ANTELOPE VALLEY AIR QUALITY MANAGEMENT DISTRICT

DRAFT Preliminary Determination - Statement of Basis

For the Initial Issuance of

FOP Number: 297602129

For:

Waste Management of California

Facility:

Lancaster Landfill & Recycling Center

Facility Address:

600 E Avenue F
Lancaster, CA 93535

Document Date: 2/14/24
Submittal date to EPA/CARB for review on or before: 2/14/2024
EPA/CARB 45-Day Commenting Period ends at COB: 4/1/2024
Public Notice Posted, on or before: 2/14/2024
30-Day Public Commenting Period ended at COB: 3/15/2024
Permit Issue date: On or about 4/2/2024

Permitting Engineer:
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A. FACILITY IDENTIFYING INFORMATION:

Owner/Company Name:	Waste Management of California
Owner Mailing Address:	Waste Management of California 600 E Avenue F, Lancaster, CA 93535
Facility Name:	Lancaster Landfill & Recycling Center
Facility Location:	600 E Avenue F Lancaster, CA 93535
AVAQMD Federal Operating Permit Number:	297602129
AVAQMD Company Number:	2976
AVAQMD Facility Number:	2129
Responsible Official: Phone Number: email	Michael Dudley 661-223-3418 Mdudley1@wm.com
Facility "Site" Contacts: Phone Number: email	Tracy Freeman 818-394-5871 tfreema7@wm.com
Nature of Business:	Sanitary Landfill
NAICS Code:	562212 – Solid Waste Landfill
SIC Code:	4953 – Refuse Systems
Facility Coordinates:	Lat/Long: 34.7474 / -118.1165

B. INTRODUCTION:

1. Description of Facility

This facility is a Class III municipal solid waste (MSW) landfill as defined by the Resource Conservation and Recovery Act (RCRA) Subtitle D located at 600 East Avenue F in the City of Lancaster, California. The facility is located within a portion of Section 35 and Section 36, Township 8 North, Range 12 West, of the San Bernardino Meridian, Los Angeles County, California. Lancaster Landfill & Recycling Center (LLRC), Waste Management of California, is a municipal solid waste disposal facility that began accepting waste in 1954. The site occupies approximately 276 acres, of which 209 acres are permitted for disposal. The current capacity of the landfill is 27.7 million cubic yards, and the amount of waste-in-place is 13,017,160 cubic yards (9,952,333 cubic meters) as of September 2023. Using a Waste Density of 0.8 tons per Cubic Yard, the design capacity is calculated to be 22.16 million tons (20.1 million megagrams).

LLRC is permitted to receive disposal and recycling of household, commercial, construction, renovation, and demolition wastes and petroleum-contaminated soils; identified as SWIS (Solid Waste Information System) Number 19-AA-0050 and Classified as Active.

This Landfill has a Gas Collection and Control System (GCCS) that controls Methane as well as VOC emissions. The facility is subject to the California Regulation to Achieve Greenhouse Gas Emission Reductions - Methane Emissions from Municipal Solid Waste Landfills [17 CCR 95460-95476]. Under this regulation, this facility is defined as an Active MSW Landfill Greater Than or Equal to 450,000 tons of Waste-in-Place [§95463(b)]. This facility has a calculated landfill gas heat input capacity (HIC) greater than 3.0 MMBtu/hr [§95463(b)(2)] and shall demonstrate compliance using a Gas Collection and Control System with an enclosed flare with District Permit C012559. The California plan is only partially approved by EPA; therefore, the facility is subject to the following provisions of 40 CFR 62, Subpart OOO: 40 CFR 62. 16716(c); 62.16720(a)(4); 62,16722(a)(2) and (a)(3); 62.16724(k); and 62.16726(e)(2) and (5).

Title V applicability is triggered for LLRC by the Emission Guidelines (EG) for Municipal Solid Waste (MSW) Landfills, promulgated under 40 Code of Federal Regulations (CFR) Part 60, Subpart Cf -Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills.

LLRC is also subject to 40 CFR Part 63 Subpart AAAA National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills.

MACT AAAA - Municipal Solid Waste Landfills, 40 CFR 63 Subpart AAAA:

1. LLRC submitted an initial design capacity report and a Tier 1 Emission Rate Survey. The results of the Tier 1 Survey indicated that the NMOC emissions exceeded the standard of 50 megagrams per year, which was the requirement under 40 CFR 60 Subpart WWW.

2. LLRC submitted a Gas Collection and Control System Design Plan prepared by a professional engineer to the Antelope Valley Air Quality Management District (AVAQMD or District). The design plan submittal met the permit modification requirements of Subpart WWW. The design plan included the operational standards, test methods, procedures, compliance measures, monitoring recordkeeping, and reporting provisions as described in §60.754 through §60.758.

3. LLRC installed a landfill gas collection and control system within 30 months of exceeding 50 Mg per year of NMOCs.

4. LLRC will continue to comply with the monitoring, reporting, recordkeeping, and test methods pursuant to requirements in the NSPS rule through compliance with NESHAP Subpart AAAA.

Disposal of MSW at LLRC is accomplished by a variety of on-site processes as described; Microbial degradation of buried refuse generates potential LFG emissions, containing nonmethane organic compounds (NMOCs), VOCs, and hazardous air pollutants (HAPs). These emissions are both fugitive and non-fugitive. These emissions are controlled through a GCCS as required by the New Source Performance Standards (NSPS).

Refuse hauling vehicles deliver refuse to the landfill as well as remove certain materials and by-products from the site. Refuse hauling vehicles and other on-site vehicles generate fugitive dust (particulate matter) emissions while traveling on haul roads and other portions of the landfill site.

One control measure to mitigate dust at the site is using a water truck. The water truck moves at slow speeds across the site, spraying a wide area with water to reduce particulate emissions. Heavy equipment traffic on roads and the landfill surface generates fugitive dust emissions.

The GAS COLLECTION AND CONTROL SYSTEM (GCCS) consists of collection wells and a piping network, permitted as C006904; GAS CONDENSATE COLLECTION SYSTEM permitted as C006907; ENCLOSED FLARE Permitted as C012559, and HYDROGEN SULFIDE TREATMENT SYSTEM AIR POLLUTION CONTROL DEVICE Permitted as C014889.

The majority of the LFG emissions are destroyed by the flare, which includes HAPs, VOCs, and NMOCs. As a product of combustion, the flare emits nitrogen oxides (NOx), carbon monoxide (CO), sulfur oxides (SOx), and combustion particulate matter (PM).

Excavation, transportation, stockpiling, and deposition of soil cover material on the landfill surface generate fugitive dust emissions. Control measures include using a water truck. The generation of fugitive dust emissions due to the load-out of cover onto the landfill surface as well as the effects of wind on cover stockpiles also occurs onsite. Landfill condensate is collected and stored in a 10,000-gallon tank. The Dual Containment Condensate tank is vented through a 55-gallon carbon filter drum. Collected liquids can be

injected in the flare, used as dust control, or injected into the active working face of the landfill.

It is noted that the fugitive emissions from this facility are not included in the designation of a New Source Review Major Facility as this facility is not listed as one of the categories listed under 40 CFR 51.165(a)(1)(iv)(C).

Miscellaneous fugitive and non-fugitive sources of emissions include landfill gas generated from microbial degradation of refuse, particulate matter (PM) generated from the use of paved and unpaved roads, PM from construction, excavation, and chipping/grinding activities, and a small amount of Volatile Organic Compounds (VOC)/ Hazardous Air Pollutants (HAPs) emissions from soils used as landfill cover.

C006904, LANDFILL GAS COLLECTION AND CONTROL SYSTEM consisting of: associated Landfill identified as SWIS (Solid Waste Information System) Number 19-AA-0050 and classified as Active.

Facility elevation is 2316 feet above sea level.

Lat/Long: 34.7474 Longitude: -118.1165

Equipment Permitted under C006904

Capacity	Equipment Description
0	Two (2) Blowers, 50 hp, 2000 CFM venting gas collection wells
0	200 maximum landfill gas collection wells, all connected to a main header
0	50 additional LFG wells as needed and 50 wells for removal/decommission as needed
0	Sulfur Adsorption Media consisting of multiple cylindrical containers filled with DARCO H2S Granular Activated Carbon, operating under District Permit C014889

C006907, GAS CONDENSATE COLLECTION SYSTEM, consisting of: Four (4) condensate pumps for condensate level control in the condensate drip legs; Condensate holding tank, 8’-0” dia. x 21’-0” S/S, and 10,000-gallon capacity, with gas blanket system or under vacuum. The dual Containment Condensate tank is vented to a 55-gallon carbon filter drum. Collected liquids can be injected in the flare, used as dust control, or injected into the active working face of the landfill.

C012559, ENCLOSED FLARE, consisting of: associated Landfill identified as SWIS (Solid Waste Information System) Number 19-AA-0050 and classified as Active.

Enclosed Flare is 9-foot in diameter and 45 feet in height. Maximum Inlet flow rate into flare is 2,000 scfm; maximum heat input rate of 60.72 MMBtu/hr; AP-42 destruction efficiencies of 98% for halogenated compounds, and 99.7% for non-halogenated compounds.

This Landfill has a Gas Collection and Control System (GCCS) that controls Methane as well as VOC, and HAP emissions; subject to, NESHAP 40 CFR 63 Subpart AAAA, and the California Methane Regulation 17 CCR Sections 95460 through 95476.

C014889, HYDROGEN SULFIDE TREATMENT SYSTEM AIR POLLUTION CONTROL DEVICE consisting of: associated Landfill identified as SWIS (Solid Waste Information System) Number 19-AA-0050 and classified as Active.

Quantity: Two (2) carbon adsorber tanks, manufactured by Daniel Company, Size of each: 12' diameter x 19'-6" height. The system also contains associated piping, flanges, hatches, and valves.

Table 1: Insignificant Emission Sources at LLRC:

Process Description	**Basis for Determination of Insignificant Emissions Unit is made based on AVAQMD Rule 219- Equipment Not Requiring a Permit Pursuant to Regulation II**
One 5-horsepower gasoline water pump	Section (E)(2)(a); exempts internal combustion engines with a manufacturer's rating of 50 brake horsepower or less.
One 5-horsepower diesel light plant	Section (E)(2)(a); exempts internal combustion engines with a manufacturer's rating of 50 brake horsepower or less.
Arc-welding equipment	Section (E)(2)(a); exempts arc-welding equipment not used to cut stainless steel and is rated below 30 kilowatts (kW).
Two propane storage tanks	Section (E)(13)(b) each with a capacity of 19,815 gallons or less (approximately 250 and 320 gallons each)
One 240-gallon lubricating oil tank	Section (E)(13)(g) exemption
Two (2) transmission oil tanks (240 and 300 gallons each) and two (2) hydraulic fluid tanks (360 and 125 gallons each)	Section (E)(13)(g) exemption
One 240-gallon waste oil tank	Section (E)(13)(h) exemption

Table 1: Insignificant Emission Sources at LLRC:

Process Description	Basis for Determination of Insignificant Emissions Unit is made based on AVAQMD Rule 219- Equipment Not Requiring a Permit Pursuant to Regulation II
Water-based parts cleaning equipment	Section (E)(12)(d) exemption
Leachate collection, storage, and recirculation	Section (D)(1) exempt as calculated potential to emit (PTE) emissions are 0.00068 tons per year (tpy) for VOCs and 0.0043 tpy for HAPs.

2. *Description of Permitting Action(s)*

This Statement of Basis is for the initial issuance of the Title V Federal Operating Permit No. 297602129. The initial Title V Federal Operating Permit application was received on May 9, 2001, and met the Part 70 application deadline for AVAQMD facilities. The District requested that Waste Management submit a new application as there have been modifications to the landfill permits; additional permits issued, and a change in Responsible Official since the original submission. The most recent Title V Federal Operating Permit application was received on August 22, 2014.

The District's approach to the Title V program is to issue a single Federal Operating Permit for the entire facility, which satisfies the federal requirement for a permit under Rule 225 (AVAQMD maintains separate Title V and District permits programs). In the AVAQMD, state, and District requirements are also applicable requirements and are included in the Federal Operating Permit (Title V). These requirements can be federally enforceable or non-federally enforceable. Requirements that are enforceable by the District and State, only, are designated as such.

LLRC is subject to the Operating Permit requirements of Title V of the Federal Clean Air Act, Part 70 of Title 40 of the Code of Federal Regulations (CFR), and AVAQMD Regulation XXX, *Title V Permits*. LLRC is subject to the Title V Program under the Emission Guidelines (EG) for Municipal Solid Waste (MSW) Landfills, promulgated under 40 Code of Federal Regulations (CFR) Part 60, Subpart Cf - *Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills*, as LLRC has a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters [40 CFR 60.31f(c)].

This evaluation document serves as the Statement of Basis for the Preliminary Determination, pursuant to AVAQMD Rule 3003(B)(1)(a)(i), and is intended to assess the adequacy of the Title V Application and explain the District's basis in issuing LLRC's Federal Operating Permit (Title V aka FOP). The proposed FOP was developed using existing regulatory conditions/requirements and incorporating those requirements as operating conditions. This review includes an analysis of applicability determinations for all sources.

The District will review and consider any comments received from the public and/or CARB and EPA during the commenting/review periods and will address any concerns

prior to the issuance of the proposed permit. Please refer to the cover sheet of this document for the public notice and review period dates.

A copy of the application can be viewed in Appendix C.

The Federal Clean Air Act Amendments of 1990 established a nationwide permit to operate program commonly known as "Title V". The District adopted Regulation XXX [AVAQMD Rules 3000 - 3011]; Final Title V Program Approval 1/16/04 69 FR 2511.

AVAQMD Rule 225 - *Federal Operating Permit Requirement*; Submitted in conjunction with Title V Program. Final Title V Approval: Title V approval doesn't put a rule in SIP per EPA.

The District will review and consider any comments received from the public and/or CARB and EPA during the commenting/review periods and address any concerns prior to the issuance of the proposed permit. Please refer to the cover sheet of this document for the public notice and review period dates. LLRC is required to operate in Compliance with the California Landfill Methane Regulation, MACT Subpart AAAA, and New Source Review BACT and Offset Requirements of District Regulation XIII.

C. FEDERAL OPERATING/TILE V PERMIT:

PART I: INTRODUCTORY INFORMATION

This section of the FOP contains general information about the LLRC facility, including facility identifying information (section A), a description of the facility (section B), and a description of the facility's equipment (section C).

PART II: FACILITYWIDE APPLICABLE REQUIREMENTS; EMISSIONS LIMITATIONS; MONITORING, RECORDKEEPING, REPORTING, AND TESTING REQUIREMENTS; COMPLIANCE CONDITIONS; COMPLIANCE PLANS

This section of the Federal Operating Permit contains requirements applicable to the entire facility and equipment (section A), facility-wide monitoring, recordkeeping, and reporting requirements (section B), and facility-wide compliance conditions (section C).

PART III: EQUIPMENT SPECIFIC APPLICABLE REQUIREMENTS; EMISSIONS LIMITATIONS; MONITORING, RECORDKEEPING, REPORTING, AND TESTING REQUIREMENTS; COMPLIANCE CONDITIONS; COMPLIANCE PLANS

This section of the Federal Operating Permit contains equipment-specific applicable requirements including emission limitations, monitoring, and recordkeeping, reporting and testing, and compliance plans.

Summary of District State and Federal Landfill Requirements:

No references to 40 CFR 60, Subpart WWW; regulation no longer applies to LLRC, as EPA formally clarified that subpart 40 CFR 60, Subpart Cf (once implemented via a state or federal plan) supersedes subparts WWW and Subpart Cc. The final rule revises the title and applicability of subpart WWW (at 40 CFR 60.750(a)) to distinguish the applicability dates from other landfill subparts. It clarifies that after the effective date of an EPA-approved state or tribal plan implementing subpart Cf, or after the effective date of a federal plan implementing subpart Cf, owners and operators of MSW landfills must comply with the approved and effective state, tribal, or federal plan implementing subpart Cf instead of subpart WWW or the state or federal plan implementing subpart Cc [85 FR 17248].

Title V includes all applicable requirements from California's current, partially approved plan for implementing 40 CFR 60, Subpart Cf. California's plan is the *Regulation to Achieve Greenhouse Gas Emission Reductions - Methane Emissions from Municipal Solid Waste Landfills* (also known as the Landfill Methane Rule or LMR) [17 CCR 95460 – 95476]. Under this regulation, this facility is defined as an Active MSW Landfill Greater Than or Equal to 450,000 tons of Waste-in-Place [§95463(b)]; has a calculated landfill gas heat input capacity (HIC) greater than 3.0 MMBtu/hr [§95463(b)(2)]; and has opted to demonstrate compliance using a Gas Collection and Control System with an enclosed flare as specified under the Equipment Description (Part I, Section C of the FOP). LLRC has previously triggered the initial design plan and installation requirements for a gas collection and control system in sections 17 CCR 95463 and 95464(a) of the LMR; and uses an enclosed flare to meet the control device requirements. LLRC has not requested any Alternative Compliance Options pursuant to section 17 CCR 95468, under the LMR; therefore, no Alternative Compliance Options are included in the proposed permit. The proposed permit conditions reflect the requirements for ongoing compliance with the gas collection and control system using an enclosed flare as the control device.

Since the California plan, referenced above (aka LMR) is only partially approved by EPA, requirements of 40 CFR 62, Subpart OOO were also added, which is the federal plan for MSW landfills that lack a fully approved state plan to implement 40 CFR 60, Subpart Cf [86 FR 27756]. When the EPA promulgated Subpart OOO, they concurrently revised 40 CFR part 62, Subpart F, to identify the 40 CFR 62, Subpart OOO requirements that would apply to MSW landfills in California. The EPA identified the following 40 CFR 62, Subpart OOO requirements as applicable to MSW landfills in California: 40 CFR 62.16716(c); 62.16720(a)(4); 62,16722(a)(2) and (a)(3); 62.16724(k); and 62.16726(e)(2) and (5). As such, these specific provisions were added as operating conditions. Of these five added conditions, any requirement specific to the wellhead temperature was cited from 40 CFR 63.1958(c)(1), as allowed by 40 CFR 62.16716, 62.16720, and 62.16722. The basis for this is that in the same EPA action referenced above, EPA also included an option to allow MSW landfills to operate their gas collection and control systems in compliance with the similar provisions in 40 CFR 63, Subpart AAAA in lieu of the provisions specified in 40 CFR 62, Subpart OOO. If a landfill "opts in" to this compliance method, it allows landfills to follow one set of operating, compliance, and monitoring requirements for the gas collection and control system. LLRC "opted in" to the compliance method of complying with 40 CFR 63, Subpart AAAA in lieu of the provisions specified in 40 CFR 62, Subpart OOO. While the LMR does not have any "opt-in" provisions since the LMR is lacking and requires the specified five additional provisions of 40 CFR 62, Subpart OOO to

be fully approvable by EPA, and Subpart OOO does allow for the "opt-in" provisions pursuant to 40 CFR 62.16716, 62.16720, and 62.16722, the District is proposing the higher wellhead temperature requirement from 40 CFR 63.1958(c)(1) (Subpart AAAA); the District has not approved a higher wellhead temperature for LLRC other than 62.8 degrees Celsius (145 degrees Fahrenheit), although the option for LLRC to request a higher temperature with demonstration remains as allowed by 40 CFR 62.16716(c).

Added all applicable requirements from 40 CFR 63, Subpart AAAA. Under this regulation, this facility is defined as an existing, area source, MSW landfill, that has a design capacity equal to greater than 2.5 million megagrams and 2.5 million cubic meters and has estimated uncontrolled emissions equal to or greater than 50 megagrams per year (Mg/yr) NMOC as calculated according to 40 CFR 63.1959. [§63.1935(a)(3)]. Under this regulation, the Gas Collection and Control System as specified under the Equipment Description (Part I, Section C of this permit) is considered an Active Control System. This Gas Collection and Control System was installed prior to the adoption of 40 CFR 63, Subpart AAAA; therefore, some requirements of this regulation were already fulfilled by LLRC under other, previously applicable regulations, including the Initial Design Capacity Report (40 CFR 63.1984(a)), the NMOC Emission Rate Report (40 CFR 63.1981(c), the Collection and Control System Design Plan (40 CFR 63.1981(d)). LLRC is required by condition to certify that these previous submissions were submitted with their first semi-annual report. Other requirements about the initial design capacity and triggering of the collection and control system are not included as proposed conditions, since this has already occurred under previous applicable regulations. The proposed permit conditions include all applicable requirements for an affected facility that has a gas collection and control system installed to ensure ongoing compliance.

There is no bioreactor located at LLRC; nor, does LLRC have a "bypass" to the enclosed flare; therefore, all requirements from 40 CFR 63, Subpart AAAA specific to bioreactors or "bypassing" are not included in the proposed conditions. All applicable requirements of 40 CFR 63, Subpart AAAA are included to require LLRC's "opt-in" compliance demonstration with 40 CFR 62, Subpart OOO, which is the federal plan for MSW landfills that lacks a fully approved state plan to implement 40 CFR 60, Subpart Cf [86 FR 27756]. This action includes the option that allows MSW landfills to operate their gas collection and control systems in compliance with the similar provisions in 40 CFR 63, Subpart AAAA in lieu of the provisions specified in 40 CFR 62, Subpart OOO. If a landfill "opts in" to this compliance method, it allows landfills to follow one set of operating, compliance, and monitoring requirements for the gas collection and control system. LLRC "opted in" to the compliance method of complying with 40 CFR 63, Subpart AAAA in lieu of the provisions specified in 40 CFR 62, Subpart OOO. However, beginning September 21, 2021, MSW Landfills subject to 40 CFR 63, Subpart AAAA are required to comply with the requirements in Subpart AAAA, regardless, and can no longer meet the Subpart AAAA requirements by complying with the analogous requirements [85 FR 17261]; therefore, the proposed conditions include the applicable requirements of 40 CFR 63, Subpart AAAA.

PART IV: STANDARD FEDERAL OPERATING PERMIT CONDITIONS

This section of the Federal Operating Permit contains standard federal operating permit conditions.

PART V: OPERATIONAL FLEXIBILITY

This section of the Federal Operating Permit contains information on Off Permit Changes.

PART VI: CONVENTIONS, ABBREVIATIONS, DEFINITIONS

This section of the Federal Operating Permit contains information for conventions, abbreviations, and definitions used throughout the FOP.

PART VII: DISTRICT SIP HISTORY AND CITATIONS

This section of the Federal Operating Permit includes the District's SIP table of rules and SIP history for all SIP citations in the FOP.

D. NEW SOURCE REVIEW (NSR) ANALYSIS:

1. Determination of Emissions per AVAQMD Rule 1302(C)(1).
Based on current and Potential to Emit (PTE) emissions, the facility is designated and will remain an Area (Minor) Source, not a Major source of criteria emissions; see Table 2 below:

Table 2: Facility Emissions Source Type Determination

Criteria Pollutant	Facility PTE (tpy)	Major Source Threshold (tpy)	Major Source (Yes/No)
CO	53.19	100	No
NOx	15.96	25	No
VOC	13.30	25	No
SOx	22.22	100	No
PM_{10}	4.52	15	No

Presently, the AVAQMD has not been designated Prevention of Significant Deterioration (PSD) by the USEPA, nonetheless, emissions from LLRC will Not trigger PSD.

PSD Analysis
There are two types of "major stationary sources:"
One category is a "Named" stationary source category that is listed in 40 CFR § 51.166(b)(1) with the potential to emit (PTE) 100 tons per year (tpy) or more of a regulated pollutant. These sources must include Fugitive emissions in their total emission rate. ***This facility type is Not Listed in 40 CFR § 51.166(b)(1) and therefore is not required to include fugitive emissions.***

The second type is "Un-Named" and is any stationary source not listed in 40 CFR § 51.166(b)(1) with a PTE of 250 tpy or more of a regulated pollutant. A source that is major for any regulated pollutant, that is, meets the PTE for the source type, is major for all regulated pollutants. A minor source is a named or un-named source with regulated pollutant emissions that are less than the major source thresholds (that is, 100 or 250 tpy,

respectively).

LLRC is Not Listed in 40 CFR § 51.166(b)(1) and does not have a PTE that exceeds 250 tpy for any regulated pollutant, therefore the facility is Not an existing PSD facility.

E. RULE APPLICABILITY ANALYSIS:

AVAQMD Rules:

Rule 109 – *Recordkeeping for Volatile Organic Compound Emissions.* LLRC shall ensure that adequate records of volatile organic compound use are made and maintained. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 201/203 – *Permits to Construct/Permit to Operate*. Any equipment that may cause the issuance of air contaminants must obtain authorization for such construction from the Air Pollution Control Officer (APCO). LLRC is in compliance with this rule as they have appropriately applied for a District permit for all new equipment and maintains District permits for all residing equipment. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 204 – *Permit Conditions*. To ensure compliance with all applicable regulations, the Air Pollution Control Officer (Executive Director) may impose written conditions on any permit. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 205 – *Expiration of Permits to Construct.* Permits to construct issued to LLRC expire one year from the date of issuance unless an extension is approved in writing by the APCO. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 206 – *Posting of Permit to Operate*. Equipment shall not operate unless the entire permit is affixed upon the equipment or kept at a location for which it is issued and will be made available to the District upon request. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 207 – *Altering or Falsifying of Permit.* A person shall not willfully deface, alter, forge, or falsify any issued permit. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 208 – *Permit for Open Burning.* A person required to obtain a permit for burning pursuant to Rule 444 shall not perform any outdoor burning without obtaining the required permit first. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 209 – *Transfer and Voiding of Permits*. LLRC shall not transfer, whether by operation of law or otherwise, either from one location to another, from one piece of equipment to another, or from one person to another. When equipment that has been granted a permit is altered, changes location, or no longer will be operated, the permit shall become void. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 210 – *Applications.* LLRC is in compliance with this rule, as they currently hold and maintain District permits to operate for all applicable equipment. LLRC will also comply

with this regulation per Part II, Section A of the FOP.

Rule 212 – *Standards for Approving Permits*. LLRC is in compliance with this rule, as they currently hold and maintain District permits to operate for all applicable equipment. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 217 – *Provisions for Sampling and Testing Facilitie*s. This rule stipulates that the APCO may require the applicant to provide and maintain requirements for sampling and testing. If facilities are equipped to accommodate testing, the APCO shall notify the Owner/Operator in writing of the required size, number, and location of sampling ports; the size and location of the sampling platform; the access to the sampling platform, and the utilities for operating the sampling and testing equipment. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 219 – *Equipment not Requiring a Permit*. This rule exempts certain equipment from a District Permit. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 225 – *Federal Operating Permit Requirements*. LLRC will comply with this regulation per Part II, Section A of the FOP.

Rule 301/312 – *Permit Fees/Supplemental Annual Fees for Federal Operating Permits*. LLRC's annual permit fees are due by the applicable amounts. LLRC is currently not delinquent for any fees. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 401 – *Visible Emissions*. This rule limits visible emissions opacity to less than 20 percent (or Ringlemann No. 1). In normal operating mode, visible emissions are not expected to exceed 20 percent opacity. LLRC has specific operating conditions that enforce compliance with this rule. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 403 – *Fugitive Dust*. This rule prohibits fugitive dust beyond the property line of any emission source. LLRC has specific operating conditions to ensure compliance with this condition. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 404 – *Particulate Matter - Concentration*. LLRC shall not discharge into the atmosphere particulate matter (PM), except liquid sulfur compounds, in excess of the concentration at standard conditions, as shown in Rule 404, Table 404 (a).
(a) Where the volume discharged is between figures listed in the table the exact concentration permitted to be discharged shall be determined by linear interpolation.
(b) This condition shall not apply to emissions resulting from the combustion of liquid or gaseous fuels in steam generators or gas turbines.
(c) For this condition, emissions shall be averaged over one complete cycle of operation or one hour, whichever is the lesser period.

LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 405 – *Solid Particulate Matter - Weight*. LLRC shall not discharge into the atmosphere from this facility, solid PM including lead and lead compounds in excess of the rate shown in Rule 405, Table 405(a):

(a) Where the process weight per hour is between the figures listed in the table, the exact weightof permitted discharge shall be determined by linear interpolation.

(b) For this condition, emissions shall be averaged over one complete cycle of operation or one hour, whichever is the lesser period.

LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 407 – *Liquid and Gaseous Air Contaminants*. This rule limits CO emissions from facilities. LLRC is required to adhere to this rule per Part II, Section A.22 of their FOP.

Rule 408 – *Circumvention*. This rule prohibits hidden or secondary rule violations. The proposed renewal as described is not expected to violate Rule 408. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 409 – *Combustion Contaminants*. This rule limits the emissions of combustion contaminants exceeding 0.23 gram per cubic meter (0.1 grain per cubic foot) of gas calculated to 12 percent of carbon dioxide (CO_2) at standard conditions averaged over a minimum of 25 consecutive minutes. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 430 – *Breakdown Provisions*. Any Breakdown that results in a violation of any rule or regulation as defined by Rule 430 shall be properly addressed pursuant to this rule. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 431.1/431.2 – *Sulfur Content of Gaseous Fuels/Sulfur Content of Liquid Fuels.* LLRC shall demonstrate compliance with this rule through records of fuel used at the facility is either CARB-certified diesel or PUC-regulated natural gas. Records, either paper or computerized, shall be kept on-site and available for review at any time by District, State, or Federal personnel. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 441 – *Research Operations*. LLRC is exempt from the provision of AVAQMD Regulation IV, except AVAQMD Rule 402, when the purpose of the operation is to permit investigation, experiment, or research to advance the state of knowledge or the state of the art and the APCO has given written prior approval that shall include limitation of time. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 442 – *Usage of Solvents*. This rule reduces VOC emissions from VOC containing materials or equipment that are not subject to any other rule in Regulation XI. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 444 – *Open Outdoor Fires*. This rule ensures that the ambient air quality is not significantly degraded due to Open Outdoor Fires and applies the District Smoke Management Program to specified applications while minimizing smoke impacts to the public. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 481 – *Spray Coating Operations.* LLRC shall demonstrate compliance with this rule through the use of electrostatic and/or airless spray equipment to be operated inside a control enclosure which is approved by the APCO. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 900 – *Standards of Performance for New Stationary Sources (NSPS)*. Rule 900 adopts all applicable provisions regarding standards of performance for new stationary sources as outlined in 40 CFR 60. LLRC is subject to the state-approved portions of California's plan, the *Regulation to Achieve Greenhouse Gas Emission Reductions - Methane Emissions from Municipal Solid Waste Landfills* (also known as the Landfill Methane Rule or LMR) [17 CCR 95460 – 95476], which is federally enforceable via 40 CFR 60, Subpart Cf - *Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills*. LLRC will also comply with this regulation per Part II, Section A of the FOP, and via proposed conditions in Part III of their FOP.

Rule 1000 – *National Emission Standards for Hazardous Air Pollutants (NESHAP)*. Rule 1000 adopts all applicable provisions regarding standards of performance for new stationary sources as outlined in 40 CFR 61. LLRC is subject to 40 CFR 63, Subpart AAAA, the *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills*. LLRC will also comply with this regulation per Part II, Section A of the FOP, and this NESHAP via proposed conditions in Part III, of their FOP.

Rule 1107 – *Coating of Metal Parts and Product*. This rule limits the emission of VOC from coatings associated with Metal Parts and Products. LLRC is required to adhere to this rule. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 1110.2 – *Emissions from Stationary, Non-Road, and Portable Internal Combustion Engines.* LLRC shall comply with this rule for all Stationary, Non-Road, and Portable Internal Combustion Engines over 50 bhp except as exempted under Section H of this rule. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 1113 – *Architectural Coatings*. This rule limits the quantity of VOC in Architectural Coatings. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 1136 – *Wood Products Coatings*. This rule limits the quantity of VOC in Wood Coatings. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 1145 – *Plastic, Rubber, and Glass Coatings.* This rule limits the quantity of VOC in Plastic, Rubber, and Glass Coatings. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 1150 – *Excavation of Landfill Sites.* No person shall initiate excavation of an active or inactive landfill without an Excavation Management Plan approved by the APCO. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 1150.1 – *Control of Gaseous Emissions from Active Landfills*. This rule requires active landfills to install and maintain in good operating condition a landfill gas control system to prevent the concentration of total organic compounds from exceeding 50 ppm by utilizing an integrated air sample on the surface of the landfill, over an area determined to be representative by the APCO on a site-by-site basis, and not allow the maximum concentration of organic compounds from exceeding 500 ppm measured as methane at any point on the surface of the landfill. LLRC is required to comply with this rule by complying with the approved portions of California's plan, the *Regulation to Achieve Greenhouse Gas Emission Reductions - Methane Emissions from Municipal Solid Waste Landfills* (also known as the Landfill Methane Rule or LMR) [17 CCR 95460 – 95476], which is federally enforceable via 40 CFR 60, Subpart Cf - *Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills*. LLRC will also comply with this regulation per Part II, Section A of the FOP, and via proposed conditions in Part III of their FOP.

