Bay Area Air Quality Management District

939 Ellis Street
San Francisco, CA 94109
(415) 771-6000

Permit Evaluation
and
Statement of Basis
for
RENEWAL and REVISIONS of

MAJOR FACILITY REVIEW PERMIT

for

Waste Management of Alameda County
Facility #A2066

Facility Address:
10840 Altamont Pass Road
Livermore, CA 94550

Mailing Address:
10840 Altamont Pass Road
Livermore, CA 94550

Application Engineer: Carol Allen
Site Engineer: Carol Allen

Renewal Application: 18233
Revision Applications: 14816, 16525, 16696, 17220, 18820, 19046, 19207, & 20252

TABLE OF CONTENTS

TITLE V STATEMENT OF BASIS

Waste Management of Alameda County; PLANT # A2066

Renewal Application # 18233 and

Revision Applications # 14816, 16525, 16696, 17220, 18820, 19046, 19207, & 20252

I. BACKGROUND

This facility 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 BAAQMD Regulation 2, Rule 6, Major Facility Review, because it is a major facility as defined by BAAQMD Regulation 2-6-212.1. It is a major facility because it has the "potential to emit," as defined by BAAQMD Regulation 2-6-218, of more than 100 tons per year of a regulated air pollutant (in this case, carbon monoxide and nitrogen oxides). Therefore, this facility is required to have an MFR permit pursuant to Regulation 2-6-301.

In addition, it is a designated facility as defined by BAAQMD Regulation 2-6-204. As discussed in more detail below in Section C.IV of this report, this facility is subject to the Part 70 permitting requirements pursuant to Regulation 2-6-304, because it meets the designated facility criteria listed in 40 CFR § 60.752(b). Therefore, this facility is required to have an MFR permit pursuant to Regulation 2-6-304.

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70 as contained in BAAQMD Regulation 2, Rule 6. The permits must contain all applicable requirements (as defined in BAAQMD Regulation 2-6-202), monitoring requirements, recordkeeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

Pursuant to Regulation 2, Rule 6, section 416, the District has reviewed the terms and conditions of this Major Facility Review permit and determined that they are still valid and correct. This review included an analysis of applicability determinations for all sources, including those that have been modified or permitted since the issuance of the initial Major Facility Review Permit. The review also included an assessment of all monitoring in the permit for sufficiency to determine compliance. The statement of basis documents for permit revisions that have occurred since the initial Major Facility Review permit was issued are hereby incorporated by reference and are available upon request.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

Each facility in the Bay Area is assigned a facility identifier that consists of a letter and a 4-digit number. This identifier is also considered to be the identifier for the permit. The identifier for this facility is A2066.

This facility received its initial Title V permit on December 1, 2003. The permit was revised on February 5, 2004, December 21, 2004, April 5, 2005, October 4, 2005, December 15, 2005, May 17, 2007, July 17, 2007, December 11, 2007, and October 9, 2008.

Application #18233 is for a renewal of the Title V permit for this site. Although the current permit expired on November 30, 2008, it continues in force until the District takes final action on the permit renewal. The standard sections of the permit have been upgraded to include new standard language used in all Title V permits. The proposed renewal permit clearly shows all proposed changes to the permit in strikeout/underline format.

In addition to this Title V permit renewal, Waste Management of Alameda County has submitted a number of Title V permit revision applications. The Title V revision applications listed in the table below will be included with this proposed Title V permit renewal.

Table 1. Summary of Title V Revision Applications Included with this Permit Renewal

Title V Application #	Type of Revision Requested	District NSR Application #	Project Description
14816	Significant	14814	Expansion of the Altamont Landfill
16525	Minor	16526	Replacement of 3 Emergency Standby Engines
16696	Minor	16695, 17305, 20158, and 21312	Addition and Replacement of 4 Portable Waste Tipper Engines and Addition of 1 Portable Engine for an Air Compressor
17220	Minor	17215	Green Waste Processing Operations
18820	Significant	18819 and 22039	Establish a Site-Wide Cap on CO Emissions
19046	Minor	19045	New Liquefied Natural Gas Plant
19207	Significant	19206 and 21044	New Landfill Gas Flare and Flare Condition Changes
20252	Minor	15498, 20251, and 23198	Landfill Gas Collection System Alterations

Waste Management has submitted the following permit applications that are still undergoing District review: NSR Application #23687 and Title V Administrative Amendment Application #23692. Waste Management submitted Application # 23687 to request changes to the landfill gas toxic air contaminant (TAC) concentration limits listed in Condition # 19235 Part 12 for S-2. Since these TAC concentration limits are not federally enforceable, Waste Management

submitted an administrative Title V permit amendment request (Application # 23692) to incorporate any approved TAC concentration limit changes into the Title V permit. These applications will not be included in this Title V permit renewal, because the District has not completed its review of Application # 23687. After the District's review is complete, any revised limits will be incorporated into the Title V permit pursuant to the application number noted above and in accordance with the Title V permit revision procedures in Regulation 2, Rule 6.

II. FACILITY DESCRIPTION

Waste Management of Alameda County owns and operates the Altamont Landfill and Resource Recovery Facility (ALRRF) in Livermore, CA. The facility includes an active municipal solid waste (MSW) landfill, active landfill gas collection systems, landfill gas fired energy recovery equipment, landfill gas flares, condensate and leachate treatment operations, a gasoline dispensing facility, and several diesel-fired internal combustion engines.

In the current Title V permit, the S-2 Altamont Landfill includes all of the emissions associated with waste acceptance, on-site movement, and disposal including emissions generated during cell construction, waste placement, compaction, and covering activities, fugitive emissions generated during vehicle and equipment travel on roads within the site, and emissions generated by the waste decomposition process. The current permit limits for S-2 include Fill Area 1 of the Altamont Landfill (a 235-acre area on an excavated hillside) and the associated active landfill gas collection systems. Waste acceptance at Fill Area 1 began in 1980 and is expected to continue for a few more years. The landfill is currently permitted to accept up to 11,150 tons/day of wastes. The landfill accepts municipal solid waste, industrial waste, construction/demolition debris, asbestos, non-hazardous sewage sludge, non-hazardous contaminated soils, and other miscellaneous non-hazardous materials. Fill Area 1 has a maximum design capacity of 58.9 million cubic yards (45.0 million m^3) and is expected to contain about 47.1 million tons (42.7 million Mg) of decomposable waste when it reaches full capacity. Altamont Landfill is currently subject to the Emission Guidelines (EG) for MSW Landfills (40 CFR Part 60, Subpart Cc). The District implements these EG requirements through BAAQMD Regulation 8, Rule 34, which was adopted in to the state plan under 40 CFR Part 62, Subpart F.

For active landfills, the District has changed the manner in which landfill permits are described. For this site, the single source number for Altamont Landfill (S-2) has been split into three source numbers: S-2 for the waste decomposition process, S-43 for the waste and cover material dumping process, and S-44 for the excavation, bulldozing and compacting activities. Fugitive road dust emissions are included under both S-43 and S-44. These source description changes were made to improve the emission calculation methodology for each of these processes.

In addition to the source number changes described above, this permitting action will incorporate the Fill Area 2 Landfill Expansion Project and related permit condition revisions that were approved by the District pursuant to Application #14814. When Fill Area 1 reaches full capacity,

waste disposal will move to an adjacent canyon designated as Fill Area 2. The daily waste acceptance limit will remain at 11,150 tons/day, but the annual waste acceptance limit will be reduced to 1,610,000 tons/year. The landfill expansion will increase the design capacity for Altamont Landfill (Fill Areas 1 and 2 combined) to 124.4 million yd^3 and will ultimately increase the limit on the amount of decomposable materials that may be placed in the landfill up to 88.0 million tons. This landfill expansion will trigger the NSPS requirements for MSW Landfills (40 CFR, Part 60, Subpart WWW) upon commencement of waste disposal in Fill Area 2. In addition to triggering NSPS requirements, this landfill expansion project will change the designation of this site from an area source of hazardous air pollutants (HAP) to a major source of HAP. The landfill expansion authorized an increase in the maximum permitted HAP emissions from the waste decomposition processes at the landfill such that the site-wide PTE for toluene and methanol will each exceed 10 tons/year and the site-wide PTE for all HAPs combined will now exceed 25 tons/year. Consequently, this site will be deemed a major source of HAP emissions upon commencement of waste disposal in Fill Area 2. This landfill expansion project is discussed in detail in the Engineering Evaluation Report for Application #14814 (see Appendix F).

As required by local, state, and federal regulations, Fill Area 1 of the Altamont Landfill is equipped with an active landfill gas collection system and several landfill gas control systems. The previously permitted landfill gas control systems at this site included energy recovery devices (S-6 and S-7 Gas Turbines and S-23 and S-24 IC Engines) and an enclosed landfill gas flare (A-15) that provided landfill gas control for the entire landfill if the energy recovery devices were not operating. This Title V permitting action will incorporate a number of revisions to the landfill gas collection and control systems that were approved by the District pursuant to NSR Applications #15498, 19045, 19206, 20251, 21044, and 23198. These revisions include the addition of a second enclosed landfill gas flare (A-16) that will increase the back-up landfill gas control capacity for the site, the addition of a new Liquefied Natural Gas Plant (S-210) that will separate the methane from the landfill gas and produce a high BTU value liquefied gas suitable for use as fuel in waste collection trucks, several landfill gas collection system alterations, and other permit corrections related to these collection and control systems. The Engineering Evaluation Reports for these NSR applications are presented in Appendix D - Reports for Gas Collection System Alterations, Appendix E - Reports for New Flare, and Appendix I - Reports for Liquefied Natural Gas Plant.

Landfill gas control equipment can emit large quantities of carbon monoxide (CO) emissions. Although several of the landfill gas control devices listed above may operate simultaneously, the maximum amount of landfill gas that was expected to be collected from Fill Area 1 was insufficient to run all of the control devices at maximum capacity simultaneously. Thus, the CO potential to emit (PTE) for this site was limited by the landfill's permitted gas generation rate rather than the sum of the CO PTE for each individual device. In order to clarify the CO PTE for this site, Waste Management requested to establish a site-wide cap on CO emissions. Pursuant to NSR Application # 18819 with subsequent permit condition corrections under Application #

22039, the District established a site-wide cap of 225.0 tons/year of CO on November 3, 2009. This CO emission limit is discussed in Appendix G.

Waste Management submitted NSR Application # 17215 to obtain permits for several existing green waste processing operations. This new equipment is being added to this Title V permit. This project is discussed in Appendix H.

Waste Management had 7 small (< 500 bhp) diesel fired internal combustion (IC) engines (S-190, S-193, S-194, S-195, S-196, S-197, and S-198) that were providing either a portable source of power or emergency back-up power to various operations around the site. Six of these devices (all but S-193) have been shut down. Three emergency back-up generators were replaced with new cleaner emergency standby engines (S-199, S-200, and S-201). The other operations were either discontinued or replaced by electrically powered equipment. These equipment changes will be reflected in this Title V permit. The engine shut downs and the new engines are discussed in Appendix J.

Waste Management uses portable waste tippers to assist with the garbage dumping process for large transfer trucks. Portable diesel engines are typically used to power the hydraulic lifts on these waste tippers. Waste Management requested District permits for four of these portable waste tipper engines and their replacement engines under NSR Applications # 16695, 17305, and 21312. Pursuant to NSR Application # 20158, the District also permitted 1 additional portable engine that powers an air compressor. The District Engineering Evaluation Reports for this equipment are presented in Appendix K. As indicated in Table II-D, the District has determined that these portable engines are exempt from Title V permitting requirements.

All of the changes identified above will be reflected in this Title V renewal permit.

III. PERMIT CONTENT

The legal and factual basis for the permit follows. The permit sections are described in the order that they are presented in the permit. Routine changes to the standard permit text in Sections I "Standard Conditions", III "Generally Applicable Requirements", and X "Glossary" are not considered part of the Title V permit renewal process, but may be made at the discretion of the District during the term of this permit.

Changes to Permit, Title Page:

- Per the Applicant's request, the District is changing the Responsible Official and Facility Contact to Mr. Marcus Nettz.

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for certain fossil-fuel fired electrical generating facilities or the accidental release (40 CFR § 68) programs apply, the section will contain a standard condition pertaining to these programs. This permit does not include Title IV or accidental release provisions.

Many of these conditions derive from 40 CFR § 70.6, Permit Content, which dictates certain standard conditions that must be placed in the permit. The language that the District has developed for many of these requirements has been adopted into the BAAQMD Manual of Procedures, Volume II, Part 3, Section 4, and therefore must appear in the permit.

The standard conditions also contain references to BAAQMD Regulation 1 and Regulation 2. These are the District's General Provisions and Permitting rules.

Changes to Permit, Section I:

- The District is updating the dates of adoption and approval of rules in Standard Condition 1.A. The District is also adding BAAQMD Regulation 2, Rule 5 and SIP Regulation 2, Rule 6 to Standard Condition 1.A.
- The District is adding the following language to Standard Condition I.B.1: "If the permit renewal has not been issued by [enter permit expiration date], but a complete application for renewal has been submitted in accordance with the above deadlines, the existing permit will continue in force until the District takes final action on the renewal application." This is the "application shield" pursuant to BAAQMD Regulation 2-6-407.
- The basis for Standard Condition I.B.11 is being amended by adding "Regulation 2-6-409.20" to conform to changes in Regulation 2, Rule 6.
- The following language is added as Standard Condition I.B.12: "The permit holder is responsible for compliance, and certification of compliance, with all conditions of the permit, regardless whether it acts through employees, agents, contractors, or subcontractors. (Regulation 2-6-307)." The purpose is to reiterate that the Permit Holder is responsible for ensuring that all activities at the facility comply with all applicable requirements.
- The District is correcting errors in the bases for Standard Conditions I.E.2 and I.F.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S24).

Permitted sources are those sources that require a BAAQMD operating permit pursuant to BAAQMD Rule 2-1-302.

Significant sources are those sources that have a potential to emit of more than 2 tons of a "regulated air pollutant," as defined in BAAQMD Rule 2-6-222, per year or 400 pounds of a "hazardous air pollutant," as defined in BAAQMD Rule 2-6-210, per year. As discussed in Appendix H, the District determined that the S-30 Portable Green Waste Grinding Operation was exempt from District permit requirements because it was a state-registered portable device subject to California's Portable Equipment Registration Program (PERP). However, the PERP conditions limit the PM10 emissions from this equipment unit to 10 tons/year. Since the PM10 PTE is greater than 2 tons/year, this device is considered to be a significant source. Therefore, the District is including S-30 in this Title V permit. This facility has no other unpermitted significant sources.

All abatement (control) devices that control permitted or significant sources are listed. Each abatement device whose primary function is to reduce emissions is identified by an A and a number (e.g., A-24). If a source is also an abatement device, such as when an engine controls VOC emissions, it will be listed in the abatement device table but will have an "S" number. An abatement device may also be a source (such as a thermal oxidizer that burns fuel) of secondary emissions. If the primary function of a device is to control emissions, it is considered an abatement (or "A") device. If the primary function of a device is a non-control function, the device is considered to be a source (or "S").

