility is subject to Subpart WWW (see below). The source is subject to the following requirements.

Rule Requirement #1 - Startup, Shutdown, and Malfunction records
Subpart 60.7(b) requires that the owner/operator maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or device is inoperative.

Streamlining Demonstration: The language of this requirement has been streamlined with the requirements of 40 CFR 63 Subpart A and Rule 3.4.

Streamlined Permit Condition:

See rule requirement #25 of Rule 3.4 above.

Rule Requirement #2 (Permit Condition) - Record Keeping
The Permit Holder shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this part recorded in a permanent form suitable for inspection. [40 CFR 60.7(f)] (ATC Condition 60/Title V Permit Condition II.D.12)

40 CFR Part 60, Subpart Cc-Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills
As discussed for Rule 2.38, Subpart Cc establishes emission guidelines for existing MSW landfills (constructed or modified prior to May 30, 1991). As such, the landfill is not subject to the requirements of this subpart.

40 CFR Part 60, Subpart WWW-Standards of Performance for Municipal Solid Waste Landfills
The source is subject to the requirements of this Subpart WWW because the facility has been determined to be subject to the requirements of National Emissions Standards for Hazardous Air Pollutants (NESHAP) Subpart AAAA (see below). The source is subject to the following requirements.

Rule Requirement #1 (Permit Condition) - Landfill VOC Emission Rate Determination
The Permit Holder shall calculate a VOC emission rate for the landfill annually until such time as the calculated VOC emission rate is equal to or greater than 50 megagrams per year, or until the landfill is closed. If the calculated VOC emission rate is less than 50 megagrams per year, the Permit Holder shall submit an annual emission report to the APCO. If the emission rate is equal to or greater than 50 megagrams per year, the Permit Holder shall install a collection and control system in compliance with 40 CFR 60.752(b)(2). If the landfill is permanently closed, the Permit Holder shall submit a closure notification to the APCO as provided in 40 CFR 60.757(d). [40 CFR 60.752(b)(1)] (ATC Condition 41/Title V Permit Condition II.B.39)

Rule Requirement #2 (Permit Condition) - Landfill VOC Emission Rate Calculation
The Permit Holder shall calculate the VOC emission rate using either:
$M_{VOC} = \sum_{i=1}^{n} 2\ k\ L_o\ M_i\ (e^{-kt_i})(C_{VOC})(3.6 \times 10^{-9})$, if the year-to-year solid waste acceptance rate is known
or
$M_{VOC} = 2\ L_o\ R\ (e^{-kc}-e^{-kt})(C_{VOC})(3.6 \times 10^{-9})$, if the year-to-year solid waste acceptance rate is unknown, Where:
M_{VOC} = mass emission rate of VOC, megagrams per year,
M_i = mass of solid waste in the ith section, megagrams,
L_o = methane generation potential, cubic meters per megagram solid waste = 170,
k = methane generation rate constant, year−1 = 0.05 (0.02 for landfills located where the thirty year annual average precipitation is less than 25 inches, as measured at the nearest representative official meteorologic site),
t = age of landfill at gas collection system installation plus the intended time of use of the system, years,
t_i = age of ith section, years,
R = average annual acceptance rate, megagrams per year (the mass of nondegraable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value of R if documentation of the nature and amount of such waste is maintained),
c = time since closure, years; for active landfill c = 0,
C_{VOC} = VOC concentration, parts per million by volume as hexane = 4,000. [40 CFR 60.754(a)(1)] (ATC Condition 42/Title V Permit Condition II.B.40)

Rule Requirement #3 - VOC Emission Rate Report
Subpart 60.757(b) requires that the Permit Holder submit annual reports of the calculated landfill VOC emission rate.

Streamlining Demonstration: The language of this requirement has been streamlined with Rule 3.4 to include more specific language for the reporting period.

Streamlined Permit Condition:
See rule requirement #21 of Rule 3.4 above.

Rule Requirement #4 - Landfill Waste Records
Subpart 60.758(a) requires records of waste in place at the landfill and year-by-year waste acceptance rate be maintained.

Streamlining Demonstration: The requirements of the rule have been streamlined by the authority of District Rule 3.4.

Streamlined Permit Condition:
See rule requirement #27 of Rule 3.4 above.