Rule 1168 – *Adhesive and Sealant Applications*. This rule limits the emission of VOC from chloroform, ethylene dichloride, methylene chloride, perchloroethylene, and trichloroethylene from the application of Adhesives, Adhesive Primers, Sealants, Sealant Primers, or any other Primers. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 1171 – *Solvent Cleaning Operations.* This rule limits the emissions of VOC from Solvent Cleaning operations and activities from the storage and disposal of these materials used for such operations. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Regulation XIII – *New Source Review.* This regulation sets forth requirements for the preconstruction review of all new or modified facilities. This permitting action does not constitute any NSR actions. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Regulation XVII – *Prevention of Significant Deterioration*. Please take notice that this regulation is not currently used within the AVAQMD because the USEPA has not delegated authority for the PSD Program to the AVAQMD currently.

Regulation XXX – *Federal Operating Permits.* This regulation contains requirements for sources that must have an FOP. LLRC will also comply with this regulation per Part II, Section A of the FOP.

Rule 3003 – *Federal Operating Permits*. This rule outlines the permit term, issuance, restrictions, content, operational flexibility, compliance certification, permit shield, and violations of Federal Operating Permits. LLRC will comply with this rule per Part II, Sections B, and C, and Part IV and V of the FOP.

Rule 3011 – *Greenhouse Gas Provisions of Federal Operating Permits*. LLRC is not a Major GHG Facility pursuant to Rule 3011; the facility has been and will remain in compliance with the requirements pertaining to this regulation.

State Rules:
17 CCR 95460 – 95476, *Regulation to Achieve Greenhouse Gas Emission Reductions - Methane Emissions from Municipal Solid Waste Landfills* (also known as the Landfill Methane Rule or LMR). The purpose of this sub-article is to reduce methane emissions from municipal solid waste (MSW) landfills pursuant to the California Global Warming Solutions Act of 2006 (Health & Safety Code, Sections 38500 et. seq.). LLRC is subject to this regulation as they are an MSW landfill that received solid waste after January 1, 1977. LLRC is subject to the approved portions of this California plan, which is federally enforceable via 40 CFR 60, Subpart Cf - *Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills*. LLRC is required to comply with these provisions as proposed conditions in Part III, Section A of their FOP.

Federal Regulations:
40 CFR 60, Subpart Cc, *Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills*. This subpart contains emission guidelines and compliance times for the control of certain designated pollutants from certain designated municipal solid waste landfills in accordance with section 111(d) of the Clean Air Act. LLRC is no longer subject to this regulation as it is no longer an applicable requirement since EPA formally clarified that Subpart 40 CFR 60, Subpart Cf (once implemented via a state or federal plan) supersedes subparts WWW and Subpart Cc.

40 CFR 60, Subpart Cf, *Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills.* This subpart establishes Emission Guidelines and compliance times for the control of designated pollutants from certain designated municipal solid waste (MSW) landfills in accordance with section 111(d) of the Clean Air Act. LLRC is a designated facility under this regulation and complies via the partially approved state plan, i.e. California's LMR [17 CCR 95460 – 95476] in conjunction with certain requirements of 40 CFR 62, Subpart OOO, specifically 40 CFR 62. 16716(c); 62.16720(a)(4); 62,16722(a)(2) and (a)(3); 62.16724(k); and 62.16726(e)(2) and (5), and opt-in provisions of 40 CFR 63, Subpart AAAA. Because the California LMR is only partially approved, EPA promulgated Subpart OOO, for the requirements that would apply to MSW landfills in California for the portions of the LMR that were lacking. Additionally, this action also included an option to allow MSW landfills to operate their gas collection and control systems in compliance with the similar provisions in 40 CFR 63, Subpart AAAA in lieu of the provisions specified in 40 CFR 62, Subpart OOO. If a landfill "opts in" to this compliance method, it allows landfills to follow one set of operating, compliance, and monitoring requirements for the gas collection and control system. LLRC "opted in" to the compliance method of complying with 40 CFR 63, Subpart AAAA in lieu of the provisions specified in 40 CFR 62, Subpart OOO. Together, the proposed conditions demonstrate compliance with 40 CFR 60, Subpart Cf. LLRC is expected to comply with the provisions of 40 CFR 60, Subpart Cf by complying with the proposed conditions of Part III, Section A of their FOP.

40 CFR 60, Subpart WWW, *Standards of Performance for Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification on or After May 30, 1991, but*

Before July 18, 2014. The purpose of this regulation was to regulate non-methane organic compounds (NMOC), methane, hazardous air pollutants (HAPs), and odorous compounds which are VOC emissions that contribute to ozone formation. LLRC is no longer subject to this regulation as it is no longer an applicable requirement since EPA formally clarified that Subpart 40 CFR 60, Subpart Cf (once implemented via a state or federal plan) supersedes subparts WWW and Subpart Cc.

40 CFR 60, Subpart XXX, *Standards of Performance for Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification After July 17, 2014*. This new NSPS subpart is based on EPA's ongoing review of the MSW Landfills. This regulation targets municipal solid waste landfills that commence construction, reconstruction, or modification after July 17, 2014. LLRC is not subject to this regulation as they have not commenced construction, reconstruction, or modification after July 17, 2014.

40 CFR 61, Subpart M – *National Emission Standard for Asbestos*. LLRC is required to comply with this regulation per Part II, Section B.7 of their FOP for any asbestos remediation activities.

40 CFR 62, Subpart OOO, *Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction on or Before July 17, 2014, and Have Not Been Modified or Reconstructed Since July 17, 2014*. This subpart establishes emission control requirements and compliance schedules for the control of designated pollutants from certain designated municipal solid waste (MSW) landfills in accordance with section 111(d) of the Clean Air Act and subpart B of 40 CFR part 60. LLRC is a designated facility under this regulation as they are a municipal solid waste landfill that commenced construction, reconstruction, or modification on or before July 17, 2014, and has accepted waste since November 8, 1987, and the landfill has additional capacity for future waste deposition. LLRC complies with portions of this subpart since the California LMR plan is only partially approved. Specifically, LLRC complies with the LMR and these portions of 40 CFR 62, Subpart OOO: 40 CFR 62. 16716(c); 62.16720(a)(4); 62,16722(a)(2) and (a)(3); 62.16724(k); and 62.16726(e)(2) and (5). Please note that while the LMR does not have any "opt-in" provisions, since the LMR is lacking and requires the specified five additional provisions of 40 CFR 62, Subpart OOO to be fully approvable by EPA, and Subpart OOO does allow for the "opt-in" provisions for implementation of 40 CFR 63, Subpart AAAA in lieu of Subpart OOO pursuant to 40 CFR 62.16716, 62.16720, and 62.16722, the District is proposing the higher wellhead temperature requirement from 40 CFR 63.1958(c)(1) (Subpart AAAA).LLRC is expected to comply with the provisions of 40 CFR 62, Subpart OOO by complying with the proposed conditions of Part III, Section A.21 through A.25 of the their FOP.

40 CFR 63, Subpart AAAA, *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills.* This NESHAP applies to MSW landfills that have accepted waste since November 8, 1987, or have additional capacity for waste deposition and are major sources, are collocated with major sources, or are area source landfills with a design capacity equal to or greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m^3) and have estimated uncontrolled emissions equal to or greater than 50 megagrams per year (Mg/yr) of non-methane organic compounds (NMOC). This NESHAP also applies to MSW landfills that have accepted waste since November 8, 1987, or have additional capacity for waste deposition and include a bioreactor and are major sources, are collocated with major sources, or are area

source landfills with a design capacity equal to or greater than 2.5 million Mg and 2.5 million m that were not permanently closed as of January 16, 2003. LLRC is an affected source under this regulation as it is an MSW landfill that has accepted waste since November 8, 1987, and has additional capacity for waste deposition is an area source landfill with a design capacity equal to or greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m) and have estimated uncontrolled emissions equal to or greater than 50 megagrams per year (Mg/yr) of non-methane organic compounds (NMOC). LLRC is expected to comply with the provisions of 40 CFR 63, Subpart AAAA by complying with the proposed conditions of Part III, Section B of their FOP.

40 CFR 64, *Compliance Assurance Monitoring*. The Compliance Assurance Monitoring (CAM) rule (40 CFR 64) applies to each Pollutant Specific Emissions Unit (PSEU) when it is located at a Major Facility that is required to obtain Title V, Part 70 or 71 permit, and it meets all of the following criteria. "PSEU" means an emissions unit considered separately concerning each regulated air pollutant. The PSEU must:
a. Be subject to an emission limitation or standard [40 CFR 64]; AND,
b. Use a control device to achieve compliance [40 CFR 64.2(a)(2)]; AND,
c. Have the potential pre-control emissions that exceed or are equivalent to the major source threshold. [40 CFR 64.2(a)(3)]

LLRC is not subject to CAM as this facility does not have the potential pre-control emissions that exceed or are equivalent to the major source threshold for any regulated pollutant (non-fugitive emissions). A summary of LLRC's non-fugitive, actual, and potential to emit emissions from the enclosed flare, the sole non-fugitive permanent source at LLRC, in comparison with the applicable major source thresholds in tons per year, is shown in Table 3:

Table 3: Comparison of Emissions; Actual, PTE, and Major Source Thresholds

Pollutant	Actual (tpy)	PTE (tpy)	Major Source Threshold (tpy)
CO	8.19	53.19	100
NOx	4.99	15.96	25
PM10	0.09	4.52	15
SOx	0.09	22.22	100
VOC[1]	0.04	13.30	25
Single HAP	<<10	<<10	10
Combined HAP	0.77	2.18	25

1. The VOC emissions are based on the non-fugitive emissions of the landfill, the VOC value includes the emissions from the landfill gas (fugitive), after the Hydrogen Sulfide Treatment System. Regardless the PTE for VOC for both fugitive and non-fugitive emissions is 13.30 tpy, which is still below the major source threshold.
2. The Combined HAP emissions are based on the non-fugitive emissions of the landfill, the Combined HAP value includes the emissions from the landfill gas (fugitive), after the Hydrogen Sulfide Treatment System. Regardless the PTE for Combined HAP for both fugitive and non-fugitive emissions is 2.18 tpy, which is still below the major source threshold.

Emissions presented in Table 3 can be found in Appendix C. As a reminder, LLRC only is subject to 40 CFR 70 (Title V) because they are required to obtain one pursuant to 40 CFR 60, Subpart Cf as they are an MSW landfill with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters.

D. CONCLUSIONS AND RECOMMENDATIONS:

The District has reviewed the Title V application for the Lancaster Landfill & Recycling Center and determined it to be complete pursuant to AVAQMD Rule 3002(D)(1). The proposed FOP is in compliance with all applicable District, State, and Federal rules and regulations when operated in the terms of the operating conditions given herein. The proposed FOP and corresponding statement of legal and factual basis has been or will be, publicly noticed pursuant to AVAQMD Rule 3007. To view the public notice please refer to Appendix A of this document.

E. PUBLIC COMMENT AND NOTIFICATIONS:

1. Public Comment

This preliminary determination was publicly noticed on or before 2/14/2024, (See Appendix A for Public Notice). The 30-day Public Commenting Period will end at COB on 3/15/2024.

Noticing Methods included the following, per AVAQMD Rule 3007 (A)(1)(a) and AVAQMD Rule 1302(D)(2) and (3):

- Published in a newspaper of general circulation - Antelope Valley Press on or before 2/14/2024
- Mailed and/or emailed to AVAQMD contact list of persons requesting notice of actions (see the contact list following the Public Notice in Appendix A) on or before 2/14/2024.
- Posted on the AVAQMD Website at the following link: on or before 2/14/2024: http://avaqmd.ca.gov/permittingpublic-notices

2. Notifications

The preliminary determination was submitted via e-mail to EPA and CARB pursuant to AVAQMD Rule 3007 for a forty-five (45) day review period on or before 2/14/2024; pending no objections, the final modified FOP is issued on or about 4/2/2024.

All correspondence as required by AVAQMD Rules 1302 and 3007 was forwarded electronically to the following recipients:

Director, Office of Air Division
United States EPA, Region IX
75 Hawthorne Street
San Francisco, CA 94105
via EPA's EPS Portal: https://cdx.epa.gov/

Chief, Stationary Source Division
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812
via e-mail at: Permits@arb.ca.gov

Lancaster Landfill & Recycling Center
Waste Management
600 East Avenue F
Lancaster, CA 93535
Attn: Collin Pavelchik
via e-mail at: cpavelch@wm.com

APPENDIX A
PUBLIC NOTICE

Noticing requirements pursuant to District Rule 1302:

- Published in a newspaper of general circulation – Antelope Valley Press on or before February 14, 2024
- Mailed and/or emailed to AVAQMD contact list of persons requesting notice of actions (see the contact list following the Public Notice in Appendix A) on or before February 14, 2024
- Posted on the AVAQMD Website at the following link: http://avaqmd.ca.gov/permitting-public-notices

Antelope Valley Air Quality Management District
2551 West Avenue H Lancaster, CA 93536
661-723-8070
www.avaqmd.ca.gov
Barbara Lods, Executive Director

NOTICE OF PRELIMINARY DETERMINATION

NOTICE IS HEREBY GIVEN THAT the Lancaster Landfill and Recycling Center (LLRC), located at 600 E Avenue F, Lancaster, CA 93535, has submitted an application package to the AVAQMD for a Federal Operating Permit pursuant to the provisions of AVAQMD Regulation XXX. The applicant operates a facility engaged in municipal waste disposal utilizing a landfill gas collection and control system with an enclosed flare to control emissions generated from waste decomposition. LLRC is subject to the Title V Program under the Emission Guidelines (EG) for Municipal Solid Waste (MSW) Landfills, promulgated under 40 Code of Federal Regulations (CFR) Part 60, Subpart Cf - Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills, as LLRC has a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters [40 CFR 60.31f(c)].

REQUEST FOR COMMENTS: Interested persons are invited to submit written comments and/or other documents regarding the terms and conditions of the proposed issuance of LLRC's Federal Operating Permit. If you submit written comments, you may also request a public hearing on the issuance of the Federal Operating Permit. To be considered, comments, documents, and requests for public hearing must be submitted no later than 5:00 P.M. on 3/15/2024, to the AVAQMD at the address listed below.

PETITION FOR REVIEW: Federal Operating Permits are subject to review and approval by USEPA and CARB. If USEPA/CARB does not object to the proposed permit and Statement of Legal and Factual Basis, and the AVAQMD has not addressed a public comment adequately, the public may petition the USEPA, Region IX, Operation Permits Section at 75 Hawthorne Street, San Francisco, CA 94105 within 60 days after the end of the USEPA review period for USEPA to reconsider its decision not to object to the permit.

AVAILABILITY OF DOCUMENTS: The proposed Federal Operating Permit, as well as the application and other supporting documentation, are available for review at the AVAQMD offices, Antelope Valley Air Quality Management District, 2551 West Avenue H, Lancaster CA 93536. In addition, these documents are available on the AVAQMD website and can be viewed at the following link: https://avaqmd.ca.gov/permitting-public-notices. Please contact Taylor Morais at 661-723-8070, extension 24, or at tmorais@avaqmd.ca.gov for additional questions about this action and/or corresponding documents.

*Traducción en español esta disponible por solicitud. Por favor llame: (661) 723-8070

APPENDIX B

Email List of Persons Requesting Notice of Action

D. Rothbart	drothbart@lacsd.org
A. Herath	aherath@cityofpalmdale.org
Alan DeSalvio	engineering@AVAQMD.ca.gov
Alex Saschin	alex.saschin@sonoma-county.org
Ali Reza Ghasem	engineering@vcapcd.org
Anne McQueen	AMcQueen@YorkeEngr.com
Anthony Morales	GTTribalcouncil@aol.com
Ben Beattie	notify@ysaqmd.org
Bill Whitaker	billw@charlesmcmurray.com
Bret Banks	avreporting@avaqmd.ca.gov
Carlene Saxton	csaxton@cityofpalmdale.org
Carrol Kaufman	cykaufman@mwdh2o.com
Colby Morrow	CLMorrow@semprautilities.com
Collin Pavelchik	cpavelch@wm.com
Daniel McGivney	dmcgivney@socalgas.com
El Dorado County AQMD	aqmd@edcgov.us
George Jung	george.jung@ngc.com
Angelica C. Jackson	angelica.c.jackson@nasa.gov
Jocelyn Swain	jswain@cityoflancasterca.org
Judy Rocchio	Judy_Rocchio@nps.gov
Karin Fickerson	kfickerson@semprautilities.com
Kyle Mertens	kmertens@wm.com
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McKay (US), Vincent P	vincent.p.mckay@boeing.com
Mitch Haimov	publicnotice@aqmd.gov
Monique Cadle	mcadle@glaze-n-seal.com
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Sara Head	SHead@YorkeEngr.com
Scott Dickinson	bradley.dickinson@us.af.mil
Stepman, Marci B	marci.b.stepman@lmco.com
Tim Hughes	timothy.hughes.24@us.af.mil
Tonnie Cummings	Tonnie_Cummings@nps.gov

	A	B	C	D	E	F
2	Air Division (Attn: AIR-3)	United States EPA, Region IX	75 Hawthorne Street	San Francisco	CA	94105
3	Andrew Salas	Gabriel Band of Mission Indians - Kizh Nation	PO Box 393	Covina	CA	91723
4	Andy Schrool	Wm Bolthouse Farms	7200 E. Brundage Lane	Bakersfield	CA	93307
5	Angelica Jackson	NASA Armstrong Flight Research Center, Safety and Environmental Office	PO BOX 273, MS 4822B	Edwards AFB	CA	93523
6	Anne McQueen	Yorke Engineering, LLC	31725 Rancho Viejo Road, Suite 218	San Juan Capistrano	CA	92675
7	Anthony Morales	San Gabriel Band of Mission Indians	PO Box 693	San Gabriel	CA	91778
8	Bill Whiteker	Charles McMurray Co.	2801 Land Ave.	Sacramento	CA	95815
9	Brad Poirier	Mojave Desert AQMD	14306 Park Avenue	Victorville	CA	92392-2310
10	Bret Banks	Antelope Valley AQMD	43301 Division St., Suite 206	Lancaster	CA	93535
11	Brian Polson	L.A. County Sanitation Districts	1955 Workman Mill Road	Whittier	CA	90601
12	Carol Kaufman	Metropolitan Water District	700 N Alameda Street, 8th Floor Rm 106	Los Angeles	CA	90012
13	Catherine Jacobson	3M Company, Material EHS	3M Center, Building 0220-06-E-03	St. Paul	MN	55144
14	Chris Mastero	Los Angeles County	5050 Commerce Drive	Baldwin Park	CA	91706
15	Clifford Burg	PDCC	3504 Walnut Avenue, Suite A	Carmichael	CA	95608
16	Colby Morrow	Southern California Gas Co.	2099 E. Lester Avenue	Fresno	CA	93720-3982
17	Dan Wilke	Wm Bolthouse Farms	7200 East Brundage Lane	Bakersfield	CA	93307
18	Daniel Pourreau	Lyondell Basell Industries	1221 McKinney Street	Houston	TX	77010
19	David Rothbart	Los Angeles County Sanitation District	1955 Workman Mill Road	Whittier	CA	90601
20	Dennis Sloan		5310 E. Meredith Avenue	Palmdale	CA	93552
21	Donna Termeer	Field Deputy, Supervisor Barger	42455 10th Street West, Suite 104	Lancaster	CA	93534
22	Dorik Lo	United States EPA, Region IX	75 Hawthorne Street	San Francisco	CA	94105
23	Environmental Contact	Delux Financial Services	42930 Business Center Parkway	Lancaster	CA	93535
24	Environmental Contact	Air Force Base Research Laboratory	95 ABW/CEV-5 East Popson Avenue, Building 2650A	Edwards AFB	CA	93524-8060
25	Gary Rubenstein	Sierra Research	1801 J Street	Sacramento	CA	95814
26	George Jung	Northrop Grumman	3520 E. Avenue M, PA11AG	Palmdale	CA	93550
27	Glen Stephens	Eastern Kern Air Pollution Control District	2700 "M" Street, Suite 302	Bakersfield	CA	93301-2370
28	J.J. Murphy	City of Palmdale	38300 Sierra Highway	Palmdale	CA	93550
29	Janet Bell	Metropolitan Water District	700 North Alameda Street	Los Angeles	CA	90012
30	Janet Laurain	Adams Broadwell Joseph & Cardozo	601 Gateway Blvd., St. 1000	South San Francisco	CA	94080-7037
31	Jason Caudle	City of Lancaster	44933 N Fern Avenue	Lancaster	CA	93534
32	Jenna Lat	CARB/Office of Ombudsman	9480 Telstar Avenue, Annex 1	El Monte	CA	91731
33	Judy Roochio	National Park Service	333 Bush St. Ste. 300	San Francisco	CA	94104
34	Kristine Tierney	ESA/Energy	1425 N. McDowell Boulevard, Suite 200	Petaluma	CA	94954
35	LA County Farm Bureau		41228 12th Street West, Suite A	Palmdale	CA	93551-1400
36	Leslee Newton-Reed	California Department of Fish and Game	3883 Ruffin Road Ste. A	San Diego	CA	92123
37	Lin Wang	Los Angeles World Airports	7301 World Way West, Room 312	Los Angeles	CA	90045
38	Linea Norby	Air Force Plant 42	412 TW/OL-AFP 42	Palmdale	CA	93550
39	Lisa Beckham	United States EPA, Region IX	75 Hawthorne Street	San Francisco	CA	94105
40	Marci Stegman	Verdant Environmental	509 Meridian Avenue , Unit G	South Pasadena	CA	91030
41	Michael Tollstrup	California Air Resources Board	P.O. Box 2815	Sacramento	CA	95812
42	Mike Kirby	US Borax Inc.	14486 Borax Rd.	Boron	CA	93516
43	Monique Castle	Glaze 'N Seal Products	16207 E. McDurmott St., Suite C	Irvine	CA	92614
44	Nicole Stetson	Waste Management of California, Inc	PO Box 4040	Palmdale	CA	93534
45	Noel Muyco	Sempra Energy	555 W. 5th St., ML 17G3	Los Angeles	CA	90051-1249
46	Rob Duchow	Southern California Gas Co.	3701 Pegasus Drive, Suite 114	Bakersfield	CA	93308
47	Scott Webb	95ABW/CEVC	5 East Popson Ave., Bldg 2650A	Edwards AFB	CA	93524
48	Seyed Sadredin	San Joaquin Valley APCD	1990 E. Gettysburg	Fresno	CA	93726
49	Sheri Arnold	Antelope Valley Press	P.O. Box 880	Palmdale	CA	93590
50	Sheri Haggard	MDAQMD	14306 Park Ave	Victorville	CA	92392
51	Southern California Edison	Allenson: ESD	P.O. Box 5095	Rosemead	CA	91770-0908

	A	B	C	D	E	F
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APPENDIX C
APPLICATION PACKAGE

SCS ENGINEERS

Application for Title V Permit

Lancaster Landfill and Recycling Center

Lancaster, California

Presented to:

Antelope Valley Air Quality Management District
43301 Division Street, Suite 206
Lancaster, CA 93535

Presented by:

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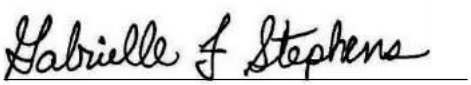
August 2014
(Revised November 2014)
File No. 01200029.07 Task 46

Offices Nationwide
www.scsengineers.com

This application for a Title V Permit for Lancaster Landfill & Recycling Center and Recycling Center in Lancaster, California, dated August 2014 (Revised November 2014), was prepared and reviewed by the following:



Gabrielle F. Stephens
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Senior Vice President
SCS ENGINEERS

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List of Tables (attached)

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1.0 INTRODUCTION

1.1 OVERVIEW

This document, prepared by SCS Engineers (SCS) on behalf of Lancaster Landfill & Recycling Center and Recycling Center, Inc., a wholly-owned subsidiary of Waste Management of California, Inc. (WM), is an application for a Title V Permit. It provides supplemental information in support of an initial Title V Federal Operating Permit for the Lancaster Landfill & Recycling Center and Recycling Center (LLRC) located in Lancaster, California. Please note that an application for Title V Permit was originally submitted to the Antelope Valley Air Quality Management District (AVAQMD) in April 2001. The AVAQMD requested that WM submit a new application as there have been modifications to the landfill permits, additional permits issued and a change in Responsible Official since the original submission.

1.2 SOURCE DESCRIPTION

The facility is a Class III municipal solid waste (MSW) landfill as defined by Resource Conservation and Recovery Act (RCRA) Subtitle D located at 600 East Avenue F in the City of Lancaster, California. The facility is located within a portion of Section 35 and Section 36, Township 8 North, Range 12 West, of the San Bernardino Meridian, Los Angeles County, California. LLRC began accepting waste in 1954. The site occupies approximately 276 acres, of which 209 acres are permitted for disposal. As of the end of 2013, the total waste footprint was approximately 123.9 acres. The current permitted capacity of the landfill is 21,773,700 tons. As of the end of 2013, the total waste-in-place was 7,379,067.

LLRC accepts various residential, commercial, and light industrial refuse. No regulated hazardous waste or liquid wastes are accepted at the site. LLRC has an active landfill gas (LFG) collection and control system (GCCS). The permitted devices installed on-site are covered by the existing permits to operate (PTOs) and include landfill condensate storage, a LFG collection system, and an Authority to Construct (ATC) for an enclosed flare.

1.3 OPERATING SCHEDULE

LLRC is permitted to operate from 5:00 a.m. to 10:00 p.m., six days per week, and receive refuse from 5:00 a.m. to 8:00 p.m., six days per week. Normal operating hours are Monday through Friday from 8:30 a.m. to 6:00 p.m., and 7:30 a.m. to 2 p.m. on Saturdays. The site is open to the public and accepts waste from 9:00 a.m. to 4:30 p.m. on Monday through Friday, and 8:00 a.m. to 12:00 p.m. on Saturdays. Site hours may extend beyond the normal operating hours to allow for site preparation and daily covering, as well as for seasonal variations.

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2.0 SITE CHARACTERISTICS

2.1 DESIGN

LLRC was designed using cut-and-fill methods. Soils are excavated as needed and used for daily, intermediate, and final cover. The existing disposal area consists of a pre-Subtitle D unlined area as well as lined phases 1A, 1B, 1C and 2A (Appendix A – Site Plan) which have a leachate collection system installed. New landfill cells constructed in the remaining expansion areas will continue to be designed and constructed in accordance within United States Environmental Protection Agency (U.S. EPA) RCRA regulations (40 Code of Federal Regulations (CFR) Part 258), and will have a synthetic liner and a leachate collection system.

2.2 GAS COLLECTION AND CONTROL SYSTEM

A GCCS has been installed at LLRC with the purpose of minimizing potential environmental impacts associated with LFG, including the following:

- LFG emissions at the landfill surface.
- LFG emissions out of the flare stack.
- LFG migration through the vadose zone.

The GCCS removes LFG under a vacuum from the landfill mass. The system collects and controls LFG to mitigate potential surface and subsurface gas migration from the disposal area.

The GCCS currently installed at the LLRC is shown in the site plan provided in Appendix A, and consists of the following components:

- A system of no more than 60 vertical extraction wells.
- A system of lateral piping which connects the vertical wells to a main header system.
- A main collection header which transports LFG to the blower/flare station.
- A blower/flare station.
- A condensate collection system.

3.0 EMISSIONS RELATED INFORMATION

Emissions are summarized on the Facility Emission Summary form (AVAQMD Form 3002-B2) and are listed for individual emissions sources on AVAQMD Forms 3002-C, 3002-G and 3002-H. These and all other AVAQMD Title V application forms are provided in Appendix B. Supporting emissions calculations for each source are presented in Tables 1 through 11.

The following sections describe emission sources at LLRC.

3.1 FUGITIVE EMISSION SOURCES

The following fugitive emission sources are associated with the LLRC operations:

- LFG emissions containing non-methane organic compounds (NMOCs), volatile organic compounds (VOCs), and hazardous air pollutants (HAPs) are generated by the microbial degradation of MSW.
- Paved and unpaved roadways used by refuse hauling vehicles and other on-site vehicles generate fugitive particulate matter (PM) dust emissions, including PM less than 10 microns (PM_{10}), PM less than 2.5 microns ($PM_{2.5}$), and total suspended particulates (TSP).
- Construction activities, including heavy equipment traffic on unpaved roadways and landfill surfaces, generate PM dust emissions.
- PM dust emissions are generated from cell excavation, and disposition of soil cover material on the landfill surface. Soil is excavated as needed for daily, intermediate, and/or final cover material, and for constructing bottom liners for new landfill cells.
- PM dust emissions are generated from stockpile erosion due to the effects of wind on cover stockpiles and landfill surfaces with daily, intermediate, and/or final cover material.
- PM emissions are generated as a result of brush chipping activities. In accordance with California Air Resources Board (CARB) and U.S. EPA requirements, the on-site use of this equipment is subject to regulation under Title V for non-engine emissions/operations. Per CARB guidance, the equipment can be covered under the Title V permit by referencing and requiring compliance with the CARB portable registration requirements pertaining to non-engine issues.
- Soil containing petroleum hydrocarbons may be deposited at the landfill, which contains low levels of VOCs and HAPs.

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3.2 NON-FUGITIVE EMISSION SOURCES

- The facility has an active 1,388 standard cubic feet per minute (scfm) John Zink enclosed flare (AVAQMD Permit Number C006906) utilized for control and combustion of the LFG generated by the landfill mass, and combustion of LFG condensate collected in the GCCS. The flare generates combustion emissions.

- The facility has an LFG collection system (AVAQMD Permit Number C006904) which pulls LFG from the refuse mass under vacuum and delivers it to the flare. The LFG collection system itself generates zero emissions since no venting occurs during normal operation. Emissions from LFG combusted in the flare are included in the flare emissions.

- The facility has an LFG condensate collection system (AVAPCD Permit Number C006907) consisting of 4 condensate pumps and a 10,000-gallon capacity condensate holding tank. Collected condensate is disposed through injection into the flare along with the LFG. The condensate collection system itself generates zero emissions since no venting occurs during normal system operation. Emissions from condensate combusted in the flare are included in the flare emissions.

- A 750-horsepower brush ("tub") grinder (diesel engine), which is being operated by a subcontractor on site to chip green waste and brush, creates diesel fuel combustion emissions. This equipment is a registered portable source (CARB Permit Numbers 107657, 107658, and 107659); therefore combustion emissions are exempt from Title V permitting requirements. However, when this equipment is on-site, it will comply with other applicable standards for non-engine emissions/operations.

3.3 INSIGNIFICANT SOURCES

- One 5-horsepower gasoline water pump which is operated for approximately 15 hours per year creates combustion emissions. This equipment is exempt from Title V permitting requirements pursuant to AVAQMD Rule 219 Section (E)(2)(a), which exempts internal combustion engines with a manufacturer's rating of 50 brake horsepower or less.

- One 5-horsepower diesel light plant which is operated from 12 to 22 weeks per year creates combustion emissions. This equipment is exempt from Title V permitting requirements pursuant to AVAQMD Rule 219 Section (E)(2)(a), which exempts internal combustion engines with a manufacturer's rating of 50 brake horsepower or less.

- Arc-welding equipment, which is not used to cut stainless steel and is rated below 30 kilowatts (kW), is exempt from Title V permitting requirements pursuant to AVAPCD Rule 219 Section (E)(5)(h).

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- Two propane storage tanks, each with a capacity of 19,815 gallons or less (approximately 250 and 320 gallons each), are exempt from Title V permitting requirements pursuant to AVAQMD Rule 219 Section (E)(13)(b).

- One 240-gallon lubricating oil tank is exempt from Title V permitting requirements pursuant to AVAQMD Rule 219 Section (E)(13)(g).

- Two (2) transmission oil tanks (240 and 300 gallons each) and two (2) hydraulic fluid tanks (360 and 125 gallons each) are exempt from Title V permitting requirements pursuant to AVAQMD Rule 219 Section (E)(13)(g).

- One 240-gallon waste oil tank is exempt from Title V permitting requirements pursuant to AVAQMD Rule 219 Section (E)(13)(h).