The equipment section is considered to be part of the facility description. It contains information that is necessary for applicability determinations, such as fuel types, contents or sizes of tanks, etc. This information is part of the factual basis of the permit.

Each of the permitted sources has previously been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. These permits are issued in accordance with state law and the District's regulations. The capacities in the permitted sources table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-403.

Following is a summary of the differences in the equipment list between the time that the Title V permit was last revised (October 2008) and the permit proposal date. The reasons for each of these equipment changes are explained above in Section B and are summarized below.

Changes to Permit, Section II:

- The description of S-2 is being changed to: Altamont Landfill – Waste Decomposition Process to clarify that this source number will be used to identify emissions related to the waste decomposition process from the landfill. The landfill gas collection system will remain as part of S-2, because the gas collection system is being used to capture the gases generated by the waste decomposition process. The gas collection system description in Table II-A is being updated in accordance with permit condition changes approved under NSR Applications #15498, 20251, 21044. The District is clarifying that the specific well and collector counts are updated as allowed in Condition # 19235, Part 1b. The landfill design capacity and decomposable materials limit are being updated in accordance with permit condition changes approved under NSR Application #14814.
- In Section II, the heat input rates for combustion devices are currently expressed in units of MM BTU/hour (millions of BTU/hour). The "MM" term is being replaced with the term "E6" to improve clarity. This change is being made in Table II-A for S-6, S-7, S-23, and S-24 and in Table II-B for A-15.
- A new source, S-29 Green Waste Stockpiles, was permitted under NSR Application # 17215. This source is being added to Table II-A.
- The existing S-2 Altamont Landfill was split into three source number: S-2 Altamont Landfill Waste Decomposition Process, S-43 Altamont Landfill Waste and Cover Material Dumping, and S-44 Altamont Landfill Excavating, Bulldozing, and Compacting Activities. The new sources (S-43 and S-44) were added to Table II-A.
- The following diesel fired IC engines have been shut down and removed from Site # A2066: S-190, S-194, S-195, S-196, S-197, and S-198. These sources are being deleted from Table II-A.
- Three new diesel fired emergency standby engines (S-199, S-200, and S-201) were permitted under NSR Applicaiton #16526. These new engines replaced S-190, S-194, and S-195 and were installed to comply with the requirements of the CARB ATCM for stationary compression ignition engines. S-199, S-200, and S-201 are being added to Table II-A.
- A new landfill gas treatment operation was permitted under NSR Application # 19045: S-210 Liquefied Natural Gas (LNG) Plant. This process treats up to 1.95E9 BTU/day (about 2725 scfm) of landfill gas and produces about 13,300 gallons/day of LNG. S-210 is being added to Table II-A.
- The District permitted a new enclosed landfill gas flare (A-16) under NSR Application # 19206. This flare is being added to Table II-B. The minimum combustion zone temperature for A-16 was established based on the November 2009 and June 2010 source tests for A-16 and the criteria specified in Condition # 19235, Part 10.
- Under Application # 19206, the District also reviewed the source tests on A-15 conducted between 2003 and 2010. The lowest combustion zone temperature measured during a compliant source test was 1531 ºF. Therefore, the minimum combustion zone temperature for A-15 was corrected to 1481 ºF in accordance with Condition # 19235, Part 10. This temperature correction is reflected in Table II-B.

- The District added Section II.C to describe significant sources. Under Application # 17215, the District determined that the S-30 Portable Green Waste Grinding Operation was exempt from District permit requirements under Regulation 2-1-105. However, the PERP conditions for S-30 allowed up to 10 tons/year of PM10 emissions from S-30. Therefore, S-30 is considered to be a significant source and is being added to Table II-C.
- The District added Section II.D to describe exempt equipment. Waste Management has been operating a number of portable diesel fired IC engines at this site, which are discussed in Applications # 16695, 17215, 17305, 20158, and 21312. These portable non-road engines are exempt from Regulation 2, Rule 6 Major Facility Review requirements pursuant to Regulation 2-6-114. These engines (S-31, S-206, S-208, S-217, and S-218), the associated abatement devices (A-206, A-207, A-208, and A-209), and the Title V permit exemption are being added to Table II-D.

III. Generally Applicable Requirements

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources and portable equipment that may not require a District permit. If a generally applicable requirement applies specifically to a source that is permitted or significant, the standard will also appear in Section IV and the monitoring for that requirement will appear in Sections IV and VII of the permit. Parts of this section apply to all facilities (e.g., particulate, architectural coating, odorous substance, and sandblasting standards). In addition, standards that apply to insignificant or unpermitted sources at a facility (e.g., refrigeration units that use more than 50 pounds of an ozone-depleting compound) are placed in this section.

Unpermitted sources are exempt from normal District permits pursuant to an exemption in BAAQMD Regulation 2, Rule 1. They may, however, be specifically described in a Title V permit if they are considered ***significant sources*** pursuant to the definition in BAAQMD Rule 2-6-239. The S-29 Portable Green Waste Grinding Operation is an unpermitted significant source.

Changes to Permit, Section III:

- The District is adding language to Section III to clarify that this section contains requirements that may apply to temporary sources. This provision allows contractors that have "portable" equipment permits that require them to comply with all applicable requirements to work at the facility on a temporary basis, even if the permit does not specifically list the temporary source. Examples are temporary sand-blasting, wood chipping, or soil-vapor extraction equipment.
- The District is adding EPA's website address for the SIP standards to Section III.
- For Table III, the District is amending dates of adoption or approval of the rules, correcting the "federal enforceability" status for these rules, and adding or deleting rules and standards to conform to current practice. The rules that are being amended, added, or removed are listed below:
    - Regulation 1, General Provisions and Definitions
    - Regulation 2, Rule 1, General Requirements

- Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants
- Regulation 5, Open Burning
- Regulation 6, General Requirements
- Regulation 6, Rule 1, General Requirements
- Regulation 8, Rule 2, Miscellaneous Operations
- Regulation 8, Rule 3, Architectural Coatings
- Regulation 8, Rule 15, Emulsified and Liquid Asphalts
- Regulation 8, Rule 40, Aeration of Contaminated Soil and Removal of Underground Storage Tanks
- Regulation 8, Rule 47, Air Stripping and Soil Vapor Extraction Operations
- Regulation 9, Rule 1, Sulfur Dioxide
- Regulation 9, Rule 2, Hydrogen Sulfide
- California Health and Safety Code Section 41750 et seq., Portable Equipment
- California Code of Regulations Title 17, Section 93116 et seq., Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater
- EPA Regulation 40 CFR Part 61, Subpart A.
- EPA Regulation 40 CFR Part 82, Subpart F.

IV. Source-Specific Applicable Requirements

This section of the permit lists the applicable requirements that apply to permitted or significant sources. These applicable requirements are contained in tables that pertain to one or more sources that have the same requirements. The order of the requirements is:

- District Rules
- SIP Rules (if any) are listed following the corresponding District rules. SIP rules are District rules that have been approved by EPA for inclusion in the California State Implementation Plan. SIP rules are "federally enforceable" and a "Y" (yes) indication will appear in the "Federally Enforceable" column. If the SIP rule is the current District rule, separate citation of the SIP rule is not necessary and the "Federally Enforceable" column will have a "Y" for "yes". If the SIP rule is not the current District rule, the SIP rule or the necessary portion of the SIP rule is cited separately after the District rule. The SIP portion will be federally enforceable; the non-SIP version will not be federally enforceable, unless EPA has approved it through another program.
- Other District requirements, such as the Manual of Procedures, as appropriate.
- Federal requirements (other than SIP provisions)
- State requirements (such as ATCMs)
- BAAQMD permit conditions. The text of BAAQMD permit conditions is found in Section VI of the permit.
- Federal permit conditions. The text of Federal permit conditions, if any, is found in Section VI of the permit.

Section IV of the permit contains citations to all of the applicable requirements. The more complex applicability determinations are discussed below. The text of the requirements is found in the regulations, which are readily available on the District's or EPA's websites, or in the permit conditions, which are found in Section VI of the permit. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of monitoring is included in Section C.VII of this permit evaluation/statement of basis.

NSPS and NESHAP Applicability for Altamont Landfill (S-2, S-43, S-44):

The landfill at this site is subject to BAAQMD Regulation 8, Rule 34, because Altamont Landfill has accepted waste within the last 30 years and contains more than 1,000,000 tons of decomposable refuse. As discussed in Section B of this report, the existing Fill Area 1 of the Altamont Landfill was previously determined to be subject to the federal Emission Guidelines (EG) for Municipal Solid Waste (MSW) Landfills (40 CFR, Part 60, Subpart Cc) because (1) it had no design capacity increases after May 30, 1991, (2) it had accepted waste after November 8, 1987, and (3) it had a design capacity of greater than 2.5 million cubic meters and greater than 2.5 million megagrams. Since Fill Area 1 of the Altamont Landfill also had an uncontrolled NMOC generation rate greater than 50 Mg/year, Fill Area 1 was subject to the landfill gas collection and control requirements of the EG. Waste Management has been complying with these EG landfill gas collection and control requirements by meeting the requirements of Regulation 8, Rule 34. Since this landfill was subject to the EG requirements, it was also subject to the NESHAP for MSW Landfills (40 CFR, Part 63, Subpart AAAA).

On November 18, 2009, the District approved permit condition changes that would increase the design capacity of the Altamont Landfill and that would allow waste filling to being in an adjacent canyon (Fill Area 2). This design capacity increase constitutes a modification of the landfill as defined in 40 CFR Part 60.751 and triggers the NSPS requirements for MSW Landfills (40 CFR Part 60, Subpart WWW). The NSPS requirements become effective when the owner or operation commences construction on the modification. In this case, the NSPS requirements are triggered and apply to the entire landfill (both fill areas) upon commencement of construction of the Fill Area 2 waste disposal area. The applicable requirements from Subpart WWW are being added to Tables IV-A, IV-B, and IV-D with a future effective date of "upon commencement of construction of Fill Area 2".

Regulation 8, Rule 2 and Permit Shield Applicability for S-43:

Regulation 8, Rule 2 "Miscellaneous Operations" is only applicable to sources of precursor organic compounds that are not otherwise limited by Regulation 8 or Regulation 10 rules. In the case of an active landfill, the storage, handling, reuse (such as for cover material), and disposal of soil that contains volatile organic compounds (VOC) results in the transfer of some of the VOCs from the soil into the atmosphere. This process is called aeration. Soil which has an organic content exceeding 50 ppmw or that registers an organic concentration greater than 50 ppmv (expressed as methane, C1) at the soil surface is defined as "contaminated" soil in Regulation 8-40-205. VOC-laden soil is soil that contains some VOCs but that has less VOCs than the

contaminated soil thresholds above. The aeration of contaminated soil is subject to Regulation 8, Rule 40. However, the aeration of the low concentration VOC-laden soils is subject to Regulation 8, Rule 2.

In the current Title V permit, the District has indicated that Regulation 8, Rule 2 applies to the S-2 Altamont Landfill due to the aeration of VOC-laden soil that occurs at this source during the transfer of VOC-laden soils to the landfill or during re-use of VOC-laden soil as cover material. With this permit renewal, the District is proposing to split S-2 into S-2, S-43, and S-44. The aeration of VOC-laden soil will be removed from S-2 and attributed to S-43 Altamont Landfill – Waste and Cover Material Dumping instead.

As discussed in Section IX of the current permit, a permit shield applies to S-2 for the VOC-laden soil aeration operation. In particular, the Regulation 8-2-601 source testing procedure for the total carbon concentration limit in Regulation 8-2-301 is subsumed by the Regulation 8-40-604 soil testing procedures for VOC-laden soil aeration operations. The District is proposing to modify this permit shield by replacing S-2 with S-43 in Table IX-A, because of the applicability determinations described above.

NSPS and NESHAP Applicability for Gas Turbines (S-6 and S-7)

As indicated in the current Table IV-B, the S-6 and S-7 Gas Turbines are subject to the 40 CFR Part 60, Subpart GG NSPS for Stationary Gas Turbines. The newer NSPS requirements (Subpart KKKK) do not apply because these turbines have not been modified after February 18, 2005.

The EG and NSPS requirements for municipal solid waste landfills (40 CFR Part 60 Subparts Cc and WWW) require that landfill gas be collected and controlled in the following manner pursuant to Part 60.752(b)(2)(iii):

(iii) Route all the collected gas to a control system that complies with the requirements in either paragraph (b)(2)(iii) (A), (B) or (C) of this section.
  (A) An open flare designed and operated in accordance with §60.18 except as noted in §60.754(e);
  (B) A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3 percent oxygen. The reduction efficiency or parts per million by volume shall be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in §60.754(d).
    (*1*) If a boiler or process heater is used as the control device, the landfill gas stream shall be introduced into the flame zone.
    (*2*) The control device shall be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in §60.756;
  (C) Route the collected gas to a treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system shall be subject to the requirements of paragraph (b)(2)(iii) (A) or (B) of this section.

One approved control option, subpart (iii)(C), allows a site to treat the landfill gas for subsequent sale or use. For other Bay Area landfill sites, EPA has determined that filtering, compression, and dewatering of landfill gas may quality as treatment under subpart (iii)(C). Since Waste Management is conducting this type of treatment on landfill gas collected from Fill Area 1 prior to delivery to S-6 and S-7, Waste Management has met one of the above options for S-6 and S-7. The District concurs that no further Subpart Cc or Subpart WWW requirements apply to S-6 or

S-7. Therefore, the District is proposing to remove 40 CFR Part 60 Subpart Cc and the related requirements (Part 62 and Part 63, Subpart AAAA) from Table IV-B.

A new NESHAP regulation (40 CFR Part 63, Subpart YYYY) is potentially applicable to all stationary combustion turbines located at major sources of HAP emissions. As discussed in the Background section of this report, the permitting of the expansion of the Altamont Landfill also authorized increases in the maximum permitted HAP emission rates from the Altamont Landfill such that the site-wide PTE now exceeds one or more of the major source thresholds for HAP emissions. Consequently, this facility will become a major source of HAP emissions upon commencement of waste filling in Fill Area 2. Therefore, Subpart YYYY is potentially applicable to these Gas Turbines. Subpart 63.6090 describes the affected sources for Subpart YYYY. S-6 and S-7 are existing turbines because they were last modified before January 14, 2003. Section 63.6090(b) identifies turbine subcategories with limited requirements. In accordance with Section 63.6090(b)(2), new or modified turbines that burn landfill or digestor gas (with a heat input due to these gases that is more than 10% of the gross annual heat input to the turbine) are only subject to initial notification and specific monitoring and reporting requirements (sufficient to demonstrate compliance with the 10% heat input criteria). However, existing turbines that fall into a limited applicability subcategory are not required to meet any of these limited requirements (i.e. no initial notification, monitoring, or reporting requirements) pursuant to Section 63.6090(b)(4). Since S-6 and S-7 are exclusively fired on landfill gas and are existing turbines, there are no applicable requirements under Subpart YYYY. These applicability determination sections were added to Table IV-B for clarity.