40 CFR Part 61, Subpart M-National Emission Standards for Asbestos
The source is subject to this subpart because they receive friable and non-friable asbestos containing waste from construction and demolition sources. The site's Waste Discharge Requirements (WDRs) issued on April 27, 2001, by the California Regional Water Quality Control Board (Order No. 5-01-101) allows the landfill to dispose of wastes containing greater than 1% of friable asbestos in waste cell Unit LF-1, Module DM-1. The order requires that the facility comply with all applicable state and federal requirements. Specifically, because the facility only disposes of the asbestos containing waste, it is subject to the requirements of Subpart M, Section 61.154.

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 excavation of waste at the facility.

40 CFR Part 63, Subpart A-General Provisions
This subpart provides general monitoring, recordkeeping, performance, and compliance requirements for sources that are subject to National Emission Standards for Hazardous Air Pollutants (NESHAP). The source is subject to this subpart because the facility is subject to Subpart AAAA (see below). The source is subject to the following requirements.

Rule Requirement #1 - Startup, Shutdown, Malfunction
Subpart 63.6(e) details requirements for operating the affected facility consistent with good air pollution control standards during periods of startup, shutdown, and malfunction and requires the development, maintenance, and reporting of a startup, shutdown, and malfunction plan.

Streamlining Demonstration: The language of this requirement has been streamlined under the authority of Rule 3.4. The language of reporting excess emissions and record retention have been superceded by requirement 8 of Rule 3.1 and requirement 24 of Rule 3.8 respectively (see above).

Streamlined Permit Condition:
See rule requirement #26 of Rule 3.4 above.

Rule Requirement #2 - Record Keeping
Subpart 63.10(b)(2)(i)-(v) and 63.10(d)(5) detail requirements for operating the affected facility consistent with good air pollution control standards during periods of startup, shutdown, and malfunction and requires the development, maintenance, and reporting of a startup, shutdown, and malfunction plan.

Streamlining Demonstration: The language of this requirement has been streamlined with the requirements of 40 CFR 60 Subpart A and Rule 3.4.

Streamlined Permit Condition:
See rule requirement #25 of Rule 3.4 above.

40 CFR Part 63, Subpart AAAA - National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills
The source is subject to the requirements of this Subpart because the landfill is collocated with the Jepson Prairie Organics Compost Facility which has been determined to be a major source of hazardous air pollutants as defined in 40 CFR 63.2. The source is subject to the following requirment.

Rule Requirement #1 - Recordkeeping and Reporting
Subpart 63.1980(a) requires that the Permit Holder keep records and submit reports as required in 40 CFR 60 Subpart WWW with the exception that the annual report required in 40 CFR 60.757(f) is instead required every six (6) months. Since the source is not currently required to submit the reports required by 40 CFR 60.757(f) and other requirements will be cited under the authority of 40 CFR 60 Subpart WWW no permit condition is required.

40 CFR Part 82, Subpart F-Protection of Stratospheric Ozone
The source is subject to this subpart because the site accepts certain affected appliances and equipment containing ozone depleting substances. The subpart requires that these ozone depleting substances be properly removed and handled prior to the equipment being disposed of at the site. As such, the permit will list a condition that the facility comply with the requirements of this subpart.

COMMENTS: The application does not trigger T-BACT or mitigation credits.

BACT is triggered for VOC emissions. Per BACT Determination 680-1, the equipment as proposed meets the BACT requirements for this class and category of source.

RECOMMENDATIONS: Perform the public and regulatory notice.

Engineer: Kyle Bohlfing **Date:** 7/29/13

Reviewed by: [signature] **Date:** 7/29/2013

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

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: Kyle Rohlfing

SIC Code # 4953

Facility Name: Recology Hay Road (formerly Norcal Waste Systems Hay Road Landfill, Inc.)

Location: 6426 Hay Road, Vacaville, CA 95687

Date of Initial Quarterly PTE Determination: 4/23/2002
Date of Previous Quarterly PTE Determination: 7/17/2013
Date of Current Quarterly PTE Determination: 7/24/2013