- Water-based parts cleaning equipment is exempt from Title V permitting requirements pursuant to AVAQMD Rule 219 Section (E)(12)(d).

- Two propane comfort heaters, rated below 2,000,000 Btu/hour are exempt from Title V permitting requirements pursuant to AVAQMD Rule 219 Section (E)(2)(b) and (E)(4)(f). The heaters are rated for 0.108 and 0.6 MMBtu/hr.

- Leachate collection, storage and recirculation generate very low levels of VOCs and HAPs. The leachate is generated by precipitation or other moisture which percolates through the refuse mass and is collected by the subsurface leachate recovery system. The leachate is collected from the drainage layer into sumps and pumped through conveyance pipes and used on the landfill as dust suppressant which reduces the use of fresh water. The leachate collection and storage system is exempt from Title V permitting requirements pursuant to AVAQMD Rule 219(D)(1). The calculated potential to emit (PTE) emissions are 0.00068 tons per year (tpy) for VOCs and 0.0043 tpy for HAPs.

- Two aboveground diesel storage tanks (one 300-gallon and one 480-gallon tank) are used for storage of unheated organic materials with an initial boiling point of 150 degrees Celsius (ºC) ((302 degrees Fahrenheit (ºF)) or greater, and the transfer of less than 75,700 liters (20,000 gallons) per day. Diesel storage and transfer operations are therefore considered exempt from Title V permitting requirements pursuant to AVAQMD Rule 219 Section (E)(13)(c) and Section (E)(13)(d).

- The facility has a biofilter (AVAQMD Permit Number C010662) consisting of glass/concrete, geotextile layer and compost or woodchips and a misting system. The facility also has a dry anaerobic digester (AVAQMD Permit Number B010661) consisting of six (6) digestion vessels, air injection, and leachate collection/recirculation piping. The leachate storage system consists of two (2), 2,500-gallon tanks, which is vented to the biofilter above. Please note this system is permitted as part of a research project and the research permit expires in August

2015; therefore, the equipment is exempt from Title V permitting requirements.

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No other non-trivial or insignificant activities conducted in the operations and maintenance of the LLRC are expected to impact and/or cause potential emissions of regulated air pollutants. The process flow diagrams for the on-site operations are presented in Appendix C.

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4.0 METHODOLGY FOR EMISSION CALCULATIONS

4.1 LFG EMISSIONS

The LFG generation estimates were developed using historical and estimated future refuse disposal rates. The current (2014) disposal rate is approximately 93,000 tpy through 2018. Future disposal rates were estimated to increase to a maximum of 260,389 tpy until a reported closure date of 2064 (excluding post closure activities).

LFG generation estimates, in standard cubic feet per minute (scfm), are developed using the U.S. EPA's LFG Emissions Model (LandGEM), Version 3.02, using region-specific k = 0.02 and Lo = 100 cubic meters per Mg (m^3/Mg) parameters, which are recommended in the U.S. EPA's "Compilation of Air Pollutant Emission Factors" (AP-42) document for dry climates, and estimated future disposal rates.

The disposal estimates and LFG generation estimates are shown in Table 1 attached. As the table shows, the landfill is estimated to reach capacity and close in 2064. LFG generation is expected to reach a maximum (2,361 scfm at 50% methane) in the following year (2065), which is the year used for estimating maximum PTE emissions from LFG. Actual emissions are based on the generation rate for 2014 (1,116 scfm at 50% methane). Fugitive emissions from the landfill can be found in Table 2 attached.

In addition, HAP concentrations in LFG were taken from the most recent LFG analysis from February 27, 2014 (Appendix D). For compounds not tested, the Waste Industry Air Coalition (WIAC) Report titled, "Comparison of Recent Landfill Gas Analysis with Historic AP-42 Values" was used and is included in Appendix E. The WIAC report provides more comprehensive and recent data, as well as provides more realistic LFG constituents based on recent source tests throughout the United States. These are provided as an alternative to the AP-42 default concentrations, which we find to be high as compared to real data at MSW landfills today, as described in the WIAC report.

4.2 FLARE EMISSIONS

The LFG flow rate to the flare in 2013 was 589 scfm at 50% methane based on collected flow data and was used for actual emission estimates for the flare. Based on AP-42 guidance and a U.S. EPA policy memorandum (Classification of Emissions from Landfills for NSR Applicability Purposes, October 21, 1994), 75 percent of the LFG is assumed to be "reasonably collectable" and non-fugitive. Therefore, 75 percent of the LFG generated in 2065 (PTE year), or 1,771 scfm (at 50% methane), is assumed to be combusted in the flare or other allowed control device.

Emissions of HAPs from the flare are based on the LFG flow rate to the flare and destruction efficiencies listed in AP-42 Table 2.4-3. Actual emissions of the criteria pollutants from the flare, including sulfur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO), $PM_{2.5}$,

PM_{10}, TSP, NMOCs and VOCs are based on the results from the most recent flare source test in

February 2014 (Appendix D). VOCs are assumed to be equal to NMOC emissions to be conservative, although VOCs are actually a subset of NMOCs. PTE emissions of these criteria pollutants are based on the maximum emissions rates allowable in the AVAQMD flare permit. Actual and PTE for the enclosed LFG flare can be found in Table 3.

4.3 FUGITIVE DUST EMISSIONS FROM VEHICLE TRAFFIC AND LANDFILL COVER ACTIVITIES

4.3.1.1 Vehicle Traffic on Unpaved Roads and Landfill Surfaces

PM_{10}, $PM_{2.5}$ and TSP emissions from vehicles are estimated by multiplying a vehicle emissions factor in lbs/vehicle-mile travelled (lb/VMT) by total vehicle mileage. The vehicle emissions factors are determined using the following equation as referenced in AP-42, Section 13.2.2:

$$E = [(k)\ (s/12)^a\ (W/3)^b\ (365\text{-}p/365)]$$

Where:

E = Annual emission factor in (lb/VMT)

k = Empirical constant = 1.5 lb/VMT for PM_{10}, 0.15 lb/VMT for $PM_{2.5}$, and 4.9 lb/VMT for TSP (AP-42, Table 13.2.2-2)

s = Silt content of road surface material (%) (6.4% for unpaved roads per AP-42, Table 13.2.2-1), default for landfill roads.

a = Empirical constant = 0.9 (unitless) for PM_{10} and $PM_{2.5}$, and 0.7 for TSP (AP-42, Table 13.2.2-2)

W = Mean vehicle weight (tons)

b = Empirical constant = 0.45 (unitless) for PM_{10}, $PM_{2.5}$, and TSP (AP-42, Table 13.2.2-2)

p = Number of days with at least 0.01 in. of precipitation/year = 27 days (estimated using AP-42, Figure 13.2.2-1)

Differences between actual (2014) and PTE emissions are based on differences in the total miles traveled under each scenario. Emissions under the PTE scenario are calculated by multiplying actual VMT by the ratio of the PTE to actual refuse tonnages in order to scale up for maximum conditions. Emissions estimates for vehicle traffic on unpaved roads and landfill surfaces can be found in Tables 4 and 5 attached.

4.3.1.2 Vehicle Traffic on Paved Roads

$PM_{2.5}$, PM_{10} and TSP emissions from vehicles are estimated by multiplying a vehicle emissions factor (in lbs/vehicle-mile) by total vehicle mileage. The vehicle emissions factors are determined using the following equation as referenced in AP-42, P. 13.2.1:

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$$E = [k(sL)^{0.91} (W)^{1.02} - C] (1-P/4N)$$

Where:

E = Emission factor (lb/vehicle-mile traveled (VMT))

k = Particle size multiplier for PM_{10} particle size (dimensionless) = 0.016 lb/VMT, 0.0024 lb/VMT for $PM_{2.5}$, 0.082 lb/VMT for TSP (from AP-42, Table 13.2-1.1)

sL = Road surface silt loading factor (grains per ft^2) = 7.4 g/m^2 (from AP-42, Table 13.2.1-4), default for landfill roads.

W = Mean vehicle weight (tons) = 4.91 tons (from LLRC staff)

P = Number of days with >0.01 inches of rainfall = 27 days (estimated using AP-42, Figure 13.2.1-2)

N = Number of days in averaging period for P estimate = 365 days (from AP-42, Section 13.2.1-7)

Differences between actual (2014) and PTE emissions are based on differences in the total miles traveled under each scenario. Emissions under the PTE scenario are calculated by multiplying actual VMT by the ratio of the PTE to actual refuse tonnages in order to scale up for maximum condition. Emission estimates for vehicle traffic on paved roads can be found in Table 6 attached.

4.3.1.3 Wind Erosion of Cover Storage Piles

Fugitive dust emissions from wind erosion of the cover storage piles are estimated multiplying emission factors (in lbs/acre) by the area of the storage piles. Emissions factors for windblown dust have been published in the EPA's FIRE (Factor Information and Retrieval System) database. Emission estimates from wind erosion of cover storage piles can be found in Table 7 attached.

4.3.1.4 Excavation, Unloading and Deploying Cover Material

Actual and PTE fugitive dust emissions from excavating and unloading cover material into storage piles and deploying onto the landfill are calculated using an emissions factor (in lbs/ton transferred) multiplied by the amount of material transferred per year. The emissions factor is estimated using the following equation (from AP 42, p. 13.2.4-6).

$$E = k (0.0032) (U/5)^{1.3} / (M/2)^{1.4}$$

Where:

E = Emission factor (lb/ton)

k = Particle size multiplier = 0.35 for PM_{10}, 0.053 for $PM_{2.5}$, and 0.74 for TSP (from

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U = Mean wind speed = 7.7 miles per hour (mph) (from C. Anderson at AVAQMD)

M = Material moisture content = 0.5% (from C. Anderson at AVAQMD)

Emissions estimates for material handling can be found in Table 8 attached.

4.3.1.5 Brush Chipping

Actual $PM_{2.5}$, PM_{10} and TSP emissions from brush chipping operations are estimated using an emission factor found in AP-42 Table 11.19.2-2 since no information is available regarding wood processing and actual amounts of brush processed (1,850 tons per year). PTE $PM_{2.5}$, PM_{10} and TSP emissions are estimated using the same emission factor and the estimated PTE amount of brush processed (8,120 tons per year), which is based on a 3% growth rate annually from the current amount of brush processed until closure (2064). Emission estimates for brush chipping can be found in Table 9 attached.

4.4 PETROLEUM CONTAMINATED SOIL LANDFILLING

Actual and PTE VOC and HAP emissions from petroleum contaminated soil (PCS) are estimated using the current (2014) accepted amount of soil accepted (8,750 tpy) and the maximum allowed (1,500 ton/day or 460,500 tpy) and the concentrations taken from the LLRC's Waste Analysis Plan (WAP) Table 1 "Analytical Method Limits and Soil Screening Levels for Chemicals Evaluated". Emission estimates for PCS landfilling can be found in Table 10 attached.

4.5 TOTAL POTENTIAL TO EMIT

The methods previously described in the section were used to estimate the actual and PTE resulting from all applicable processes at LLRC (including both fugitive and non-fugitive emissions). The calculations are summarized in Table 11 attached and below.

Summary of Facility-Wide Emissions

Pollutant	Actual Emissions (lb/hr)	Actual Emissions (tpy)	Proposed PTE (lb/hr)	Proposed PTE (tpy)
NOx	0.70	3.08	2.70	11.83
CO	0.32	1.40	12.90	56.50
SOx	1.00	4.38	4.42	19.36
NMOC	2.73	11.96	5.81	25.46
VOC	2.74	12.01	6.37	27.92
$PM_{2.5}$	0.10	0.26	0.68	1.80
PM_{10}	0.82	2.16	5.82	15.30
TSP	2.98	7.81	20.98	54.99
Total HAPs	0.85	3.74	1.83	8.02

Highest Single HAP	0.37	1.63	0.79	3.46

5.0 GREENHOUSE GAS EMISSIONS

Title V permits and permit renewals issued after January 1, 2011 are required to address greenhouse gas (GHG) emissions. This application includes GHG emission calculations to determine whether Prevention of Significant Deterioration (PSD) and Title V permit requirements for GHGs will apply to the Project, if any. LFG-derived emissions of CO_2 are considered biogenic, meaning they come from a biofuel and do not contribute to a net increase in atmospheric carbon dioxide (CO_2).

On July 1, 2011, the U.S. EPA issued a rule (40 CFR Parts 51, 52, 70, and 71, Federal Register Volume 76, No. 139, pages 43490 to 43508) to defer the inclusion of biogenic CO_2 in PSD and Title V programs under the Tailoring Rule. On July 12, 2013, the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) vacated the Deferral Rule that had suspended regulation of "biogenic" GHG emissions under the Clean Air Act (CAA). However this legal finding vacating the deferral of biogenic GHG emissions did not take effect until the U.S Supreme Court Ruled on the GHG case. The case was heard in March 2014, and the ruling was issued in June limiting the ability to regulate GHGs under the CAA and striking down major provisions of the Tailoring Rule.

With the Supreme Court ruling, there is some confusion in the regulation of biogenic GHGs since their ruling did not directly address those. On July 21, 2014, the biogenic deferral expired on its own, and it has not been reinstated. However, the Supreme Court ruling prevents any regulation of GHGs unless the source or project is major for other regulated pollutants. A facility cannot be major for GHGs alone.

Methane (CH_4) and nitrous oxide (N_2O) are combustion byproducts and are GHGs. Even when resulting from the combustion of a biofuel, methane and nitrous oxide are considered anthropogenic. All GHG from combustion of fossil fuels, such as diesel, are anthropogenic and must be included in the GHG emission for Title V compliance. LLRC will operate diesel and gasoline equipment, which has been included in the GHG emission calculations, including CO_2, N_2O and methane. The GHG sources at LLRC are the enclosed LFG flare, LFG surface emissions, and small pieces of gasoline and diesel equipment. The flare is permitted to operate at 42 MMBtu/hr. The water pump and light plant operate at 0.01 MMBtu/hr. Fugitive emissions are not considered to determine major source emission levels. GHG emission factors are shown in the table below.

GHG Emission Factors

Fuel	Emission Factors (kilograms/MMBtu)		
	Carbon Dioxide	Methane	Nitrous Oxide
LFG	52.07	3.2E-03	6.3E-04
Gasoline	70.22	3.0E-03	6.0E-04
Diesel	73.96	3.0E-03	6.0E-04

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Proposed GHG sources and their non-fugitive anthropogenic GHG emissions are provided below. Supporting calculations can be found in Appendix F. Fugitive emissions of GHGs are not counted under the CAA; therefore, fugitive LFG emissions havenot been calculated for their GHG contribution. Not all GHG have equal impact on the climate, so emissions of methane and N_2O have been converted into CO_2 equivalent (CO_2e) using a global warming potential factor of 25 for methane and 310 for N_2O.

GHG Emissions

Sources		**Flare**	**Water Pump**	**Light Plant**
Activity Rate		42.1 MMBTU/hr	0.01 MMBTU/hr	0.01 MMBTU/hr
Emissions (metric tons)	**CO_2**	15,837	6.48	6.15
	CH_4	118,037	2.63E-04	2.63E-04
	N_2O	0.0	5.26E-05	5.26E-05
Total GHG Emissions (metric ton CO_2e)		133,874	6.50	6.17
Total (short ton CO2e)		147,583		

For purposes of the federal Title V rules, this facility's GHGs (excluding fugitive emissions) are estimated at 147,583 tpy of CO_2e, which is greater than the 100,000 tpy CO_2e threshold. However, per the recent Supreme Court decision, a source cannot be major for GHGs alone. Since the entire facility is not a major source of emissions under Title V or PSD programs, GHGs should not be regulated for the facility at all.

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6.0 MAJOR FACILITY STATUS

According to AVAQMD Rule 1303(B)(1), the applicable major facility thresholds are noted below. The following table summarizes the major source status determination.

Major Facility Status Determination

Pollutant	Proposed PTE (tpy)	Major Source Threshold (tpy)	Major Source? (Yes/No)
Criteria Pollutants (Non-Fugitive Emissions Only)			
NO_x	11.83	25	No
CO	56.50	100	No
SO_x	19.36	25	No
NMOC	0.23	25	No
VOC	0.23	25	No
$PM_{2.5}$	5.69	N/A	No
PM_{10}	5.69	15	No
TSP	5.69	N/A	No
Hydrogen Sulfide	0.031	10	No

As demonstrated above, LLRC does not exceed the thresholds; therefore, LLRC is not a major facility.

7.0 PREVENTION OF SIGNIFICANT DETERIORATION MAJOR STATIONARY SOURCE STATUS

New major stationary sources of air pollution are required by the CAA to obtain a PSD permit before commencing construction. A major stationary source for purposes of PSD is any source belonging to a list of 28 source categories which emits or has the potential to emit 100 tpy of any pollutant regulated under the CAA or any other source type which emits or has the potential to emit such pollutants in amounts equal to or greater than 250 tpy. Furthermore, when a "minor" source, i.e., one that does not meet the definition of "major" source, makes a physical change, or change in the method of operation that is by itself a major source (i.e., 250 tpy), that physical or operational change constitutes a major stationary source that is subject to PSD review.

The facility is not a federal major stationary source since per AVAQMD Rule 1310(D)(1), emissions of CO, PM_{10}, NO_x, SO_x and VOCs are less than 250 tpy; therefore, PSD does not apply to LLRC at this time.

8.0 COMPLIANCE INFORMATION

A regulatory analysis for LLRC is included in Appendix G. The regulatory analysis contains a compliance demonstration for applicable reporting, recordkeeping, and test method requirements.

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8.1 COMPLIANCE SCHEDULE

LLRC is currently in compliance with all applicable requirements; therefore a compliance schedule is not required.

8.2 COMPLIANCE PLAN

LLRC is currently in compliance with all applicable requirements; therefore a compliance plan is not required. However, a completed Compliance Plan Form (AVAQMD Form 3002-J) has been prepared and included in Appendix G.

9.0 COMPLIANCE ASSURACE MONITORING (CAM)

The requirements of 40 Code of Federal Regulations (CFR) Part 64, CAM, do not apply to this source since it is not a major source for any pollutants and is subject to federal New Source Performance Standards (NSPS) under 40 CFR Part 60, Subpart WWW.

10..1 APPLICATION FORMS

The Title V Application Forms can be found in Appendix B. A list of the forms included are as follows:

- Submission Certification (Form 3002-A)
- Facility Summary (Form 3002-B)
- Emissions Unit Forms (3002-C, 3002-G, and 3002-H)
- Exempt Equipment Listing (Form 3002-I)
- Compliance Plan (Form 3002-J)
- Compliance Certification (Form 3002-K)

11.0 PERMIT PROCESSING FEES

A check for the application filing fee of $433 and complex source fee of $6,500 for a total of $6,933 is enclosed with the application. If additional fees are required, WM will pay them promptly when invoiced by AVAQMD.

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TABLES

TABLE 1. LFG GENERATION PROJECTION
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER - LANCASTER, CALIFORNIA

Year	Disposal Rate (tons/yr)	Refuse In-Place (tons)	Disposal Rate (Mg/yr)	Refuse In-Place (Mg)	LFG Generation (scfm)			NMOC Generation Rates (tons/yr)	NMOC Generation Rates (Mg/yr)
						(m^3/min)	(Million ft^3/yr)		
1954	36,509	0	33,120	0	0	0.0	0	0.0	0.0
1955	36,509	36,509	33,120	33,120	9	0.3	5	0.4	0.3
1956	36,509	73,018	33,120	66,241	18	0.5	9	0.7	0.7
1957	36,509	109,527	33,120	99,361	26	0.7	14	1.1	1.0
1958	36,509	146,036	33,120	132,482	34	1.0	18	1.5	1.3
1959	36,509	182,545	33,120	165,602	42	1.2	22	1.8	1.6
1960	36,509	219,054	33,120	198,722	50	1.4	27	2.2	2.0
1961	36,509	255,563	33,120	231,843	58	1.7	31	2.5	2.3
1962	36,509	292,072	33,120	264,963	66	1.9	35	2.8	2.6
1963	36,509	328,581	33,120	298,084	74	2.1	39	3.1	2.9
1964	36,509	365,090	33,120	331,204	81	2.3	43	3.5	3.1
1965	36,509	401,599	33,120	364,324	88	2.5	46	3.8	3.4
1966	36,509	438,108	33,120	397,445	95	2.7	50	4.1	3.7
1967	36,509	474,617	33,120	430,565	102	2.9	54	4.4	4.0
1968	36,509	511,126	33,120	463,686	109	3.1	57	4.7	4.2
1969	36,509	547,635	33,120	496,806	116	3.3	61	4.9	4.5
1970	36,509	584,144	33,120	529,926	122	3.5	64	5.2	4.7
1971	36,509	620,653	33,120	563,047	129	3.6	68	5.5	5.0
1972	36,509	657,162	33,120	596,167	135	3.8	71	5.8	5.2
1973	36,509	693,671	33,120	629,288	141	4.0	74	6.0	5.5
1974	36,509	730,180	33,120	662,408	147	4.2	77	6.3	5.7
1975	36,509	766,689	33,120	695,529	153	4.3	80	6.5	5.9
1976	36,509	803,198	33,120	728,649	159	4.5	84	6.8	6.2
1977	36,509	839,707	33,120	761,769	165	4.7	87	7.0	6.4
1978	36,509	876,216	33,120	794,890	170	4.8	89	7.3	6.6
1979	36,509	912,725	33,120	828,010	176	5.0	92	7.5	6.8
1980	36,509	949,234	33,120	861,131	181	5.1	95	7.7	7.0
1981	36,509	985,743	33,120	894,251	186	5.3	98	8.0	7.2
1982	36,509	1,022,252	33,120	927,371	191	5.4	101	8.2	7.4
1983	36,509	1,058,761	33,120	960,492	196	5.6	103	8.4	7.6
1984	36,509	1,095,270	33,120	993,612	201	5.7	106	8.6	7.8
1985	36,509	1,131,779	33,120	1,026,733	206	5.8	108	8.8	8.0
1986	36,509	1,168,288	33,120	1,059,853	211	6.0	111	9.0	8.2
1987	36,509	1,204,797	33,120	1,092,973	216	6.1	113	9.2	8.4
1988	36,509	1,241,306	33,120	1,126,094	220	6.2	116	9.4	8.5
1989	36,509	1,277,815	33,120	1,159,214	225	6.4	118	9.6	8.7
1990	36,509	1,314,324	33,120	1,192,335	229	6.5	120	9.8	8.9
1991	36,509	1,350,833	33,120	1,225,455	233	6.6	123	10.0	9.1
1992	36,509	1,387,342	33,120	1,258,575	238	6.7	125	10.2	9.2
1993	36,509	1,423,851	33,120	1,291,696	242	6.8	127	10.3	9.4
1994	36,509	1,460,360	33,120	1,324,816	246	7.0	129	10.5	9.5
1995	36,509	1,496,869	33,120	1,357,937	250	7.1	131	10.7	9.7
1996	36,509	1,533,378	33,120	1,391,057	254	7.2	133	10.8	9.8
1997	36,509	1,569,887	33,120	1,424,177	258	7.3	135	11.0	10.0
1998	36,509	1,606,396	33,120	1,457,298	261	7.4	137	11.2	10.1
1999	147,392	1,642,905	133,712	1,490,418	265	7.5	139	11.3	10.3
2000	185,165	1,790,297	167,979	1,624,130	295	8.4	155	12.6	11.5
2001	208,227	1,975,462	188,900	1,792,109	334	9.5	176	14.3	13.0
2002	291,287	2,183,689	264,251	1,981,009	378	10.7	199	16.2	14.7

2003	384,378	2,474,976	348,702	2,245,260	441	12.5	232	18.9	17.1
2004	447,876	2,859,354	406,306	2,593,962	526	14.9	276	22.5	20.4
2005	519,608	3,307,230	471,380	3,000,268	624	17.7	328	26.7	24.2
2006	387,947	3,826,838	351,940	3,471,649	737	20.9	387	31.5	28.6
2007	417,060	4,214,785	378,350	3,823,588	816	23.1	429	34.9	31.7
2008	355,959	4,631,845	322,921	4,201,939	901	25.5	474	38.5	35.0

TABLE 1. LFG GENERATION PROJECTION
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER - LANCASTER, CALIFORNIA

Year	Disposal Rate (tons/yr)	Refuse In-Place (tons)	Disposal Rate (Mg/yr)	Refuse In-Place (Mg)	LFG Generation (scfm)			NMOC Generation Rates (tons/yr)	NMOC Generation Rates (Mg/yr)
						(m^3/min)	(Million ft^3/yr)		
2009	253,089	4,987,804	229,598	4,524,859	970	27.5	510	41.5	37.6
2010	242,404	5,240,893	219,905	4,754,458	1,012	28.6	532	43.3	39.2
2011	252,278	5,483,297	228,863	4,974,363	1,050	29.7	552	44.9	40.7
2012	205,010	5,735,575	185,982	5,203,226	1,091	30.9	573	46.6	42.3
2013	80,421	5,940,585	72,957	5,389,208	1,119	31.7	588	47.8	43.4
2014	93,000	6,021,006	84,368	5,462,165	1,116	31.6	587	47.7	43.3
2015	93,000	6,114,006	84,368	5,546,533	1,116	31.6	587	47.7	43.3
2016	93,000	6,207,006	84,368	5,630,901	1,117	31.6	587	47.7	43.3
2017	93,000	6,300,006	84,368	5,715,269	1,117	31.6	587	47.8	43.3
2018	93,000	6,393,006	84,368	5,799,637	1,118	31.6	587	47.8	43.3
2019	260,389	6,486,006	236,221	5,884,005	1,118	31.7	588	47.8	43.4
2020	260,389	6,746,395	236,221	6,120,226	1,159	32.8	609	49.5	44.9
2021	260,389	7,006,784	236,221	6,356,447	1,199	34.0	630	51.3	46.5
2022	260,389	7,267,173	236,221	6,592,668	1,238	35.1	651	52.9	48.0
2023	260,389	7,527,562	236,221	6,828,889	1,277	36.2	671	54.6	49.5
2024	260,389	7,787,951	236,221	7,065,110	1,315	37.2	691	56.2	51.0
2025	260,389	8,048,340	236,221	7,301,331	1,352	38.3	710	57.8	52.4
2026	260,389	8,308,729	236,221	7,537,552	1,388	39.3	729	59.3	53.8
2027	260,389	8,569,118	236,221	7,773,773	1,424	40.3	748	60.9	55.2
2028	260,389	8,829,507	236,221	8,009,994	1,458	41.3	767	62.3	56.6
2029	260,389	9,089,896	236,221	8,246,215	1,493	42.3	784	63.8	57.9
2030	260,389	9,350,285	236,221	8,482,435	1,526	43.2	802	65.2	59.2
2031	260,389	9,610,674	236,221	8,718,656	1,559	44.1	819	66.6	60.5
2032	260,389	9,871,063	236,221	8,954,877	1,591	45.1	836	68.0	61.7
2033	260,389	10,131,452	236,221	9,191,098	1,623	45.9	853	69.4	62.9
2034	260,389	10,391,841	236,221	9,427,319	1,654	46.8	869	70.7	64.1
2035	260,389	10,652,230	236,221	9,663,540	1,684	47.7	885	72.0	65.3
2036	260,389	10,912,619	236,221	9,899,761	1,714	48.5	901	73.3	66.5
2037	260,389	11,173,008	236,221	10,135,982	1,743	49.3	916	74.5	67.6
2038	260,389	11,433,397	236,221	10,372,203	1,771	50.2	931	75.7	68.7
2039	260,389	11,693,786	236,221	10,608,424	1,799	50.9	946	76.9	69.8
2040	260,389	11,954,175	236,221	10,844,645	1,827	51.7	960	78.1	70.8
2041	260,389	12,214,564	236,221	11,080,866	1,853	52.5	974	79.2	71.9
2042	260,389	12,474,953	236,221	11,317,086	1,880	53.2	988	80.4	72.9
2043	260,389	12,735,342	236,221	11,553,307	1,906	54.0	1,002	81.5	73.9
2044	260,389	12,995,731	236,221	11,789,528	1,931	54.7	1,015	82.6	74.9
2045	260,389	13,256,120	236,221	12,025,749	1,956	55.4	1,028	83.6	75.9
2046	260,389	13,516,509	236,221	12,261,970	1,980	56.1	1,041	84.7	76.8
2047	260,389	13,776,898	236,221	12,498,191	2,004	56.7	1,053	85.7	77.7
2048	260,389	14,037,287	236,221	12,734,412	2,027	57.4	1,066	86.7	78.6
2049	260,389	14,297,676	236,221	12,970,633	2,050	58.1	1,078	87.7	79.5
2050	260,389	14,558,065	236,221	13,206,854	2,073	58.7	1,089	88.6	80.4
2051	260,389	14,818,454	236,221	13,443,075	2,095	59.3	1,101	89.6	81.2
2052	260,389	15,078,843	236,221	13,679,296	2,116	59.9	1,112	90.5	82.1
2053	260,389	15,339,232	236,221	13,915,517	2,137	60.5	1,123	91.4	82.9
2054	260,389	15,599,621	236,221	14,151,737	2,158	61.1	1,134	92.3	83.7
2055	260,389	15,860,010	236,221	14,387,958	2,178	61.7	1,145	93.1	84.5
2056	260,389	16,120,399	236,221	14,624,179	2,198	62.3	1,155	94.0	85.3
2057	260,389	16,380,788	236,221	14,860,400	2,218	62.8	1,166	94.8	86.0

2058	260,389	16,641,177	236,221	15,096,621	2,237	63.3	1,176	95.6	86.8
2059	260,389	16,901,566	236,221	15,332,842	2,256	63.9	1,186	96.4	87.5
2060	260,389	17,161,955	236,221	15,569,063	2,274	64.4	1,195	97.2	88.2
2061	260,389	17,422,344	236,221	15,805,284	2,292	64.9	1,205	98.0	88.9
2062	260,389	17,682,733	236,221	16,041,505	2,310	65.4	1,214	98.8	89.6
2063	260,389	17,943,122	236,221	16,277,726	2,327	65.9	1,223	99.5	90.3

TABLE 1. LFG GENERATION PROJECTION
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER - LANCASTER, CALIFORNIA

Year	Disposal Rate (tons/yr)	Refuse In-Place (tons)	Disposal Rate (Mg/yr)	Refuse In-Place (Mg)	LFG Generation (scfm)			NMOC Generation Rates (tons/yr)	NMOC Generation Rates (Mg/yr)
						(m^3/min)	(Million ft^3/yr)		
2064	260,389	18,203,511	236,221	16,513,947	2,344	66.4	1,232	100.2	90.9
2065	0	18,463,900	0	16,750,168	2,361	66.8	1,241	100.9	91.6
2066	0	18,463,900	0	16,750,168	2,314	65.5	1,216	98.9	89.7
2067	0	18,463,900	0	16,750,168	2,268	64.2	1,192	97.0	88.0
2068	0	18,463,900	0	16,750,168	2,223	63.0	1,169	95.1	86.2
2069	0	18,463,900	0	16,750,168	2,179	61.7	1,145	93.2	84.5
2070	0	18,463,900	0	16,750,168	2,136	60.5	1,123	91.3	82.8
2071	0	18,463,900	0	16,750,168	2,094	59.3	1,101	89.5	81.2
2072	0	18,463,900	0	16,750,168	2,052	58.1	1,079	87.7	79.6
2073	0	18,463,900	0	16,750,168	2,012	57.0	1,057	86.0	78.0
2074	0	18,463,900	0	16,750,168	1,972	55.8	1,036	84.3	76.5
2075	0	18,463,900	0	16,750,168	1,933	54.7	1,016	82.6	75.0
2076	0	18,463,900	0	16,750,168	1,895	53.6	996	81.0	73.5
2077	0	18,463,900	0	16,750,168	1,857	52.6	976	79.4	72.0
2078	0	18,463,900	0	16,750,168	1,820	51.5	957	77.8	70.6
2079	0	18,463,900	0	16,750,168	1,784	50.5	938	76.3	69.2
2080	0	18,463,900	0	16,750,168	1,749	49.5	919	74.8	67.8
2081	0	18,463,900	0	16,750,168	1,714	48.5	901	73.3	66.5
2082	0	18,463,900	0	16,750,168	1,680	47.6	883	71.8	65.2
2083	0	18,463,900	0	16,750,168	1,647	46.6	866	70.4	63.9
2084	0	18,463,900	0	16,750,168	1,614	45.7	849	69.0	62.6
2085	0	18,463,900	0	16,750,168	1,582	44.8	832	67.7	61.4
2086	0	18,463,900	0	16,750,168	1,551	43.9	815	66.3	60.2
2087	0	18,463,900	0	16,750,168	1,520	43.1	799	65.0	59.0
2088	0	18,463,900	0	16,750,168	1,490	42.2	783	63.7	57.8
2089	0	18,463,900	0	16,750,168	1,461	41.4	768	62.5	56.7
2090	0	18,463,900	0	16,750,168	1,432	40.5	753	61.2	55.5
2091	0	18,463,900	0	16,750,168	1,404	39.7	738	60.0	54.4
2092	0	18,463,900	0	16,750,168	1,376	39.0	723	58.8	53.4
2093	0	18,463,900	0	16,750,168	1,348	38.2	709	57.7	52.3
2094	0	18,463,900	0	16,750,168	1,322	37.4	695	56.5	51.3
2095	0	18,463,900	0	16,750,168	1,296	36.7	681	55.4	50.2
2096	0	18,463,900	0	16,750,168	1,270	36.0	667	54.3	49.3
2097	0	18,463,900	0	16,750,168	1,245	35.2	654	53.2	48.3
2098	0	18,463,900	0	16,750,168	1,220	34.6	641	52.2	47.3
2099	0	18,463,900	0	16,750,168	1,196	33.9	629	51.1	46.4
2100	0	18,463,900	0	16,750,168	1,172	33.2	616	50.1	45.5
2101	0	18,463,900	0	16,750,168	1,149	32.5	604	49.1	44.6
2102	0	18,463,900	0	16,750,168	1,126	31.9	592	48.2	43.7
2103	0	18,463,900	0	16,750,168	1,104	31.3	580	47.2	42.8
2104	0	18,463,900	0	16,750,168	1,082	30.6	569	46.3	42.0
2105	0	18,463,900	0	16,750,168	1,061	30.0	558	45.4	41.1
2106	0	18,463,900	0	16,750,168	1,040	29.4	546	44.5	40.3
2107	0	18,463,900	0	16,750,168	1,019	28.9	536	43.6	39.5
2108	0	18,463,900	0	16,750,168	999	28.3	525	42.7	38.7
2109	0	18,463,900	0	16,750,168	979	27.7	515	41.9	38.0
2110	0	18,463,900	0	16,750,168	960	27.2	504	41.0	37.2
2111	0	18,463,900	0	16,750,168	941	26.6	494	40.2	36.5
2112	0	18,463,900	0	16,750,168	922	26.1	485	39.4	35.8