NSPS and NESHAP Applicability for Stationary IC Engines (S-23 and S-24)

The EG and NSPS requirements for municipal solid waste landfills (40 CFR Part 60 Subparts Cc and WWW) require that landfill gas be collected and controlled in the following manner pursuant to Part 60.752(b)(2)(iii):

(iii) Route all the collected gas to a control system that complies with the requirements in either paragraph (b)(2)(iii) (A), (B) or (C) of this section.
  (A) An open flare designed and operated in accordance with §60.18 except as noted in §60.754(e);
  (B) A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3 percent oxygen. The reduction efficiency or parts per million by volume shall be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in §60.754(d).
    (*1*) If a boiler or process heater is used as the control device, the landfill gas stream shall be introduced into the flame zone.
    (*2*) The control device shall be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in §60.756;
  (C) Route the collected gas to a treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system shall be subject to the requirements of paragraph (b)(2)(iii) (A) or (B) of this section.

One approved control option, subpart (iii)(C), allows a site to treat the landfill gas for subsequent sale or use. For other Bay Area landfill sites, EPA has determined that filtering, compression, and dewatering of landfill gas may quality as treatment under subpart (iii)(C). Since Waste Management is conducting this type of treatment on landfill gas collected from Fill Area 1 prior to delivery to S-23 and S-24, Waste Management has met one of the above options for S-23 and

S-24. The District concurs that no further Subpart Cc or Subpart WWW requirements apply to S-23 or S-24. Therefore, the District is proposing to remove 40 CFR Part 60 Subpart Cc and the related requirements (Part 62 and Part 63, Subpart AAAA) from Table IV-D.

The NSPS for Stationary Spark-Ignition Internal Combustion Engines (40 CFR Part 60, Subpart JJJJ) is potentially applicable to any stationary spark-ignition engines at a site, if the engines commenced construction after June 12, 2006. S-23 and S-24 are spark ignited (SI) internal combustion engines (ICE), but these engines were installed at this site prior to June 12, 2006. Therefore, Subpart JJJJ does not apply to S-23 or S-24.

The NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR, Part 63, Subpart ZZZZ) applies to reciprocating IC engines (RICE) located at major and area sources of HAP. As discussed above, this facility is transitioning from an area source of HAP emissions to a major source of HAP emissions and will become a major source of HAP upon commencement of waste filling in Fill Area 2. For simplicity, the applicable requirements for S-23 and S-24 were determined based on the assumption that this site is a major source of HAPs. The S-23 and S-24 landfill gas fired IC engines are considered to be existing engines because they commenced construction prior to December 19, 2002. Section 63.6590(b) identifies RICE subcategories with limited requirements. In accordance with Section 63.6590(b)(3)(v), existing RICE (>500 bhp) that are located at a major source of HAP and that burn landfill or digestor gas (with a heat input due to these gases that is more than 10% of the gross annual heat input to the RICE) are not subject to any requirements of Subpart ZZZZ. Since S-23 and S-24 are exclusively fired on landfill gas, these engines qualify for this subcategory exemption from Subpart ZZZZ. These applicability determination sections were added to Table IV-D for clarity.

NESHAP Applicability for the Non-Retail Gasoline Dispensing Facility (S-99)

The NESHAP for Gasoline Dispensing Facilities (40 CFR, Part 63, Subpart CCCCCC) applies to the loading of gasoline storage tanks located at gasoline dispensing facilities. The affected source is each gasoline dispensing facility located at an area source of HAP emissions. This facility is transitioning from an area source to a major source of HAP emissions. Since this site is currently an area source of HAP emissions, Subpart CCCCCC currently applies to S-99. Since S-99 has an annual throughput limitation of 30,000 gallons/year (Condition # 20813, Part 1), S-99 is expected to have a monthly throughput rate of less than 10,000 gallons and is subject to Section 63.11116. This section requires the owner/operator to employ gasoline vapor emissions minimization requirements, and it indicates that notifications and reports are not required. The applicable sections of Subpart CCCCCC were added to Table IV-G.

NSPS and NESHAP Applicability for Stationary Compression Ignition IC Engines (S-193, S-199, S-200, and S-201)

The NSPS for Compression Ignition Internal Combustion Engines (40 CFR Part 60, Subpart IIII) is potentially applicable to any stationary compression ignition engines at a site. The S-193, S-199, S-200, and S-201 Diesel Engines are compression-ignition (CI) internal combustion (IC) engines. As defined in 40 CFR Part 60.4219, these engines are stationary CI IC engine. Since S-

193 commenced construction before July 11, 2005, Subpart IIII does not apply to S-193. As discussed in Appendix J, S-199, S-200, and S-201 began operating at this site in November 2007. Therefore, these three emergency standby engines are subject to Subpart IIII. These engines are Model Year 2007 engines that meet the applicable tier standards. Using such certified engines is one method of complying with Subpart IIII. All the applicable Subpart IIII requirements for S-199, S-200, and S-201 are identified in Table IV-J.

The NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR, Part 63, Subpart ZZZZ) applies to reciprocating IC engines (RICE) located at major and area sources of HAP. This facility is transitioning from an area source of HAP emissions to a major source of HAP emissions and will become a major source of HAP upon commencement of waste filling in Fill Area 2. For simplicity, the applicable requirements for S-193, S-199, S-200, and S-201 were determined based on the assumption that this site is a major source of HAPs.

The S-193 Diesel Engine is considered to be an existing engine because it commenced construction prior to December 19, 2002. Since this engine is an existing <500 bhp engine located at a major source of HAPs, Section 63.6602 applies, and S-193 is subject to the requirements in Table 2c.1 with a future compliance date of May 3, 2013. These engines are subject to maintenance requirements (change oil and filter every 500 hours, inspect air cleaner every 1000 hours, and inspect hoses and belts every 500 hours, or annually, whichever occurs first) and record keeping and reporting requirements. For existing (< 500 bhp) emergency standby engines located at area sources, Section 63.6603 and Table 2d.4 apply, but the specific applicable maintenance requirements and compliance date are the same. The District is adding the applicable sections of subpart ZZZZ (for an existing engine located at a major source of HAPs) to Table IV-I.

The S-199, S-200, and S-201 Diesel Engines are new engines pursuant to Subpart ZZZZ. In accordance with 40 CFR Part 63.6590(c), new engines meet the requirements of Subpart ZZZZ by complying with the applicable NSPS requirements (either Subpart IIII or Subpart JJJJ of Part 60). As discussed above, these three new emergency standby engines are subject to and complying with 40 CFR Part 60, Subpart IIII. Therefore, no further Part 63, Subpart ZZZZ requirements apply to S-199, S-200, or S-201. These applicability determination sections of Subpart ZZZZ were included in Table IV-J for clarity.

<u>NSPS and NESHAP Applicability for Portable IC Engines (S-31, S-206, S-208, S-217, and S-218)</u>

The NSPS for Compression Ignition Internal Combustion Engines (40 CFR Part 60, Subpart IIII) is potentially applicable to any stationary compression ignition engines at a site. The engines listed in Table II-D are all diesel fueled compression-ignition (CI) internal combustion (IC) engines. S-206, S-208, S-217, and S-218 require a District permit because they remain at this facility for more than 12 consecutive months. Portable engines are usually considered to be nonroad engines and would not typically be defined as stationary engines under this subpart. Portable engines that remain at a location for longer than 12 consecutive months are no longer

considered to be nonroad engines (per 40 CFR Part 1068.30, paragraph (2)(iii) of the nonroad definition). In this case, a location is defined as "any single site at a building, structure, facility, or installation." These engine are moved around to different locations within this facility and do not reside at any single location for more than 12 consecutive months. Permit conditions require the operator of these engine to demonstrate compliance with this portability criteria. Therefore, these engines continue to be considered nonroad engines for the purposes of federal NSPS and NESHAP requirements.

Pursuant to 40 CFR, Part 60.4200(a)(2), subpart IIII applies to owners or operations of stationary compression-ignition IC engines that commence construction after July 11, 2005. Since the engines listed above are nonroad engines, these engines are not stationary engines (pursuant to the definition of stationary internal combustion engine in 40 CFR Part 60.4219) and are not subject to Subpart IIII.

The NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR, Part 63, Subpart ZZZZ) applies to reciprocating IC engines (RICE) located at major and area sources of HAP. As discussed above for Subpart IIII, the engines listed above are nonroad engines, because they are portable engines that do not reside at a single on-site location for more than 12 consecutive months. Therefore, these engines are not stationary RICE pursuant to the definition on stationary RICE in 40 CFR Part 63.6675, and Subpart ZZZZ does not apply to these engines.

Compliance Assurance Monitoring (CAM)

Sources at Title V facilities may be subject to the Compliance Assurance Monitoring (CAM) requirements in 40 CFR, Part 64. The District has reviewed applicability of the Compliance Assurance Monitoring (CAM) requirements in 40 CFR, Part 64, for this facility. A source must meet all three of the criteria specified in 40 CFR Part 64.2(a)(1-3) in order for CAM to apply. These three CAM applicability criteria are:

- The source must be subject to a federally enforceable emission limit for a regulated air pollutant, other than an exempt limitation.
- The source must use a control device to achieve compliance with this emission limitation, where a control device is defined in 64.1 as:

  Equipment, other than inherent process equipment, that is used to destroy or remove air pollutant(s) prior to discharge to the atmosphere. The types of equipment that may commonly be used as control devices include, but are not limited to, fabric filters, mechanical collectors, electrostatic precipitators, inertial separators, afterburners, thermal or catalytic incinerators, adsorption devices (such as carbon beds), condensers, scrubbers (such as wet collection and gas absorption devices), selective catalytic or non-catalytic reduction systems, flue gas recirculation systems, spray dryers, spray towers, mist eliminators, acid plants, sulfur recovery plants, injection systems (such as water, steam, ammonia, sorbent or limestone injection), and combustion devices independent of the particular process being conducted at an emissions unit (e.g., the destruction of emissions achieved by venting process emission streams to flares, boilers or process heaters). For purposes of this part, a control device does not include passive control measures that act to prevent pollutants from forming, such as the use of seals, lids, or roofs to prevent the release of pollutants, use of low-polluting fuel or feedstocks, or the use of combustion or other process design features or characteristics. If an applicable requirement establishes that particular equipment which otherwise meets this definition of a control device does not constitute a control

device as applied to a particular pollutant-specific emissions unit, then that definition shall be binding for purposes of this part.

- The pre-controlled emissions of the specific pollutant being controlled must be greater than the major facility emissions threshold for that pollutant.

At this facility, the following sources do not meet the second CAM applicability criteria listed above, because these sources have no control devices: S-19, S-140, S-141, S-193, S-199, S-200, and S-201. Therefore, CAM does not apply to these sources. The following sources may use water sprays to control particulate emissions: S-29, S-30, S-43, and S-44. The use of water sprays at these sources is intended to prevent the formation or release of particulate emissions and is considered to be a passive control technique rather than a CAM defined control device. Likewise, the S-99 GDF uses vapor balancing, lids, and seals intended to prevent or minimize VOC emissions. These techniques do not meet the definition of a control device in 40 CFR 64.1. Therefore, CAM does not apply to S-19, S-29, S-30, S-43, S-44, S-99, S-140, S-141, S-193, S-199, S-200, or S-201.

The CAM applicability determinations for each of the other sources at this site (S-2, S-6, S-7, S-23, S-24, and S-210) are presented below.

CAM Applicability for Altamont Landfill – Waste Decomposition Process (S-2)

At this facility, the landfill waste decomposition process (S-2) and its related emission control devices (A-15, A-16) are exempt from the first CAM applicability criteria, 40 CFR Part 64.2(a)(1), pursuant to 40 CFR Part 64.2(b)(1)(i), because the landfill and landfill gas control systems are subject to either EG or NSPS and NESHAPS requirements. Since these EG/NSPS and NESHAP requirements were adopted pursuant to Sections 111 and 112 of the Clean Air Act after November 15, 1990, these requirements are presumed to contain adequate monitoring provisions. Therefore, additional compliance monitoring is not necessary, and CAM does not apply to S-2, A-15, or A-16.

CAM Applicability for Gas Turbines (S-6, A-6, S-7, and A-7)

At this facility, the S-6 and S-7 Gas Turbines and the associated Fogging Systems (A-6 and A-7, which may be used for NOx control when necessary) are fired exclusively on landfill gas and are acting as NMOC emission control devices for the landfill in addition to generating electricity. S-6 and S-7 do not meet the first CAM applicability criteria (40 CFR Part 64.2(a)(1)) pursuant to 40 CFR Part 64.2(b)(1)(i), because the landfill gas control systems are subject to either EG, NSPS, or NESHAPS requirements for NMOC emissions. In addition, S-6 and S-7 are subject to NSPS requirements for NOx and SO2 emissions. Each of these applicable EG, NSPS, and NESHAP requirements were adopted pursuant to Sections 111 and 112 of the Clean Air Act after November 15, 1990 and are presumed to contain adequate monitoring provisions.

For the other secondary pollutants (carbon monoxide and particulate matter) emitted from S-6 and S-7, no CO or PM10 control devices are being employed. Therefore, S-6 and S-7 do not meet the second CAM applicability criteria for these pollutants.

For each regulated air pollutant from S-6 or S-7, at least one of the CAM applicability criteria have not been satisfied. Therefore, CAM does not apply to S-6 or S-7.

CAM Applicability for IC Engines (S-23 and S-24)

At this facility, the S-23 and S-24 IC Engines are fired exclusively on landfill gas and are acting as NMOC emission control devices for the landfill in addition to generating electricity. S-23 and S-24 do not meet the first CAM applicability criteria (40 CFR Part 64.2(a)(1)) pursuant to 40 CFR Part 64.2(b)(1)(i), because the landfill gas control systems are subject to either EG, NSPS, or NESHAPS requirements for NMOC emissions. Since these applicable EG, NSPS, and NESHAP requirements were adopted pursuant to Sections 111 and 112 of the Clean Air Act after November 15, 1990, these requirements are presumed to contain adequate monitoring provisions. Since S-23 and S-24 have adequate monitoring for NMOC emissions control pursuant to 40 CFR Part 64.2(b)(1)(i), CAM does not apply to NMOC emissions.

For the secondary pollutants from S-23 and S-23 (NOx, CO, SO2, and PM10), S-23 and S-24 have no control devices. Therefore, S-23 and S-24 do not meet the second CAM applicability criteria for these pollutants.

For each regulated air pollutant from S-23 or S-24, at least one of the CAM applicability criteria has not been satisfied. Therefore, CAM does not apply to S-23 or S-24.