CURRENT APPLICATIONS: **ATC's** C-13-02 and C-13-66 **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)
Propane IC Engine	P-5-11(a)	49	49	49	49	0.10	1305	1305	1305	1305	2.61	179	179	179	179	0.36	27	27	27	27	0.05	20	20	20	20	0.04
	C-13-66	4	4	4	4	0.01	557	557	557	557	1.11	75	75	75	75	0.15	27	27	27	27	0.05	20	20	20	20	0.04
Gasoline Storage & Dispensing: Non-Retail	P-28-98(a)	20	20	20	20	0.04	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Petroleum Contaminated Soil Operations	P-64-00	6,500	6,500	6,500	6,500	13.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Non-Hazardous Liquid Waste	P-81-10	1	1	1	1	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	402	402	402	402	0.82
Landfill Fugitive Emissions	P-85-06(a4)	17,520	17,714	17,909	17,909	35.53	19,699	19,918	20,137	20,137	39.95	4,925	4,980	5,034	5,034	9.99	13,600	13,600	13,600	13,600	27.20	1,655	1,673	1,692	1,692	3.36
	C-13-02	19,667	19,885	20,104	20,104	39.88	19,699	19,918	20,137	20,137	39.95	4,925	4,980	5,034	5,034	9.99	13,600	13,600	13,600	13,600	27.38	1,655	1,673	1,692	1,692	3.36
PRE-PROJECT SSPE [1] (lbs)		24,090	24,285	24,479	24,479	97,329	21,004	21,223	21,442	21,442	85,112	5,104	5,159	5,213	5,213	20,689	13,627	13,627	13,627	13,627	54,500	2,077	2,095	2,113	2,113	8,431
POST-PROJECT SSPE [1] (lbs)		26,192	26,410	26,629	26,629	105,860	20,256	20,475	20,694	20,694	82,111	5,000	5,055	5,109	5,109	20,273	13,627	13,627	13,627	13,627	54,850	2,077	2,095	2,114	2,114	8,431
Emergency IC Engine (150 BHP)	P-86-06	20	20	20	20	0.01	54	54	54	54	0.03	271	271	271	271	0.14	12	12	12	12	0.01	6	6	6	6	0.00
PRE-PROJECT TOTAL PTE [2] (lbs)		24,110	24,305	24,499	24,499	48.67	21,058	21,277	21,496	21,496	42.58	5,375	5,430	5,484	5,484	10.48	13,639	13,639	13,639	13,639	27.26	2,082	2,101	2,119	2,119	4.22
POST-PROJECT TOTAL PTE [2] (lbs)		26,212	26,430	26,649	26,649	52.94	20,310	20,529	20,748	20,748	41.08	5,271	5,326	5,380	5,380	10.27	13,639	13,639	13,639	13,639	27.43	2,083	2,101	2,119	2,119	4.22

[1] 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.
[2] The facility's pre- and post-project Total Potential to Emit (PTE) calculations include all permitted equipment operating at the site.

Post-Project Stationary Source Potential to Emit (SSPE)

	Quarter #1 (lbs)	Quarter #2 (lbs)	Quarter #3 (lbs)	Quarter #4 (lbs)	Yearly (lbs)
VOC	26,192	26,410	26,629	26,629	105,860
CO	20,256	20,475	20,694	20,694	82,111
NOx	5,000	5,055	5,109	5,109	20,273
SOx	13,627	13,627	13,627	13,627	54,850
PM10	2,077	2,095	2,114	2,114	8,431

MITIGATION THRESHOLDS

Yearly (lbs/year)
20,000
-
20,000
-
-

SSPE Comparison to Rule 3.20 Triggers

Annual
Above
-
Below
-
-

Post-Project Total Quarterly Potential to Emit (PTE)

	Quarter #1 (lbs)	Quarter #2 (lbs)	Quarter #3 (lbs)	Quarter #4 (lbs)	Yearly (tons)
VOC	26,212	26,430	26,649	26,649	52.94
CO	20,310	20,529	20,748	20,748	41.08
NOx	5,271	5,326	5,380	5,380	10.27
SOx	13,639	13,639	13,639	13,639	27.43
PM10	2,083	2,101	2,119	2,119	4.22

OFFSET THRESHOLDS

Quarterly (lbs/qtr)
7,500
49,500
7,500
13,650
13,650

PTE Comparison to NSR Triggers

Quarter #1	Quarter #2	Quarter #3	Quarter #4
Above	Above	Above	Above
Below	Below	Below	Below
Below	Below	Below	Below
Below	Below	Below	Below
Below	Below	Below	Below

COMMENTS: This quarterly PTE evaluation combines the separate quarterly PTE evaluations created for applications C-13-02 and C-13-66.