2113	0	18,463,900	0	16,750,168	904	25.6	475	38.6	35.1
2114	0	18,463,900	0	16,750,168	886	25.1	466	37.9	34.4
2115	0	18,463,900	0	16,750,168	868	24.6	456	37.1	33.7
2116	0	18,463,900	0	16,750,168	851	24.1	447	36.4	33.0
2117	0	18,463,900	0	16,750,168	834	23.6	439	35.7	32.4
2118	0	18,463,900	0	16,750,168	818	23.2	430	35.0	31.7

TABLE 1. LFG GENERATION PROJECTION
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER - LANCASTER, CALIFORNIA

Year	Disposal Rate (tons/yr)	Refuse In-Place (tons)	Disposal Rate (Mg/yr)	Refuse In-Place (Mg)	LFG Generation (scfm)			NMOC Generation Rates (tons/yr)	NMOC Generation Rates (Mg/yr)
						(m^3/min)	(Million ft^3/yr)		
2119	0	18,463,900	0	16,750,168	802	22.7	421	34.3	31.1
2120	0	18,463,900	0	16,750,168	786	22.3	413	33.6	30.5
2121	0	18,463,900	0	16,750,168	770	21.8	405	32.9	29.9
2122	0	18,463,900	0	16,750,168	755	21.4	397	32.3	29.3
2123	0	18,463,900	0	16,750,168	740	21.0	389	31.6	28.7
2124	0	18,463,900	0	16,750,168	725	20.5	381	31.0	28.1
2125	0	18,463,900	0	16,750,168	711	20.1	374	30.4	27.6
2126	0	18,463,900	0	16,750,168	697	19.7	366	29.8	27.0
2127	0	18,463,900	0	16,750,168	683	19.3	359	29.2	26.5
2128	0	18,463,900	0	16,750,168	670	19.0	352	28.6	26.0
2129	0	18,463,900	0	16,750,168	656	18.6	345	28.1	25.5
2130	0	18,463,900	0	16,750,168	643	18.2	338	27.5	25.0
2131	0	18,463,900	0	16,750,168	631	17.9	331	27.0	24.5
2132	0	18,463,900	0	16,750,168	618	17.5	325	26.4	24.0
2133	0	18,463,900	0	16,750,168	606	17.2	318	25.9	23.5
2134	0	18,463,900	0	16,750,168	594	16.8	312	25.4	23.0
2135	0	18,463,900	0	16,750,168	582	16.5	306	24.9	22.6
2136	0	18,463,900	0	16,750,168	571	16.2	300	24.4	22.1
2137	0	18,463,900	0	16,750,168	559	15.8	294	23.9	21.7
2138	0	18,463,900	0	16,750,168	548	15.5	288	23.4	21.3
2139	0	18,463,900	0	16,750,168	537	15.2	282	23.0	20.8
2140	0	18,463,900	0	16,750,168	527	14.9	277	22.5	20.4
2141	0	18,463,900	0	16,750,168	516	14.6	271	22.1	20.0
2142	0	18,463,900	0	16,750,168	506	14.3	266	21.6	19.6
2143	0	18,463,900	0	16,750,168	496	14.0	261	21.2	19.2
2144	0	18,463,900	0	16,750,168	486	13.8	256	20.8	18.9
2145	0	18,463,900	0	16,750,168	477	13.5	251	20.4	18.5
2146	0	18,463,900	0	16,750,168	467	13.2	246	20.0	18.1
2147	0	18,463,900	0	16,750,168	458	13.0	241	19.6	17.8
2148	0	18,463,900	0	16,750,168	449	12.7	236	19.2	17.4
2149	0	18,463,900	0	16,750,168	440	12.5	231	18.8	17.1
2150	0	18,463,900	0	16,750,168	431	12.2	227	18.4	16.7
2151	0	18,463,900	0	16,750,168	423	12.0	222	18.1	16.4
2152	0	18,463,900	0	16,750,168	414	11.7	218	17.7	16.1
2153	0	18,463,900	0	16,750,168	406	11.5	213	17.4	15.8

Methane Content of LFG Adjusted to: 50%
Selected Decay Rate Constant (k): 0.020
Selected Ultimate Methane Recovery Rate (Lo): 100 m^3/Mg = 3,204 cuft/ton
NMOC Concentration in LFG: 727 ppmv as Hexane

TABLE 2
ACTUAL AND POTENTIAL TO EMIT AIR POLLUTANT EMISSIONS ESTIMATES FOR LANDFILL
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER
LANCASTER, CALIFORNIA

CAS Number	Pollutant	Molecular Weight (g/Mol)	Concentration Found In LFG (ppmv) (2)	Actual Emissions			Potential to Emit (PTE)		
				LFG Generation (tpy) (3)	Emissions from Landfill (lb/hr)	Emissions from Landfill (tpy)	LFG Generation (tpy) (4)	Emissions from Landfill (lb/hr)	Emissions from Landfill (tpy)
Hazardous Air Pollutants (HAPs) (1)									
71-55-6	1,1,1-Trichloroethane (methyl chloroform)	133.41	0.040	4.06E-03	2.32E-04	1.02E-03	8.60E-03	4.91E-04	2.15E-03
79-34-5	1,1,2,2-Tetrachloroethane*	167.85	0.070	8.95E-03	5.11E-04	2.24E-03	1.89E-02	1.08E-03	4.73E-03
75-34-3	1,1-Dichloroethane (ethylidene dichloride)	98.97	0.218	1.64E-02	9.38E-04	4.11E-03	3.48E-02	1.98E-03	8.69E-03
75-35-4	1,1-Dichloroethene (vinylidene chloride)	96.94	0.079	5.83E-03	3.33E-04	1.46E-03	1.23E-02	7.04E-04	3.09E-03
107-06-2	1,2-Dichloroethane (ethylene dichloride)	98.96	0.401	3.02E-02	1.73E-03	7.56E-03	6.39E-02	3.65E-03	1.60E-02
78-87-5	1,2-Dichloropropane (propylene dichloride)*	112.99	0.023	1.98E-03	1.13E-04	4.95E-04	4.19E-03	2.39E-04	1.05E-03
107-13-1	Acrylonitrile*	53.06	0.036	1.45E-03	8.30E-05	3.64E-04	3.08E-03	1.76E-04	7.70E-04
71-43-2	Benzene	78.11	2.680	1.59E-01	9.10E-03	3.99E-02	3.37E-01	1.93E-02	8.43E-02
75-15-0	Carbon disulfide*	76.13	0.320	1.86E-02	1.06E-03	4.64E-03	3.93E-02	2.24E-03	9.81E-03
56-23-5	Carbon tetrachloride	153.84	0.040	4.69E-03	2.68E-04	1.17E-03	9.92E-03	5.66E-04	2.48E-03
463-58-1	Carbonyl sulfide*	60.07	0.183	8.37E-03	4.78E-04	2.09E-03	1.77E-02	1.01E-03	4.43E-03
108-90-7	Chlorobenzene	112.56	0.060	5.14E-03	2.94E-04	1.29E-03	1.09E-02	6.21E-04	2.72E-03
75-00-3	Chloroethane (ethyl chloride)*	64.52	0.239	1.17E-02	6.70E-04	2.94E-03	2.48E-02	1.42E-03	6.21E-03
67-66-3	Chloroform	119.39	0.040	3.64E-03	2.08E-04	9.09E-04	7.70E-03	4.39E-04	1.92E-03
74-87-3	Chloromethane (methyl chloride)*	50.49	0.249	9.58E-03	5.47E-04	2.39E-03	2.03E-02	1.16E-03	5.06E-03
106-46-7	Dichlorobenzene(1,4-Dichlorobenzene)	147.00	7.103	7.95E-01	4.54E-02	1.99E-01	1.68E+00	9.60E-02	4.21E-01
75-09-2	Dichloromethane (Methylene Chloride)	84.94	0.688	4.45E-02	2.54E-03	1.11E-02	9.42E-02	5.37E-03	2.35E-02
100-41-4	Ethylbenzene*	106.16	6.789	5.49E-01	3.13E-02	1.37E-01	1.16E+00	6.63E-02	2.90E-01
106-93-4	Ethylene dibromide (1,2-Dibromoethane)	187.88	0.060	8.59E-03	4.90E-04	2.15E-03	1.82E-02	1.04E-03	4.54E-03
110-54-3	Hexane*	86.18	2.324	1.53E-01	8.71E-03	3.81E-02	3.23E-01	1.84E-02	8.07E-02
2148-87-8	Hydrogen sulfide (5)	34.08	250.000	6.49E+00	3.70E-01	1.62E+00	1.37E+01	7.84E-01	3.43E+00
7439-97-6	Mercury (total)**	200.61	2.92E-04	4.46E-05	2.55E-06	1.12E-05	9.44E-05	5.39E-06	2.36E-05
78-93-3	Methyl ethyl ketone*	72.11	10.557	5.80E-01	3.31E-02	1.45E-01	1.23E+00	7.00E-02	3.07E-01
108-10-1	Methyl isobutyl ketone*	100.16	0.750	5.72E-02	3.27E-03	1.43E-02	1.21E-01	6.91E-03	3.03E-02
127-18-4	Perchloroethylene (tetrachloroethylene)	165.83	1.940	2.45E-01	1.40E-02	6.13E-02	5.18E-01	2.96E-02	1.30E-01
108-88-3	Toluene	92.13	26.900	1.89E+00	1.08E-01	4.72E-01	3.99E+00	2.28E-01	9.98E-01
79-01-6	Trichloroethylene(trichloroethene)	131.40	0.804	8.05E-02	4.59E-03	2.01E-02	1.70E-01	9.72E-03	4.26E-02
75-01-4	Vinyl chloride	62.50	0.190	9.05E-03	5.16E-04	2.26E-03	1.91E-02	1.09E-03	4.78E-03
1330-20-7	Xylenes	106.16	13.830	1.12E+00	6.38E-02	2.80E-01	2.37E+00	1.35E-01	5.91E-01
	Total HAPs			12.31	0.70	3.08	26.04	1.49	6.51

Criteria Air Pollutants	Molecular Weight (g/Mol)	Concentration of Compound (ppmv)	Actual Emissions			Potential to Emit (PTE)		
			LFG Generation (tpy)	Emissions from Landfill (lb/hr)	Emissions from Landfill (tpy)	LFG Generation (tpy)	Emissions from Landfill (lb/hr)	Emissions from Landfill (tpy)
Non-Methane Organic Compounds (NMOCs) as Hexane (6)	86.18	727	47.71	2.72	11.93	100.93	5.76	25.23
Volatile Organic Compounds (VOCs) (7)	86.18	727	47.71	2.72	11.93	100.93	5.76	25.23

NOTES:

(1) Listed Hazardous Air Pollutants (HAPs) are among compounds commonly found in landfill gas (LFG), as presented in AP-42, Tables 2.4-1 and 2.4-2

(2) Concentrations of pollutants in LFG are based on the results of a flare source test conducted on February 27, 2014. For compounds not tested for in the source test, concentrations are based on Waste Industry Air Coalition Values (marked with single asterisk), or on AP-42, Tables 2.4-1 and 2.4-2 (marked with double asterisk).

(3) Based on average concentrations of compounds found in LFG, and an estimated current LFG generation of: **1,116** **scfm,** in 2014 based on USEPA's LandGEM estimates using region-specific k (=0.020) and L0 (= 100 m3/Mg) input parameters recommended in AP-42 (p. 2.4-4).

(4) Based on average concentrations of compounds found in LFG, and an estimated potential LFG generation of: **2,361** **scfm,** in 2065 based on USEPA's LandGEM estimates using region-specific k (=0.020) and L0 (= 100 m3/Mg) input parameters recommended in AP-42 (p. 2.4-4).

(5) Based on permitted hydrogen sulfur content of 250 ppmv.

(6) Based on NMOC results from February 27, 2014 flare source test.

(7) VOCs assumed to equal NMOCs.

MODEL INPUT VARIABLES:

Methane Concentration	50%
LFG Collection System Efficiency	75% Based on EPA AP-42 estimated collection efficiency achievable.
LFG Generation Rate (2014 Actual)	1,116 Scfm (at 50% methane) based on U.S. EPA's LANDGEM 3.02 and region-specific inputs.
LFG Generation Rate (2065 PTE)	2,361 Scfm (at 50% methane) based on U.S. EPA's LANDGEM 3.02 and region-specific inputs.

TABLE 3
ACTUAL AND POTENTIAL TO EMIT AIR POLLUTANT EMISSIONS ESTIMATES FOR ENCLOSED FLARE
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER
LANCASTER, CALIFORNIA

CAS Number	Pollutant	Molecular Weight (g/Mol)	Concentration Found In LFG (ppmv) (2)	Destruction Efficiency (3)	Actual Emissions			Potential to Emit (PTE)		
					Pollutant Flow Rate to Flare (tpy)(4)	Emissions from Flare (lb/hr)	Emissions from Flare (tpy)	Pollutant Flow Rate to Flare (tpy)(4)	Emissions from Flare (lb/hr)	Emissions from Flare (tpy)
Hazardous Air Pollutants (HAPs) (1)										
71-55-6	1,1,1-Trichloroethane (methyl chloroform)	133.41	0.040	98.00%	2.15E-03	9.80E-06	4.29E-05	6.45E-03	2.95E-05	1.29E-04
79-34-5	1,1,2,2-Tetrachloroethane*	167.85	0.070	98.00%	4.72E-03	2.16E-05	9.45E-05	1.42E-02	6.48E-05	2.84E-04
75-34-3	1,1-Dichloroethane (ethylidene dichloride)	98.97	0.218	98.00%	8.67E-03	3.96E-05	1.73E-04	2.61E-02	1.19E-04	5.22E-04
75-35-4	1,1-Dichloroethene (vinylidene chloride)	96.94	0.079	98.00%	3.08E-03	1.41E-05	6.16E-05	9.26E-03	4.23E-05	1.85E-04
107-06-2	1,2-Dichloroethane (ethylene dichloride)	98.96	0.401	98.00%	1.60E-02	7.28E-05	3.19E-04	4.80E-02	2.19E-04	9.59E-04
78-87-5	1,2-Dichloropropane (propylene dichloride)*	112.99	0.023	98.00%	1.04E-03	4.77E-06	2.09E-05	3.14E-03	1.43E-05	6.28E-05
107-13-1	Acrylonitrile*	53.06	0.036	99.70%	7.68E-04	5.26E-07	2.30E-06	2.31E-03	1.58E-06	6.93E-06
71-43-2	Benzene	78.11	2.680	99.70%	8.42E-02	5.76E-05	2.52E-04	2.53E-01	1.73E-04	7.59E-04
75-15-0	Carbon disulfide*	76.13	0.320	99.70%	9.79E-03	6.71E-06	2.94E-05	2.94E-02	2.02E-05	8.83E-05
56-23-5	Carbon tetrachloride	153.84	0.040	98.00%	2.47E-03	1.13E-05	4.95E-05	7.44E-03	3.40E-05	1.49E-04
463-58-1	Carbonyl sulfide*	60.07	0.183	99.70%	4.42E-03	3.03E-06	1.33E-05	1.33E-02	9.10E-06	3.99E-05
108-90-7	Chlorobenzene	112.56	0.060	98.00%	2.71E-03	1.24E-05	5.43E-05	8.16E-03	3.73E-05	1.63E-04
75-00-3	Chloroethane (ethyl chloride)*	64.52	0.239	98.00%	6.20E-03	2.83E-05	1.24E-04	1.86E-02	8.51E-05	3.73E-04
67-66-3	Chloroform	119.39	0.040	98.00%	1.92E-03	8.77E-06	3.84E-05	5.77E-03	2.64E-05	1.15E-04
74-87-3	Chloromethane (methyl chloride)*	50.49	0.249	98.00%	5.05E-03	2.31E-05	1.01E-04	1.52E-02	6.94E-05	3.04E-04
106-46-7	Dichlorobenzene (1,4-Dichlorobenzene)	147.00	7.103	98.00%	4.20E-01	1.92E-03	8.39E-03	1.26E+00	5.76E-03	2.52E-02
75-09-2	Dichloromethane (Methylene Chloride)	84.94	0.688	98.00%	2.35E-02	1.07E-04	4.70E-04	7.06E-02	3.23E-04	1.41E-03
100-41-4	Ethylbenzene*	106.16	6.789	99.70%	2.90E-01	1.98E-04	8.69E-04	8.71E-01	5.97E-04	2.61E-03
106-93-4	Ethylene dibromide (1,2-Dibromoethane)	187.88	0.060	98.00%	4.53E-03	2.07E-05	9.06E-05	1.36E-02	6.22E-05	2.73E-04
110-54-3	Hexane*	86.18	2.324	99.70%	8.05E-02	5.51E-05	2.42E-04	2.42E-01	1.66E-04	7.26E-04
2148-87-8	Hydrogen sulfide (5)	34.08	250	99.70%	3.42E+00	2.35E-03	1.03E-02	1.03E+01	7.05E-03	3.09E-02
7439-97-6	Mercury (total)**	200.61	2.92E-04	--	2.35E-05	5.38E-06	2.35E-05	7.08E-05	1.62E-05	7.08E-05
78-93-3	Methyl ethyl ketone*	72.11	10.557	99.70%	3.06E-01	2.10E-04	9.18E-04	9.20E-01	6.30E-04	2.76E-03
108-10-1	Methyl isobutyl ketone*	100.16	0.750	99.70%	3.02E-02	2.07E-05	9.06E-05	9.08E-02	6.22E-05	2.72E-04
127-18-4	Perchloroethylene (tetrachloroethylene)	165.83	1.940	98.00%	1.29E-01	5.91E-04	2.59E-03	3.89E-01	1.78E-03	7.78E-03
108-88-3	Toluene	92.13	26.900	99.70%	9.96E-01	6.82E-04	2.99E-03	3.00E+00	2.05E-03	8.99E-03
79-01-6	Trichloroethylene (trichloroethene)	131.40	0.804	98.00%	4.25E-02	1.94E-04	8.49E-04	1.28E-01	5.83E-04	2.55E-03
75-01-4	Vinyl chloride	62.50	0.190	98.00%	4.77E-03	2.18E-05	9.55E-05	1.44E-02	6.55E-05	2.87E-04
1330-20-7	Xylenes	106.16	13.830	99.70%	5.90E-01	4.04E-04	1.77E-03	1.77E+00	1.22E-03	5.32E-03
7647-01-0	Hydrochloric Acid (HCl)** (6)	36.45	42.000	--	6.15E-01	1.42E-01	6.21E-01	--	1.42E-01	6.21E-01
	Total HAPs				6.50	0.15	0.65	19.53	0.16	0.71

Criteria Air Pollutants	Molecular Weight (g/Mol)	Actual Emissions		Potential to Emit (PTE)	
		Emissions from Flare (lb/hr)	Emissions from Flare (tpy)	Emissions from Flare (lb/hr)	Emissions from Flare (tpy)
Non-Methane Organic Compounds (NMOCs) as Hexane (7)	86.18	0.01	0.03	0.05	0.23
Volatile Organic Compounds (VOCs) (8)	86.18	0.01	0.03	0.05	0.23
Sulfur Dioxide (SO_2)	64.1	1.00	4.38	4.42	19.36
Carbon Monoxide (CO)		0.32	1.40	12.90	56.50
Nitrogen Oxides (NO_x)		0.70	3.08	2.70	11.83
Particulates ($PM_{2.5}$, PM_{10}, TSP)		0.37	1.62	1.30	5.69

NOTES:

(1) Listed Hazardous Air Pollutants (HAPs) are among compounds commonly found in landfill gas (LFG), as presented in AP-42, Tables 2.4-1 and 2.4-2

(2) Concentrations of pollutants in LFG are based on the results of a flare source test conducted on February 27, 2014. For compounds not tested for in the source test, concentrations are based on Waste Industry Air Coalition Values (marked with single asterisk), or on AP-42, Tables 2.4-1 and 2.4-2 (marked with double asterisk).

(3) Flare destruction efficiency for HAPs taken from AP-42, Table 2.4-3.

(4) For HAPs: LFG emissions from flare = (LFG to flare) * (1-control efficiency).

(5) Based on permitted hydrogen sulfur content of 250 ppmv.

(6) Concentration of HCl is from AP-42, Section 2.4.4.

(7) Converted from as methane to as hexane

(8) VOCs assumed to equal NMOCs.

(9) Actual flow rate taken from total collected in 2013 (399.16 mmscf @38.8% CH4) converted to scfm @50% CH4.

(10) Maximum flow rate to flare based on 75% collection of the generation rate from 2065 (2,361 scfm).

TABLE 3
ACTUAL AND POTENTIAL TO EMIT AIR POLLUTANT EMISSIONS ESTIMATES FOR ENCLOSED FLARE
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER
LANCASTER, CALIFORNIA

MODEL INPUT VARIABLES:

Methane Concentration	50%	
Maximum LFG Collection Rate to Flare (2013 Actual)	589	scfm
(9) Maximum LFG Collection Rate to Flare (PTE)(10)	1,771	scfm

FLARE EMISSION FACTORS:

Actual

Pollutant			
NMOCs/VOCs	0.0393	lb/hr	Based on 2014 Source Test Results (as methane)
SO_2	170	ppmv	Based on 2014 Source Test Results
CO	0.32	lb/hr	Based on 2014 Source Test Results
NO_x	0.703	lb/hr	Based on 2014 Source Test Results
$PM_{10}/PM_{2.5}/PM$	0.371	lb/hr	Based on 2014 Source Test Results

PTE

Pollutant			
NMOCs/VOCs	0.28	lb/hr	Based on current permit (as methane)
SO_2	250	ppmv	Based on current permit
CO	12.9	lb/hr	Based on current permit
NO_x	2.7	lb/hr	Based on current permit
$PM_{10}/PM_{2.5}/PM$	1.3	lb/hr	Based on current permit

TABLE 4
CONTROLLED FUGITIVE DUST EMISSIONS FROM UNPAVED ROADWAY
(CONSTRUCTION VEHICLES)
LANCASTER LANDFILL & RECYCLING CENTER
AND RECYLCLING CENTER LANCASTER,
CALIFORNIA

Emission Source: Unpaved Roadway
Length of Road: 5280 feet
Round Trip Road Length = 1.36 miles

Calculation of Vehicle Miles Traveled (VMT)

Vehicle Type	Average Number of Vehicles/Day	Operational Days/yr[1]	Actual VMT[2]			PTE VMT[3]		
			# of Trips/day	(per day)	(per year)	# of Trips/day	(per day)	(per year)
D7 Dozer	1	307	1	1.4	418	7	10	2,923
826 Compactor	1	307	1	1.4	418	7	10	2,923
140 H Grader	1	307	3	4.1	1,253	21	29	8,768
950 Loader	1	307	1	1.4	418	7	10	2,923
TOTALS	**4**		**6**	**8**	**2,505**	**42**	**57**	**17,536**

[1] Operational days based on 6 days/week.

[2] Actual VMT based on current (2014) activity per site operations personnel.

[3] PTE based on increase in tonnage in future requiring additional construction vehicle activity (from 435 tpd to 3,000 tpd).

Vehicle Type	Average Full Weight (tons)	Average Tare Weight (tons)	Average Weight (tons)	Average Number of Vehicles/Day	Weight times # of vehicles
D7 Dozer			25.0	1	25
826 Compactor			36.69	1	37
140 H Grader			16.23	1	16
950 Loader	18.3	13.0	15.6	1	16
TOTAL				**4**	**94**
				Average Vehicle Weight (tons)	**23.39**

TABLE 4
CONTROLLED FUGITIVE DUST EMISSIONS FROM UNPAVED ROADWAY (CONSTRUCTION VEHICLES)
LANCASTER LANDFILL & RECYCLING CENTER AND RECYLCLING CENTER LANCASTER, CALIFORNIA

Methodologies:

AP-42, Section 13.2.2.2, Equation (1a), for Unpaved Roads at Industrial Sites.

$$E = k(s/12)^a*(W/3)^b * [(365-P)/365]$$

- **E** = Emission factor in pounds per vehicle mile traveled (lb/VMT)
- **k** = Particle size multiplier (lb/VMT)
- **a** = Emprical Constant from Table 13.2.2-2
- **b** = Emprical Constant from Table 13.2.2-2
- **s** = Surface material silt content (%)
- **W** = Average Vehicle weight in tons
- **P** = Number of days with rain > 0.01 inches

Fugitive Dust Control Measures:	Control Efficiency	Source:
Watering Roads as needed:	80%	EPA: *AP-42, Section 13.2.2.3*
Chemical Dust Suppressents:	0%	EPA: *AP-42, Section 13.2.2.3*
Cumulative Total Control:	80%	

Variables:	**k factor[1]**	**a**	**b**	**Surface Silt Content[2] (%)**	**W**	**P**
Pollutant	lb/VMT			(%)	Tons	days
PM-10	1.5	0.9	0.45	6.4	23.39	27
TSP	4.9	0.7	0.45	6.4	23.39	27
PM-2.5	0.15	0.9	0.45	6.4	23.39	27

[1] from AP-42, Section 13.2.2-5

[2] from AP-42 Table 13.2.2-1

Summary of PM Emissions From Unpaved Roadway

	Emission Factor	**Actual Emissions**	**PTE**

Pollutant	lb/VMT (daily)	lb/hr[1]	lbs/day	tons/yr	lb/hr[1]	lbs/day	tons/yr
$PM_{2.5}$	0.20	0.02	0.32	0.050	0.13	2.27	0.35
PM_{10}	1.99	0.19	3.24	0.498	1.34	22.71	3.49
TSP	7.36	0.71	12.02	1.844	4.95	84.11	12.91

[1] Based on 17 hr/day operating schedule.

TABLE 5
CONTROLLED FUGITIVE DUST EMISSIONS FROM UNPAVED ROADWAY
(REFUSE HAULING VEHICLES)
LANCASTER LANDFILL & RECYCLING CENTER
AND RECYCLING CENTER LANCASTER,
CALIFORNIA

Emission Source: Unpaved Roadway
Length of Road: 5280 feet

Round Trip Road Length = 1.00 miles

Calculation of Average Vehicle Miles Traveled (VMT)

Vehicle Type	Average Number of Vehicles/Day	Operational Days/yr[1]	Actual VMT[2]			PTE VMT[3]		
			# of Trips/day	(per day)	(per year)	# of Trips/day	(per day)	(per year)
Residential trucks	6	307	1	6.0	1,842	7	42	12,894
Commerial trucks	7	307	1	7.0	2,149	7	49	15,043
Roll-Off/Industrial trucks	4	307	1	4.0	1,228	7	28	8,596
Pick-ups	34	307	1	34.0	10,438	7	238	73,066
TOTAL	**51**		**4**	**51**	**15,657**	**28**	**357**	**109,599**

[1] Operational days based on 6 days/week.

[2] Actual VMT based on current (2014) vehicles per site operations personnel.

[3] PTE based on increase in tonnage in future requiring additional construction vehicle activity (from 435 tpd to 3,000 tpd).

Vehicle Type	Average Full Weight (tons)	Average Tare Weight (tons)	Average Weight (tons)	Average Number of Vehicles/Day	Weight times # of vehicles
Residential trucks	32.4	14.4	2.1	6	13
Commerial trucks			6.0	7	42
Roll-Off/Industrial trucks			23.4	4	94
Pick-ups			3.0	34	102
TOTAL				**51**	**250**
				Average Vehicle Weight (tons)	**4.91**

TABLE 5
CONTROLLED FUGITIVE DUST EMISSIONS FROM UNPAVED ROADWAY (REFUSE HAULING VEHICLES) LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER LANCASTER, CALIFORNIA

Methodologies:

AP-42, Section 13.2.2.2, Equation (1a), for Unpaved Roads at Industrial Sites.

$$E = k(s/12)^a * (W/3)^b * [(365-P)/365]$$

- **E** = Emission factor in pounds per vehicle mile traveled (lb/VMT)
- **k** = Particle size multiplier (lb/VMT)
- **a** = Emprical Constant from Table 13.2.2-2
- **b** = Emprical Constant from Table 13.2.2-2
- **s** = Surface material silt content (%)
- **W** = Average Vehicle weight in tons
- **P** = Number of days with rain > 0.01 inches

Fugitive Dust Control Measures:	Control Efficiency	Source:
Watering Roads as needed:	80%	EPA: *AP-42, Section 13.2.2.3*
Chemical Dust Suppressents:	0%	EPA: *AP-42, Section 13.2.2.3*
Cumulative Total Control:	80%	

Variables:	**k factor[1]**	**a**	**b**	**Surface Silt Content[2] (%)**	**W**	**P**
Pollutant	lb/VMT			(%)	Tons	days
PM-10	1.5	0.9	0.45	6.4	4.91	27
TSP	4.9	0.7	0.45	6.4	4.91	27
PM-2.5	0.15	0.9	0.45	6.4	4.91	27

[1] from AP-42, Section 13.2.2-5

[2] from AP-42 Table 13.2.2-1

Summary of PM Emissions From Unpaved Roadway

Pollutant	**Emission Factor lb/VMT (daily)**	**Actual Emissions**			**PTE**		
		lb/hr[1]	**lbs/day**	**tons/yr**	**lb/hr[1]**	**lbs/day**	**tons/yr**
$PM_{2.5}$	0.10	0.06	1.00	0.154	0.41	7.03	1.08
PM_{10}	0.98	0.59	10.04	1.541	4.13	70.28	10.79

TSP	3.65	2.19	37.19	5.709	15.31	260.34	39.96

[1] Based on 17 hr/day operating schedule.

TABLE 6
CONTROLLED FUGITIVE DUST EMISSIONS FROM PAVED ROADWAY
(REFUSE HAULING VEHICLES)
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER
LANCASTER, CALIFORNIA

Emission Source: Paved Roadway
Length of Road: 330 feet

Round Trip Road Length = 0.13 miles

Calculation of Vehicle Miles Traveled (VMT)

Type of Vehicle	Average Number of Vehicles/Day	Operational Days/yr[1]	Actual VMT[2]			PTE VMT[3]		
			# of Trips/day	(per day)	(per year)	# of Trips/day	(per day)	(per year)
Residential trucks	6	307	1	0.8	230	7	5	1,612
Commerial trucks	7	307	1	0.9	269	7	6	1,880
Roll-Off/Industrial trucks	4	307	1	0.5	154	7	4	1,075
Pick-ups	34	307	1	4.3	1,305	7	30	9,133
TOTALS	**51.0**		**4**	**6.4**	**1,957**	**28**	**45**	**13,700**

[1] Operational days based on 6 days/week.
[2] Actual VMT based on current (2014) vehicles per site operations personnel.
[3] PTE based on increase in tonnage in future requiring additional construction vehicle activity (from 435 tpd to 3,000 tpd).