CAM Applicability for the Liquefied Natural Gas Plant (S-210 and A-16)

At this facility, the S-210 Liquefied Natural Gas (LNG) Plant is processing landfill gas. This processing step constitutes a landfill gas control measure for the landfill. VOC is the only regulated air pollutant emissions from S-210. This source generates a VOC-laden waste gas stream that is vented to the A-16 landfill gas flare for control. As discussed above for S-2, A-16 is subject to either EG, NSPS, or NESHAPS requirements for NMOC emission controls at MSW Landfills. Since these applicable EG, NSPS, and NESHAP requirements were adopted pursuant to Sections 111 and 112 of the Clean Air Act after November 15, 1990, these requirements are presumed to contain adequate monitoring provisions. Since the A-16 control device for S-210 has adequate monitoring for NMOC emissions control pursuant to 40 CFR Part 64.2(b)(1)(i), CAM does not apply to S-210.

Changes to Permit, Section IV:

- Section IV is being modified by adding EPA's website address for the SIP standards.
- Throughout Section IV, the District is updating the Section IV tables for consistency with the source and abatement device changes identified in Section II. In particular, the District is removing Tables IV-G and IV-I because these sources have been removed; the District is adding Tables IV-E, IV-F, IV-J, and IV-K for new sources; and the District is renumbering Table IV-E, IV-F, and IV-H as Tables IV-G, IV-H, and IV-I. The District is also updating the titles of Tables IV-A and IV-I.

- Throughout Section IV, the District is updating amendment dates for BAAQMD Regulation 1 and BAAQMD Regulation 8, Rule 2.
- In 2007, the District replaced and renumbered SIP Regulation 6 as BAAQMD Regulation 6, Rule 1. This change is reflected in Tables IV- A, B, D, E, F, I, and J.
- Throughout Section IV, the District is updating amendment dates and adding missing sections for 40 CFR Part 60, Subpart A and 40 CFR Part 63, Subpart A. These changes were made in Tables IV- A, B, D, G, I, and J.
- The District is adding the 40 CFR Part 60, Subpart WWW NSPS requirements for MSW Landfills to Table IV-A.
- The District is removing Part 60 Subpart Cc, Part 62, and Subpart AAAA requirements from Tables IV-B and IV-D, because the landfill is using landfill gas treatment as a control option upstream of the gas turbines and engines, and these requirements do not apply to devices that are downstream of the landfill gas treatment system.
- In Tables IV-A, IV-B, IV-D, IV-I, and IV-J, the District is adding a new permit condition (BAAQMD Condition # 24373), which describes the site-wide and source-specific CO emission limitations.
- In Table IV-A, the District is adding a public nuisance prohibition and correcting several regulatory descriptions for Regulation 8, Rule 34.
- In Table IV-B, the District is adding new requirements from a recent amendment of BAAQMD Regulation 9, Rule 9 and is adding missing provisions of SIP Regulation 9, Rule 9. The District is also updating the amendment date for 40 CFR Part 60, Subpart GG, adding several missing requirements from this subpart, and adding the applicability criteria from 40 CFR Part 63, Subpart YYYY.
- In Table IV-C, the District is adding new requirements from a recent amendment of BAAQMD Regulation 8, Rule 8.
- In Table IV-D, the District is adding new requirements from a recent amendment of BAAQMD Regulation 9, Rule 8. The District is also adding the applicability criteria from 40 CFR Part 63, Subpart ZZZZ and the general provisions in Subpart A.
- In Table IV-G, the District is updating the BAAQMD and SIP requirements for Regulation 8, Rule 5 due to the 2006 amendments. The District is also adding 40 CFR Part 63, Subparts A and CCCCCC that apply to GDFs at area sources.
- In Table IV-H for Condition # 20922, the District is replacing the condition basis of "TRMP" with the appropriate section from Regulation 2, Rule 5 and is deleting Part 6 because it is obsolete.
- In Table IV-I, the District is adding new requirements from a recent amendment of BAAQMD Regulation 9, Rule 8. The District is also adding the following new applicable regulations: 40 CFR Part 63, Subparts A and ZZZZ and the CARB ATCM for stationary compression ignition engines.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 which provides that a major facility review permit shall contain the following information and provisions:

"409.10 A schedule of compliance containing the following elements:

10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;

10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and

10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted."

Since the District has not determined that the facility is out of compliance with an applicable requirement, the schedule of compliance for this permit contains only sections 2-6-409.10.1 and 2-6-409.10.2.

Changes to Permit, Section V:

- The District is not proposing any changes to this section.

VI. Permit Conditions

During the Title V permit development, the District has reviewed the existing permit conditions, deleted the obsolete conditions, and, as appropriate, revised the conditions for clarity and enforceability. Each permit condition is identified with a unique numerical identifier, up to five digits.

When necessary to meet Title V requirements, additional monitoring, recordkeeping, or reporting has been added to the permit.

All changes to existing permit conditions are clearly shown in "strike-out/underline" format in the proposed permit. When the permit is issued, all 'strike-out" language will be deleted and all "underline" language will be retained, subject to consideration of comments received.

The existing permit conditions are derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). Permit conditions may also be imposed or revised as part of the annual review of the facility by the District pursuant to California Health and Safety Code (H&SC) § 42301(e), through a variance pursuant to H&SC § 42350 et seq., an order of abatement pursuant to H&SC § 42450 et seq., or as an administrative revision initiated by

District staff. After issuance of the Title V permit, permit conditions are revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

Conditions that are obsolete or that have no regulatory basis have been deleted from the permit.

The regulatory basis is listed following each condition. The regulatory basis may be a rule or regulation. The District is also using the following terms for regulatory basis:

- BACT: This term is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This term is used for a condition imposed by the APCO which limits a source's operation to the operation described in the permit application pursuant to BAAQMD Regulation 2-1-403.
- Offsets: This term is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit issued pursuant to Regulation 2, Rule 2.
- TRMP: This term is used for a condition imposed by the APCO to ensure compliance with limits that arose from the District's Toxic Risk Management Policy and that were imposed prior to the District's 2005 adoption of Regulation 2, Rule 5 NSR for Toxic Air Contaminants.

Under previous Title V permit applications, parameter monitoring was added for each abatement device. Additional monitoring was added, where appropriate, to assure compliance with the applicable requirements.

The District is proposing to modify BAAQMD Conditions # 16516, 18773, 19235, 19237, 20801, and 20922. As discussed below, these permit condition revisions will: incorporate changes approved pursuant to NSR applications, improve the readability of the conditions; clarify monitoring and notification requirements; remove unnecessary citations; and correct bases. In addition, the District is proposing to delete Conditions #20800 and 20812, because the sources have been shut down and removed from this site. The District is proposing to add Conditions # 22850, 24061, 24062, and 24255 for new sources and Condition # 24373 for the new site-wide CO limit. All proposed changes are marked with strike-through and underline formatting in the proposed permit.

The proposed changes to each permit condition are explained in more detail below.

<u>Changes to Permit, Section VI:</u>

- Condition # 16516: The District is replacing the text of this GDF testing requirement with the new standard testing and reporting language.

- Condition # 18773, Parts 8a, 9, and 11: The District is incorporating permit condition changes requested by the Applicant and approved by the District pursuant to Application # 22039, except as follows. Under Application # 22039, the Applicant requested and the District approved to change the form of the daily gas turbine heat input limit in Condition # 18773, Part 8 from "during any day" to "during any rolling 24-hour period". However, the Applicant has recently requested to retain the original form of this limit. Therefore, the District is not proposing to change the form of the heat input limit in Part 8. The proposed revisions to Parts 8a, 9, and 11 will clarify testing and record keeping requirements for the landfill gas fired gas turbines.
- Condition # 19235, Part 1: The District is incorporating permit condition changes approved pursuant to Applications # 14814, 20251, and 23198. These changes will clarify the gas collection requirements and will update the landfill gas collection system description and authorized alterations.
- Condition # 19235, Part 2: The District revised Part 2 under District Permit Application # 8303 in 2006, but these revisions were never incorporated into the Title V permit. Waste Management has requested and the District has agreed to remove the specific limits and determination procedures for the target landfill gas collection rate. The District is replacing the specific minimum collection rate with a requirement that, if a control device is shut down, the gas normally fired by that control device must be diverted to another control device. The District is incorporating permit condition changes approved pursuant to Applications # 14814 and 19206 that will clarify these requirements and include the addition of a new flare (A-16) and the LNG Plant (S-210).
- Condition # 19235, Part 3: The District is incorporating permit condition changes approved pursuant to Applications # 14814, 19206, and 21044. These changes include a revision of the condensate injection rate limit for the A-15 flare and the addition of the new A-16 flare.
- Condition # 19235, Parts 4-10 and Part 15: The District is incorporating permit condition changes approved pursuant to Application # 19206. These changes will add requirements for the new A-16 flare.
- Condition # 19235, Parts 12 and 14a: The District is incorporating permit condition changes approved pursuant to Application # 14814. These changes will add the TAC concentration limits for Fill Area 2 and will clarify existing TAC limits and testing procedures.
- Condition # 19235, Part 13: The District is incorporating permit condition changes approved pursuant to Applications # 19206, 19045, and 23198. These changes will include source testing requirements for the new flare (A-16) while it is controlling collected landfill gas and waste gas from the new LNG Plant (S-210). Testing requirements and notification procedures are also being revised for clarity.
- Condition # 19235, Part 14b, Parts 17-19, and Part 22: The District is incorporating permit condition changes approved pursuant to Application # 14814. These changes described the landfill expansion, the new POC and PM10 emission limits adopted pursuant to this expansion, and the new monitoring and record keeping procedures required to demonstrate compliance with these new limits.

- Condition # 19235, Part 23: The District is deleting obsolete reporting text from this part.
- Condition # 19237, Part 5: The District is simplifying this operating requirement by removing unnecessary text, and the District is correcting the basis by replacing TRMP with the correct applicable section from Regulation 2, Rule 5.
- Condition # 19237, Part 10: The District is incorporating permit condition changes requested by the Applicant and approved by the District pursuant to Application # 22039. These revisions will clarify testing requirements.
- Condition # 20800: The District is deleting this entire condition because the associated source (S-190) has been shut down and removed from this site.
- Condition # 20801, Part 1: The District is removing sources that have been shut down from the title of this condition and from the Part 1 throughput limits.
- Condition # 20801, Part 2: The District is adding CARB diesel fuel records as a method of demonstrating that the fuel used at S-193 has a fuel oil sulfur content of no greater than the Regulation 9-1-304 limit of 0.5% sulfur by weight. Since CARB diesel fuel has a sulfur content limit of 15 ppmw, using CARB diesel fuel will ensure compliance with Regulation 9-1-304.
- Condition # 20812: The District is deleting this entire condition because the associated sources (S-194, S-195, and S-196) have been shut down and removed from this site.
- Condition # 20922, Parts 3-5: The District is correcting the basis of each part by replacing TRMP with the correct applicable section from Regulation 2, Rule 5.
- Condition # 20922, Part 6: The District is deleting this part, because it is obsolete.
- Condition # 22850: The District is adding this new standard template condition that applies to the new emergency standby engines (S-199, S-200, and S-201).
- Condition # 24061: Pursuant to NSR Application # 17215, the District is adding this new condition, which applies to green waste stockpiles (S-29).
- Condition # 24062: Pursuant to Application # 17215, the District is adding Part 1 of this new condition, which applies to a portable green waste grinding operation (S-30). Part 1 incorporates the PERP conditions by reference. The District is also adding Part 2 to require visual observation of S-30 during operation to demonstrate compliance with Regulation 6-1-301 and Part 3 to require records of operating time and material processed to verify compliance with Regulation 6-1-311.
- Condition # 24255: Pursuant to NSR Application # 19045, the District is adding this new condition, which applies to the LNG Plant (S-210).
- Condition # 24373: In accordance with Application # 18819, the District adopted a site-wide limit on CO emissions to ensure that this site would not trigger PSD for the subsequent applications for a landfill expansion and a new flare. This CO cap and the associated recording keeping procedures are contained in Condition # 24373. The District is adding Condition # 24373 to this Title V permit including a few corrections that were made under Application # 22039.

VII. Applicable Limits and Compliance Monitoring Requirements

This section of the permit is a summary of numerical limits and related monitoring requirements for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

The District has reviewed all monitoring and has determined that the existing or proposed monitoring is adequate. The tables below contain only the limits for which there is no monitoring in the applicable requirements. The District has examined the monitoring for other limits and has determined that monitoring is adequate to provide a reasonable assurance of compliance. Calculations for potential to emit will be provided in the discussion when no monitoring is proposed due to the size of a source.

Monitoring decisions are typically the result of a balancing of several different factors including: 1) the likelihood of a violation given the characteristics of normal operation, 2) degree of variability in the operation and in the control device, if there is one, 3) the potential severity of impact of an undetected violation, 4) the technical feasibility and probative value of indicator monitoring, 5) the economic feasibility of indicator monitoring, and 6) whether there is some other factor, such as a different regulatory restriction applicable to the same operation, that also provides some assurance of compliance with the limit in question.

These factors are the same as those historically applied by the District in developing monitoring for applicable requirements**.** It follows that, although Title V calls for a re-examination of all monitoring**,** there is a presumption that these factors have been appropriately balanced and incorporated in the District's prior rule development and/or permit issuance. It is possible that, where a rule or permit requirement has historically had no monitoring associated with it, no monitoring may still be appropriate in the Title V permit if, for instance, there is little likelihood of a violation**.** Compliance behavior and associated costs of compliance are determined in part by the frequency and nature of associated monitoring requirements. As a result, the District will generally revise the nature or frequency of monitoring only when it can support a conclusion that existing monitoring is inadequate**.**

SO_2 Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring

SO_2 Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
Landfill Gas Flares (A-15 and A-16), Gas Turbines (S-6 and S-7), IC Engines (S-23 and S-24), Stationary Diesel Engines (S-193, S-199, S-200, and S-201), and Portable Diesel Engines (S-31, S-206, S-208, S-217, S-218)	BAAQMD 9-1-301	Property Line Ground Level Limits: ≤ 0.5 ppm for 3 minutes, AND ≤ 0.25 ppm for 60 minutes, AND ≤0.05 ppm for 24 hours	None

SO_2 Discussion:

Potential to Emit for A-15 and A-16 Landfill Gas Flares [(1)]: 44.420 tons/year of SO_2
Potential to Emit for S-6 and S-7 Gas Turbines [(1)]: 20.947 tons/year of SO_2
Potential to Emit for S-23 and S-24 IC Engines [(1)]: 7.659 tons/year of SO_2
Potential to Emit for Standby Diesel Engine [(2)]: 0.003 tons/year of SO_2
Potential to Emit for Portable Diesel Engines [(2)]: 0.030 tons/year of SO_2
Total Potential to Emit for All Sources: 73.059 tons/year of SO_2

(1) Maximum potential SO_2 emissions were determined using on the maximum permitted landfill gas throughput limit for each device and the lowest applicable maximum permitted landfill gas sulfur content (150 ppmv of sulfur in landfill gas).