Engineer: Kyle Rohlfing **Date:** 7/25/13

Reviewed by: Francis Lamarin **Date:** 7/29/2013

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

New Source Review
Last Five Year Activity

Evaluator: Kyle Rohlfing

SIC Code # 4953

Facility Name: Recology Hay Road [a]

Location: 6426 Hay Road; Vacaville, CA

Date of Initial Determination: 4/23/2002
Date of Previous Determination: 1/27/2012
Date of Current Determination: 4/5/2013

Process	Issued Permits	Date PTO Issued	ATC	Date ATC Issued	VOC (tpy)	CO (tpy)	NOx (tpy)	SOx (tpy)	PM10 (tpy)
Gasoline Storage and Dispensing	P-28-98	7/27/1998	C-98-25	3/29/1998	0.01	0.00	0.00	0.00	0.00
Limited Use Diesel IC Engine (140 BHP)	P-34-00[b]	6/21/2000	C-99-34	11/15/1999	-	-	-	-	-
Limited Use Diesel IC Engine (140 BHP)	P-35-00	-	C-99-33	11/16/1999	0.08	2.68	1.32	0.05	0.04
Limited Use Diesel fired IC Engine (250 BHP)	P-36-00	6/21/2000	C-99-25	11/16/1999	0.32	13.30	6.56	0.05	0.89
Emergency Diesel IC Engine (80 BHP)	P-37-00	6/21/2000	C-99-24	11/15/1999	0.02	0.05	0.25	0.02	0.02
Limited Use Diesel fired IC Engine (115 B HP)	P-24-00[b]	6/21/2000	C-00-08	3/28/2000	-	-	-	-	-
Contaminated Soil Usage	P-64-00	12/15/2000	C-99-134	6/27/2000	13.00	0.00	0.00	0.00	0.82
Fugitive Landfill Gas Emissions	P-85-06	6/7/2007	C-05-88	3/2/2007	11.40	0.00	0.00	0.00	0.00
Emergency IC Engine (147 BHP)	P-86-06	6/7/2007	C-06-119	3/2/2007	0.01	0.03	0.13	0.01	0.00
Fugitive Landfill Gas Emissions	P-85-06(a1)	5/12/2009	C-08-41 [c]	12/12/2008	34.39	0.00	0.00	0.00	0.00
Fugitive Landfill Gas Emissions	P-85-06(a4)	5/18/2011	C-10-34 [d]	11/8/2010	35.53	39.95	9.99	14.39	3.36
Non Hazardous liquid waste	P-81-10	PENDING	C-10-42	12/6/2010	0.00	0.00	0.00	0.00	0.00
Propane IC Engine Powering a Tipper	P-5-11	7/13/2011	C-10-58	3/7/2011	0.10	2.61	0.36	0.10	0.07
Gasoline Storage and Dispensing	P-28-98(a)	8/11/2011	C-10-117	6/17/2011	0.04	0.00	0.00	0.00	0.00
Propane IC Engine Powering a Tipper	P-5-11(a)	3/7/2012	C-12-11	1/27/2012	0.00	0.00	0.00	0.00	0.00
Fugitive Landfill Gas Emissions	P-85-06(a5)	-	C-13-02	PENDING	39.88	39.95	9.99	27.20	3.36
Propane IC Engine Powering a Tipper	P-33-13	-	C-13-66	PENDING	0.00	0.00	0.00	0.00	0.00
				TOTAL [e]	5.62	42.56	10.35	27.30	3.43

[a] Formerly Norcal Waste Systems Hay Road Landfill, Inc.

[b] Administrative permit holder name change from "Norcal Waste Systems Hay Road Landfill, Inc." to "Jepson Prairie Organics Compost" processed on 09/22/2006. The emissions from these permits are no longer associated with Norcal Waste's operation.

[c] The VOC emissions change associated with this permit was due to a calculational change required by EPA, therefore, this is not a creditable increase.

[d] ATC C-10-34 modified PTO P-85-06(a1) superseded ATC C-10-07.

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

COMMENTS: These permits are sorted by the ATC issuance 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 December 2007 to December 2012.