Vehicle Type	Average Full Weight (tons)	Average Tare Weight (tons)	Average Weight (tons)	Average Number of Vehicles/Day	Weight times # of trips
Residential trucks			2.1	6	13
Commerial trucks			6.0	7	42
Roll-Off/Industrial trucks	32.4	14.4	23.4	4	94
Pick-ups			3.0	34	102
TOTAL				**51.00**	**250**
				Average Vehicle Weight (tons)	**4.91**

TABLE 6
CONTROLLED FUGITIVE DUST EMISSIONS FROM PAVED ROADWAY
(REFUSE HAULING VEHICLES)
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER
LANCASTER, CALIFORNIA

Methodologies:
AP-42, Section 13.2.1-5, Equation (2), for Paved Roads.

$$E = [k(sL)^{0.91} * (W)^{1.02}] * (1-P/4N)$$

E	=	Emission factor in pounds per vehicle mile traveled (lb/VMT)
k	=	Particle size multiplier (lb/VMT)
sL	=	Road surface silt loading factor (g/m^2)
W	=	Average Vehicle weight in tons
P	=	Number of days with rain > 0.01 inches
N	=	Averaging period

Fugitive Dust Control Measures: Control Efficiency

Methodologies:

EPA: Fugitive Dust Background Document and Technical Information Document for BACM, Sept. 1992, Table 3-1 Measure Efficiency Values for Paved Road Controls

Fugitive Dust Control Measures:	Control Efficiency	Source:
Watering Roads as needed:	50%	SJVUAPCD *Staff Report: BACM Amendments to Regulation VIII, March 19, 2001*
Street Sweeping as needed:	58%	EPA: Fugitive Dust Background Document and Technical Information Docu
Cumulative Total Control:	79.00%	

Variables:	**k factor[1]**	**Silt loading[2] (sL)**	**W**	**P**	**N** (Long Term)
Pollutant	lb/VMT	g/m^2	Tons	days	days
PM-10	0.016	7.4	4.91	27	365
TSP	0.082	7.4	4.91	27	365
PM-2.5	0.0024	7.4	4.91	27	365

[1] From AP-42, Section 13.2.1-5

[2] From AP-42, Table 13.2-4

Summary of PM Emissions From Paved Roadway

	Emission Factor	Actual Emissions			PTE		
Pollutant	lb/VMT (daily)	lb/hr[1]	lbs/day	tons/yr	lb/hr[1]	lbs/day	tons/yr
$PM_{2.5}$	0.0737	0.01	0.10	0.02	0.04	0.69	0.11
PM_{10}	0.4915	0.04	0.66	0.10	0.27	4.61	0.71
TSP	2.5191	0.20	3.37	0.52	1.39	23.61	3.62

[1] Based on 17 hr/day operating schedule.

TABLE 7
FUGITIVE DUST EMISSIONS FROM WIND EROSION (STOCKPILES)
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER
LANCASTER, CALIFORNIA

Emissions Source: Stockpilling

Particulate Emissions From Fugitive Dust Wind Erosion of Cover Storage Piles:

	Actual Area of Soil Excavation[1] (acres)	PTE Area of Soil Excavation[1] (acres)	Emission Factor[2] (lbs/acre)	Control Efficiency[3] (%)	Actual Emissions			Potential to Emit		
					lb/hr	lb/day	tons/yr	lb/hr	lb/day	tons/yr
$PM_{2.5}$	0.8	5.0	190	50%	0.01	0.21	0.04	0.05	1.30	0.24
PM_{10}	0.8	5.0	380	50%	0.02	0.42	0.08	0.11	2.60	0.48
TSP	0.8	5.0	760	50%	0.03	0.83	0.15	0.22	5.21	0.95

Notes:

[1] Stockpile areas provided by landfill personnel.

[2] Emission factor from FIRE (Factor Information and Retrieval System) database (SCC 30501049 - Industrial Processes; Mineral Products; Coal Mining, Cleaning and Material Handling; Wind Erosion; Exposed Areas).

[3] Water trucks will be utilized as needed for a dust control efficiency of 50%.

TABLE 8
FUGITIVE DUST EMISSIONS FROM COVER OPERATIONS
LANCASTER LANDFILL & RECYCLING CENTER AND
RECYCLING CENTER LANCASTER, CALIFORNIA

Emission Source: Cover Soil Excavation and Loadout onto Surface

Basis:
Soil is excavated as needed for daily/intermediate cover and for final cover and bottom liner
Number of days per year landfill is operating: 307

According to AP-42, Section 13.2.4, Aggregate Handling and Storage Piles:
AP-42, Section 13.2 4.3, Equation 1:
Where:

$$E = k(0.0032)\ [(U/5)^{1.3}]/[(M/2)^{1.4}]$$

E = emissions factor (lbs/ton)
k = particle size multiplier = 0.35 for PM_{10}
0.053 for $PM_{2.5}$
0.74 for TSP
U = mean wind speed = 7.7 mph
M = material moisture content = 0.5 %

Assumptions:
For conservative purposes, assume aerodynamic particle size is less than 10 microns.
Water trucks are utilized as needed for dust control efficiency of 50%

Variables:

Estimated density of soil cover =	2,600	lbs/yd^3
Cover volume ratio to refuse volume (%) =	5%	(Actual)
Cover volume ratio to refuse volume (%) =	10%	(PTE)
Estimated density of refuse =	1672	lbs/yd^3
Mean wind speed (U) =	7.7	mph (Based on info provided by C. Anderson at AVAQMD)
Material moisture content (M) =	0.5	% (Based on info provided by C. Anderson at AVAQMD)

Amount of Soil Used for Daily/Intermediate Cover

	Cubic Yards		Tons	
	per day	per year	per day	per year
Actual*	26	7,987	34	10,383
PTE	359	110,167	467	143,218

* Actual daily/intermediate soil cover use in yd^3 is equal to the daily yd^3 of refuse received * ratio of cover volume to refuse volume.

435 tpd (actual)
3000 tpd (PTE)

Amount of Soil Used for Final Cover

	Cubic Yards		Tons	
	per day	per year	per day	per year
Actual*	0	0	0	0
PTE	0	0	0	0

*No soil is currently being used for final cover.

Total Amount of Soil Excavated and Used

	Cubic Yards		Tons	
	per day	per year	per day	per year
Actual	26	7,987	34	10,383
PTE	359	110,167	467	143,218

Water trucks are utilized as needed for dust control efficiency of: 50%

Summary of PM Emissions from Material Handling

Pollutant	Emission Factor	Actual Emissions			Potential to Emit		
	lb/VMT (daily)	lb/hr[1]	lbs/day	tons/yr	lb/hr[1]	lbs/day	tons/yr
$PM_{2.5}$	0.0021	0.002	0.04	0.01	0.03	0.48	0.07
PM_{10}	0.0137	0.01	0.23	0.04	0.19	3.19	0.49
TSP	0.0289	0.03	0.49	0.08	0.40	6.74	1.04

[1] Based on 17 hr/day operating schedule.

TABLE 9
FUGITIVE DUST EMISSIONS FROM BRUSH CHIPPING OPERATIONS
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER
LANCASTER, CALIFORNIA

Emission Source: Brush Chipping

Pollutant	Actual Amount Processed[1]	PTE Amount Processed[2]	Emission Factor[3]	Actual Emissions		PTE	
	(ton/yr)	(ton/yr)	(lb/ton processed)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
$PM_{10}/PM_{2.5}$	1,850	8,120	0.015	0.01	0.01	0.05	0.06
TSP	1,850	8,120	0.032	0.02	0.03	0.10	0.13

[1] Process amounts based on current acceptance rate from landfill personnel.

[2] Process amount based on estimated maximum acceptance from landfill personnel.

[3] No information is available in AP-42 regarding wood processing, therefore, "Crushed Stone Processing" emission factors (Table 11.19.2-2) to estimate emissions.

[4] From AP-42 Table 11.19.2-2, note c, relative ratios in AP-42 Sections 13.2.2 and 13.2.4 indicate that TSP emission factors may be estimated by multiplying PM-10 by 2.1.

[5] Based on 8 hr/day, 307 days/yr.

TABLE 10
EMISSIONS FROM PETROLEUM CONTAMINATED SOIL LANDFILLING
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER
LANCASTER, CALIFORNIA

Emission Source: Petroleum Contaminated Soil Landfilling

CAS Number	Regulated Pollutant[1]	Molecular Weight (g/mol)	Concentration[1] (ppmv)	Actual Amount of PCS Soil Accepted[2] (tpy)	Maximum Amount of PCS Soil Accepted[3] (tpy)	Actual Emissions (lb/hr)	Actual Emissions (tpy)	PTE Emissions (lb/hr)	PTE Emissions (tpy)
67-64-1	Acetone	58.080	30.0	8,750	460,500	9.39E-05	4.11E-04	4.94E-03	2.16E-02
71-43-2	Benzene	78.11	5.5	8,750	460,500	2.31E-05	1.01E-04	1.22E-03	5.33E-03
108-86-1	Bromobenzene	157.01	3.3	8,750	460,500	2.79E-05	1.22E-04	1.47E-03	6.43E-03
74-97-5	Bromochloromethane	129.38	3.3	8,750	460,500	2.30E-05	1.01E-04	1.21E-03	5.30E-03
75-27-4	Bromodichloromethane	163.8	5.2	8,750	460,500	4.59E-05	2.01E-04	2.41E-03	1.06E-02
75-25-2	Bromoform	252.73	6.9	8,750	460,500	9.39E-05	4.11E-04	4.94E-03	2.17E-02
74-83-9	Bromomethane	94.94	8.0	8,750	460,500	4.09E-05	1.79E-04	2.15E-03	9.43E-03
104-51-8	n-Butylbenzene	134.22	90.0	8,750	460,500	6.51E-04	2.85E-03	3.42E-02	1.50E-01
135-98-8	sec-Butylbenzene	134.24	70.0	8,750	460,500	5.06E-04	2.22E-03	2.66E-02	1.17E-01
98-06-6	tert-Butylbenzene	134.11	70.0	8,750	460,500	5.06E-04	2.22E-03	2.66E-02	1.17E-01
75-15-0	Carbon Disulfide	76.139	10.0	8,750	460,500	4.10E-05	1.80E-04	2.16E-03	9.46E-03
56-23-5	Carbon Tetrachloride	153.82	10.6	8,750	460,500	8.78E-05	3.85E-04	4.62E-03	2.02E-02
108-90-7	Chlorobenzene	112.56	10.7	8,750	460,500	6.49E-05	2.84E-04	3.41E-03	1.50E-02
75-00-3	Chloroethane	64.51	9.0	8,750	460,500	3.13E-05	1.37E-04	1.65E-03	7.21E-03
67-66-3	Chloroform	119.38	4.8	8,750	460,500	3.09E-05	1.35E-04	1.62E-03	7.12E-03
74-87-3	Chloromethane	50.49	10.0	8,750	460,500	2.72E-05	1.19E-04	1.43E-03	6.27E-03
95-49-8	2-Chlorotoluene	126.58	3.3	8,750	460,500	2.25E-05	9.86E-05	1.18E-03	5.19E-03
106-43-4	4-Chlorotoluene	126.58	3.3	8,750	460,500	2.25E-05	9.86E-05	1.18E-03	5.19E-03
98-82-8	Cumene	120.19	11.0	8,750	460,500	7.12E-05	3.12E-04	3.75E-03	1.64E-02
96-12-8	1,2-Dibromo-3-chloropropane	236.33	38.0	8,750	460,500	4.84E-04	2.12E-03	2.55E-02	1.12E-01
106-93-4	Dibromomethane	187.86	3.3	8,750	460,500	3.34E-05	1.46E-04	1.76E-03	7.70E-03
95-50-1	1,2-Dichlorbenzene	147.01	24.0	8,750	460,500	1.90E-04	8.33E-04	1.00E-02	4.38E-02
541-73-1	1,3-Dichlorobenzene	147.00	24.0	8,750	460,500	1.90E-04	8.32E-04	1.00E-02	4.38E-02
106-46-7	1,4-Dichlorobenzene	147.0	24.0	8,750	460,500	1.90E-04	8.32E-04	1.00E-02	4.38E-02
107-06-2	1,1-Dichloroethane	96.9	4.7	8,750	460,500	2.45E-05	1.08E-04	1.29E-03	5.66E-03
107-06-2	1,2-Dichloroethane	98.96	3.9	8,750	460,500	2.08E-05	9.11E-05	1.09E-03	4.79E-03
75-35-4	1,1-Dichloroethene	96.94	6.8	8,750	460,500	3.55E-05	1.56E-04	1.87E-03	8.19E-03
78-87-5	1,2-Dichlropropane	112.99	4.9	8,750	460,500	2.98E-05	1.31E-04	1.57E-03	6.88E-03
142-28-9	1,3-Dichlropropane	110.97	5.8	8,750	460,500	3.47E-05	1.52E-04	1.82E-03	7.99E-03
594-20-7	2,2-Dichloropropane	112.99	3.3	8,750	460,500	2.01E-05	8.80E-05	1.06E-03	4.63E-03
124-48-1	Dibromochloromethane	208.28	19.0	8,750	460,500	2.13E-04	9.34E-04	1.12E-02	4.91E-02
75-71-8	Dichlorodifluoromethane	120.91	6.6	8,750	460,500	4.30E-05	1.88E-04	2.26E-03	9.91E-03
64-17-5	Ethanol	46.08	900.0	8,750	460,500	2.23E-03	9.79E-03	1.18E-01	5.15E-01
100-41-4	Ethylbenzene	106.16	16.0	8,750	460,500	9.15E-05	4.01E-04	4.82E-03	2.11E-02
106-93-4	1,2-Dibromomethane	187.86	180.0	8,750	460,500	1.82E-03	7.98E-03	9.59E-02	4.20E-01
78-93-3	Methly Ethyl Ketone	72.11	20.0	8,750	460,500	7.77E-05	3.40E-04	4.09E-03	1.79E-02
75-09-2	Methylene Chloride	84.93	8.0	8,750	460,500	3.66E-05	1.60E-04	1.93E-03	8.44E-03
1634-04-4	MTBE	88.15	17.6	8,750	460,500	8.36E-05	3.66E-04	4.40E-03	1.93E-02
91-20-3	Naphthalene	128.17	40.0	8,750	460,500	2.76E-04	1.21E-03	1.45E-02	6.37E-02
127-18-4	Perchloroethylene	165.83	9.6	8,750	460,500	8.58E-05	3.76E-04	4.51E-03	1.98E-02
103-65-1	n-Propylbenzene	120.19	90.0	8,750	460,500	5.83E-04	2.55E-03	3.07E-02	1.34E-01
100-42-5	Styrene	104.15	29.0	8,750	460,500	1.63E-04	7.13E-04	8.56E-03	3.75E-02
108-88-3	Toluene	92.13	9.7	8,750	460,500	4.81E-05	2.11E-04	2.53E-03	1.11E-02
71-55-6	1,1,1-Trichloroethane	133.4	7.9	8,750	460,500	5.68E-05	2.49E-04	2.99E-03	1.31E-02
79005	1,1,2-Trichloroethane	131.4	5.0	8,750	460,500	3.54E-05	1.55E-04	1.86E-03	8.16E-03

TABLE 10
EMISSIONS FROM PETROLEUM CONTAMINATED SOIL LANDFILLING
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER
LANCASTER, CALIFORNIA

Emission Source: Petroleum Contaminated Soil Landfilling

CAS Number	Regulated Pollutant[1]	Molecular Weight (g/mol)	Concentration[1] (ppmv)	Actual Amount of PCS Soil Accepted[2] (tpy)	Maximum Amount of PCS Soil Accepted[3] (tpy)	Actual Emissions (lb/hr)	Actual Emissions (tpy)	PTE Emissions (lb/hr)	PTE Emissions (tpy)
79-01-6	Trichloroethylene	131.4	9.5	8,750	460,500	6.72E-05	2.95E-04	3.54E-03	1.55E-02
95-63-6	1,2,4-Trimethylbenzene	120.19	120.0	8,750	460,500	7.77E-04	3.40E-03	4.09E-02	1.79E-01
108-67-8	1,3,5-Trimethylbenzene	120.2	30.0	8,750	460,500	1.94E-04	8.51E-04	1.02E-02	4.48E-02
75-01-4	Vinyl Chloride	62.5	5.5	8,750	460,500	1.85E-05	8.11E-05	9.75E-04	4.27E-03
1330-20-7	Xylenes	106.16	34.0	8,750	460,500	1.94E-04	8.52E-04	1.02E-02	4.48E-02
Totl VOCs:						**0.01**	**0.05**	**0.56**	**2.46**
Total HAPs:						**0.00**	**0.02**	**0.18**	**0.80**

Notes:

[1] List of VOCs/HAPs and concentrations taken from Waste Analysis Plan Table 1 Analytical Method Limits and Soil Screening Levels for Chemicals Evaluated for LLRC.

[2] Based on currently accepted rate per landfill personnel.

[3] Based on maximum throughput allowed of 1,500 tons per day, 309 days/yr.

Total PCS Emissions = (Molecular Weight of Compound[g/mol])
*(Concentration of Compound[ppm]/1,000,000)
*(Total PCS used [cubic yards/year])
(1ton/907,184.74 g)(764.55 L/1 yd^3)*(1mol/24.04L @ STP)*(2,000 lb/ton)*(1 yd^3/2,600 lb)

TABLE 11
SUMMARY OF FACILITY-WIDE ACTUAL AND POTENTIAL TO EMIT
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER
LANCASTER, CALIFORNIA

Emission Source	Regulated Air Pollutant	Actual Emissions		PTE Emissions	
		lb/hr	ton/yr	lb/hr	ton/yr
Landfill Gas Surface Emissions (Fugitive)	Volatile Organic Compounds	2.72	11.93	5.76	25.23
	Non-Methane Organic Compounds	2.72	11.93	5.76	25.23
	Total Hazardous Air Pollutants	0.70	3.08	1.49	6.51
Landfill Gas Flare	Volatile Organic Compounds	0.01	0.03	0.05	0.23
	Non-Methane Organic Compounds	0.01	0.03	0.05	0.23
	Sulfur Oxides	1.00	4.38	4.42	19.36
	Carbon Monoxide	0.32	1.40	12.90	56.50
	Nitrogen Oxides	0.70	3.08	2.70	11.83
	Particulate Matter < 2.5 Microns	0.37	1.62	1.30	5.69
	Particulate Matter < 10 Microns	0.37	1.62	1.30	5.69
	TSP	0.37	1.62	1.30	5.69
	Total Hazardous Air Pollutants	0.15	0.65	0.16	0.71
Landfill Equipment	Particulate Matter < 2.5 Microns	0.02	0.05	0.13	0.35
	Particulate Matter < 10 Microns	0.19	0.50	1.34	3.49
	TSP	0.71	1.84	4.95	12.91
Paved Roadways	Particulate Matter < 2.5 Microns	0.01	0.02	0.04	0.11
	Particulate Matter < 10 Microns	0.04	0.10	0.27	0.71
	TSP	0.20	0.52	1.39	3.62
Unpaved Roadways	Particulate Matter < 2.5 Microns	0.06	0.15	0.41	1.08
	Particulate Matter < 10 Microns	0.59	1.54	4.13	10.79
	TSP	2.19	5.71	15.31	39.96

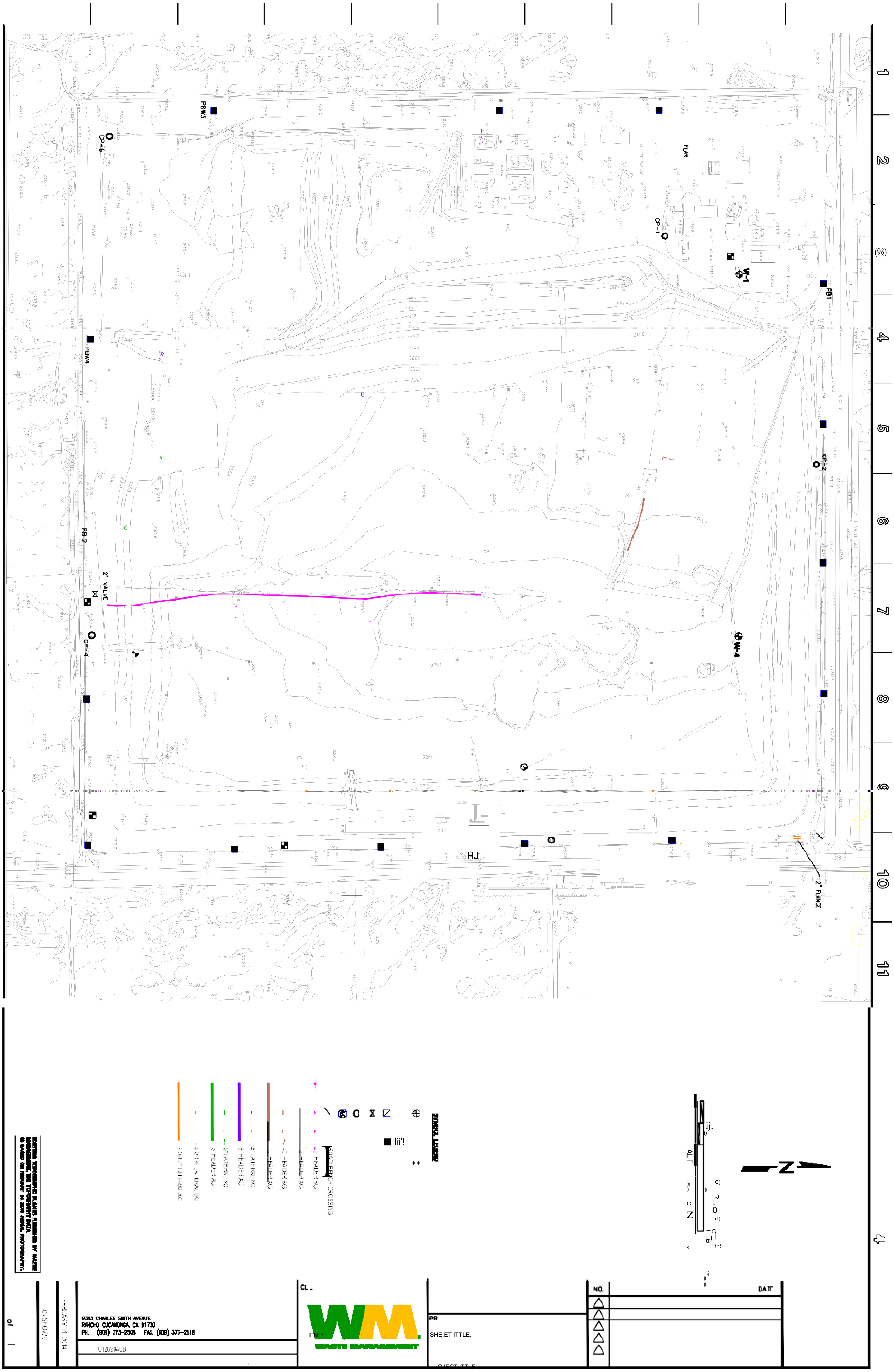
TABLE 11
SUMMARY OF FACILITY-WIDE ACTUAL AND POTENTIAL TO EMIT
LANCASTER LANDFILL & RECYCLING CENTER AND RECYCLING CENTER
LANCASTER, CALIFORNIA

Emission Source	Regulated Air Pollutant	Actual Emissions		PTE Emissions	
		lb/hr	ton/yr	lb/hr	ton/yr
Wind Erosion (Stockpiles)	Particulate Matter < 2.5 Microns	0.01	0.04	0.05	0.24
	Particulate Matter < 10 Microns	0.02	0.08	0.11	0.48
	TSP	0.03	0.15	0.22	0.95
Cover Operations	Particulate Matter < 2.5 Microns	0.002	0.01	0.03	0.07
	Particulate Matter < 10 Microns	0.01	0.04	0.19	0.49
	TSP	0.03	0.08	0.40	1.04
Greenwaste Chipping	Particulate Matter < 2.5 Microns	0.011	0.014	0.050	0.061
	Particulate Matter < 10 Microns	0.011	0.014	0.050	0.061
	TSP	0.024	0.029	0.104	0.128
Petroleum Contaminated Soil Landfilling	Volatile Organic Compounds	0.01	0.05	0.56	2.46
	Total Hazardous Air Pollutants	0.003	0.02	0.18	0.80
Total From All Emission Points (Fugitive and Non-Fugitive)	Particulate Matter < 2.5 Microns	0.10	0.26	0.68	1.80
	Particulate Matter < 10 Microns	0.82	2.16	5.82	15.30
	TSP	2.98	7.81	20.98	54.99
	Carbon Monoxide	0.32	1.40	12.90	56.50
	Oxides of Nitrogen	0.70	3.08	2.70	11.83
	Sulfur Dioxide	1.00	4.38	4.42	19.36
	Volatile Organic Compounds	2.74	12.01	6.37	27.92
	Non-Methane Organic Compounds	2.73	11.96	5.81	25.46
	Total Hazardous Air Pollutants	0.85	3.74	1.83	8.02

APPENDIX A

SITE PLAN

Apper



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ENVIRONMENTALCONSULTANTS

LANCASTERLANDFILLGCCS

LANDFILLGASCOLLECTION
LANCASTERLANDFILL
LANCASTER,CALIFORNIA

APPENDIX B

TITLE V APPLICATION FORMS

SUBMISSION CERTIFICATION (AVAQMD FORM 3002-A)

SUBMISSION CERTIFICATION
(Please Print or Type)

I, Nicole Stetson (Name of Official), a responsible official of Lancaster Landfill & Recycling Center and Recycling Center (Name of Facility),

hereby certify that, based upon information and belief formed after a reasonable inquiry, the following

information, consisting of _____ APPli catien for Title V Permit _____
[Title(s) of Document(s)]

(____Pages), is true, accurate and complete. Executed this 20th (Day) day of August (Month), 2014 (Year) at

County of Los Angeles, California
(County and State)

(Signature)

Nicole Stetson, District Manager
(Name and Title)

Name of Facility: Lancaster Land fill and Recycling Center

Address: 600 East Aven ue F

City/State/Zip: Lancaster, California 93535

This Form is required to be completed and attached to all Federal Operating Permit and Rule 226 submittals to the AVAQMD pursuant to AVAQMD Rule 3003. **Submissions which do not contain this form will be**

rejected.

FACILITY SUMMARY (AVAQMD FORM 3002-B1)

I. FACILITY IDENTIFICATION: Attach supplemental sheets if required.

1. Company Name: Lancaster Landfill & Recycling Center and Recycling Center, Inc.
2. Four digit SIC Code: 4953
3. Facility Name (if different than company name): Lancaster Landfill & Recycling Center and Recycling Center
4. Mailing Address: 600 East Avenue F, Lancaster, California 93535
5. Street Address or Source Location: 600 East Avenue F, Lancaster, California 93535
6. UTM Coordinates (If known) : 397.701 E, 3845.800 N
7. Facility located within 50 miles of state line: [ ] Yes [X] No
8. Facility located within 1000 feet of a school: [ ] Yes [X] No
9. Type of Organization (Please check one): [X] Corporation [ ] Sole Ownership [ ] Government [ ] Partnership [ ] Utility Company [ ] Other
10. Legal Owner's Name: Lancaster Landfill & Recycling Center and Recycling Center, Inc.
11. Owner's Agent Name:
12. Plant or Site Manager/Contact: Richard Lavrinc

    Telephone Number: (661) 223-3437
13. Type of Facility: Municipal Solid Waste Landfill
14. General description of processes/products (Attach additional sheets if necessary):

    Active municipal solid waste (MSW) landfill with a landfill gas (LFG) collection and control system (GCCS) consisting of an enclosed flare and system of vertical extraction wells and condensate collection system.

Please attach a process diagram(s) or engineering schematic(s) which identify all emission points or units. Please

identify and give dimensions of all exhaust stacks, indicate flow of material(s), material transfer points and other process likely to cause emissions.

FACILITY SUMMARY (AVAQMD FORM3002-B1)

15. Is a Risk Management Plan Required? [ ] Yes [X] No
(If yes, attach verification that the Risk Management Plan is registered with the appropriate agency.)

16. Please list all facility equipment and processes currently permitted by the AVAQMD. Please include AVAQMD Permit number and permit unit description (Attach additional sheets as necessary.):

AVAQMD Permit No. C006907 – Gas Condensate Collection System

AVAQMD Permit No. C006904 – Landfill Gas Collection System

AVAQMD Permit No. C006906 – Landfill Gas Flaring System

AVAQMD Permit No. C010662 – Biofilter (Research)

AVAQMD Permit No. C010662 – Vessel Complex, Dry Anaerobic Digester (Research)

PLEASE NOTE: Exempt equipment is to be listed on Form 3002-I.

FACILITY SUMMARY (AVAQMD FORM3002-B1)

II. TYPE OF PERMIT ACTION

1. Please check the type of permit action requested:

	CURRENT AVAQMD PERMIT (permit number)	**EXPIRATION** (date)
[X] Initial Title V Application	********** **********	********** **********
[ ] Permit Renewal		
[ ] Significant Permit Modification		
[ ] Minor Permit Modification		

2. Does the permit action requested involve:

[X] Portable Source [ ] Voluntary Emission Caps
[ ] Acid Rain Source [ ] Other

If so please describe: Tub Grinder – CARB Portable Equipment Registration No. 107657, 107658 and 107659

3. For permit modifications, provide a specific description of the proposed modification (Please attach additional sheets if necessary.):

N/A

FACILITY EMISSIONS SUMMARY (AVAQMD FORM 3002-B2)

I. TOTAL FACILITY EMISSIONS: Please indicate total facility emissions for each criteria pollutant and/or HAP. Totals should be equal to the sum of the emissions for all emissions units (Each emissions unit should be detailed on the appropriate Emissions Unit form.) and the estimated fugitive emissions if necessary. Attach any summary calculation sheets.

CRITERIA POLLUTANT EMISSIONS (tons per year)						
POLLUTANTS	**PM_{10}**	**NO_x**	**SO_2**	**VOC**	**CO**	
Actual Emissions	2.16	3.08	4.38	12.01	1.40	
Potential Emissions	15.30	11.83	19.36	27.92	56.50	
Pre-modification Emissions[1]						
Emission Change[2]						
Emission Limit[3]						
HAZARDOUS AIR POLLUTANT EMISSIONS (tons per year)						
POLLUTANTS (HAPs)						
Actual Emissions	3.74					
Potential Emissions	8.02					
Pre-modification Emissions[1]						
Emission Change[2]						
Emission Limit[3]						

[1] *For permit modifications only; potential to emit prior to project modifications.*

[2] *Difference between pre-modification emissions and potential emissions.*

[3] *For voluntary emissions cap and emission limits [i.e. expressed as parts per million (ppm) (give correction as applicable), pounds per hour (lb/hr), pounds per million Btu (lb/10^6 Btu, etc.] required by any applicable requirement.*

COMBUSTION EMISSIONS UNIT (AVAQMD FORM 3002-C)

I. AVAQMD PERMIT NUMBER: (if any): C006906

II. EMISSION UNIT DESCRIPTION:

1. Equipment type: Landfill Gas Flaring System

2. Equipment description: Enclosed landfill gas flare and associated controls

3. Equipment make, model & serial number: John Zink, Model EGF-45, Serial Number Unknown

4. Maximum design process rate or maximum power input/output: 45.5 MMBtu/hr

5. Primary use: Control device for landfill gas collection and control system

6. Burner(s) design, operating temperature, and capacity: Multi-jet burner, 1,400 to 1,600 degrees F, 1,388 scfm permitted capacity

7. Control device(s) type and description (if any): Enclosed flare; no additional emissions control devices

III. OPERATIONAL INFORMATION:

1. Actual maximum operating schedule: 24 hours/day 8,760 hours/year.

2. Exhaust gas properties (temperature, ACFM, SCFM, % H_2O, %O_2 or % CO_2, % excess air):

1,400-1,600 degrees F, 8.2% H_2O, 12.2% O_2 (from Zink Manual); 1,556 degrees F, 7,221 dscfm, 10.62% O_2, 9.1% H_2O (from February 27, 2014 source test)

FUEL TYPE (name)	ANNUAL USAGE (ft^3/yr, lb/yr, gal/yr)	HEATING VALUE (Btu/lb or Btu/gal)	SULFUR (%)	NITROGEN (%)

Landfill Gas	729,532,800 ft^3/yr	45.5 MMBtu/hr	0.025	

COMBUSTION EMISSIONS UNIT (AVAQMD FORM 3002-C)

IV. UNIT EMISSIONS: Please show emissions calculations on attached sheets.

CRITERIA POLLUTANT EMISSIONS (tons per year)						
POLLUTANTS	**PM_{10}**	**No_x**	**SO_2**	**VOC**	**CO**	
Actual Emissions	1.62	3.08	4.38	0.03	1.40	
Potential Emissions	5.69	11.83	19.36	0.23	56.50	
Pre-modification Emissions[1]						
Emission Change[2]						
Emission Limit[3]						
HAZARDOUS AIR POLLUTANT EMISSIONS (tons per year)						
POLLUTANTS (HAPs)						
Actual Emissions	0.65					
Potential Emissions	0.71					
Pre-modification Emissions[1]						
Emission Change[2]						
Emission Limit[3]						

[1] *For permit modifications only; potential to emit prior to project modifications.*
[2] *Difference between pre-modification emissions and potential emissions.*
[3] *For voluntary emissions cap and emission limits [i.e. expressed as parts per million (ppm) (give correction as applicable), pounds per hour (lb/hr), pounds per million Btu ($lb/10^6$ Btu, etc.] required by any applicable requirement.*

COMBUSTION EMISSIONS UNIT (AVAQMD FORM 3002-C)

V. APPLICABLE REQUIREMENTS:

1. Please list any "Applicable Requirements" which apply to this unit. For assistance see AVAQMD Rule 3001 or AVAQMD Form PF-10 *Applicable Requirement Verification Checklist*. Please provide the citation to the AVAQMD Rule, Federal Regulation or other applicable requirement.