(2) For diesel engines, the maximum potential SO_2 emissions were determined based on the CARB diesel fuel sulfur content limit (15 ppm S by weight) and either the maximum operating time or maximum fuel usage rate. The maximum operating time for the standby engines was assumed to be 500 hours/year each for testing and emergency use. The maximum fuel usage rate for S-31 is 76,205 gallons/year. The combined operating time limit for S-206, S-208, S-217, and S-218 is 29,200 hours/year.

BAAQMD 9-1-301: Sulfur dioxide (SO_2) emissions from diesel engines are negligible compared to SO_2 emissions from the landfill gas fired combustion devices. Although SO_2 emissions from these landfill gas fired combustion devices are substantial, this facility is subject to federally enforceable limits that will ensure compliance with the Regulation 9-1-302 gas stream emission limit of 300 ppmv of SO_2 in the exhaust from each flare. Based on the source-specific landfill gas sulfur content limits, the SO2 concentrations in the exhaust streams from these devices will be less than 15% this 9-1-302 SO2 outlet concentration limit. Modeling analyses conducted at another landfill site found that sources such as landfill gas flares that are complying with the Regulation 9-1-302 limit will also comply with the ground level concentration limits listed in Regulation 9-1-301. Since the landfill gas combustion devices have a high margin of compliance with the Regulation 9-1-302 SO2 outlet concentration limit, the

District expects that these devices will also have a high margin of compliance with the Regulation 9-1-301 ground level concentration limit based on the modeling analysis discussed above. This facility is currently required (pursuant to 40 CFR Part 60, Subpart GG and an EPA approved alternative monitoring schedule) to monitor the landfill gas sulfur content in the landfill gas delivered to the turbines on a monthly basis to demonstrate compliance with a 150 ppmv landfill gas sulfur content limit. Monitoring for ground level SO_2 concentrations in addition to this existing monthly landfill gas sulfur content monitoring and the annual source testing required at the flares would not be appropriate given the high margin of compliance expected for these ground level SO2 limits.

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
Portable Green Waste Grinding Operation (S-30)	BAAQMD 6-1-301 and SIP 6-301	≤ Ringelmann 1.0 for 3 minutes in any hour	Visual Observation of Source During Operation
Portable Green Waste Grinding Operation (S-30)	BAAQMD 6-1-311 and SIP 6-311	E = 0.026(P)^0.67 where E = Allowable Emissions (lbs/hr) P = Process Rate (lbs/hr) and E ≤ 40 pounds/hour if P > 57,320 lbs/hr	Calculations and Records of Throughput and Operating Time
Landfill Gas Flares (A-15 and A-16), Gas Turbines (S-6 and S-7), and IC Engines (S-23 and S-24)	BAAQMD 6-1-301 and SIP 6-301	≤ Ringelmann 1.0 for 3 minutes in any hour	None
Stationary Diesel Engines (S-193, S-199, S-200, and S-201)	BAAQMD 6-1-303 and SIP 6-303	≤ Ringelmann 2.0 for 3 minutes in any hour	None
Landfill Gas Flares (A-15 and A-16), Gas Turbines (S-6 and S-7), IC Engines (S-23 and S-24), and Stationary Diesel Engines (S-193, S-199, S-200, and S-201)	BAAQMD 6-1-310 and SIP 6-310	≤ 0.15 grains/dscf	None

PM Discussion:

Potential to Emit for A-15 and A-16 Landfill Gas Flares [(1)]: 15.207 tons/year of PM_{10}
Potential to Emit for S-6 and S-7 Gas Turbines [(1)]: 9.280 tons/year of PM_{10}
Potential to Emit for S-23 and S-24 IC Engines [(1)]: 7.404 tons/year of PM_{10}
Potential to Emit for Standby Diesel Engine [(2)]: 0.155 tons/year of PM_{10}

(1) Maximum potential PM_{10} emissions for these sources are based on the maximum permitted heat input rates and the applicable AP-42 emissions factor for landfill gas combustion devices from Table 2.4-5.
(2) For PTE calculations for emergency standby engines, the operating time is assumed to be 500 hours/year per engine. For the S-193 emergency standby engine, maximum potential PM_{10} emissions are based on the AP-42 emission factor (2.2E-3 lbs PM/bhp-hr) and the engine's rated bhp. For S-199, S-200, and S-201, PM_{10} emissions are based on the certified PM emission factor and rated bhp for each engine.

BAAQMD 6-1-301 and SIP 6-301 for S-30 Portable Green Waste Grinding Operation: BAAQMD 6-1-301 and SIP 6-301 limit visible emissions to no darker than 1.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour). For grinding, screening, and other waste processing equipment, visible particulate emissions are typically not an issue if the equipment uses water sprays during grinding or the loads are properly watered down prior to processing. S-30 is required to employ these types of controls. Therefore, the District does not expect visible emissions from this source. To ensure that compliance is maintained, the District has added a permit condition that requires the operator to observe this equipment during all operations and to take corrective action if any visible emissions are observed. This is a standard method of demonstrating compliance with the District's Ringelmann standard.

BAAQMD 6-1-311 and SIP 6-311 for S-30 Portable Green Waste Grinding Operation: BAAQMD Regulation 6-1-311 and SIP Regulation 6-311 limit the particulate emission rate during material processing operations based on the material processing rate. The S-30 Portable Green Waste Grinding Operation has a maximum processing rate of 40 tons/hour (80,000 pounds/hour). For processing rates > 57,320 pounds/hour, Regulation 6-1-311 limits PM emissions to 40 pounds/hour. Therefore, the applicable PM limit for S-30 is 40 pounds/hour.

The PERP conditions for S-30 limit the emission rate from S-30 to 0.1 pounds of PM10 per ton of material processed. Therefore, the PERP emission limit for this source is:
(40 tons/hour)*(0.1 pounds PM10/ton) = 4.0 pounds/hour of PM10

Compliance with the PERP conditions will ensure that S-30 is also complying with the Regulation 6-1-311 and SIP 6-311 limit of 40 pounds/hour. Note that AP-42 data indicates that uncontrolled PM10 emissions from wood and green waste grinding operations are about 0.024 pounds/ton, which is well below the PERP emission limit. Watering loads to ensure compliance with the Ringelmann limit discussed above will further reduce the actual particulate emissions from this source. Therefore, it is highly unlikely that this source could ever exceed the Regulation 6-1-311 standard of 40 pounds/hour. Records of wood waste throughput and operating times and the Condition # 24062, Part 2 requirement to prevent visible emissions will jointly ensure that this 40 pounds/hour emission rate limit is met. The District added record

keeping requirements to Condition # 24062, Part 3 for S-30, which is a standard method of demonstrating compliance with throughput limits. No other monitoring is necessary.

BAAQMD 6-1-301 and SIP 6-301 for Landfill Gas Combustion Devices: Visible particulate emissions are not normally associated with combustion of gaseous fuels, such as natural gas, propane, or landfill gas. Since particulate emissions from each unit are not substantial (< 10 tons/year per unit), and it is highly unlikely that violations of the Ringelmann 1.0 limit would occur, periodic monitoring for the Ringelmann 1.0 limit is not justified.

BAAQMD 6-1-303 and SIP 6-303 for Standby Diesel Engines: Visible emissions darker than Ringelmann 2.0 are normally not expected for the proper combustion of low-sulfur diesel oil. Since these small emergency standby diesel engines (S-193, S-199, S-200, and S-201) are not expected to exceed this limit and PM emissions are very low (< 0.2 tons/year), no additional monitoring is warranted for these diesel engines.

BAAQMD 6-1-310 and SIP 6-310 for Landfill Gas Combustion Devices: BAAQMD Regulation 6-1-310 and SIP 6-310 limit filterable particulate (FP) emissions in the stack from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Based on the AP-42 emission factors for landfill gas combustion equipment, the IC engines will each emit 0.042 gr/dscf of exhaust at 0% oxygen. Turbine and flare grain loading rates are even lower: 0.019 gr/dscf for turbines and 0.015 gr/dscf for flares The grain loading limit (0.15 gr/dscf) is far above any expected PM emissions for these devices. The compliance ratio is at least 3:1 for the engines, at least 7:1 for the turbines, and 10:1 for the flares. Since maximum potential PM emissions from the landfill gas combustion devices are not substantial, and an excess of the emission standard is highly unlikely, it would not be appropriate to add periodic monitoring for this standard and the landfill gas combustion devices.

BAAQMD 6-1-310 and SIP 6-310 for Standby Diesel Engines: BAAQMD Regulation 6-1-310 and SIP 6-310 limit filterable particulate (FP) emissions in the stack from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. The S-193, S-199, S-200, and S-201 diesel engines will each operate no more than 50 hours per year for reliability related testing plus a typically very small amount of operating hours for emergency conditions. The total PM10 PTE for these engines is less than 0.2 tons/year. Testing for grain loading from diesel engines is expensive and would require more engine operating time than is necessary. Considering the low operating rate for these engines and the low emissions from these engines, monitoring for this grain loading limit is not warranted. Therefore, the District is not proposing any monitoring for this standard at the stationary diesel engines.

POC Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
Green Waste Stockpiles (S-29)	BAAQMD 8-2-301	Total Carbon Emissions: ≤ 15 pounds/day or ≤ 300 ppmv, dry basis	None

POC Discussion:

Potential to Emit for S-29 Green Waste Stockpiles [(1)]: 36.674 tons/year of POC

(1) Emissions estimates published by South Coast and San Joaquin Valley Air Districts and others indicate that the storage of green waste results in VOC emissions. The emission rate estimates vary widely, but BAAQMD has been using an average emission rate of 1.078 pounds of VOC per ton in recent NSR applications. The PTE above was based on this emission rate estimate and the annual throughput limit of 68,040 tons/year.

BAAQMD 8-2-301 for S-29 Green Waste Stockpiles: BAAQMD Regulation 8-2-301 limits emissions from any operation to either 15 pounds/day of total carbon or less than 300 ppmv, dry, in an exhaust point. The organic emissions from this source are fugitive in nature and cannot be measured using the District's standard stack test measure (ST-7). Based on a literature review of source tests conducted on green waste stockpiles using a flux box test method, the District expects that the concentration of VOC in the ambient air above these stockpiles will be well below the 300 ppmv total carbon concentration limit. Since the flux box source testing method is cumbersome, time consuming, and expensive, it is not appropriate as a periodic monitoring method. Since no viable periodic monitoring methods are available to demonstrate compliance with Regulation 8-2-301 at fugitive emission sources, the District relies on alternative compliance demonstration methods. Detection of odors from stockpiles is commonly used as an indicator that VOC emissions are higher than normal. In accordance with Condition # 24061, this source is required to remove all material from the stockpile as frequently as necessary to prevent decomposition and odors. Stockpile storage times will be reduced if any odors persist. Monitoring this stockpile for odors and processing material as frequently as necessary to prevent odors should ensure that VOC emissions from the stockpile are kept to a minimum. Since odorous emissions would likely be detected before the operation exceeds the Regulation 8-2-301 300 ppmv total carbon concentration limit, the District expects that these current monitoring measures at S-29 to prevent odorous emissions are sufficient to assure compliance with Regulation 8-2-301.

H_2S Sources

S# & Description	Emission Limit Citation	Non-Federally Enforceable Emission Limit	Monitoring
Altamont Landfill (S-2), Gas Turbines (S-6 and S-7), IC Engines (S-23 and S-24), LNG Plant (S-210), and Landfill Gas Flares (A-15 and A-16)	BAAQMD 9-2-301	Property Line Ground Level Limits: ≤ 0.06 ppm, averaged over 3 minutes and ≤ 0.03 ppm, averaged over 60 minutes	None

H_2S Discussion:

Potential to Emit for S-2 Altamont Landfill:	14.967 tons/year of H_2S
Potential to Emit for A-15 and A-16 Landfill Gas Flares:	0.631 tons/year of H_2S
Potential to Emit for S-6 and S-7 Gas Turbines:	0.297 tons/year of H_2S
Potential to Emit for S-23 and S-24 IC Engines:	0.408 tons/year of H_2S
Potential to Emit for S-210 LNG Plant:	<0.001 tons/year of H_2S
Potential to Emit for Diesel Engines:	<0.001 tons/year of H_2S

BAAQMD 9-2-301: BAAQMD Regulation 9-2-301 limits the ground level concentration of hydrogen sulfide (H_2S) at the property line of each facility. Since landfill gas contains H_2S, any source that processes landfill gas at this site may result in H_2S emissions. Diesel fired IC engines are also potential sources of H_2S. During combustion, H_2S is readily converted to SO_2 and very little residual H_2S remains in the combustion exhaust streams. In addition, combustion exhaust streams undergo significant dispersion between the exhaust point and the property line. The District expects these combustion sources to result in negligible ground level H_2S concentrations at the property line. A modeling analysis confirmed this conclusion. As shown in the PTE above, H_2S emissions from S-210 are negligible and are also expected to result in negligible property line H_2S concentrations. Therefore, no monitoring is necessary for landfill gas combustion or diesel oil combustion sources or for S-210.

As discussed in Appendix F, the modified Altamont Landfill will have a considerable amount of fugitive H_2S emissions at the peak gas generation rate (14.967 tons/year). Under NSR Application #14814, air dispersion modeling was used to determine the maximum off-site ground level H_2S concentrations that would occur at the maximum expected H_2S emission rate (3.42 pounds/hour of H_2S). These maximum off-site ground level concentrations were determined to be: 0.026 ppmv of H_2S averaged over 60-minutes and 0.043 ppmv of H_2S averaged over 3-minutes. The compliance margins are 1.15:1 for the 60-minute average and 1.4:1 for the 3-minute average. Since the modeling analysis demonstrates that the Regulation 9-2-301 limits will not be exceeded even at the peak gas generation rate, which is not expected to occur until 2038, the District determined that ground level H_2S monitoring was not warranted for

S-2. Landfill gas sulfur contents will be monitored on a monthly basis and landfill gas generation rate estimates will be conducted on an annual basis to ensure that the emission estimates and other assumptions used in the modeling analysis are valid.