Engineer: Kyle Rohlfing **Date:** 7/25/13

Reviewed by: Frank DeMarin **Date:** 7/29/2013

BACT DETERMINATION 680-1

Emission Unit: Municipal Solid Waste Landfill
Rating: 35.6 million cubic yards (17 million megagrams)

Facility Name: Recology Hay Road
Mailing Address: 6426 Hay Road
Vacaville, CA 95687

Contact Name: Greg Pryor, General Manager
Telephone: (707) 678-4718

Engineer: Kyle Rohlfing
Date: June 3, 2013

Application #: C-13-02

I. Proposal: The applicant is proposing to modify the municipal solid waste landfill to adjust the enclosed flare operating conditions and to increase the process limits for receiving municipal solid waste.

II. Applicability: The proposed emissions for the municipal solid waste landfill are shown below.

	VOC	CO	NO_X (as NO_2)	SO_X (as SO_2)	PM_{10}
Proposed Emissions	218.5 lb/day	218.9 lb/day	54.7 lb/day	150.0 lb/day	18.4 lb/day
Rule 3.4, Section 301.1 Triggers	10.0 lb/day	250.0 lb/day	10.0 lb/day	80.0 lb/day	80.0 lb/day

The municipal solid waste landfill is being treated as a modified operation and results in an increase in quarterly potential to emit for VOC pollutants. As shown above, BACT is not triggered for CO and PM_{10} because the proposed emissions do not exceed the trigger levels specified by Rule 3.4, Section 301.1. BACT is not triggered for NOx and SOx because the application does not result in a quarterly increase in potential to emit. BACT is triggered for VOC emissions because the proposed emissions exceed the trigger level specified by Rule 3.4, Section 301.1 and the application results in a quarterly increase in potential to emit.

III. BACT for VOC:

A. Identify all control technologies:
   1. Compliance with California Air Resources Board Landfill Methane Control Measure: Title 17 California Code of Regulations Sections 95460 – 95476 landfill gas collection and control system operating requirements.
   2. Landfill gas collection system vented to control device with a VOC destruction efficiency of 98% or controlling emission concentration to 20 ppmv @ 3% O2.
   3. Landfill gas collection system vented to control device with a VOC destruction efficiency of 90%.

B. Eliminate Technologically Infeasible Options

All options are technologically feasible.

C. Rank remaining control technologies by control effectiveness

Control Technology	Efficiency	Achieved in Practice (Yes/No)
Option 1	74%*	Yes
Option 2	74%*	Yes
Option 3	68%**	Yes

*Combined VOC capture efficiency of 75% and destruction efficiency of 98%
**Combined VOC capture efficiency of 75% and destruction efficiency of 90%

D. Cost effective analysis

All of the control options have been achieved in practice, therefore no cost effective calculations are required.

E. Select BACT

Implementing Option 1 will achieve the same reduction in emissions as Option 2 (methane control measure requirement for methane destruction efficiency of 99% is believed to simultaneously result in VOC destruction efficiency of 98%), but will require specific monitoring of capture and destruction of landfill gas. Because Option 1 is compliance with the highest rated control option which has been achieved in practice for this source category, compliance with landfill gas collection and control system operating requirements of Title 17 California Code of Regulations Sections 95460 through 95476 will be required as BACT.