See current PTO No. C006906

40 CFR 60 Subpart WWW

40 CFR 63 Subpart A

40 CFR 63 Subpart AAAA

40 CFR 61 Subpart A

40 CFR 70.1-70.12; AVAQMD Regulation XXX (Title V Permits)

AVAQMD Rule 102

AVAQMD Rule 203, 204, 206, 207, 209, 217, 219 and 225

AVAQMD Rule 301 and 312

AVAQMD Rule 401, 402, 403, 404, 405, 407, 408, 409, 430, 431.1 and 474

AVAQMD Rule 900

AVAQMD Rule 1150.1

AVAQMD Regulation XIII

AVAQMD Rule 1401

VI. PROPOSED PERMIT CONDITIONS:

1. Please list any conditions which you would like to have included on your permit regarding this equipment.

Appendix B Email List of Persons Requesting Notice of Actions

N/A

GENERAL EMISSIONS UNIT (AVAQMD FORM 3002-G)

I. AVAQMD PERMIT NUMBER: (if any): Landfill (No permit number)

II. EQUIPMENT DESCRIPTION:

1. General process description: Disposal of municipal solid waste, construction and demolition waste, and smaller amounts of additional waste generates landfill gas.
2. Equipment type: N/A
3. Equipment description: N/A
4. Equipment make, model & serial number: N/A
5. Maximum design process rate or throughput:
6. Control device(s) type and description (if any): Landfill gas collection system (PTO No. C006904), And landfill gas flaring system (PTO No. C006906) for landfill gas emissions control

III. OPERATIONAL INFORMATION:

1. Actual maximum operating schedule: 15 hours/day 4,680 hours/year
2. Raw products used and finished products produced (attach additional sheets as necessary):

RAW PRODUCT USED (name)	**CONSUMPTION** (lb/hr,gal/hr, etc.)	**PRODUCTS PRODUCED** (name)	**PRODUCTION** (lb/hr,gal/hr,etc.)
N/A			

3. Exhaust gas flow rate:_____ACFM @_____% H_2O and_____(F).

GENERAL EMISSIONS UNIT (AVAQMD FORM3002-G)

IV. UNIT ANNUAL EMISSIONS: Attach additional calculation sheets demonstrating the below listed emission unit emissions.

CRITERIA POLLUTANT EMISSIONS (tons per year)						
POLLUTANTS	**PM_{10}**	**NO_x**	**SO_2**	**VOC**	**CO**	
Actual Emissions				11.93		
Potential Emissions				25.23		
Pre-modification Emissions[1]						
Emission Change[2]						
Emission Limit[3]						
HAZARDOUS AIR POLLUTANT EMISSIONS (tons per year)						
POLLUTANTS (HAPs)						
Actual Emissions	3.08					
Potential Emissions	6.51					
Pre-modification Emissions[1]						
Emission Change[2]						
Emission Limit[3]						

[1] *For permit modifications only; potential to emit prior to project modifications.*

[2] *Difference between pre-modification emissions and potential emissions.*

[3] *For voluntary emissions cap and emission limits [i.e. expressed as parts per million (ppm) (give correction as applicable), pounds per hour (lb/hr), pounds per million Btu (lb/10^6 Btu, etc.] required by any applicable requirement.*

GENERAL EMISSIONS UNIT (AVAQMD FORM3002-G)

V. APPLICABLE REQUIREMENTS:

1. Please list any "Applicable Requirements" which apply to this unit. For assistance see AVAQMD Rule 3001 or AVAQMD Form PF-10 *Applicable Requirement Verification Checklist*. Please provide the citation to the AVAQMD Rule, Federal Regulation or other applicable requirement.

40 CFR 60 Subpart WWW

40 CFR 63 Subpart A

40 CFR 63 Subpart AAAA

40 CFR 61 Subpart A

40 CFR 70.1-70.12; AVAQMD Regulation XXX (Title V Permits)

AVAQMD Rule 102

AVAQMD Rule 217, 219 and 225

AVAQMD Rule 301 and 312

AVAQMD Rule 401, 402, 403, 404, 405, 408, 430, 431.2 444 and 473

AVAQMD Rule 900

AVAQMD Rule 1150 and 1150.1

VI. PROPOSED PERMIT CONDITIONS:

1. Please list any conditions which you would like to have included on your permit regarding this equipment.

N/A

GENERAL EMISSIONS UNIT (AVAQMD FORM 3002-G)

I. AVAQMD PERMIT NUMBER: (if any): Landfill Gas Collection System (PTO No. C006904)

II. EQUIPMENT DESCRIPTION:

1. General process description: Landfill gas collection system draws LFG from the waste mass under vacuum to the extraction wells and delivers to the enclosed flare via a system of lateral and header piping.
2. Equipment type: See current PTO
3. Equipment description: N/A
4. Equipment make, model & serial number: N/A
5. Maximum design process rate or throughput: 1,388 scfm (based on flare capacity)
6. Control device(s) type and description (if any): Landfill gas flaring system (PTO No. C006906)

III. OPERATIONAL INFORMATION:

1. Actual maximum operating schedule: 24 hours/day 8,760 hours/year
2. Raw products used and finished products produced (attach additional sheets as necessary):

RAW PRODUCT USED (name)	**CONSUMPTION** (lb/hr,gal/hr, etc.)	**PRODUCTS PRODUCED** (name)	**PRODUCTION** (lb/hr,gal/hr,etc.)
N/A			

3. Exhaust gas flow rate:_____ACFM @_____% H_2O and_____(F).

GENERAL EMISSIONS UNIT (AVAQMD FORM3002-G)

IV. UNIT ANNUAL EMISSIONS: Attach additional calculation sheets demonstrating the below listed emission unit emissions.

CRITERIA POLLUTANT EMISSIONS (tons per year)						
POLLUTANTS	**PM_{10}**	**NO_x**	**SO_2**	**VOC**	**CO**	
Actual Emissions	N/A	N/A	N/A	N/A	N/A	
Potential Emissions	N/A	N/A	N/A	N/A	N/A	
Pre-modification Emissions[1]						
Emission Change[2]						
Emission Limit[3]						
HAZARDOUS AIR POLLUTANT EMISSIONS (tons per year)						
POLLUTANTS (HAPs)						
Actual Emissions	N/A					
Potential Emissions	N/A					
Pre-modification Emissions[1]						
Emission Change[2]						
Emission Limit[3]						

1 *For permit modifications only; potential to emit prior to project modifications.*

2 *Difference between pre-modification emissions and potential emissions.*

3 *For voluntary emissions cap and emission limits [i.e. expressed as parts per million (ppm) (give correction as applicable), pounds per hour (lb/hr), pounds per million Btu (lb/10^6 Btu, etc.] required by any applicable requirement.*

GENERAL EMISSIONS UNIT (AVAQMD FORM3002-G)

V. APPLICABLE REQUIREMENTS:

1. Please list any "Applicable Requirements" which apply to this unit. For assistance see AVAQMD Rule 3001 or AVAQMD Form PF-10 *Applicable Requirement Verification Checklist*. Please provide the citation to the AVAQMD Rule, Federal Regulation or other applicable requirement.

40 CFR 60 Subpart WWW

40 CFR 63 Subpart A

40 CFR 63 Subpart AAAA

40 CFR 61 Subpart A

40 CFR 70.1-70.12; AVAQMD Regulation XXX (Title V Permits)

AVAQMD Rule 102

AVAQMD Rule 203, 204, 206, 209, 217, 219 and 225

AVAQMD Rule 301 and 312

AVAQMD Rule 402, 408 and 430

AVAQMD Rule 900

AVAQMD Rule 1150.1

VI. PROPOSED PERMIT CONDITIONS:

1. Please list any conditions which you would like to have included on your permit regarding this equipment.

N/A

GENERAL EMISSIONS UNIT (AVAQMD FORM 3002-G)

I. AVAQMD PERMIT NUMBER: (if any): Landfill Gas Condensate Collection System (PTO No. C006907)

II. EQUIPMENT DESCRIPTION:

1. General process description: Condensed moisture in the landfill collection system piping is collected by the condensate collection system and delivered to holding tank and then combusted in the flare.
2. Equipment type: See current PTO
3. Equipment description: N/A
4. Equipment make, model & serial number: N/A
5. Maximum design process rate or throughput: 4 gallons per hour (based on PTO)
6. Control device(s) type and description (if any): Landfill gas flaring system (PTO No. C006906)

III. OPERATIONAL INFORMATION:

1. Actual maximum operating schedule: 24 hours/day 8,760 hours/year
2. Raw products used and finished products produced (attach additional sheets as necessary):

RAW PRODUCT USED (name)	**CONSUMPTION** (lb/hr,gal/hr, etc.)	**PRODUCTS PRODUCED** (name)	**PRODUCTION** (lb/hr,gal/hr,etc.)
N/A			

3. Exhaust gas flow rate:_____ACFM @_____% H_2O and_____(F).

GENERAL EMISSIONS UNIT (AVAQMD FORM3002-G)

IV. UNIT ANNUAL EMISSIONS: Attach additional calculation sheets demonstrating the below listed emission unit emissions.

CRITERIA POLLUTANT EMISSIONS (tons per year)						
POLLUTANTS	**PM_{10}**	**NO_x**	**SO_2**	**VOC**	**CO**	
Actual Emissions	N/A	N/A	N/A	N/A	N/A	
Potential Emissions	N/A	N/A	N/A	N/A	N/A	
Pre-modification Emissions[1]						
Emission Change[2]						
Emission Limit[3]						
HAZARDOUS AIR POLLUTANT EMISSIONS (tons per year)						
POLLUTANTS (HAPs)						
Actual Emissions	N/A					
Potential Emissions	N/A					
Pre-modification Emissions[1]						
Emission Change[2]						
Emission Limit[3]						

1 *For permit modifications only; potential to emit prior to project modifications.*

2 *Difference between pre-modification emissions and potential emissions.*

3 *For voluntary emissions cap and emission limits [i.e. expressed as parts per million (ppm) (give correction as applicable), pounds per hour (lb/hr), pounds per million Btu (lb/10^6 Btu, etc.] required by any applicable requirement.*

GENERAL EMISSIONS UNIT (AVAQMD FORM3002-G)

V. APPLICABLE REQUIREMENTS:

1. Please list any "Applicable Requirements" which apply to this unit. For assistance see AVAQMD Rule 3001 or AVAQMD Form PF-10 *Applicable Requirement Verification Checklist*. Please provide the citation to the AVAQMD Rule, Federal Regulation or other applicable requirement.

40 CFR 60 Subpart WWW

40 CFR 63 Subpart A

40 CFR 63 Subpart AAAA

40 CFR 61 Subpart A

40 CFR 70.1-70.12; AVAQMD Regulation XXX (Title V Permits)

AVAQMD Rule 102

AVAQMD Rule 203, 204, 206, 217 and 225

AVAQMD Rule 301 and 312

AVAQMD Rule 402, 408 and 430

AVAQMD Rule 900

AVAQMD Rule 1150.1

VI. PROPOSED PERMIT CONDITIONS:

1. Please list any conditions which you would like to have included on your permit regarding this equipment.

N/A

GENERAL EMISSIONS UNIT (AVAQMD FORM 3002-G)

I. AVAQMD PERMIT NUMBER: (if any): Petroleum Contaminated Soil Landfilling (No permit number)

II. EQUIPMENT DESCRIPTION:

1. General process description: Acceptance and disposal of soil containing petroleum hydrocarbons are deposited in the landfill.
2. Equipment type: N/A
3. Equipment description: N/A
4. Equipment make, model & serial number: N/A
5. Maximum design process rate or throughput: 8,750 tons per year (average), 460,500 tons per year (max)
6. Control device(s) type and description (if any): Landfill gas collection system (PTO No. C006904), and landfill gas flaring system (PTO No. C006906) for landfill gas emissions control

III. OPERATIONAL INFORMATION:

1. Actual maximum operating schedule: 15 hours/day 4,680 hours/year
2. Raw products used and finished products produced (attach additional sheets as necessary):

RAW PRODUCT USED (name)	**CONSUMPTION** (lb/hr,gal/hr, etc.)	**PRODUCTS PRODUCED** (name)	**PRODUCTION** (lb/hr,gal/hr,etc.)
N/A			

3. Exhaust gas flow rate:_____ACFM @_____% H_2O and_____(F).

GENERAL EMISSIONS UNIT (AVAQMD FORM3002-G)

IV. UNIT ANNUAL EMISSIONS: Attach additional calculation sheets demonstrating the below listed emission unit emissions.

CRITERIA POLLUTANT EMISSIONS (tons per year)						
POLLUTANTS	**PM_{10}**	**NO_x**	**SO_2**	**VOC**	**CO**	
Actual Emissions				0.05		
Potential Emissions				2.46		
Pre-modification Emissions[1]						
Emission Change[2]						
Emission Limit[3]						
HAZARDOUS AIR POLLUTANT EMISSIONS (tons per year)						
POLLUTANTS (HAPs)						
Actual Emissions	0.02					
Potential Emissions	0.80					
Pre-modification Emissions[1]						
Emission Change[2]						
Emission Limit[3]						

1 *For permit modifications only; potential to emit prior to project modifications.*

2 *Difference between pre-modification emissions and potential emissions.*

3 *For voluntary emissions cap and emission limits [i.e. expressed as parts per million (ppm) (give correction as applicable), pounds per hour (lb/hr), pounds per million Btu (lb/10^6 Btu, etc.] required by any applicable requirement.*

GENERAL EMISSIONS UNIT (AVAQMD FORM3002-G)

V. APPLICABLE REQUIREMENTS:

1. Please list any "Applicable Requirements" which apply to this unit. For assistance see AVAQMD Rule 3001 or AVAQMD Form PF-10 *Applicable Requirement Verification Checklist*. Please provide the citation to the AVAQMD Rule, Federal Regulation or other applicable requirement.

40 CFR 70.1-70.12; AVAQMD Regulation XXX (Title V Permits)

AVAQMD Rule 102

AVAQMD Rule 225

AVAQMD Rule 301 and 312

AVAQMD Rule 401, 402, 403, 404, 405, 408, 430 and 473

AVAQMD Rule 900

VI. PROPOSED PERMIT CONDITIONS:

1. Please list any conditions which you would like to have included on your permit regarding this equipment.

N/A

EMISSIONS CONTROL UNIT (AVAQMD FORM 3002-H)

I. AVAQMD PERMIT NUMBER: (if any) PTO No. C006906 (Flare)

II. EQUIPMENT DESCRIPTION:

1. General process description: Flaring of captured landfill gas

2. Equipment type: Landfill gas-fired flare

3. Equipment description: Enclosed landfill gas-fired flare

4. Equipment make, model & serial number: John Zink, Model EGF-45, Serial Number Unknown

5. Emission unit(s) served by this equipment: Municipal solid waste landfill – captured landfill gas

6. Maximum design or rated capacity: 45.5 MMBtu/hr

III. EQUIPMENT DESIGN INFORMATION

1. Exhaust gas: Temperature 1,400-1,600 (F) Flow Rate: _____ (ACFM)

   Moisture: 8.2 (% H_2O) Oxygen: 12.2 (%) CO_2: 7.0 (%)

2. General:

   Manufacturer: John Zink

Pressure Drop: 0.88 (in-Hg) Inlet Temp.: 100 (F)

Outlet Temp.: 1,400-1,600 (F)

EMISSIONS CONTROL UNIT (AVAQMD FORM 3002-H)

3. Catalyst data: Catalyst Type:_____, Catalyst Material:_____,

   Catalyst Life:_____(years) Volume:_____(Ft^3)
   Space Velocity:_____(Ft^3/Ft) NH_3 Injection Rate:_____(gal/hr)
   NH_3 Injection Temperature:_____(F)

4. Baghouse data: Design: [ ] Positive Pressure [ ] Negative Pressure

   Cleaning Method:_____Fabric Material: _____
   Flow Rate:_____(ACFM) Total Bag Area: _____
   Number of Bags:_____Air/Cloth Ratio: _____

5. ESP data: Number of fields:_____, Cleaning Method:_____,

   Power Input:_____

6. Scrubber data: Type/design:_____, Sorbent Type:_____,

7. Other Control Devices (include appropriate design information): _____

   _____

IV. OPERATIONAL INFORMATION:

1. Actual maximum operating schedule: 24 hours/day 8,760 hours/year

2. Raw products used by control device: Landfill Gas

   _____

3. Operating information:

POLLUTANTS AND EMISSION CONTROL INFORMATION			
POLLUTANT (name)	**INLET CONCENTRATION** (ppm or gr/DSCF[1])	**OUTLET CONCENTRATION** (ppm or gr/DSCF[1])	**CONTROL EFFICIENCY** (% weight)
NMOCs	Varies	20 ppmv as hexane @3% oxygen	98%
VOCs	Varies	20 ppmv as hexane @3% oxygen	98%
See Attached.			

[1] Specify percent O_2 or percent CO_2.

EMISSIONS CONTROL UNIT (AVAQMD FORM 3002-H)

V. APPLICABLE REQUIREMENTS:

1. Please list any "Applicable Requirements" which apply to this unit. For assistance see AVAQMD Rule 3001 or AVAQMD Form PF-10 *Applicable Requirement Verification Checklist*. Please provide the citation to the AVAQMD Rule, Federal Regulation or other applicable requirement.

See current PTO No. C006906

40 CFR 60 Subpart WWW

40 CFR 63 Subpart A

40 CFR 63 Subpart AAAA

40 CFR 61 Subpart A

40 CFR 70.1-70.12; AVAQMD Regulation XXX (Title V Permits)

AVAQMD Rule 102

AVAQMD Rule 203, 204, 206, 207, 209, 217, 219. And 225

AVAQMD Rule 301 and 312

AVAQMD Rule 401, 402, 403, 404, 405, 407, 408, 409, 430, 431.1 and 474

AVAQMD Rule 900

AVAQMD Rule 1150.1

AVAQMD Regulation XIII

AVAQMD Rule 1401

VI. PROPOSED PERMIT CONDITIONS:

1. Please list any conditions which you would like to have included on your permit regarding this equipment.

N/A

EXEMPT EQUIPMENT LISTING (AVAQMD FORM 3002-I)

I. LIST OF EQUIPMENT EXEMPT FROM DISTRICT PERMIT REQUIREMENTS (Consult AVAQMD Rule 219 for guidance.)

EXEMPT EQUIPMENT	BASIS FOR EXEMPTION
5-Horsepower Gasoline Water Pump	Rule 219(E)(2)(a)
5-Horsepower Diesel Light Plant	Rule 219(E)(2)(a)
Arc-welding Equipment	Rule 219(E)(5)(h)
Two (2) Propane Storage Tanks (250 and 320 gallons)	Rule 219(E)(13)(b)
240-Gallon Lubricating Oil Tank	Rule 219(E)(13)(g)
Two (2) Transmission Oil Tanks (240 and 300 gallons)	Rule 219(E)(13)(g)
Two (2) Hydraulic Fluid Tanks (360 and 125 gallons)	Rule 219(E)(13)(g)
240-Gallon Waste Oil Tank	Rule 219(E)(13)(h)
Water-Based Parts Cleaning	Rule 219(E)(12)(d)
Two (2) Propane Comfort Heaters	Rule 219(E)(2)(b) and (E)(4)(f)
300-Gallon Aboveground Diesel Storage Tank	Rule 219(E)(13)(c) and (E)(13)(d)
480-Gallon Aboveground Diesel Storage Tank	Rule 219(E)(13)(c) and (E)(13)(d)
Mobile Equipment and Motor Vehicles	Rule 219(E)(1)(a) and (E)(1)(b)
Air Conditioning Units	Rule 219(E)(4)(a)
Brush Grinder	CARB Portable Equipment Registration No. 107657, 107658 and 107659

Leachate Collection and Storage System	Rule 219(D)(1)

COMPLIANCE PLAN (AVAQMD FORM 3002-J)

I. APPLICABLE FEDERAL REQUIREMENTS LISTING: (Consult AVAQMD Rules: 3001; 3003 for guidance.) Attach sheets if needed.

APPLICABLE FEDERAL REQUIREMENT[1]	EMISSION UNIT PERMIT NUMBER	IN COMPLIANCE yes, no or exempt[2]	EFFECTIVE DATE[3]
40 CFR 60 Subpart WWW, AVAQMD Rule 900	C006904, C006906, C006907 and landfill	Yes	Immediate
40 CFR 63 Subpart A	C006904, C006906, C006907 and landfill	Yes	Immediate
40 CFR 63 Subpart AAAA	C006904, C006906, C006907 and landfill	Yes	Immediate
40 CFR 61 Subpart A	C006904, C006906, C006907 and landfill	Yes	Immediate
40 CFR 70.1-70.12, AVAQMD Regulation XXX	C006906, landfill, C006904, C006907, PCS	Yes	Immediate
40 CFR 60.8	C006906	Yes	Immediate
AVAQMD Rule 102	C006906, landfill, C006904, C006907, PCS	Yes	Immediate
AVAQMD Rule 203	C006906, C006904, C006907	Yes	Immediate
AVAQMD Rule 204	C006906, C006904, C006907	Yes	Immediate
AVAQMD Rule 206	C006906, C006904, C006907	Yes	Immediate
AVAQMD Rule 209	C006906, C006904, C006907	Yes	Immediate
AVAQMD Rule 217	C006906, landfill, C006904, C006907	Yes	Immediate
AVAQMD Rule 219	None	Yes	Immediate
AVAQMD Rule 225	C006906, landfill, C006904, C006907, PCS	Yes	Immediate

Appendix B Email List of Persons Requesting Notice of Actions

APPLICABLE FEDERAL REQUIREMENT[1]	EMISSION UNIT PERMIT NUMBER	IN COMPLIANCE yes, no or exempt[2]	EFFECTIVE DATE[3]
AVAQMD Rule 301 and 312	C006906, C006904, C006907, landfill, PCS	Yes	Immediate
AVAQMD Rule 401	C006906, landfill, PCS	Yes	Immediate
AVAQMD Rule 402	C006906, C006904, C006907, landfill, PCS	Yes	Immediate
AVAQMD Rule 403	Landfill, PCS	Yes	Immediate
AVAQMD Rule 404	C006906, landfill, PCS	Yes	Immediate
AVAQMD Rule 405	Landfill, C006906, PCS	Yes	Immediate
AVAQMD Rule 407	C006906	Yes	Immediate
AVAQMD Rule 408	C006906, landfill, C006904, C006907, PCS	Yes	Immediate
AVAQMD Rule 409	C006906	Yes	Immediate
AVAQMD Rule 430	C006906, landfill, C006904, C006907, PCS	Yes	Immediate
AVAQMD Rule 431.1	C006906	Yes	Immediate
AVAQMD Rule 431.2	Landfill	Yes	Immediate
AVAQMD Rule 444	Landfill	Yes	Immediate
AVAQMD Rule 473	Landfill, PCS	Yes	Immediate
AVAQMD Rule 474	C006906	Yes	Immediate
AVAQMD Rule 1150	Landfill	Yes	Immediate
AVAQMD Rule 1150.1	C006906, landfill, C006904, C006907	Yes	Immediate
AVAQMD Regulation XIII	C006906	Yes	Immediate

AVAQMD Rule 1401	C006906	Yes	Immediate

1 Complete Forms 3002-K and 3002-L for each applicable federal requirement listed above.
2 If exempt from applicable federal requirement, attach explanation for exemption.
3 Indicate the date during the permit term that the applicable federal requirement will become effective.

COMPLIANCE PLAN (AVAQMD FORM 3002-J)

II. CONTINUATION OF COMPLIANCE: Describe how compliance will be maintained for applicable federal requirements currently being complied with (attach sheets as necessary).

The facility will continue to maintain compliance with all applicable federal rules by complying with all monitoring, recordkeeping and reporting requirements as required in current permits to operate. See also regulatory analysis in Appendix G.

III. APPLICABLE REQUIREMENTS NOT YET EFFECTIVE: For applicable federal requirements which will become effective during the permit term provide a statement that the facility will comply with these requirements on a timely basis (attach sheets as necessary).

The facility will comply with all requirements under 40 CFR Part 70 when the operating permit is issued. Any deviations will be reported as part of the required semi-annual and annual reports.

IV. COMPLIANCE SCHEDULE AND PROGRESS REPORTS:

1. For facilities required to have a schedule of compliance to remedy a violation, provide schedule for submittal of certified progress reports no less frequently than semiannually. A certified progress report will be submitted:

   [ ] Semiannually [ ] More frequently as required by order of the District.
   Submittal dates:

2. Provide a narrative description of how the facility will achieve compliance with the applicable federal requirements (attach sheets as needed):

   See Section II and III

3. Provide description and indicate dates the activities, milestones, or compliance required by the Schedule of Compliance was achieved or will be achieved (attach sheets as needed):

   N/A

COMPLIANCE PLAN (AVAQMD FORM 3002-J)

4. Provide explanation of why any dates in the Schedule of Compliance were not or will not be met:

   N/A

5. Describe in chronological order preventive or corrective action taken:

   N/A

Note: AVAQMD Form 3002-A (Submission Certification) must be submitted to certify the information contained in this form and any other information submitted.

For federal applicable requirements for which the facility is not in compliance at the time of permit issuance, provide a **Compliance Schedule.** *[The compliance schedule shall contain a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with the federal applicable requirement. The compliance schedule is part of the variance granted by the hearing board and shall resemble, and be at least as stringent as that contained in any judicial consent decree or administrative order to which the facility is subject].*

COMPLIANCE CERTIFICATION (AVAQMD FORM 3002-K)

Consult AVAQMD Rules: 3001 ; 3003 ; and 3008 for guidance.

I. AVAQMD PERMIT NUMBERS: C006907, C006904, C006906

II. APPLICABLE FEDERAL REQUIREMENT: See Form 3002-J and Attached Appendix G

III. FACILITY INFORMATION:

1. Company Name: Lancaster Landfill & Recycling Center and Recycling Center, Inc.
2. Facility Name (if different than Company Name: Lancaster Landfill & Recycling Center and Recycling Center
3. Mailing Address: 600 East Avenue F, Lancaster, California 93534
4. Street Address or Source Location: 600 East Avenue F, Lancaster, California 93534
5. Type of Organization: [X] Corporation [ ] Sole Ownership
   [ ] Government [ ] Partnership
   [ ] Utility Company

IV. GENERAL INFORMATION:

1. Reporting period (specify dates) NA / / to / /
2. Due date for submittal of report: TBD / /
3. Type(s) of submittal:

   [ ] **Monitoring Report** (complete Section VI below and submit AVAQMD Form 3002-L)

   [ ] **Compliance Schedule Progress Report** (complete section V below and submit AVAQMD Form

3002-J)

[X] **Compliance Certification** (complete Section VII below and submit AVAQMD Form 3002-A)

COMPLIANCE CERTIFICATION (AVAQMD FORM 3002-K)

V. CERTIFICATION REPORT:

1. Compliance certifications shall be submitted (during the permit term):

   [X] Annually
   [ ] More frequently (if specified by applicable federal requirement, or by order of the District), _____(specify frequency)

2. Compliance certification submittal dates: To be submitted in accordance with Rule 3003

3. State whether or not the facility is in compliance with stated applicable federal requirement and whether compliance was continuous or intermittent.

   In continuous compliance

4. Describe the compliance status of the facility with respect to applicable enhanced monitoring, and compliance requirements of Section 114(a)(3) of the Clean Air Act (attached sheets as needed):

   In compliance

COMPLIANCE CERTIFICATION (AVAQMD FORM 3002-K)

5. Methods used for determining compliance (include description or reference method used for determination of compliance). Attach sheets as needed:

METHOD	DESCRIPTION OR REFERENCE METHOD
Monitoring	See Attached Appendix G.
Reporting	See Attached Appendix G.
Record Keeping	See Attached Appendix G.
Test Methods	See Attached Appendix G.

Description(s): _____

_____

_____

_____

_____

_____

_____

_____

_____

COMPLIANCE CERTIFICATION (AVAQMD FORM 3002-K)

VI. MONITORING REPORT INFORMATION:

N/A

Were deviations from monitoring requirements encountered during the reporting period?

[ ] No [ ] Yes (If Yes, complete Form 3002-L)

VII. COMPLIANCE CERTIFICATION:

1. Was source in compliance during the reporting period specified in Section IV above and is source currently in compliance with all federal applicable requirements and permit conditions.

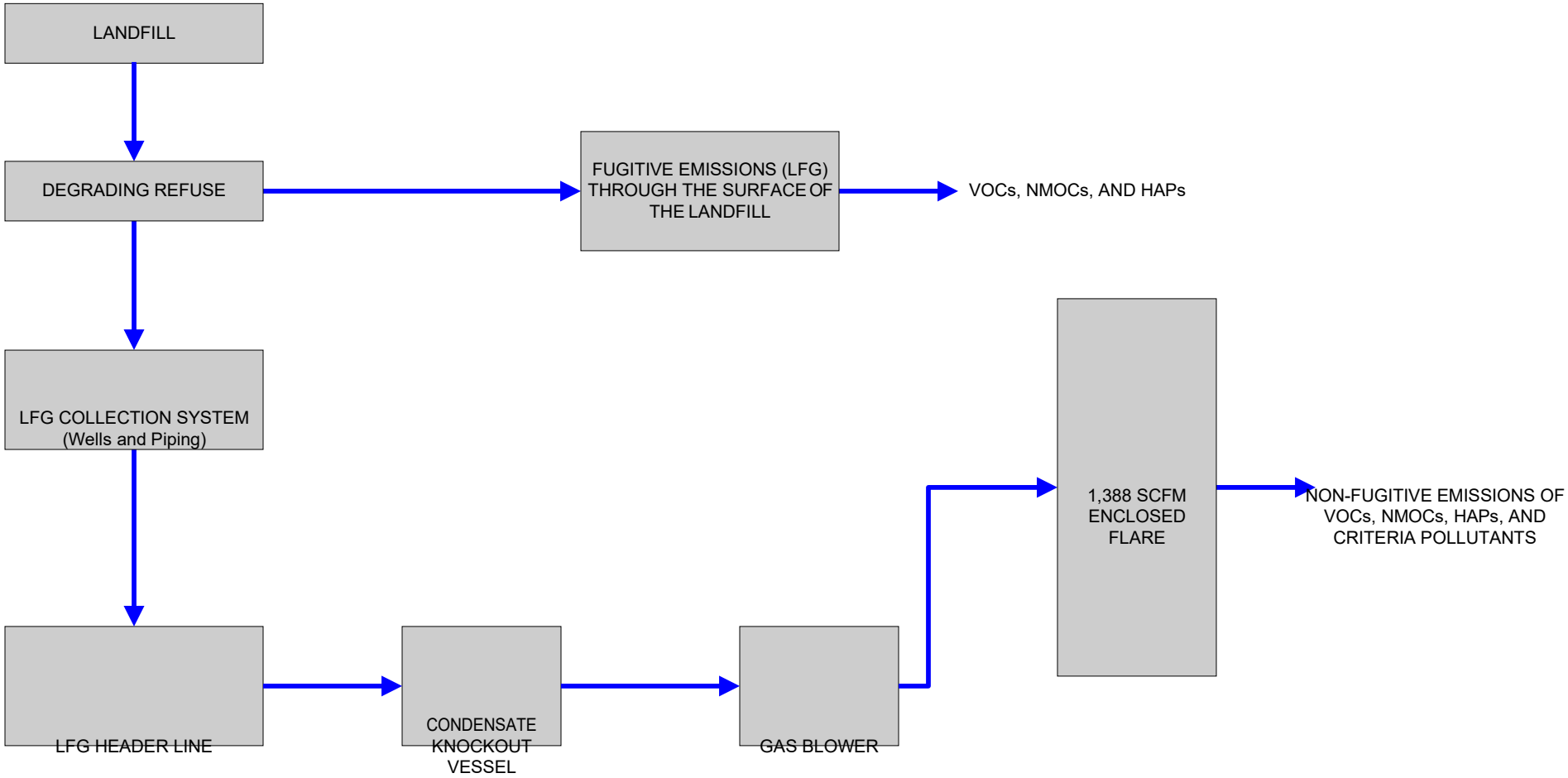
   [X] Yes [ ] No (If no, submit/re-submit Forms 3002-J, 3002-K, and 3002-L, as applicable)

2. AVAQMD Form 3002-A (Submission Certification) must be completed and submitted by Facility Responsible Official to certify the information contained in this form and any other information submitted.