Changes to Permit, Section VII:

- A note is being added at the beginning of the section to clarify that this section is a summary of the limits and monitoring, and that in the case of a conflict between Sections I-VI and Section VII, the preceding sections take precedence.
- Throughout Section VII, the District is updating the Section VII tables for consistency with the source and abatement device changes identified in Section II. In particular, the District is removing Tables VII-G and VII-I because these sources have been removed; the District is adding Tables VII-E, VII-F, VII-J, and VII-K for new sources; and the District is renumbering Table VII-E, VII-F, and VII-H as Tables VII-G, VII-H, and VII-I. The District is also updating the titles of Tables VII-A and VII-I.
- Throughout Section VII, the District is adding symbols ($\leq$ or $\geq$) to clarify limits.
- In Tables VII-A, VII-B, VII-D, and VII-I, the District is correcting the Regulation 6 particulate limit citations due to the renumbering of SIP Regulation 6 as BAAQMD Regulation 6, Rule 1.
- In Table VII-A, the District is adding all of the future applicable limits from the MSW Landfill NSPS (40 CFR Part 60 Subpart WWW) and the new waste acceptance, PM10, POC, NMOC, and TAC limits due to the landfill expansion.
- In Table VII-A, the District is adding heat input limits, NOx and CO emission limits, and minimum temperature requirements for the new A-16 Landfill Gas Flare and is adding this flare to the existing particulate, opacity, and SO_2 limits.
- In Table VII-A, the District is revising the condensate throughput limit and minimum temperature requirement for the A-15 Landfill Gas Flare.
- In Table VII-A, the District is adding the new site-wide CO emission limit and the applicable annual CO emissions limits for A-15 and A-16.
- In Table VII-B, the District is removing the requirements related to Part 63 Subpart AAAA because Subpart AAAA does not apply to devices that are downstream of the landfill gas treatment system.
- In Table VII-B, the District is adding the new NOx limits from BAAQMD Regulation 9, Rule 9 and is including the annual source test required by this rule in the monitoring citation.
- In Table VII-B, the District is adding the new site-wide CO emission limit and the applicable annual CO emissions limits for S-6 and S-7.
- In Table VII-D, the District is removing the requirements related to Part 63 Subpart AAAA because Subpart AAAA does not apply to devices that are downstream of the landfill gas treatment system.
- In Table VII-D, the District is adding the new NOx and CO limits from BAAQMD Regulation 9, Rule 8 and is including the quarterly portable analyzer testing required by this rule in the monitoring citation.

- In Table VII-D, the District is adding the new site-wide CO emission limit and the applicable annual CO emissions limits for S-23 and S-24.
- The District is adding Table VII-E for S-29.
- The District is adding Table VII-F for S-30.
- In Table VII-G, the District is adding the missing SIP 8-5-303.2 leak limit and is correcting citations for SIP Regulation 8, Rule 5 throughout this table.
- In Table VII-H, the District is clarifying monitoring frequencies and removing unnecessary language.
- In Table VII-I, the District is adding all applicable limits from: the CARB ATCM for stationary compression ignition engines, the amended BAAQMD Regulation 9, Rule 8, and the NESHAP (40 CFR, Part 63, Subpart ZZZZ). The new limits include fuel specifications, operating hour limits, and maintenance requirements.
- In Table VII-I, the District is removing limits for sources that have been shut down and is adding the new site-wide CO emission limit.
- The District is adding Table VII-J for S-199, S-200, and S-201.
- The District is adding Table VII-K for S-210.

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not applicable requirements.

If a rule or permit condition requires ongoing testing, the requirement will also appear in Section IV of the permit.

Changes to Permit, Section VIII:

- The introductory text to Section VIII is being corrected.
- In Table VIII, the District is revising the particulate limit citations to reflect that SIP Regulation 6 has been renumbered and is now BAAQMD Regulation 6, Rule 1. The District is also adding the applicable EPA test methods for the particulate emission limits.
- In Table VIII, the District is making editorial revisions to the descriptions for several requirements to correct errors, to improve the clarity of these descriptions, and to identify the applicable pollutant if it is missing.
- The District is adding a missing test method for SIP Regulation 8, Rule 5.
- The District is adding a test method for BAAQMD Regulation 8, Rule 18 that applies to S-210.
- The District is adding a missing test method for BAAQMD Regulation 8, Rule 34.
- The District is adding a missing test method for BAAQMD Regulation 8, Rule 40.
- The District is adding the test methods for the new NOx and CO emission limits from BAAQMD Regulation 9, Rule 8.

- The District is adding the test method for the new NOx limit from BAAQMD Regulation 9, Rule 9.
- The District is adding all of the applicable test methods for 40 CFR Part 60, Subpart WWW.
- The District is adding all of the federal test methods applicable to diesel engines at this site.
- The District is adding test methods for new CARB ATCM requirements.
- The District is adding test methods for permit conditions that limit heat input rates into several combustion devices.
- The District is adding the missing test method for landfill gas sulfur content.
- The District is adding a test method for landfill gas NMOC content.
- The District is adding emission calculation methods for new fugitive POC emission limits.
- The District is adding emission calculation methods for new fugitive PM10 emission limits and test methods for the related road silt loading and road surface silt content limits.
- The District is adding emission calculation methods for the new annual CO emission rate limits.

IX. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in a major facility review permit explaining that specific federally enforceable regulations and standards do not apply to a source or group of sources, or (2) A provision in a major facility review permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program. The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

This facility has the second type of permit shield for BAAQMD and SIP Regulation 8, Rule 2. For this facility, the S-43 Altamont Landfill - Waste and Cover Material Dumping operation is subject to Regulation 8-2-301 due to the aeration of VOC-laden soil. During the transfer, handling, storage, or re-use of VOC-laden soil, some of the VOC in this soil will be released to the atmosphere, which constitutes aeration of the VOC-laden soil. All of the VOC emissions from S-43 are fugitive in nature.

Regulation 8-2-301 limits organic compound emissions (expressed as total carbon) from an operation to 15 pounds per day, if the emission from the operation has an organic compound concentration greater than 300 ppmv (expressed as total carbon, dry basis). Thus, an operator may verify compliance with Regulation 8-2-301 by either demonstrating compliance with the 15 pound/day total carbon emission limit or by demonstrating compliance with the 300 ppmv total carbon concentration limit. Compliance with the total carbon emission limit can be demonstrated using standard emission calculation procedures. Compliance with the total carbon concentration limit is typically determined using the District's source test method (ST-7) identified in Regulation 8-2-601. However, this test method applies to emissions from a stack, while all of the emissions from S-43 are fugitive in nature. Therefore, the District is using alternative compliance demonstration procedures for this Regulation 8-2-301 total carbon concentration limit at S-43.

Condition #19235, Part 20 identifies these two compliance options for the VOC-laden soil aeration operations that occur at S-43. Part 20a specifies emission limits, acceptance limits, emission calculation procedures, and record keeping requirements that assure compliance with the 15 pound/day total carbon emission limit. Part 20b discusses the alternative measures that may be used to verify compliance with the 300 ppmv total carbon concentration limit. If the operator chooses to demonstrate compliance with Regulation 8-2-301 using Condition #19235 Part 20b, the operator will be required to use the Regulation 8-40-604 test procedures to verify that the soil is not contaminated (i.e., does not contain more than 50 ppmw of VOC or will not emit more than 50 ppmv of VOC from the surface of the soil). Since soil found not to be contaminated using the procedures of Regulation 8-40-604 will have a surface VOC concentration of less than 50 ppmv (expressed as methane, C1) it can reasonably be assumed that the concentration that occurs in the atmosphere during the aeration of VOC-laden soil will also be less than 300 ppmv (total carbon, dry basis) as determined by the procedures of Regulation 8-2-601. Since these VOC-laden soil aeration activities will comply with the total carbon concentration limit (< 300 ppmv), they will also comply with Regulation 8-2-301.

In summary, measurements conducted under Regulation 8-40-604 that show surface VOC concentrations are less than 50 ppmv (expressed as methane, C1) are conclusive to demonstrate that any aeration of VOC-laden soil will comply with Regulation 8-2-301.

Changes to Permit, Section IX:

- The District is proposing changes to Table IX-A to clarify that this permit shield applies to S-43 instead of S-2, because S-2 was split into S-2, S-43, and S-44 and the VOC-laden soil aeration operation occurs at S-43.
- The District is making editorial revisions to this section to clarify the applicability of this permit shield and to improve the explanation of the need for this permit shield.

X. Revision History

This section of the permit summarizes each revision to the permit.

Changes to Permit, Section X:

- The District is adding the permit revisions associated with this MFR Renewal Permit (Application # 18233) to Section X. All of the minor and significant revisions associated with Applications # 14816, 16525, 16696, 17720, 18820, 19046, 19207, and 20252 have been identified under this renewal application number.

XI. Glossary

This section of the permit defines and explains acronyms, abbreviations, and other terms that are used in this permit.

Changes to Permit, Section XI:

- The District is updating the Section XI Glossary by clarifying explanations and adding numerous new terms.

XII. Applicable State Implementation Plan

Changes to Permit, Section XII:

- The District is deleting this section. The address for EPA's website is now found in Sections III and IV.

IV. ALTERNATIVE OPERATING SCENARIOS

No alternate operating scenarios have been requested for this facility.

V. COMPLIANCE STATUS

A September 6, 2012 office memorandum from the Director of Compliance and Enforcement, to the Director of Permit Services, presents a review of the compliance record of Waste Management of Alameda County, Inc. (Site # A2066). This review was initiated as part of the District evaluation of an application by renewal of a Title V permit and is contained in Appendix A.

The Compliance and Enforcement Division staff has reviewed the compliance history for Waste Management for the prior five-year period and has reviewed Waste Management's Annual Compliance Certifications submitted between 2008 and 2011. Most recently, the owner certified that all equipment was operating in compliance on August 16, 2012. The Compliance and Enforcement Division staff found no on-going non-compliance and no recurring pattern of violations.

The Compliance and Enforcement Division staff reviewed the compliance history for this site from October 9, 2008 through August 31, 2012. During this period, activities known to the District include:

- The District issued 2 Notices of Violation. One violation was issued on December 2, 2008 for a violation of Regulation 2-6-307 for failing to meet a NOx limit during a source test. One violation was issued on February 3, 2009 for a violation of Regulation 2-6-307 for failing to meet a CO limit during a source test. Both violations were resolved when the sources met the applicable limits during subsequent tests.
- The District received no air pollution complaints alleging Waste Management's Altamont Landfill Facility as the source of odors.
- The District received 7 notifications of a Reportable Compliance Activity (RCA) during this period. Two RCAs were for an inoperative monitor and were reported as required by District regulations. Two RCAs involved a flare operating below the minimum temperature requirements. The other three RCA involved equipment breakdowns.
- The facility is not operating under an Enforcement Agreement, a Variance, or an Order of Abatement.

The Compliance and Enforcement Division has determined that for the periods reviewed, Waste Management of Alameda County was in intermittent compliance. However, there is no evidence of on-going non-compliance and no recurring pattern of violations that would warrant consideration of a Title V permit compliance schedule.

VI. DIFFERENCES BETWEEN THE APPLICATION AND THE PROPOSED PERMIT

The Title V permit application for renewal was originally submitted on May 30, 2008. Since May 30, 2008, the District issued a minor revision (10/9/2008) under Application # 16864. The October 9, 2008 version of the Title V permit for Site # A2066 is the basis for constructing the proposed Title V permit.

In the renewal application, the facility requested that any completed permitting actions be included in this renewal. All pending permit applications identified in Waste Management's application materials have been included in the proposed renewal permit accept the following:

- Applications # 15503 & 15504 for a windrow composting operation have not been included because these application were cancelled and

- Application # 16731 for two leachate ponds was not included because the ponds were determined to be exempt from District permit requirements and are not significant sources.

Waste Management submitted several additional applications subsequent to the submittal of this renewal application. The District completed the following additional applications and has included all of these applications in the proposed permit:

- Applications # 18819, 18820, & 22039 for a site-wide CO Cap and subsequent condition corrections
- Applications # 19045 & 19046 for a new LNG Plant
- Applications # 19206, 19207, & 21044 for a new flare and flare condition changes
- Applications # 20251, 20252, & 23198 for gas collection system alterations
- Applications # 21312 for portable tipper engines that are exempt from MFR

One subsequent application was completed but not included in this MFR permit renewal because the source has been shut down:

- Applications # 20158 for a portable engine (S-214)

In addition to the permit changes noted above, the District is proposing changes to several standard language sections, updates of regulatory amendment dates, inclusions of new generally applicable regulatory requirements, the inclusion of new District, state, and federal regulations, modifications of permit conditions, removal of non-applicable requirements, clarifications of numerous limits, changes to the glossary, and removal of Section XII. These revisions were not identified by the applicant.

APPENDIX A

BAAQMD COMPLIANCE REPORT

COMPLIANCE & ENFORCEMENT DIVISION

Inter-Office Memorandum

September 6, 2012

TO: JIM KARAS – ACTING DIRECTOR OF ENGINEERING

FROM: RICHARD LEW – ACTING DIRECTOR OF ENFORCEMENT

SUBJECT: REVIEW OF COMPLIANCE RECORD OF:

WASTE MANAGEMENT OF ALAMEDA COUNTY, INC.
ALTAMONT LANDFILL & RESOURCE RECOVERY FACILITY, #A2066

Background

This review was initiated as part of the District evaluation of an application by Waste Management of Alameda County, Inc., Altamont Landfill & Resource Recovery Facility (Altamont Landfill Facility) for a Title V Permit Renewal. It is standard practice of the Compliance and Enforcement Division to undertake a compliance record review in advance of a renewal of a Title V Permit. The purpose of this review is to assure that any non-compliance problems identified during the prior permit term has been adequately addressed, or, if non-compliance persists, that a schedule of compliance is properly incorporated into the Title V permit compliance schedule. In addition, the review checks for patterns of recurring violation that may be addressed by additional permit terms. Finally, the review is intended to recommend, if necessary, any additional permit conditions and limitations to improve compliance.

Compliance Review

Compliance records were reviewed for the time period from October 9, 2008 through August 31, 2012. The results of this review are summarized as follows.

1. Violation History

Staff reviewed Altamont Landfill Facility Annual Compliance Certifications and found no ongoing non-compliance and no recurring pattern of violations.

Staff also reviewed the District compliance records for the review period. During this period Altamont Landfill Facility activities known to the District include:

District issued 7 Notice of Violation(s):

NOV#	Regulation	Date Occur	# of Days	Comments	Disposition
A48728	2-6-307	12/02/08	1	Failed NOx source test	Resolved
A48732	2-6-307	2/03/09	1	Failed CO source test	Resolved

2. Complaint History

The District received no air pollution complaint alleging Altamont Landfill Facility as the source.

3. Reportable Compliance Activity

Reportable Compliance Activity (RCA), also known as "Episode" reporting, is the reporting of compliance activities involving a facility as outlined in District Regulations and State Law. Reporting covers breakdown requests, indicated monitor excesses, pressure relief device releases, inoperative monitor reports and flare monitoring.

Within the review period, the District received 7 notifications for RCA's and no NOV's were issued as a result of these RCA's. 2 of the 7 RCA notifications were for inoperative monitors and were reported as required by the regulation.

Episode	Date Occur	# of Days	Comments	Disposition
05L40	3/10/09	1	Breakdown request	Granted
05N55	8/03/09	1	Inoperative monitor	No Action
05N72	8/12/09	1	Breakdown request for 05N73	Granted
05N73	8/12//09	1	Flare operated below permitted Temperature	No Action
05S44	3/11/10	1	Inoperative monitor	No Action
05T14	4/22/10	1	Breakdown request for 05T15	Granted
05T15	9/13/09	1	Flare operated below permitted Temperature	No Action

REVIEW OF COMPLIANCE RECORD OF:
Altamont Landfill & Resource Recovery Facility – SITE #A2066
September 6, 2012
Page 3 of 3

4. Enforcement Agreements, Variances, or Abatement Orders

There were no enforcement agreements, variances, or abatement orders for Altamont Landfill Facility over review period.