	Pre-modification Hazardous Emissions (from C-10-34)				Post-modification Hazardous Emissions				
	Emisions year		2042		Emisions year		2030		
	VOC Destruction Efficiency		90%		VOC Destruction Efficiency		98%		
	All emissions in Mg/year				All emissions in Mg/year				
Pollutant	Uncontrolled	Landfill Fugitive	Flare	Total Emissions	Uncontrolled	Landfill Fugitive	Flare	Total Emissions	Emissions Increase
Total landfill gas	9.785E+04	2.446E+04	7.339E+03	3.180E+04	1.134E+05	2.836E+04	1.702E+03	3.006E+04	No
Methane	2.614E+04	6.534E+03	1.960E+03	8.495E+03	3.030E+04	7.575E+03	4.545E+02	8.029E+03	No
Carbon dioxide	7.172E+04	1.793E+04	5.379E+03	2.331E+04	8.313E+04	2.078E+04	1.247E+03	2.203E+04	No
NMOC	9.923E+01	2.481E+01	7.442E+00	3.225E+01	1.150E+02	2.876E+01	1.725E+00	3.048E+01	No
1,1,1-Trichloroethane (methyl chloroform) - HAP	2.087E-01	5.217E-02	1.565E-02	6.783E-02	2.419E-01	6.048E-02	3.629E-03	6.411E-02	No
1,1,2,2-Tetrachloroethane - HAP/VOC	6.017E-01	1.504E-01	4.513E-02	1.956E-01	6.975E-01	1.744E-01	1.046E-02	1.848E-01	No
1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	7.741E-01	1.935E-01	5.806E-02	2.516E-01	8.974E-01	2.243E-01	1.346E-02	2.378E-01	No
1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	6.319E-02	1.580E-02	4.739E-03	2.054E-02	7.325E-02	1.831E-02	1.099E-03	1.941E-02	No
1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	1.322E-01	3.306E-02	9.917E-03	4.298E-02	1.533E-01	3.832E-02	2.299E-03	4.062E-02	No
1,2-Dichloropropane (propylene dichloride) - HAP/VOC	6.628E-02	1.657E-02	4.971E-03	2.154E-02	7.684E-02	1.921E-02	1.153E-03	2.036E-02	No
2-Propanol (isopropyl alcohol) - VOC	9.795E+00	2.449E+00	7.346E-01	3.183E+00	1.135E+01	2.839E+00	1.703E-01	3.009E+00	No
Acetone	1.325E+00	3.312E-01	9.937E-02	4.306E-01	1.536E+00	3.840E-01	2.304E-02	4.070E-01	No
Acrylonitrile - HAP/VOC	1.089E+00	2.724E-01	8.171E-02	3.541E-01	1.263E+00	3.157E-01	1.894E-02	3.347E-01	No
Benzene - No or Unknown Co-disposal - HAP/VOC	4.837E-01	1.209E-01	3.628E-02	1.572E-01	5.607E-01	1.402E-01	8.410E-03	1.486E-01	No
Benzene - Co-disposal - HAP/VOC	2.800E+00	7.001E-01	2.100E-01	9.101E-01	3.246E+00	8.115E-01	4.869E-02	8.602E-01	No
Bromodichloromethane - VOC	1.655E+00	4.138E-01	1.241E-01	5.379E-01	1.919E+00	4.797E-01	2.878E-02	5.085E-01	No
Butane - VOC	9.471E-01	2.368E-01	7.103E-02	3.078E-01	1.098E+00	2.745E-01	1.647E-02	2.909E-01	No
Carbon disulfide - HAP/VOC	1.439E-01	3.598E-02	1.079E-02	4.677E-02	1.668E-01	4.170E-02	2.502E-03	4.421E-02	No
Carbon monoxide	1.278E+01	3.195E+00	9.585E-01	4.154E+00	1.481E+01	3.704E+00	2.222E-01	3.926E+00	No
Carbon tetrachloride - HAP/VOC	2.005E-03	5.014E-04	1.504E-04	6.518E-04	2.325E-03	5.812E-04	3.487E-05	6.161E-04	No
Carbonyl sulfide - HAP/VOC	9.593E-02	2.398E-02	7.195E-03	3.118E-02	1.112E-01	2.780E-02	1.668E-03	2.947E-02	No
Chlorobenzene - HAP/VOC	9.171E-02	2.293E-02	6.878E-03	2.981E-02	1.063E-01	2.658E-02	1.595E-03	2.817E-02	No
Chlorodifluoromethane	3.664E-01	9.159E-02	2.748E-02	**1.191E-01**	4.247E-01	1.062E-01	6.370E-03	1.125E-01	No
Chloroethane (ethyl chloride) - HAP/VOC	2.734E-01	6.834E-02	2.050E-02	8.884E-02	3.169E-01	7.922E-02	4.753E-03	8.397E-02	No