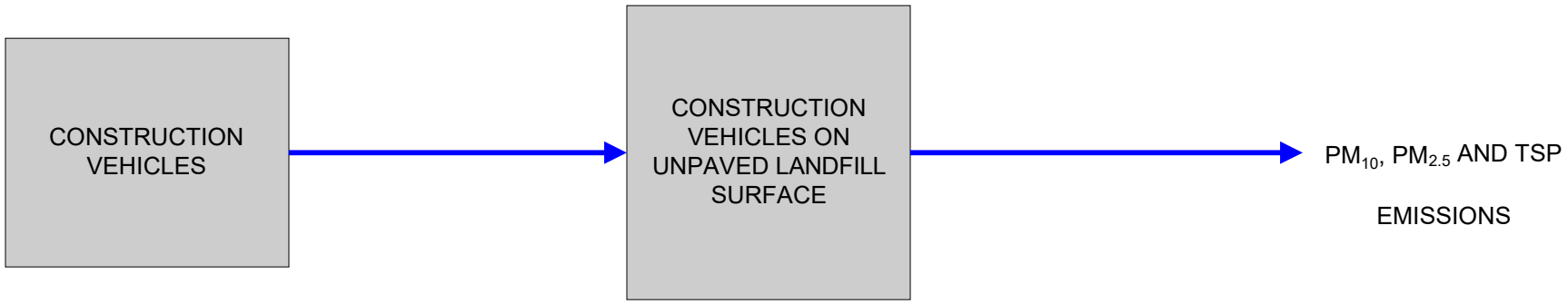
APPENDIX C

PROCESS FLOW DIAGRAMS

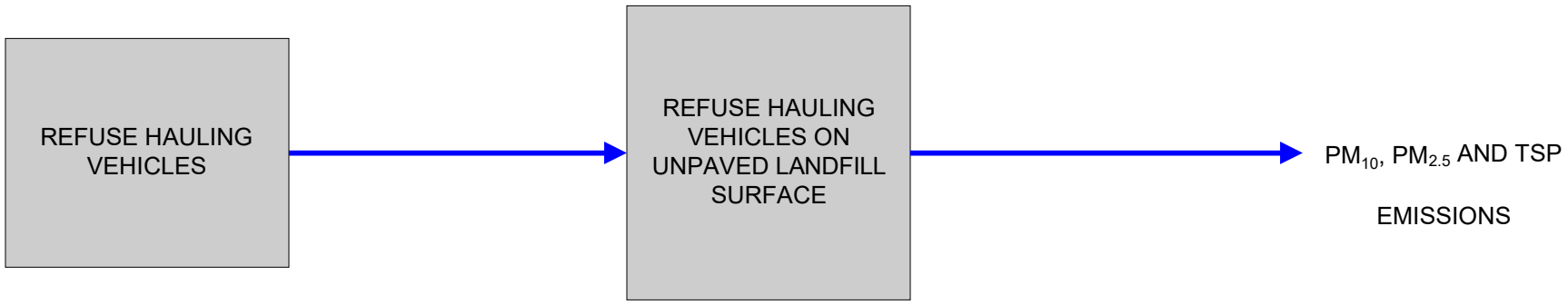
PROCESS FLOW DIAGRAM OF LANDFILL AND LANDFILL GAS COLLECTION AND CONTROL SYSTEM - FLARE



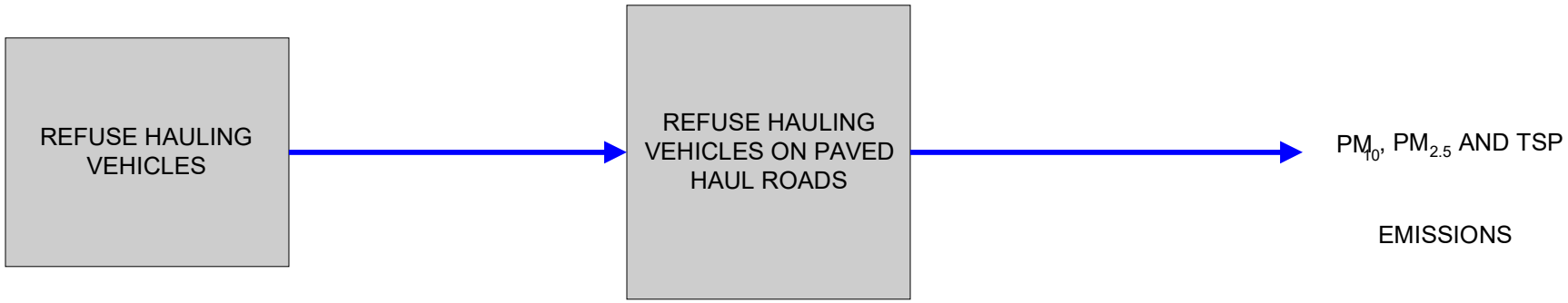
PROCESS FLOW DIAGRAM OF CONSTRUCTION TRAFFIC - UNPAVED ROADS



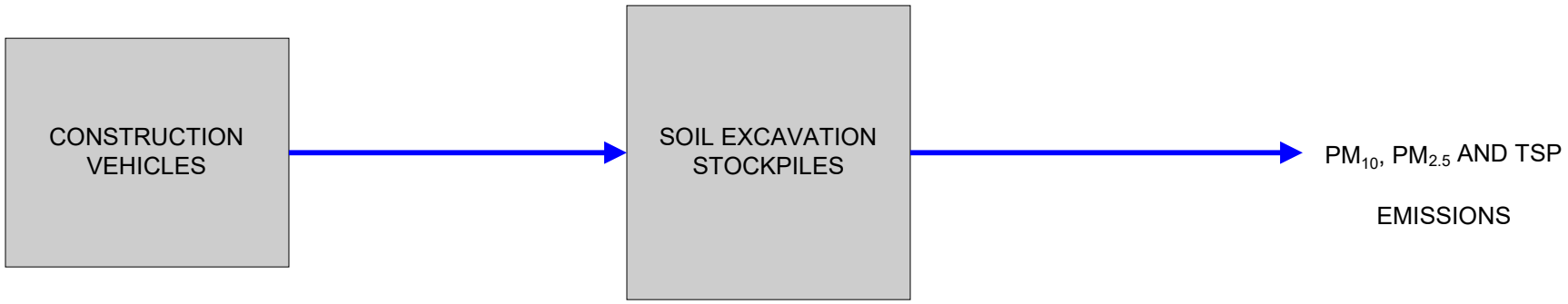
PROCESS FLOW DIAGRAM OF REFUSE HAULING VEHICLE TRAFFIC - UNPAVED ROADS



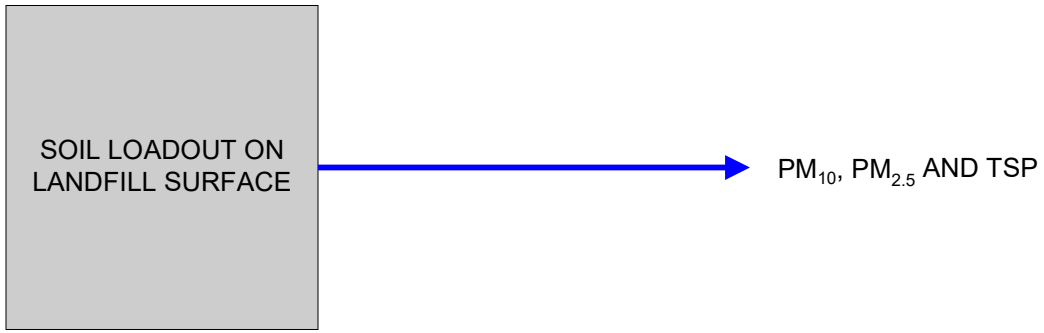
PROCESS FLOW DIAGRAM OF REFUSE HAULING VEHICLES - PAVED ROADS



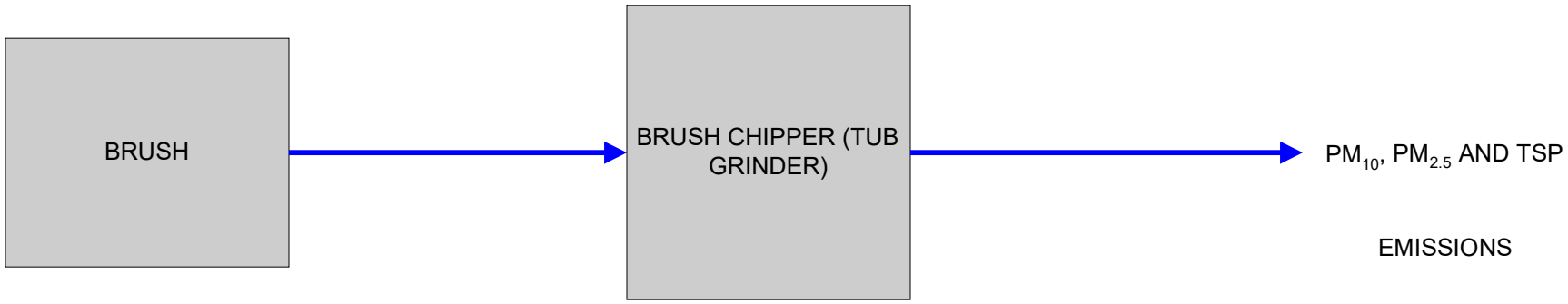
PROCESS FLOW DIAGRAM OF COVER SOIL EXCAVATION/STOCKPILING



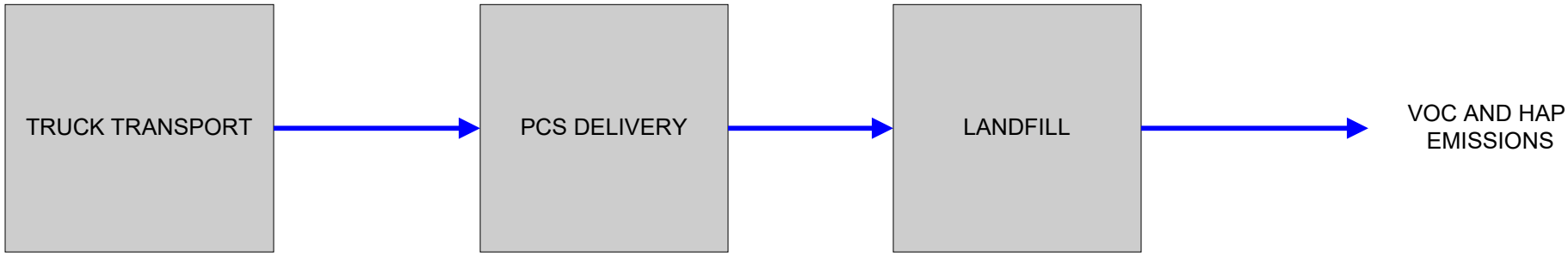
PROCESS FLOW DIAGRAM OF COVER SOIL LOADOUT



PROCESS FLOW DIAGRAM OF BRUSH CHIPPER



PROCESS FLOW DIAGRAM OF PETROLEUM CONTAMINATED SOIL APPLICATION



APPENDIX D

EXCERPT FROM 2014 FLARE SOURCE TEST

AIR MEASUREMENT SERVICES, INC.

Horizon Test No.: **W07-082-FR**
Date Tested: February 27, 2014
Report Date: March 31, 2014
Revision Number: 0

ANNUAL EMISSION COMPLIANCE TEST ON A LANDFILL GAS FLARE

Lancaster Landfill & Recycling Center

and Recycling Center Permit to Operate

C006906

Prepared for:

Lancaster Landfill & Recycling Center
and Recycling Center Post Office Box
4040
600 East Avenue F
Lancaster, California 93535

Prepared by:

Horizon Air Measurement Services, Inc.
310 Cortez Circle
Camarillo, California 93012

Regulatory Agency:

Antelope Valley Air Quality Management District
43301 Division Street, Suite 206
Post Office Box 4409
Lancaster, California 93539-4409

Edward S. Swede
Sr. Project Manager

Richard J. Vacherot

310 CORTEZ CIRCLE, CAMARILLO, CALIFORNIA 93012 (805) 482-8753 FAX (805) 4828754
WWW.HORIZONAIRMEASUREMENT.COM

Table 2-1
Summary of Results
Lancaster Landfill
& Recycling Center
February 27, 2014

Parameter	Emission Rate	Allowable Emissions
Landfill Gas Flow Rate	941 dscfm	1388 scfm
Oxides of Nitrogen (as $N0_2$)	0.703 lb/hr 16.9 lb/day 0.0336 lb/MMBtu	2.7 lb/hr 65 lb/day 0.06 lb/MMBtu
Particulate Matter	0.371 lb/hr 8.90 lb/day	1.3 lb/hr 30 lb/day
Carbon Monoxide	<0.320 lb/hr <7.68 lb/day	12.9 lb/hr 311 lb/day
Total Non-Methane Hydrocarbons (as CH_4)	0.0393 lb/hr 0.943 lb/day	0.28 lb/hr 7 lb/day
Oxides of Sulfur (as $S0_2$)*	1262 lb/month** 7.58 tons/year***	2494 lb/month 15.1 tons/year

Note: All emission rates are based on the stoichiometrically calculated flow rate.

* All values calculated based upon the concentration oflandfill gas reduced sulfur compounds.
** Based upon 24 hours/day and 30.4 days/month and a landfill gas flow rate of 941 dscfm.
*** Based upon 24 hours/day and 365 days/year and a landfill gas flow rate of 941 dscfm.

Table 5-1
Summary of Results
Waste Management
Flare
February 27, 2014

	LANDFILL GAS		FLARE EXHAUST
Run Number	1		1
STACK GAS CHARACTERISTICS			
Temperature, degrees F*			1,556
Moisture, %	3.6		9.1
Flow Rate, acfin			
Flow Rate, dscfin	941		7,221
Fixed Gases			
Oxygen, %	1.73		10.62
Carbon Dioxide, %	34.65		9.49
Methane, %	36.70		
BTU Value, Btu/scf	371		
EMISSIONS			
Oxides of Nitrogen			
ppm			13.4
ppm @ 3% 0_2			23.3
lb/hr			0.703
lb/MMBtu			0.0336
Carbon Monoxide			
ppm		<	10.0
ppm @ 3% 0_2		<	17.4
lb/hr		<	0.320
lb/MMBtu		<	0.0153
Total Particulate Matter			
gr/dscf			0.00600
lb/hr			0.371
Total Non-Methane Hydrocarbons (Reactive Organic Compounds)			
ppm, as Methane	3,905		2.15
lb/hr, as Methane	9.30		0.0393
Sulfur Compounds			
Hydrogen Sulfide, ppm	170	<	0.200
Total Sulfur, ppm as H_2S	182		
Oxides of Sulfur**			
lb/hr			1.73

* As recorded at the Reference Method sample probe, not at the permanent thermocouple.

** Calculated from sulfur balance

Table 5-2

Trace Organic Species - Destruction Efficiency Results
Waste Management
Flare
February 27, 2014

	Inlet		Outlet		Species
	Concentration (ppb)	Emission Rate (lb/hr)	Concentration (ppb)	Emission Rate (lb/hr)	Destruction Efficiency (%)
Hydrogen Sulfide	173,000	8.78E-O I	< 200	< 7.79E-03	> 99.11
Benzene	2,680	3.1 IE-02	< 1.0	< 8.90E-05	> 99.71
Benzylchloride	< 80	< l.51E-03	< 1.5	< 2.17E-04	NA
Chlorobenzene	< 60	< 1.0IE-03	< 1.2	< l.55E-04	NA
Dichlorobenzenes	710	l.55E-02	< " 2.0	< 3.36E-04	> 97.84
I, 1-Dichloroethane	218	3.21E-03	< 1.2	< l.36E-04	> 95.78
1,2-Dichloroethane	401	5.91E-03	< 1.2	< l.36E-04	> 97.70
I, 1-Dichloroethylene	79	l.14E-03	< 1.2	< l.33E-04	> 88.39
Dichloromethane	688	8.70E-03	< 1.5	< l.46E-04	> 98.33
1,2-Dibromoethane	< 60	< l.68E-03	< 1.2	< 2.57E-04	NA
Perchloroethene	1,940	6.84E-02	< 1.0	< 2.71E-04	> 99.60
Carbon Tetrachloride	< 40	< 9.16E-04	< 1.0	< l.76E-04	NA
Toluene	26,900	3.68E-O I	2.7	2.88E-04	99.92
1,1,1-Trichloroethane	< 40	< 7.91E-04	< 1.0	< l.52E-04	NA
Trichloroethene	804	l.57E-02	< 1.0	< l.50E-04	> 99.05
Chloroform	< 40	< 7.08E-04	< 1.0	< l.36E-04	NA
Vinyl Chloride	190	l.77E-03	< 1.0	< 7.13E-05	> 95.96
M+P-Xylenes	10,800	l.70E-OI	< 1.2	< l.45E-04	> 99.91
0-Xylene	3,030	4.78E-02	< 1.2	< l.45E-04	> 99.70
TNMHC	3,905,312	9.30E+OO	2,150	3.93E-02	99.58

APPENDIX E

WASTE INDUSTRY AIR COALITION REPORT

Waste Industry Air Coalition
Comparison of Recent Landfill Gas Analyses with Historic AP-42 Values

by

Ray Huitric, County Sanitation Districts of Los Angeles County
Patrick Sullivan, SCS Engineers
Amy Tinker, SCS Engineers

January 2001

Summary

The Waste Industry Air Coalition (WIAC) is comprised of the Solid Waste Association of North America (SWANA) and the National Solid Wastes Management Association. Members of these associations have reported that the AP-42 landfill gas (LFG) defaults, derived from analyses made on average 13 years ago, overestimate the current trace LFG constituent levels.

The WIAC previously submitted three reports addressing LFG trace constituents. An initial report submitted in August 1999[1] showed a continuous long term hazardous air pollutants (HAP) decline at six California landfills (see LFG Constituent Declines below). HAP levels typically declined five fold or more over a ten year period. A second WIAC report was submitted November 1999[2] showing that Hydrogen Chloride levels in recent source tests are more than four times less that the AP-42 default. A third WIAC report was submitted in May 2000[3] showing that the average of recent non-methane organic compound (NMOC) analyses at 144 landfills was 30% less than the current AP-42 defaults.

This fourth report presents a nationwide WIAC survey of recent trace LFG constituent analyses. The WIAC obtained test results from 75 landfills that were made on average within the last two years. The WIAC survey found that the current trace constituent levels are two to four times less than the AP-42 defaults. For the compounds associated with greater health risk at high concentrations, the differences were yet larger. These findings support those from the previous three reports that the AP-42 defaults substantially overstate current LFG constituent levels.

The decline in LFG constituent levels over time may be due to a variety of factors including:

- improvement of analytical methodologies that better identify and quantify trace constituents;
- federal introduction of waste management regulations that strictly regulate hazardous waste disposal;
- federal introduction of municipal solid waste landfill regulations that detect and prevent disposal of unacceptable hazardous wastes; and
- industry transition to processes and products requiring less or no hazardous materials.

In view of the detected decline, it is strongly recommended that the AP-42 defaults be revised to reflect the current LFG constituent levels. From the California landfill results, showing a continuous long term declining trend in the LFG constituents, it can be reasonably anticipated that additional declines will occur. As a result, two further recommendations are offered. First, older AP-42 data should be purged, to eliminate unrepresentative results, and replaced with current data. The most recent AP-42 revision in 1995 only added new but did not purge older values. Second, U.S. EPA should recognize landfills as a unique source for which its AP-42 defaults will need to change over time. U.S. EPA should consider additional future updates of the AP-42 to address the anticipated declines.

[1] "Documentation of Large MSW Landfill Gas Constituent Declines From US EPA AP-42 Default Values", Ray Huitric, County Sanitation Districts of Los Angeles County, and submitted by John Skinner, Executive Director and CEO, SWANA, on August 30, 1999.

[2] Correspondence titled "Submission of Hydrogen Chloride Test Data from Landfill Gas Fired Combustion Devices" dated November 1999 from Edwin P. Valis, Jr., Project Manager, EMCON to Roy Huntley, Emission Factor and Inventory Group, OAQPS, U.S. Environmental Protection Agency.

[3] Correspondence titled "Preliminary Data on Non-Methane Organic Compound (NMOC) Concentrations in Landfill Gas" dated May 9, 2000 from Edward W. Repa, Director of Environmental Programs, NSWMA to Roy Huntley, Emission Factor and Inventory Group, OAQPS, U.S. Environmental Protection Agency.

The WIAC will provide the analyses it collected to U.S. EPA for use in developing new AP-42 values. Since it is recognized that this process will require time, it is recommended that the U.S. EPA make the results contained in this report available on its Internet site as an interim reference.

Report Objectives

This report documents actual landfill gas concentrations for compounds of concern using a national database derived from laboratory analyses employing U.S. EPA standard methods. Herein we establish that differences between the data presented in this report and the current AP-42 default values warrant their full-scale review by U.S. EPA. WIAC believes that the data presented here far better represent current conditions for many compounds and that such a review is well warranted.

Procedures and Results

AP-42 data management procedures were applied to the portion of the WIAC data set having AP-42 default values. The data management procedures address, for example, data screening, air dilution, and data averaging methods. The results of these procedures follow.

Data Collection and Screening

WIAC collected LFG analyses from 75 landfills in sixteen states. This information was processed using U.S. EPA's AP-42 data management procedures. U.S. EPA uses a screening process to remove analytically unacceptable, poorly documented or questionable results.[4] A review of the collected data indicated that the sample analyses would likely pass the AP-42 data screening process. The reported samples were normal, untreated LFG derived from typical gas collection systems. The analytical methodologies appeared to be consistent with those accepted by U.S. EPA.

The analytical results were corrected for air dilution using fixed gas analyses (specifically, methane and carbon dioxide). Several samples lacked either or both methane and carbon dioxide and were excluded. Additionally, some results appeared to be default values (e.g., 50% methane and 50% carbon dioxide) or were unusually high; these were excluded as well. In all, analyses from 27 landfills were omitted from subsequent evaluations.

Data Rating

The data for compounds from the remaining 48 landfills were rated from "A" (strongest) to "E" (weakest) using U.S. EPA's rating system. This process largely depends on the number of 'good' results (A for 20 and up, B for 10 to 19, C for 6 to 9, D for 3 to 5, E for 1to 2). U.S. EPA also adjusts the rating for a compound's variability. lfthe arithmetic standard deviation is twice or greater than EPA's default value, then the rating is decreased by one letter. Table **1** summarizes the WIAC rating results and compares these with U.S. EPA's AP-42 data set for 43 compounds.

[4] "EMISSION FACTOR DOCUMENTATION FOR AP-42 SECTION 2.4 MUNICIPAL SOLID WASTE LANDFILLS REVISED" Office of Air Quality Planning and Standards, Office of Air and Radiation, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, August 1997; see Table 4-1

Table 1.Count of AP-42 compounds at each rating level (A is strongest; total of 43 compounds).

	Count	
Rating	WIAC	AP-42
A	12	4
B	14	21
C	2	8
D	6	6
E	9	4

The overall rating of the WIAC database is essentially the same as that for U.S. EPA's. For example when the letter grade is expressed as a numeric value (e.g., A = 1, B =2, etc.), the average ratings for the WIAC and U.S. EPA data sets are identical.

Nondetects

AP-42 directs that in general nondetect values should be halved then treated as "real" data. However if a nondetect exceeds by two times the maximum of the detects for a compound, then it should be discarded. It appears that the AP-42 guidance directs that this should be done on a facility-by-facility basis as well as on an emission category basis. However the guidance is unclear. A conservative approach was taken by eliminating only nondetects that were more than double the maximum detection among all facilities.

AP-42 also directs that if all values are nondetects then the result should be clearly indicated as such. U.S. EPA does not indicate which values reported within the LPG portion of AP-42 are nondetects.

DataAveraging

AP-42 specifies that data from a single landfill are to be arithmetically averaged. The result from each landfill is then further averaged using an arithmetic average, geometric mean, or median depending on whether the landfill data are normally distributed, lognormally distributed, or neither, respectively. The distribution type was determined for each compound using the probability plot correlation coefficient method.[5] Where fewer than four landfills reported a compound, the distribution type could not be determined. Instead, the distribution type originally used by U.S. EPA in AP-42 was employed. The distribution type was found to differ from U.S. EPA's for sixteen compounds.

The WIAC data set was averaged using both U.S. EPA's original and the newer WIAC's distribution types (see Table 2). The original distribution types were applied so that an "apples to apples" comparison was possible. Doing otherwise could either create or obscure differences between the data sets. The averages calculated based on U.S. EPA's and WIAC's averaging types are shown in the WIAC column labeled "l" and "2", respectively. Values in WIAC column 2 having a different distribution type are highlighted in gray. The results using the two data averaging methods are discussed in Data Summary below.

Codisposal Landfills

Because of detected statistical differences, EPA developed separate codisposal and municipal solid waste (MSW) only default AP-42 levels for toluene and benzene. All other default values

[5] This test was developed by J.J. Filliben in 1975 as reported in "Statistical Training Course for Ground• water Monitoring Data Analysis", sponsored by the U.S. Environmental Protection Agency Office of Solid Waste, 1992.

were developed from the combined data sets. WIAC surveyed five codisposal sites and 70 MSW• only sites. The WIAC toluene and benzene data were separately analyzed by disposal site type. No significant differences were found between types of disposal sites for other compounds with one exception. Carbon tetrachloride was detected at one codisposal site but at none of the MSW• only disposal sites. The WIAC value for carbon tetrachloride includes the codisposal sites as these had only a slight effect on the calculated value. The value is reported in Table 2 as a 'nondetect' with a footnote indicating that it was found at one codisposal site.

Data Summary

The WIAC results are compared with AP-42 default concentrations in Table 2. WIAC 1 and 2 show the data prepared using past AP-42 and WIAC updated averaging methods, respectively (see Data Averaging above). The WIAC 1 and 2 concentrations are similarly reduced from AP-42 values by 76% and 80%, respectively. However simple alkane and alcohol compounds for which relatively few analyses were available disproportionately skewed the results. Omitting these compounds shows identical 56% overall reductions. Nearly identical reductions are also noted for aromatic (58%) and chlorinated (79%) compounds. EvenJhough the AP-42 and WIAC averaging methods do not have any large overall effect, the two methods did lead to very significant differences for individual compounds (e.g., note those for **1,**1,2,2-Tetrachloroethane).

Discussion

AP-42 and WIAC Differences

The differences between the AP-42 default values and the WIAC survey results may be traced to various factors. It was noted above that there are differences in the age of analyses between the AP-42 and WIAC data sets. Trends in LFG constituents have been well documented and ate addressed in the next section. Apart from differences in the age of analyses, it was found that procedures used in U.S. EPA's preparation of the AP-42 defaults departed from the AP-42 guidance[6] in its use of nondetects and the minimum number of sources used for developing default values.

The guidance specifies that nondetects should be used inthe development of default values. However all nondetects were discarded in at least one AP-42 update.[7] Nondetects may be discarded under certain circumstances specified by the guidance where these are much greater in magnitude than detects (doing otherwise would bias the default values high). However, the AP-42 documentation does not identify which values are detects or nondetects making it impossible to implement this procedure. Finally, the guidance states that default values developed entirely from nondetects should be clearly identified as such. Since nondetects are not documented, this procedure cannot be carried out.

[6] "Procedures for Preparing Emission Factor Documents" Office of Air quality Planning and Standards, Office of Air and Radiation, U.S. Environmental Protection Agency, Research Triangle Park, NC, November 1997 (EPA-454/R-95-015 REVISED).
[7] Phone communication (June 2000) with Stephen Roe, U.S. EPA contractor for past AP-42 revisions.

Table 2. WIAC results compared with AP-42 defaults. WIAC-1values use AP-42 averaging methods. Some WIAC-2 values, grayed in column 2, use different methods (see text).

Compound	WIAC Sites	Concentration, ppmv AP-42	WIAC-1	WIAC-2
1,1,1-Trichloroethane (methyl chloroform)	46	0.48	0.168	0.168
1,1,2,2-Tetrachloroethane	19	1.11	0.070	0.005
1,1-Dichloroethane (ethylidene dichloride)	45	2.35	0.741	0.741
1,1-Dichloroethene (vinylidene chloride)	45	0.2	0.092	0.092
1,2-Dichloroethane (ethylene dichloride)	47	0.41	0.120	0.120
1,2-Dichloropropane (propylene dichloride)	17	0.18	0.023	0.023
2-Propanol (isopropyl alcohol)	3	50.1	7.908	7.908
Acetone	8	7.01	6.126	7.075
Acrylonitrile	3	6.33	<0.036	<0.036
Benzene (Co-Disposal)	3	11.1	10.376	10.376
Benzene (No Co-Disposal)	44	1.91	0.972	0.972
Bromodichloromethane	7	3.13	<0.311	<0.264
Carbon disulfide	31	0.58	0.320	0.221
Carbontetrachloride	37	0.004	<0.007*	<0.007*
Carbonyl sulfide	29	0.49	0.183	0.183
Chlorobenzene	46	0.25	0.227	0.227
Chlorodifluoromethane (Freon 22)	1	1.3	0.355	0.355
Chloroethane (ethyl chloride)	21	1.25	0.239	0.448
Chloroform	45	0.03	0.021	0.010
Chloromethane	8	1.21	0.249	0.136
Dichlorobenzene	34	0.21	1.607	1.428
Dichlorodifluoromethane (Freon 12}	19	15.7	1.751	0.964
Dichloromethane (Methylene Chloride)	47	14.3	3.395	3.395
Dimethyl sulfide (methyl sulfide)	34	7.82	6.809	6.809
Ethane	1	889	7.943	7.943
Ethanol	4	27.2	118.618	54.405
Ethyl mercaptan (Ethanethiol)	36	2.28	1.356	0.226
Ethylbenzene	26	4.61	6.789	6.789
Ethylene dibromide	30	0.001	<0.046	<0.005
Fluorotrichloromethane (Freon 11)	25	0.76	0.327	0.327
Hexane	4	6.57	2.324	2.063
Hydrogen sulfide	40	35.5	23.578	23.578
Methyl ethyl ketone	8	7.09	10.557	12.694
Methyl isobutyl ketone	7	1.87	0.750	0.750
Methyl mercaptan	36	2.49	1.292	1.366
Perchloroethylene (tetrachloroethylene)	48	3.73	1.193	1.193
Propane	1	11.1	14.757	19.858
Toluene (Co-Disposal)	3	165	37.456	37.456
Toluene (No Co-Disposal)	43	39.3	25.405	25.405
trans-1,2 Dichlorethene	1	2.84	0.051	0.051
Trichloroethylene (trichloroethene)	48	2.82	0.681	0.681
Vinyl Chloride	46	7.34	1.077	1.077
Xylenes	45	12.1	16.582	16.582

Note: "<" indicates that the compound was detected at none of the WIAC sites.

* Carbon Tetrachloride was detected at one codisposal site but at none of 35 MSW-only disposal sites.