Conclusion

Following its review of all available facility and District compliance records from October 9, 2008 through August 31, 2012, the District's Compliance and Enforcement Division has determined that Altamont Landfill Facility was in intermittent compliance. However, Altamont Landfill Facility has demonstrated no evidence of ongoing noncompliance and no recurring pattern of violations that would warrant consideration of a Title V permit compliance schedule for this facility.

Based on this review and analysis of all the violations for the review period, the District has concluded that no changes in permit terms is necessary beyond what is already contained in the facility's current Title V permit.

APPENDIX B

GLOSSARY

ACT
Federal Clean Air Act

ALRRF
Altamont Landfill and Resource Recovery Facility

AP-42
An EPA Document "Compilation of Air Pollution Emission Factors" that is used to estimate emissions from numerous source types. It is available electronically from EPA's web site at: http://www.epa.gov/ttn/chief/ap42/index.html

APCO
Air Pollution Control Officer: Head of Bay Area Air Quality Management District

ARB
Air Resources Board (same as CARB)

ASTM
American Society for Testing and Materials

ATC
Authority to Construct

ATCM
Airborne Toxic Control Measure

BAAQMD
Bay Area Air Quality Management District

BACT
Best Available Control Technology

BARCT
Best Available Retrofit Control Technology

Basis
The underlying authority that allows the District to impose requirements.

C1
An organic chemical compound with one carbon atom, for example: methane

C3
An organic chemical compound with three carbon atoms, for example: propane

C5
An organic chemical compound with five carbon atoms, for example: pentane

C6
An organic chemical compound with six carbon atoms, for example: hexane

C_6H_6
Benzene

CAA
The federal Clean Air Act

CAAQS
California Ambient Air Quality Standards

CAPCOA
California Air Pollution Control Officers Association

CARB
California Air Resources Board (same as ARB)

CCDT
Combustion Chamber Discharge Temperature (for gas turbines)

CCR
California Code of Regulations

CEC
California Energy Commission

CEM
A "continuous emission monitor" is a monitoring device that provides a continuous direct measurement of some pollutant (e.g. NOx concentration) in an exhaust stream.

CEQA
California Environmental Quality Act

CFR
The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

CH4 or CH_4
Methane

CI
Compression Ignition

CIWMB
California Integrated Waste Management Board

CO
Carbon Monoxide

CO2 or CO_2
Carbon Dioxide

CO2e
Carbon Dioxide Equivalent. A carbon dioxide equivalent emission rate is the emission rate of a greenhouse gas compound that has been adjusted by multiplying the mass emission rate by the global warming potential of the greenhouse gas compound. These adjusted emission rates for individual compounds are typically summed together, and the total is also referred to as the carbon dioxide equivalent (CO2e) emission rate.

CT
Cylinder Temperature (for internal combustion engines)

Cumulative Increase
The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Used to determine whether threshold-based requirements are triggered.

CZT
Combustion Zone Temperature (for flares)

District
The Bay Area Air Quality Management District

E6, E9, E12
Very large or very small number values are commonly expressed in a form called scientific notation, which consists of a decimal part multiplied by 10 raised to some power. For example, 4.53E6 equals (4.53) x (106) = (4.53) x (10x10x10x10x10x10) = 4,530,000. Scientific notation is used to express large or small numbers without writing out long strings of zeros.

EG
Emission Guidelines

EO
Executive Order

EPA
The federal Environmental Protection Agency.

Excluded
Not subject to any District regulations.

Federally Enforceable, FE
All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60 (NSPS), Part 61 (NESHAPs), Part 63 (MACT), and Part 72 (Permits Regulation, Acid Rain), including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

FP
Filterable Particulate as measured by BAAQMD Method ST-15, Particulate.

FR
Federal Register

GDF
Gasoline Dispensing Facility

GHG
Greenhouse Gas

GLM
Ground Level Monitor

Grains
1/7000 of a pound

GWP
Global Warming Potential. A comparison of the ability of each greenhouse gas to trap heat in the atmosphere relative to that of carbon dioxide over a specific time period.

H2S or H_2S
Hydrogen Sulfide

H2SO4 or H_2SO_4
Sulfuric Acid

H&SC
Health and Safety Code

HAP
Hazardous Air Pollutant. Any pollutant listed pursuant to Section 112(b) of the Act. Also refers to the program mandated by Title I, Section 112, of the Act and implemented by 40 CFR Part 63.

Hg
Mercury

HHV
Higher Heating Value. The quantity of heat evolved as determined by a calorimeter where the combustion products are cooled to 60 °F and all water vapor is condensed to liquid.

IC
Internal Combustion

LEA
Local Enforcement Agency

LFG
Landfill gas

LHV
Lower Heating Value. Similar to the higher heating value (see HHV) except that the water produced by the combustion is not condensed but retained as vapor at 60 °F.

LNG
Liquefied Natural Gas. For this site, LNG is produced using a proprietary process that separates landfill gas into methane and carbon dioxide, removes non-methane organic compounds, and compresses the purified methane.

Long ton
2200 pounds

Major Facility
A facility with potential emissions of: (1) at least 100 tons per year of regulated air pollutants, (2) at least 10 tons per year of any single hazardous air pollutant, and/or (3) at least 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity of hazardous air pollutants as determined by the EPA administrator.

MAX or Max.
Maximum

MFR
Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Federal Clean Air Act and implemented by District Regulation 2, Rule 6.

MIN or Min.
Minimum

MOP
The District's Manual of Procedures.

MSDS
Material Safety Data Sheet

MSW
Municipal solid waste

MW
Molecular weight

N2 or N_2
Nitrogen

NA
Not Applicable

NAAQS
National Ambient Air Quality Standards

NESHAPS
National Emission Standards for Hazardous Air Pollutants. See in 40 CFR Parts 61 and 63.

NMHC
Non-methane Hydrocarbons (Same as NMOC)

NMOC
Non-methane Organic Compounds (Same as NMHC)

NOx or NO_x
Oxides of nitrogen.

NO2 or NO_2
Nitrogen Dioxide.

NSPS
Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Federal Clean Air Act, and implemented by 40 CFR Part 60 and District Regulation 10.

NSR
New Source Review. A federal program for pre-construction review and permitting of new and modified sources of pollutants for which criteria have been established in accordance with Section 108 of the Federal Clean Air Act. Mandated by Title I of the Federal Clean Air Act and implemented by 40 CFR Parts 51 and 52 and District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

O2 or O_2
Oxygen

Offset Requirement
A New Source Review requirement to provide federally enforceable emission offsets for the emissions from a new or modified source. Applies to emissions of POC, NOx, PM10, and SO2.

PERP
Portable Equipment Registration Program

Phase II Acid Rain Facility
A facility that generates electricity for sale through fossil-fuel combustion and is not exempted by 40 CFR 72 from Titles IV and V of the Clean Air Act.

POC
Precursor Organic Compounds

PM
Particulate Matter

PM10 or PM_{10}
Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

PM2.5 or $PM_{2.5}$
Particulate matter with aerodynamic equivalent diameter of less than or equal to 2.5 microns

PSD
Prevention of Significant Deterioration. A federal program for permitting new and modified sources of those air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

PTO
Permit to Operate

PV or P/V Valve or PRV
Pressure/Vacuum Relief Valve

RICE
Reciprocating Internal Combustion Engine

RMP
Risk Management Plan

RWQCB
Regional Water Quality Control Board

S
Sulfur

SCR
A "selective catalytic reduction" unit is an abatement device that reduces NOx concentrations in the exhaust stream of a combustion device. SCRs utilize a catalyst, which operates within a specific temperature range, and injected ammonia to promote the conversion of NOx compounds to nitrogen gas.

Short ton
2000 pounds

SIP
State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

SO2 or SO_2
Sulfur dioxide

SO3 or SO_3
Sulfur trioxide

SSM
Startup, Shutdown, or Malfunction

SSM Plan
A plan, which states the procedures that will be followed during a startup, shutdown, or malfunction, that is prepared in accordance with the general NESHAP provisions (40 CFR Part 63, Subpart A) and maintained on site at the facility.

TAC
Toxic Air Contaminant (as identified by CARB)

TBACT
Best Available Control Technology for Toxics

THC
Total Hydrocarbons (NMHC + Methane)

therm
100,000 British Thermal Units

Title V
Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

TOC
Total Organic Compounds (NMOC + Methane, Same as THC)

TPH
Total Petroleum Hydrocarbons

TRMP
Toxic Risk Management Policy

TRS
Total Reduced Sulfur, which is a measure of the amount of sulfur-containing compounds in a gas stream, typically a fuel gas stream, including, but not limited to, hydrogen sulfide. The TRS content of a fuel gas determines the concentration of SO_2 that will be present in the combusted fuel gas, since sulfur compounds are converted to SO_2 by the combustion process.

TSP
Total Suspended Particulate

TVP
True Vapor Pressure

VOC
Volatile Organic Compounds

VMT
Vehicle Miles Traveled

VOC
Volatile Organic Compounds

WM
Waste Management

Symbols:

<	=	less than
>	=	greater than
≤	=	less than or equal to
≥	=	greater than or equal to

Units of Measure:

atm	=	atmospheres
bbl	=	barrel of liquid (42 gallons)
bhp	=	brake-horsepower
btu	=	British Thermal Unit
BTU	=	British Thermal Unit
°C	=	degrees Centigrade
cfm	=	cubic feet per minute
dscf	=	dry standard cubic feet
°F	=	degrees Fahrenheit
ft^3	=	cubic feet
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
gr	=	grains
hp	=	horsepower
hr	=	hour
in	=	inches
kW	=	kilowatts
lb	=	pound
lbmol	=	pound-mole
m^2	=	square meter
m^3	=	cubic meters
min	=	minute
mm	=	millimeter
MM	=	million
MM BTU	=	million BTU
MM cf	=	million cubic feet
Mg	=	mega grams
M scf	=	one thousand standard cubic feet
MW	=	megawatts
ppb	=	parts per billion
ppbv	=	parts per billion, by volume
ppm	=	parts per million
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight

psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scf	=	standard cubic feet
scfm	=	standard cubic feet per minute
sdcf	=	standard dry cubic feet
sdcfm	=	standard dry cubic feet per minute
yd	=	yard
yd^3	=	cubic yards
yr	=	year

APPENDIX C

FACILITY-WIDE EMISSIONS and EMISSION CHANGES

Waste Management of Alameda County; Site # A2066
RENEWAL APPLICATION # 18233

FACILITY-WIDE EMISSIONS and EMISSION CHANGES

Waste Management of Alameda County; Site # A2066

APPLICATION # 18233

The current and former actual emission inventories for this site are compared below in Table 1. Detailed source specific inventories are attached in Tables 2 and 3. These emissions tables include sources that that have not been identified in the Title V permit because either the sources are exempt from District permit requirements and are not significant sources or the sources are exempt from major facility review (such as portable engines).

Table 1. Actual Emissions for Site # A2066

Inventory Year	NOx	CO	POC	PM10	SO2
2011	90.999	213.215	98.184	114.799	12.136
2003	84.440	198.578	98.717	175.224	0.400
Difference	+ 6.559	+ 14.637	- 0.533	- 60.425	+ 11.736

The increases in combustion related emissions (NOx, CO, and SO2) between 2003 and 2011 are mainly due to increases in landfill gas combustion rates during this time. Between 2011 and 2003, landfill gas collection increased from 1.42E9 scf/year to 2.99E9 scf/year. Currently, about 84% of the collected landfill gas (2.505E9 scf/year) is burned in combustion devices. This equates to about a 76% increase in landfill gas combustion between 2003 and 2011. In addition, Waste Management is processing 0.485E9 scf/year of landfill gas (about 16% of the current total gas collection rate) at the S-210 LNG Plant using non-combustion methods. The new landfill gas flares (A-15 and A-16) have lower NOx and CO emission rates than the former flares (A-12 and A-13). The District has also made corrections to POC and SO2 emission factors during this time.

For an active landfill, the District would normally expect to see increases in POC emissions as the cumulative amount of decomposable waste increases at the site. For Altamont Landfill, the cumulative amount of decomposable materials in the landfill increased from 3.55E7 tons in 2003 to 4.23E7 tons in 2011 (a 20% increase in waste-in-place). Although, the District would normally expect to see a corresponding increase in POC emissions from the landfill during this time frame, this expected increase was not apparent in Table 1 because the District has also revised the POC emission factor for the landfill during this time frame. During the District's 2009 Engineering Evaluation of NSR Application 14814 for a landfill expansion, the District determined that the landfill gas POC content that was used to develop the POC emission factor in effect in 2003 was too high. The District imposed a lower landfill gas POC content limit on S-2

and required offsets for the landfill expansion based on this lower projected POC emission factor. The 2011 emissions inventory shown in Table 2 uses this improved POC emission factor to determine the fugitive POC emissions from the landfill and also the residual POC emissions from landfill gas combustion devices.

The decrease in PM10 emissions is primarily due to improvements in the particulate emission factors. The largest source of PM10 emissions at this site is road dust created by trucks and mobile equipment traveling on paved and unpaved roads within this site. The District conducted a detailed particulate emission analysis for this site in 2009 in conjunction with the Application # 14814 request to expand the landfill. This analysis used the recently revised AP-42 emission calculation procedures for paved and unpaved roads. These new calculation procedures resulted in large reductions in the particulate emission rates for both paved and unpaved roads. The 2011 emission inventory uses these revised particulate emission calculation procedures. In addition, the annual average waste acceptance rate decreased from 1.87E6 tons/year in 2003 to 1.13E6 tons/year in 2011 (a 40% decrease).