Chloroform - HAP/VOC	1.167E-02	2.918E-03	8.755E-04	3.794E-03	1.353E-02	3.383E-03	2.030E-04	3.586E-03	No
Chloromethane - VOC	1.975E-01	4.936E-02	1.481E-02	6.417E-02	2.289E-01	5.722E-02	3.433E-03	6.066E-02	No
Dichlorobenzene - (HAP for para isomer/VOC)	1.006E-01	2.515E-02	7.545E-03	3.270E-02	1.166E-01	2.916E-02	1.749E-03	3.091E-02	No
Dichlorodifluoromethane	6.305E+00	1.576E+00	4.729E-01	2.049E+00	7.309E+00	1.827E+00	1.096E-01	1.937E+00	No
Dichlorofluoromethane - VOC	8.721E-01	2.180E-01	6.541E-02	2.834E-01	1.011E+00	2.527E-01	1.516E-02	2.679E-01	No
Dichloromethane (methylene chloride) - HAP	3.876E+00	9.689E-01	2.907E-01	1.260E+00	4.493E+00	1.123E+00	6.739E-02	1.191E+00	No
Dimethyl sulfide (methyl sulfide) - VOC	1.579E+00	3.948E-01	1.185E-01	5.133E-01	1.831E+00	4.577E-01	2.746E-02	4.852E-01	No
Ethane	8.722E+01	2.180E+01	6.541E+00	2.835E+01	1.011E+02	2.528E+01	1.517E+00	2.679E+01	No
Ethanol - VOC	4.055E+00	1.014E+00	3.041E-01	1.318E+00	4.700E+00	1.175E+00	7.051E-02	1.246E+00	No
Ethyl mercaptan (ethanethiol) - VOC	4.657E-01	1.164E-01	3.493E-02	1.514E-01	5.399E-01	1.350E-01	8.098E-03	1.431E-01	No
Ethylbenzene - HAP/VOC	1.592E+00	3.979E-01	1.194E-01	5.172E-01	1.845E+00	4.612E-01	2.767E-02	4.889E-01	No
Ethylene dibromide - HAP/VOC	6.123E-04	1.531E-04	4.592E-05	1.990E-04	7.098E-04	1.775E-04	1.065E-05	1.881E-04	No
Fluorotrichloromethane - VOC	3.403E-01	8.507E-02	2.552E-02	1.106E-01	3.945E-01	9.861E-02	5.917E-03	1.045E-01	No
Hexane - HAP/VOC	1.854E+00	4.634E-01	1.390E-01	6.025E-01	2.149E+00	5.372E-01	3.223E-02	5.694E-01	No
Hydrogen sulfide	3.998E+00	9.996E-01	2.999E-01	1.299E+00	4.635E+00	1.159E+00	6.953E-02	1.228E+00	**No**
Mercury (total) - HAP	1.896E-04	4.740E-05	1.422E-04	1.896E-04	2.198E-04	5.495E-05	1.648E-04	2.198E-04	Yes
Methyl ethyl ketone - HAP/VOC	1.669E+00	4.171E-01	1.251E-01	5.423E-01	1.934E+00	4.836E-01	2.901E-02	5.126E-01	No
Methyl isobutyl ketone - HAP/VOC	6.202E-01	1.551E-01	4.652E-02	2.016E-01	7.190E-01	1.797E-01	1.078E-02	1.905E-01	No
Methyl mercaptan - VOC	3.920E-01	9.800E-02	2.940E-02	1.274E-01	4.544E-01	1.136E-01	6.816E-03	1.204E-01	No
Pentane - VOC	7.760E-01	1.940E-01	5.820E-02	2.522E-01	8.995E-01	2.249E-01	1.349E-02	2.384E-01	No
Perchloroethylene (tetrachloroethylene) - HAP	2.000E+00	4.999E-01	1.500E-01	6.499E-01	2.318E+00	5.795E-01	3.477E-02	6.143E-01	No
Propane - VOC	1.581E+00	3.952E-01	1.185E-01	5.137E-01	1.832E+00	4.581E-01	2.748E-02	4.856E-01	No
t-1,2-Dichloroethene - VOC	8.846E-01	2.212E-01	6.635E-02	2.875E-01	1.025E+00	2.564E-01	1.538E-02	2.717E-01	No
Toluene - No or Unknown Co-disposal - HAP/VOC	1.171E+01	2.927E+00	8.782E-01	3.806E+00	1.357E+01	3.394E+00	2.036E-01	3.597E+00	No
Toluene - Co-disposal - HAP/VOC	5.104E+01	1.276E+01	3.828E+00	1.659E+01	5.917E+01	1.479E+01	8.876E-01	1.563E+01	No
Trichloroethylene (trichloroethene) - HAP/VOC	1.199E+00	2.998E-01	8.993E-02	3.897E-01	1.390E+00	3.475E-01	2.085E-02	3.683E-01	No
Vinyl chloride - HAP/VOC	1.487E+00	3.717E-01	1.115E-01	4.833E-01	1.724E+00	4.309E-01	2.586E-02	4.568E-01	No
Xylenes - HAP/VOC	4.152E+00	1.038E+00	3.114E-01	1.349E+00	4.813E+00	1.203E+00	7.219E-02	1.275E+00	No