The guidance also states that a minimum of ten sources should be used in developing a default value (use of fewer sources results in unreliable values). However several of the AP-42 defaults were developed from many fewer samples and sometimes just one sample. In view of the high variability observed between landfill test results, it is recommended that U.S. EPA carefully review its practices in developing AP-42 defaults with fewer than ten samples. At a minimum, defaults derived from liµiited data should be clearly identified and users cautioned as to their questionable reliability.

LFG Constituent Declines

Large, long term declines in LFG HAP values were documented in the August 1999 WIAC report. This report focused on four active and two closed landfills in Southern California. The decline at the active landfills was concurrent with implementation of waste-screening programs that prevented the disposal of incidental amounts of hazardous wastes present in the municipal solid waste stream starting in the early 1980's. U.S. EPA's Resource Conservation and Recovery Act (RCRA) rules for MSW landfills, implemented starting October 9, 1991 (40 CFR 258.20) also began requiring such exclusion programs on a nationwide basis. Additionally, the U.S. EPA established Subtitle C requirements per the 1984 RCRA amendments that set minimum treatment standards for listed wastes. This program ensured that the treatment residuals were placed in Subtitle C landfills. The combination of these programs likely reduced or eliminated incidental hazardous waste disposal in active MSW landfills.

An attempt was made to determine whether a similar long term decline could be detected at other active landfills represented in the AP-42 database. A comparison was made of those sites that were reported by both EPA and WIAC. However it was found that many of the AP-42 landfills had coded names. The only active sites identifiably the same were those already reported in the August 1999 report. It is recommended that U.S. EPA identify the coded AP-42 landfills so that a meaningful comparison could be made with the WIAC results.

The LFG HAP decline for the two closed landfills in the August 1999 report would be unrelated to improved hazardous waste management practices. However the anaerobic decomposition processes at these sites are likely to have brought about such declines through one or more mechanism. HAP compounds will tend to volatilize into newly generated anaerobic gases; the gases together with the trace constituents will ultimately exit the landfill, removing the HAP compounds. Additionally, anaerobic processes may destroy or transform some HAP compounds.

Another factor to consider in the decline of HAP compounds is the effect of improved laboratory methodologies in recent years. Areas of improvement include utilization of more sophisticated equipment and adoption of standardized procedures for all analytical aspects. Some of the improved procedures include sample container preparation, instrument calibration, and quality assurance acceptance criteria.

Equipment and procedure improvements reduce the scatter of data, increase data reliability, minimize compound misidentifications, and lower detection limits. Detection limits are especially important since several of the AP-42 compounds have few or no detections; improved detection limits would tend to lower the calculated AP-42 defaults. One laboratory submitting data for this report indicated that detection limits were more than halved in the last five years.

Urban Air Toxics Strategy

The U.S. EPA used AP-42 defaults for the recently completed Urban Air Toxics (UAT) Strategy. A review of the UAT findings based on the newer WIAC results is presented in Table 3. For all compounds detected in LFG, municipal landfills dropped in rank among industrial sources. The

drop was typically from sixth to at least thirteenth or more. Four of the nine compounds dropped from the ranking and rank no more than 17th. The average MSW landfill contribution per compound dropped from 13% to 1.5%. One of the more dramatic findings concerns U.S. EPA's original attribution of 84% of all 1,1,2,2-Tetrachloroethane emissions to landfills; the WIAC findings show that the landfill emission level is about 2% of all sources. These findings indicate that municipal landfills have markedly less emissions, compared to other industrial sources, than U.S. EPA previously estimated.

Table 3. Summary of changes to Urban Air Toxic (UAT) emission estimates based on changes from AP-42 defaults to current compound levels measured by WIAC.

	Annual Tons		Portion of UAT Inventory		Rank		Number of
Compound	AP-42	WIAC	AP-42	WIAC	AP-42	WIAC	Sources
1,1,2,2-Tetrachloroethane	216	1.0	84.08%	2.37%	1	5	16
1,2-Dichloropropane	23.6	3.0	3.59%	1.48%	6	8	12
Acrylonitrile	389	2.2	15.28%	0.10%	3	15	17
Benzene	173	87.9	3.86%	2.00%	11	13	17
Chloroform	4.17	1.3	4.94%	1.63%	6	9	17
Ethylene Dichloride	47	13.7	1.15%	0.34%	10	*	17
Methylene Chloride	1550	367	1.67%	0.40%	11	*	17
Tetrachloroethylene	717	229	0.59%	0.19%	6	*	17
Trichloroethylene	429	104	0.64%	0.16%	13	*	17
Vinyl Chloride	531	77.9	19.65%	3.46%	2	4	17
Vinylidene Chloride	22.5	10.3	10.10%	3.45%	4	5	14

* Landfill emissions are less than for other ranked sources.

Conclusions

WIAC conducted a national survey of recent LFG analyses. Recent results from 75 landfills were analyzed using AP-42 methodologies. The AP-42 defaults were found to typically overestimate current levels by two to four hundred percent. For some of the more health significant compounds, the differences were larger yet. The overestimated AP-42 values may potentially misdirect U.S. EPA's policy development. For example, the recently completed Urban Air Toxics Strategy appears to have substantially overestimated actual landfill emissions. Furthermore, the existing AP-42 default values may adversely impact individual landfills required to use these values.

As a result, WIAC believes that the AP-42 defaults should be revised to reflect the decline in LFG constituents. The most recent AP-42 revision in 1995 added new data to older values and averaged the combined data sets. This approach is appropriate only for data that does not trend. It is recommended that older data be purged and replaced using current data presented in this paper.

Appendix B Email List of Persons Requesting Notice of Actions

APPENDIX F

GHG SUPPORTING CALCULATIONS

General Information

Combustion Source	Unit Rated Throughput (scfm)	Annual Potential Throughput (mmscf)	Annual Potential Methane Generation (mmscf)	Annual Potential CO2 Generation (mmscf)
Flare	1388	729.53	364.77	364.77

Potential Emissions

Combustion Source	Heat Rate (MMBTU/Hr)	Total CO2 (metric tons)	N2O (metric tons CO2 eq.)	CH4 (metric tons CO2 eq.)	**Total Potential Emissions CO2 eq. metric tons (CO2+CO2 eq.)**	**Total Potential Emissions CO2 eq. short tons (U.S tons)**
Flare	42.140	38,413.37	72.09	29.53	**38,515.00**	42,455.08

Primary Operating Scenario GHG Calculations

Uncollected Methane Emissions

Amount of Uncollected CH_4	364.77 mmscf	
Amount of Uncollected CH_4	6,994.79 metric tons/year	7,710.36 US tons per year
CH_4 Oxidation Factor	10.00%	
Uncollected CH_4 Emitted through cover	328.28976 mmscf	
Uncollected CH_4 Emitted through cover	6,295.31 metric tons/year	6,939.32 US tons per year

Uncollected CO2 Emissions

Uncollected CO_2 Emitted through Cover	364.7664 mmscf	
Uncollected CO_2 Emitted through Cover	19,192.07 metric tons/year	21,155.42 US tons per year
CH_4 oxidized in cover	699.48 metric tons/year	771.04 US tons per year
CO_2 emitted through cover from oxidixed methane	1,923.57 metric tons/year	2,120.35 US tons per year

Methane Emmissions

Uncollected Emissions of CH_4	6,295.31 metric ton/yr	6,939.32 US tons per year

Total Uncollected Methane Emissions from Landfill	157,382.80	**Metric tons CO2 E/year**	173,483.06	**US tons per year**

Carbon Dioxide Emissions

Uncollected CO_2 Emissions emitted through landfill cover	19,192.07 metric ton/yr	21,155.42 US tons per year
CO_2 emitted through landfill cover from oxidized methane	1,923.57 metric ton/yr	2,120.35 US tons per year

Total Uncollected Carbon Dioxide Emissions from Landfill	21,115.63	**Metric tons CO2/year**	23,275.76	**US tons per year**

GHG Emissions Summary - Flare

Pollutant	Estimated GHG Emissions (metric tons/yr)	(metric tons/yr CO_2e)	(tons/yr CO_2e)
Non-Fugitive GHG Emissions			
Biogenic CO2	15,837	15,837	17,457
Anthropogenic CH4	4,721	118,037	130,112
Anthropogenic N2O	0.00	0.00	0.00
Total Anthropogenic Emissions		118,037	130,112
Total Non-Fugitive GHG Emissions		133,874	147,569
Fugitive GHG Emissions			
Biogenic CO_2	5,279	5,279	5,819
Anthropogenic CH_4	1,574	39,346	43,371
Total Fugitive GHG Emissions		44,625	49,190
Total GHG Emissions		178,498	196,759
Total Regulated GHG Emissions		133,874	147,569

APPENDIX G

COMPLIANCE WITH APPLICABLE REQUIREMENTS

Regulatory Citation *CODE OF FEDERAL REGULATIONS*	Regulatory Title	Applicable Requirement	Compliance Demonstration
40 CFR Part 60 (Subpart WWW)	New Source Performance Standard for Municipal Solid Waste Landfills	Requires owners or operators of landfills with a design capacity equal to or greater than 2.5 million megagrams (Mg) or 2.5 million cubic meters to calculate an annual NMOC emission rate. If the NMOC emission rate is equal to or greater than 50 Mg per year, the owner or operator must submit a collection and control system design plan within one year, install the collection and control system within 30 months. Requires monitoring, reporting, recordkeeping, and test methods to demonstrate compliance with NSPS rule.	1. LLRC has submitted an initial design capacity report and a Tier 1 Emission Rate Survey. The results of the Tier 1 Survey indicated that the NMOC emissions exceeded the standard of 50 megagrams per year. 2. LLRC submitted a GCCS Design Plan prepared by a professional engineer to AVAQMD. The design plan submittal met the permit modification requirements of Subpart WWW. The design plan included the operational standards, test methods, procedures, compliance measures, monitoring recordkeeping, and reporting provisions as described in §60.754 through §60.758. 3. The Landfill installed a landfill gas collection and control system within 30 months of exceeding 50 Mg per year of NMOCs. 4. The Landfill complies with the monitoring, reporting, recordkeeping, and test methods pursuant to requirements in the NSPS rule.
40 CFR Part 61 (Subpart A)	National Emission Standards for Hazardous Air Pollutants: General Provisions	Monitoring, recordkeeping, reporting and testing requirements for Hazardous Air Pollutants (HAPs)	The Landfill complies with the monitoring, reporting, recordkeeping, and test methods pursuant to requirements in the NESHAP rule.

40 CFR Part 63 (Subpart A)	National Emission Standards for Hazardous Air Pollutants: General Provisions	Outlines performance testing requirements for the flare	LLRC complies with the performance testing requirements and performs source tests on an annual basis for the enclosed landfill gas flare

Compliance With Applicable Requirements

Regulatory Citation	Regulatory Title	Applicable Requirement	Compliance Demonstration
40 CFR Part 63 (Subpart AAAA)	National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills	Requires landfills to produce a Startup, Shutdown and Malfunction (SSM) Plan for a GCCS.	An SSM Plan has been prepared for LLRC. The SSM plan is retained and updated as required by this subpart. LLRC complies with the reporting and recordkeeping requirements in the NESHAP rule.
40 CFR Part 70	State Operating Permit Program	Establishes procedures for obtaining a Title V permit, including application requirements and processing procedures, permit contents, permit review, compliance plan requirements, administrative requirements and public participation provisions.	LLRC will comply by obtaining a Title V permit.
ANTELOPE VALLEY AIR QUALITY MANAGEMENT DISTRICT (AVAQMD) RULES AND REGULATIONS			
AVAQMD Rule 203	Permit to Operate	Requires obtaining an air quality permit prior to operation of any equipment which may cause air pollutant emissions.	LLRC complies by obtaining air quality permits from AVAQMD for all equipment which are required. Permits are renewed annually.
AVAQMD Rule 204	Permit Conditions	Allows the Air Pollution Control Officer to impose written conditions on any permit.	LLRC complies with all written conditions imposed on air permits by the Air Pollution Control Officer.
AVAQMD Rule 206	Posting of Permit to Operate	Requires a copy of AVAQMD permits be mounted on or posted within 8 meters (26 feet) of any permitted equipment. Requires facility permit be kept at the location for which it is issued.	LLRC complies by posting copies of air permits on or within 8 meters of any permitted equipment. LLRC complies by keeping a copy of the facility permit at the landfill.
AVAQMD Rule 209	Transfer and Voiding of Permits	A permit shall not be transferable from one location to another or from one piece of equipment to another, or from one person to another.	LLRC complies by obtaining a permit for each piece of equipment at the landfill and applies for a new permit if transferring equipment.

AVAQMD Rule 217	Provision for Sampling and Testing Facilities	Allows the Air Pollution Control Officer to impose requirements for sampling and testing	LLRC complies with all written requirements for sampling and testing.

Compliance With Applicable Requirements

Regulatory Citation	Regulatory Title	Applicable Requirement	Compliance Demonstration
AVAQMD Rule 219	Equipment Not Requiring a Permit	Lists requirements for equipment to be exempt from permitting.	LLRC complies by listing all exempt equipment in Form 3002-I and describing in the Title V permit application information sufficient to demonstrate compliance with the requirements in Rule 219 for exemption from permitting requirements.
AVAQMD Rule 225	Federal Operating Permit Requirements	Requires facilities subject to Regulation XXX (Title V Permits) to obtain a Federal Operating Permit.	LLRC will comply by obtaining a Title V permit. This application is considered compliance with Rule 225.
AVAQMD Rule 301	Permit Fees	Establishes a fee schedule and requires fees be paid for: facility permits, facility registrations, or permits to construct and/or operate; annual operating permit renewal fees; annual operating permit emissions fee.	LLRC complies by paying all required permit fees.
AVAQMD Rule 312	Fees for Federal Operating Permits	Requires fees to be paid for Federal Operating Permits	LLRC will comply by paying all required fees in a timely manner.
AVAQMD Rule 401	Visible Emissions	Prohibits emissions sources from discharging into the air for more than 3 minutes of any hour any contaminant which exceeds specified opacity thresholds.	LLRC conducts visible opacity tests (according to Reference Method 9), as necessary, of emissions from the flare and from any other non-exempt sources at the landfill which have the potential to discharge into the atmosphere levels of air contaminants that cause exceedances of opacity thresholds designated in Rule 401. LLRC keeps written logs recording the results of the opacity tests, and makes test results available for review when requested by AVAQMD.

AVAQMD Rule 403	Fugitive Dust	Prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area, such that the dust remains visible in the atmosphere beyond the site property line of the emission source. Prohibits 20% opacity or greater during observations in any 3 minutes of any hour except when the provisions of Rule 403(F) apply. Requires (utilization of reasonably	LLRC conducts visible opacity tests (according to Reference Method 9), as necessary, in active areas, keeps written logs recording the results of the opacity tests, and makes test results available for review when requested by AVAQMD. LLRC complies with any applicable recordkeeping and reporting requirements in Rule 403. LLRC utilizes reasonably available control measures to minimize dust emissions from each fugitive dust source type, keep written logs recording the control measure applications, and make the logs available for review when requested by AVAQMD.

Compliance With Applicable Requirements

Regulatory Citation	Regulatory Title	Applicable Requirement	Compliance Demonstration
		available control measures to minimize fugitive dust emissions from each fugitive dust source type. Prohibits PM10 levels from exceeding 50 micrograms per cubic meter, determined by simultaneous sampling, using an EPA approved method, upwind and downwind of key activity areas and as close to the property line as possible, except when the provisions of Rule 403(F) apply. Prohibits track-out extending 25 feet or more from point of origin from an active operation. Prohibits conducting active operation, construction, excavation, etc. with disturbed surface area of 5 or more acres or daily import of 100 cubic yards of bulk material without utilizing listed measures. Whenever the landfill has more than 5 acres of disturbed surface area ("large operation"), the following actions, except when the provisions of Rule 403(F) apply. Submit a Dust Control Plan pursuant to the conditions of Rule 403(D).	LLRC will comply with required monitoring, reporting, recordkeeping, and test methods pursuant to Rule 403, including: conduct upwind and down sampling as needed to determine compliance with the 50 micrograms per cubic meter PM10 threshold; keep written records of the sampling results; and make records available for review when requested by AVAQMD. Any exceedances of the 50 microgram per cubic meter threshold will be reported to AVAQMD on no less than a quarterly basis. If necessary, LLRC will submit a Dust Control Plan that meets the requirements of Rule 403(D).
AVAQMD Rule 404	Particulate Matter – Concentration	Prohibits discharging into the atmosphere from any source, particulate matter in excess of the concentrations at standard conditions shown in Table 404(a).	LLRC demonstrates compliance with the particulate emissions limitation requirement in Rule 404 through annual flare source tests, the results of which are reported to AVAQMD.

AVAQMD Rule 405	Solid Particulate Matter – Weight	Prohibits discharging into the atmosphere from any source, solid particulate matter in excess of the concentrations shown in Table 405(a).	LLRC complies with the solid particulate emissions limitation requirement by not having any sources which produce solid particulate matter emissions containing lead or lead compounds.

Compliance With Applicable Requirements

Regulatory Citation	Regulatory Title	Applicable Requirement	Compliance Demonstration
AVAQMD Rule 407	Liquid and Gaseous Air Contaminants	Prohibits discharging into the atmosphere from any equipment CO exceeding 2,000 ppm (averaged over 15 minutes). (Note that sulfur compound limits do not apply to Lancaster region.)	LLRC demonstrates compliance with the CO emissions limitation requirement through annual flare source tests, the results of which are reported to AVAQMD.
AVAQMD Rule 408	Circumvention	Prohibits reduction or concealment of an emission without a reduction of the total amount of air contaminant emissions.	LLRC complies with the circumvention requirement in AVAQMD Rule 408.
AVAQMD Rule 409	Combustion Contaminants	Prohibits discharging into the atmosphere from the burning of fuel, combustion contaminants exceeding 0.23 gram per cubic meter over 15 consecutive minutes.	LLRC demonstrates compliance with the combustion contaminant limitation requirement through annual flare source tests, the results of which are reported to AVAQMD.
AVAQMD Rule 430	Breakdown Provisions	Allows the Air Pollution Control Officer to refrain from enforcement action against an owner/operator of any equipment which has violated a technology-based emission limitation, provided a breakdown has occurred, and provided specified provisions and reporting occur.	In the event of a breakdown as defined in Rule 430(C), the LLRC will comply with any requirements specified in Rule 430(C) (Breakdown Provisions), and with reporting requirements in Rule 430(D) (Verification of Breakdown).
AVAQMD Rule 431.1	Sulfur Content of Gaseous Fuels	Sets limits on the sulfur content of LFG burned in the flare based a daily limit. Establishes monitoring, reporting and recordkeeping requirements, and test methods allowable for demonstrating compliance.	LLRC demonstrates compliance by performing routine monitoring of the landfill gas for hydrogen sulfide (H_2S) on a monthly basis and laboratory sample for H_2S and total reduced sulfur on a quarterly basis. In addition, testing of the landfill gas is performed during the annual source test on the flare per AVAQMD-approved test methods.
AVAQMD Rule 431.2	Sulfur Content of Liquid Fuels	Sets limits on the sulfur content of diesel and other liquid fuels used.	LLRC complies with the sulfur content of liquid fuels requirement by not using in any fuel-burning equipment on site any fuels which have a sulfur content in excess of the limits set by Rule 431.2.

AVAQMD Rule 444	Open Fires	Prohibits the burning of combustible materials in an open outdoor fire without first obtaining a permit,	LLRC complies with the ban on open fires without a permit or except under special conditions specified in Rule 444 by not having any open fires without a permit except under

Compliance With Applicable Requirements

Regulatory Citation	Regulatory Title	Applicable Requirement	Compliance Demonstration
		except under special conditions described in Rule 444.	conditions specified in Rule 444.
AVAQMD Rule 473	Disposal of Solid and Liquid Wastes	Prohibits the burning of combustible refuse in an incinerator except under conditions defined in Rule 473.	LLRC complies with the ban on refuse incineration by not burning refuse.
AVAQMD Rule 474	Fuel Burning Equipment – Oxides of Nitrogen	Prohibits discharging into the atmosphere from any non-mobile fuel-burning equipment oxides of nitrogen in excess of the concentration limits listed in Rule 474(a).	LLRC demonstrates compliance with the oxides of nitrogen limitation requirement through annual flare source tests, the results of which are reported to AVAQMD.
AVAQMD Rule 900	Standards of Performance for New Stationary Sources	Incorporates 40 CFR 60, Subpart WWW by reference.	See compliance demonstrations for 40 CFR 60, Subpart WWW.
AVAQMD Rule 1150	Excavation of Landfill Sites	Sets forth requirements for excavation of an active or inactive landfill and an Excavation Management Plan, except under exemptions per Rule 1150(c).	LLRC will comply with the excavation requirements by submitting an Excavation Management Plan, if applicable during excavation activities at the landfill.

AVAQMD Rule 1150.1	Control of Gaseous Emissions from Active Landfills	Requires installation and maintenance in good condition an approved LFG control system of sufficient capacity to draw the LFG to the gas collection devices without overdraw. Requires the LFG control system to be designed and installed in an approved manner, and to be extended as necessary to prevent off-site LFG migration and provide for LFG recovery. Requires installation of sampling probes at the site perimeter to determine whether off-site migration exists. Requires submittal of a plan for probe installation.	LLRC complies by having installed and maintained in good condition, an approved LFG control system of sufficient capacity to the gas collection devices without overdraw. Lancaster Landfill & Recycling Center has an approved 1150.1 Compliance Plan which includes all required elements. LLRC conducts monitoring, reporting, recordkeeping, and testing in accordance with the requirements of Rule 1150.1(c) and the Compliance Plan.

Compliance With Applicable Requirements

Regulatory Citation	Regulatory Title	Applicable Requirement	Compliance Demonstration
		Sets monitoring, reporting, recordkeeping, and test methods requirements. Requires analysis of samples on a monthly, or less frequent basis if approved, to determine concentrations of total organic compounds (TOCs) and toxic air contaminants.	
AVAQMD Regulation XIII (Rules 1301 – 1313)	New Source Review	Sets pre-construction review requirements for new, modified, or relocated facilities, including the following, without which a permit to construct will be denied: Requires sources resulting in any emission increase of a non-attainment air contaminant to employ BACT. Requires sources with net emission increases of any non-attainment air contaminant to meet requirements for modeling, emission offsets, sensitive zone requirements, facility compliance, and major polluting facilities.	LLRC will comply with any applicable pre-construction review requirements by conducting the following prior to commencing any construction of new, modified, or relocated facilities: (1) Demonstrate use of BACT. (2) Meet any applicable requirements pursuant to Regulation XIII for modeling, emission offsets, sensitive zone requirements, facility compliance, and major polluting facilities.

AVAQMD Rule 1401	New Source Review for Toxic Air Contaminants	Prior to obtaining a permit to construct any new, modified, reconstructed or relocated facilities or emission unit that emit any hazardous air pollutant, toxic air contaminant or regulated toxic substance, a review must be conducted to determine whether the facility or emission unit will require control. Initial applicability to be conducted by Air Pollution Control Officer and will notify the applicant if a health risk assessment will be required.	LLRC will comply by performing the required Health Risk Assessment should the Air Pollution Control Officer determine that it is necessary for any new, modified, reconstructed or relocated facility or emission unit prior to issuance of a permit. LLRC understands that the Air Pollution Control Officer will also analyze any submitted applications and Comprehensive Emission Inventories to determine if any MACT standard applies.

Compliance With Applicable Requirements

Regulatory Citation	Regulatory Title	Applicable Requirement	Compliance Demonstration
AVAQMD Regulation XXX (Rules 3000 – 3011)	Title V Permits	Establishes requirements for the following: Title V permit applications; Title V permit (permit term, issuance, restrictions on issuance, permit contents, operational flexibility, compliance certification, permit shield, violation of permit conditions); modifications of Title V permits; reopening, reissuance, and termination of Title V permits; notice and comment; certification; and appeals and greenhouse gas provisions.	LLRC complies by submitting the Title V appli obtaining and complying with a Title V perm the requirements of Regulation XXX.

Appendix C

Table 3 (Enclosed Flare Emissions)

CAS Number	Pollutant	Molecular Weight (g/Mol)	Concentration Found In LFG (ppmv) (2)	Destruction Efficiency (3)	Potential to Emit (PTE)		
					Pollutant Flow Rate to Flare (tpy)(4)	Emissions from Flare (lb/hr)	Emissions from Flare (tpy)
Hazardous Air Pollutants (HAPs) (1)							
71-55-6	1,1,1-Trichloroethane (methyl chloroform)	133.41	0.040	98.00%	7.28E-03	3.33E-05	1.46E-04
79-34-5	1,1,2,2-Tetrachloroethane*	167.85	0.070	98.00%	1.60E-02	7.32E-05	3.21E-04
75-34-3	1,1-Dichloroethane (ethylidene dichloride)	98.97	0.089	98.00%	1.20E-02	5.49E-05	2.40E-04
75-35-4	1,1-Dichloroethene (vinylidene chloride)	96.94	0.065	98.00%	8.60E-03	3.93E-05	1.72E-04
107-06-2	1,2-Dichloroethane (ethylene dichloride)	98.96	0.065	98.00%	8.78E-03	4.01E-05	1.76E-04
78-87-5	1,2-Dichloropropane (propylene dichloride)*	112.99	0.023	98.00%	3.55E-03	1.62E-05	7.09E-05
107-13-1	Acrylonitrile*	53.06	0.036	99.70%	2.61E-03	1.79E-06	7.82E-06
71-43-2	Benzene	78.11	2.580	99.70%	2.75E-01	1.88E-04	8.25E-04
75-15-0	Carbon disulfide*	76.13	0.320	99.70%	3.33E-02	2.28E-05	9.98E-05
56-23-5	Carbon tetrachloride	153.84	0.040	98.00%	8.40E-03	3.84E-05	1.68E-04
463-58-1	Carbonyl sulfide*	60.07	0.183	99.70%	1.50E-02	1.03E-05	4.50E-05
108-90-7	Chlorobenzene	112.56	0.076	98.00%	1.17E-02	5.33E-05	2.34E-04
75-00-3	Chloroethane (ethyl chloride)*	64.52	0.239	98.00%	2.10E-02	9.61E-05	4.21E-04
67-66-3	Chloroform	119.39	0.040	98.00%	6.52E-03	2.98E-05	1.30E-04
74-87-3	Chloromethane (methyl chloride)*	50.49	0.249	98.00%	1.72E-02	7.84E-05	3.43E-04
106-46-7	Dichlorobenzene (1,4-Dichlorobenzene)	147.00	0.778	98.00%	1.56E-01	7.13E-04	3.12E-03
75-09-2	Dichloromethane (Methylene Chloride)	84.94	0.360	98.00%	4.17E-02	1.91E-04	8.35E-04
100-41-4	Ethylbenzene*	106.16	6.789	99.70%	9.84E-01	6.74E-04	2.95E-03
106-93-4	Ethylene dibromide (1,2-Dibromoethane)	187.88	0.060	98.00%	1.54E-02	7.03E-05	3.08E-04
110-54-3	Hexane*	86.18	2.324	99.70%	2.73E-01	1.87E-04	8.20E-04
2148-87-8	Hydrogen sulfide (5)	34.08	250	99.70%	1.16E+01	7.97E-03	3.49E-02
7439-97-6	Mercury (total)**	200.61	2.92E-04	--	8.00E-05	1.83E-05	8.00E-05
78-93-3	Methyl ethyl ketone*	72.11	10.557	99.70%	1.04E+00	7.12E-04	3.12E-03
108-10-1	Methyl isobutyl ketone*	100.16	0.750	99.70%	1.03E-01	7.02E-05	3.08E-04
127-18-4	Perchloroethylene (tetrachloroethylene)	165.83	1.440	98.00%	3.26E-01	1.49E-03	6.52E-03
108-88-3	Toluene	92.13	22.100	99.70%	2.78E+00	1.90E-03	8.34E-03
79-01-6	Trichloroethylene (trichloroethene)	131.40	0.585	98.00%	1.05E-01	4.79E-04	2.10E-03
75-01-4	Vinyl chloride	62.50	0.210	98.00%	1.79E-02	8.18E-05	3.58E-04
1330-20-7	Xylenes	106.16	11.390	99.70%	1.65E+00	1.13E-03	4.95E-03
7647-01-0	Hydrochloric Acid (HCl)** (6)	36.45	42.000	--	--	4.82E-01	2.11E+00
	Total HAPs				19.57	0.50	2.18

Potential to Emit (PTE)	Molecular Weight (g/Mol)	Outlet Concentration of Compound (ppmv)	Emission Factor (lb/MMft^3)	Emission Factor (lb/MMBtu)	PTE Emissions from Flare (lb/hr)	PTE Emissions from Flare (tpy)
Non-Methane Organic Compounds (NMOCs) as Hexane (7)	86.18	20	--	--	3.68	16.12
Volatile Organic Compounds (VOCs) (8)	86.18	20	--	--	3.68	16.12

Criteria Air Pollutants PTE	Molecular Weight (g/Mol)	Rep. Concentration of Compound (ppmv)	Emission Factor (lb/MMft^3)	Emission Factor (lb/MMBtu)	PTE Emissions from Flare (lb/hr)	PTE Emissions from Flare (tpy)
Sulfur Dioxide (SO_2)	64.1	250			4.99	21.86
Carbon Monoxide (CO)				0.2	12.14	53.19
Nitrogen Oxides (NO_x)				0.06	3.64	15.96
Particulates (PM_{10})			17.0		1.02	4.47

Criteria Air Pollutants ACTUAL	Molecular Weight (g/Mol)	Rep. Concentration of Compound (ppmv)	Actual Emissions from Flare (lb/hr)	Actual Emissions from Flare (tpy)
Non-Methane Organic Compounds (NMOCs) as Hexane (7)	86.18		0.01	0.04
Volatile Organic Compounds (VOCs) (8)	86.18		0.01	0.04
Sulfur Dioxide (SO_2)	64.1	250	0.02	0.09
Carbon Monoxide (CO)			1.87	8.19
Nitrogen Oxides (NO_x)			1.14	4.99
Particulates (PM_{10})			0.02	0.09

NOTES:

(1) Listed Hazardous Air Pollutants (HAPs) are among compounds commonly found in landfill gas (LFG), as presented in AP-42, Tables 2.4-1 and 2.4-2.
(2) Concentrations of pollutants in LFG are based on the results of a flare source test conducted on February 26, 2015. For compounds not tested for in the source test, concentrations are based on Waste Industry Air Coalition Values (marked with single asterisk), or on AP-42, Tables 2.4-1 and 2.4-2 (marked with double asterisk).
(3) Flare destruction efficiency for HAPs taken from AP-42, Table 2.4-3.
(4) For HAPs: LFG emissions from flare = (LFG to flare) * (1-control efficiency).
(5) Based on permitted hydrogen sulfur content of 250 ppmv.
(6) Concentration of HCl is from AP-42, Section 2.4.4.
(7) Converted from as methane to as hexane.
(8) VOCs assumed to equal NMOCs.
(9) Maximum flow rate to flare based on manufacturer's specifications.
(10) Maximum exhaust rate from flare provided by manufacturer.
(11) Actual flow rate taken from total LFG collected in 2022 (945 scfm/488.78 mmscf @35.4% CH4) converted to scfm @50% CH4.

MODEL INPUT VARIABLES:

Methane Concentration	50%
Maximum LFG Collection Rate to Flare (2022 Actual)(11)	669 scfm
Maximum LFG Collection Rate to Flare (PTE)(9)	2,000 scfm
Maximum Exhaust Flow Rate from Flare (10)	28,560 scfm
Oxygen Content at Maximum Exahust Flow	12 %
Flare Heat Input Capacity	60.72 MMBtu/hr

FLARE EMISSION FACTORS:

PTE

Pollutant			
NMOCs/VOCs	20	ppmv outlet @3% O_2	Rule 1150.1/BACT/NSPS
SO_2	250	ppmv	Based on current permit (maximum expected)
CO	0.2	lb/MMBtu	Manufacturer's Guarantee/BACT
NO_x	0.06	lb/MMBtu	Manufacturer's Guarantee/BACT
PM_{10}	17	lb/MMFt^3 as CH_4	BACT/AP-42 Table 2.4-5

Actual

Pollutant			
NMOCs/VOCs	0.05	lb/hr	Based on 2023 Source Test Results (as methane)
SO2	2.94	ppmv	Based on 2023 Source Test Results
CO	1.87	lb/hr	Based on 2023 Source Test Results
NOx	1.14	lb/hr	Based on 2023 Source Test Results
PM10	0.021	lb/hr	Based on 2023 Source Test Results