Table 2. Site-Wide Emissions Summary Based on 2011 Inventory Data

Device Number	Source Description	Actual Emissions (tons/year)				
		NOx	CO	POC	PM10	SO2
S-2	Altamont Landfill – Waste Decomposition	0.511		85.009		
S-6	LFG Fired Gas Turbine	32.704	64.204	1.844	4.854	4.928
S-7	LFG Fired Gas Turbine	32.430	63.638	1.825	4.818	4.891
S-12	Knockout Vessel			0.005		
S-19	Transfer Tank with Siphon Pump			0.005		
S-20	Treated Effluent Storage Tank			0.000		
S-23	LFG Fired IC Engine	6.990	24.327	2.993	2.372	1.113
S-24	LFG Fired IC Engine	7.410	25.769	3.176	2.518	1.186
S-28	Condensate Storage Tank			0.000		
S-29	Green Waste Stockpiles				0.000	
S-30	Portable Green Waste Grinding Ops				0.803	
S-31	Portable Diesel Engine for Grinder	0.051	0.006	0.008	0.001	0.000
S-43	Altamont Landfill – Waste and Cover …				64.295	
S-44	Altamont Landfill – Excavating, …				32.138	
S-99	Non-Retail Gasoline Dispensing Facility			0.018		
S-130	Equalization Tank			0.000		
S-140	Aerated Biological Reactor			0.008		
S-141	Aerated Biological Reactor			0.008		
S-180	Sludge Thickening Tank			0.000		
S-193	Diesel Engine for Fire Pump	0.006	0.001	0.000	0.000	0.000
S-199	Emergency Standby Diesel Engine	0.006	0.003	0.000	0.000	0.000
S-200	Emergency Standby Diesel Engine	0.006	0.005	0.000	0.000	0.000
S-201	Emergency Standby Diesel Engine	0.004	0.003	0.000	0.000	0.000
S-206	Portable Diesel Engine	0.128	0.045	0.007	0.001	0.000
S-208	Portable Diesel Engine	0.107	0.038	0.006	0.001	0.000
S-210	Liquefied Natural Gas Plant			0.834		
S-216	Waste Water Storage Tank			0.000		
S-217	Portable Diesel Engine	0.076	0.027	0.004	0.001	0.000
S-218	Portable Diesel Engine	0.066	0.023	0.003	0.001	0.000
S-219	Waste Water Influent Lagoon			0.000		
S-220	Waste Water Effluent Lagoon			0.000		
A-15	Landfill Gas Flare	0.055	0.273	0.005	0.016	0.000
A-16	Landfill Gas Flare	10.449	34.853	2.426	2.980	0.018
Total	**All Sources and Abatement Devices**	**90.999**	**213.215**	**98.184**	**114.799**	**12.136**

Table 3. Site-Wide Emissions Summary Based on 2003 Inventory Data

Device Number	Source Description	Actual Emissions (tons/year)				
		NOx	CO	POC	PM10	SO2
S-2	Altamont Landfill			85.629	158.538	
S-6	LFG Fired Gas Turbine	31.956	62.908	1.916	4.763	0.000
S-7	LFG Fired Gas Turbine	29.966	58.984	1.807	4.471	0.000
S-12	Knockout Vessel			0.055		
S-19	Transfer Tank with Siphon Pump			0.055		
S-20	Treated Effluent Storage Tank			0.000		
S-23	LFG Fired IC Engine	10.603	37.029	4.344	3.614	0.091
S-24	LFG Fired IC Engine	10.603	37.029	4.344	3.614	0.091
S-28	Condensate Storage Tank			0.000		
S-99	Non-Retail Gasoline Dispensing Facility			0.018		
S-130	Equalization Tank			0.000		
S-140	Aerated Biological Reactor			0.237		
S-141	Aerated Biological Reactor			0.128		
S-180	Sludge Thickening Tank			0.000		
S-190	Emergency Standby Diesel Engine	0.000	0.000	0.000	0.000	0.000
S-191	Diesel Engine for Primary Water Pump	0.000	0.000	0.000	0.000	0.000
S-192	Diesel Engine for Booster Water Pump	0.000	0.000	0.000	0.000	0.000
S-193	Diesel Engine for Fire Pump	0.000	0.000	0.000	0.000	0.000
S-194	Emergency Standby Diesel Engine	0.000	0.000	0.000	0.000	0.000
S-195	Emergency Standby Diesel Engine	0.000	0.000	0.000	0.000	0.000
S-196	Emergency Standby Diesel Engine	0.000	0.000	0.000	0.000	0.000
S-197	Emergency Standby Diesel Engine	0.000	0.000	0.000	0.000	0.000
S-198	Emergency Standby Diesel Engine	0.000	0.000	0.000	0.000	0.000
A-13	Landfill Gas Flare	0.656	1.314	0.092	0.112	0.109
A-14	Landfill Gas Flare	0.656	1.314	0.092	0.112	0.109
Total	**All Sources and Abatement Devices**	**84.440**	**198.578**	**98.717**	**175.224**	**0.400**

APPENDIX D

REPORTS FOR GAS COLLECTION SYSTEM ALTERATIONS

TITLE V APPLICATION # 20252

NSR APPLICATIONS # 15498, 20251, & 23198

Final Permit to Operate Report

for

Landfill Gas Collections System Alterations at S-2 Altamont Landfill

Waste Management of Alameda County; PLANT # 2066

APPLICATION # 15498

I. BACKGROUND

Waste Management of Alameda County operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). This facility includes an active landfill: S-2 Altamont Landfill with Landfill Gas Collection System.

As described in the District's June 20, 2007 letter to Waste Management (see revised Condition # 19235, Part 1), the landfill gas collection system for the S-2 Altamont Landfill consisted of 69 vertical wells, 8 horizontal collectors, and 1 leachate collection riser. The additional gas collection system alterations that were authorized pursuant to the Authority to Construct for Application # 15498 include:

- install up to 61 additional vertical wells,
- decommission up to 21 vertical wells,
- install up to 41 horizontal collectors, and
- decommission up to 12 horizontal collectors.

Pursuant to an October 4, 2007 letter from Waste Management's new consultant, Cornerstone Environmental Group, LLC, Waste Management planned to decommission 1 well (GW 313) on October 8, 2007. Although, Cornerstone described this well as a vertical well, the previous application materials described this well as a horizontal tire trench collector. Therefore, the District is making adjustments to the well counts assuming that GW 313 is a horizontal collector. The gas collection system for S-2 now consists of: 69 vertical wells, 7 horizontal collectors, and 1 leachate collection riser. The remaining gas collection system alterations authorized by Authority to Construct # 15498 are:

- install up to 61 additional vertical wells,
- decommission up to 21 vertical wells,
- install up to 41 horizontal collectors, and
- decommission up to 11 horizontal collectors.

This change completes the collection system alterations that will be made pursuant to Application #15498. All future gas collection system alterations will be transferred to Application # 16863.

II. STATEMENT OF COMPLIANCE

As discussed in the Engineering Evaluation for Application # 15498, this project does not result in any emission increases. Therefore, NSR is not triggered for this alteration, and BACT and Offsets are not required.

The most recent collection system alterations discussed in this report are expected to ensure that this facility complies with the Regulation 8-34-303 surface leak limits and the Regulation 8-34-305 wellhead standards.

Gas collection system alterations completed between June 20, 2007 and October 31, 2007 are summarized in Table 1. The current gas collection system (as of November 1, 2007) is described in Table 2.

Table 1. Summary of Gas Collection System Alterations (6-20-07 to 10-31-07)

Notification Letter Date	Action Taken	Number and Type of Components
10-4-2007	Decommissioned	1 horizontal collector
Summary	Net Change Net Change	-0 vertical wells -1 horizontal collectors

Table 2. Landfill Gas Collection System Components Installed as of 11-1-2007

Vertical Landfill Gas Extraction Wells							Horizontal Collectors	Other Components
VW-#	VW-#	VW-#	VW-#	VW-#	VW-#	VW-#	HC-#	
2	24	54	74	403	443	455	106	LCRS-201
3	26	55	77	404	444	456	107	
8	29	56	80	405	445	457	302B	
11	33	59	84	424	448	458	311A	
15	37	64	85	426	449	460	311B	
16	40	67	86	428	450	461	312	
18	45	68	87	430	451	462	~~313~~	
19	50	69	88	431	452	463	317	
21	51	71	401	432	453	464		
23	53	73	402	433	454			

III. Permit Condition Revisions

The District is proposing to administratively modify Condition # 19235, Parts 1a and 1b, as shown below in strike through and underline formatting. The proposed revisions to Part 1a are necessary to make the collection system description consistent with the current in-place configuration. The proposed revisions to Part 1b will update the remaining authorized revisions to the collection system.

Condition # 19235
FOR: S-2 ALTAMONT LANDFILL WITH LANDFILL GAS COLLECTION SYSTEM, AND A-15 LANDFILL GAS FLARE:

1. The S-2 Altamont Landfill shall be equipped with a landfill gas collection system, which shall be operated continuously as defined in Regulation 8-34-219, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Section 113. Individual wells, collectors, and adjustment valves shall not be disconnected, removed, or completely closed, without prior written authorization from the District, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Sections 113, 116, 117 or with Part 1c below. (Basis: Regulations 8-34-301.1, 8-34-303, 8-34-304, 8-34-305, and 8-34-404)
   a. The Permit Holder has been issued a Permit to Operate for the landfill gas collection system components listed below as of ~~May~~ November 1, 2007. Well and collector locations are described in detail in Permit Application~~s~~ ~~#10004 and~~ #15498.
      i. The authorized number of landfill gas collection system components is the baseline count listed below plus any components installed and minus any components decommissioned pursuant to subpart 1b, as evidenced by start-up and decommissioning notification letters submitted to the District.
         - 69 vertical wells
         - ~~8~~7 horizontal trench collectors (shredded tires may be used as fill material)
         - 1 leachate collection system clean-out riser
   b. The Permit Holder has been issued an Authority to Construct to allow for the landfill gas collection system alterations described below pursuant to Permit Application #15498. All collection system alterations shall comply with subparts 1b(i-vii) below.
      i. The authorized collection system alterations are:
         - Install up to 61 additional vertical wells
         - Permanently decommission up to 21 vertical wells
         - Install up to 41 additional horizontal trench collectors

- Permanently decommission up to ~~12~~11 horizontal trench collectors
- Modify wellhead monitoring locations, as needed, provided that each landfill gas collection system component identified in Part 1a and each new collection system component installed per Part 1b is adequately represented by a wellhead monitoring location. The Permit Holder shall maintain documentation on site that identifies all landfill gas collection system components that are represented by each wellhead monitoring location.

ii. The Permit Holder shall apply for and receive an Authority to Construct before altering the landfill gas collection components described subpart 1a. Installing, altering, or permanently decommissioning a vertical well, horizontal collector, or other gas collection component is subject to the Authority to Construct requirement, unless this change constitutes a replacement as defined in subpart 1b(iii) below.

iii. Replacement of landfill gas collection system components with identical or functionally equivalent components will not be deemed an alteration and will not subject to the Authority to Construct requirement under the following circumstances. If a well or collector will be shut down and replaced by a new well or collector in essentially the same location as the old component and this decommission/installation will be accomplished in accordance with Regulations 8-34-117 and 8-34-118, then this activity shall be considered a component replacement that is not subject to the Authority to Construct requirement. For each individual well or collector replacement, this subpart authorizes a maximum vacuum disconnection time of five consecutive days for compliance with Regulation 8-34-117.5. The disconnected component and the new component shall not be counted toward the subpart 1b(i) limits; the numbers of replacement wells and replacement collectors are not limited. Alterations, repairs, or replacements of non-perforated piping sections (such as risers, laterals, or header pipes), piping connectors, or valves are not subject to the Authority to Construct requirement.

iv. At least three days prior to initiating operation of a well or collector installed pursuant to subpart 1b, the Permit Holder shall submit a start-up notice to the District that contains the component ID number for each new well or collector and the anticipated initial start-up date for each new component.

v. For each well or collector that is permanently decommissioned after June 20, 2007, the Permit Holder shall submit a decommissioning notice to the District within no later than three working days after the component was disconnected from vacuum system. This decommissioning notice shall contain the component ID for each well or collector that was decommissioned, the date and time that each component was disconnected from the vacuum system, and the reason the component was decommissioned.

vi. Within six months of installing a new component or permanently decommissioning an existing component, the Permit Holder shall prepare an updated map of the landfill gas collection system that identifies the ID numbers and locations of all operable wells and collectors. On this map or in accompanying documentation, the Permit Holder shall summarize all component changes that were made since the last map was prepared. The previous collection system map, the updated collection system map, and the component change summary shall be provided to District staff upon request.

vii. If the Permit Holder has a net reduction (number of decommissioned components minus the number of installed components) of more than five components within a 120-day period, the Permit Holder shall submit a more comprehensive decommissioning notice to the District. In addition to the information required by subpart 1b(v), this comprehensive decommissioning notice shall include the maps and documentation required by subpart 1b(vi), shall identify all component changes that have occurred but that are not included on the most recently updated map, shall identify any components that are temporarily disconnected from vacuum pursuant to subpart 1c, shall provide estimated vacuum reconnection dates for these components, shall include a list of all well installations that are expected to occur within the next 120 days, and shall discuss the reasons why this reduction in gas collection components is not expected to result in surface emission leaks. Upon request, the Permit Holder shall provide wellhead monitoring data, surface leak monitoring data, records of repair attempts made to date, and other information to support the need for a net collection component reduction of more than five wells. The District may require additional surface monitoring to verify that this net component reduction is not causing landfill surface leaks. The District will notify the Permit Holder in writing of any additional surface monitoring that is required pursuant to this subpart.

c. The Permit Holder may temporarily disconnect individual wells or collectors from the vacuum system, provided that all requirements of this subpart are satisfied. (Basis: Regulation 8-34-404)

i. No more than five (5) landfill gas collection system components (wells or collectors) may be temporarily disconnected from the vacuum system at any one time pursuant to subpart 1c.

ii. For each individual well or collector that is disconnected from the vacuum system pursuant to subpart 1c, the total vacuum system disconnection time shall not exceed 120 days during any 12-month period.

iii. Collection system components that are disconnected from the vacuum system are not subject to wellhead limits (Regulation 8-34-305) or monthly wellhead monitoring requirements (Regulation 8-34-505) during this vacuum disconnection time.

iv. Wells or collectors that are temporarily disconnected from the vacuum system continue to be subject to the component leak limit (Regulation 8-34-301.2) and the quarterly leak testing requirement (Regulation 8-34-503) at all times. In addition, the Permit Holder shall conduct the following component leak monitoring at each component that has been disconnected from the vacuum system pursuant to subpart 1c: test for component leaks using the procedures identified in Regulation 8-34-602 within 10 calendar days of disconnection from vacuum and again within 1 month of disconnection from vacuum. If a component leak is detected at the well, the Permit Holder shall take all steps necessary to reduce the leak below the applicable limit, including reconnecting the well to the vacuum system, if no other corrective action measures are successful within the time frames allowed by Rule 34.

v. For each well disconnection event, the Permit Holder shall record each affected well ID number, all well disconnection dates and times, all well reconnection dates and times, all related monitoring dates and monitoring results in a District approved log. This log shall also include an explanation of why the temporary well shut down was necessary and shall describe all adjustments or repairs that were made in order to allow this well to operate continuously, to reduce leaks, or to achieve compliance with an applicable limit. All records shall be retained for a minimum of five years and shall be made available to District staff upon request.

IV. RECOMMENDATION

Issue the final Permit to Operate for S-2 pursuant to Application # 15498 with a Change of Conditions for Condition # 19235. This completes Application # 15498. All remaining collection system alterations will be transferred to Application # 16863.

S-2 Altamont Landfill with Landfill Gas Collection System

By: Carol S. Allen Date
Senior Air Quality Engineer

Engineering Evaluation

for

Landfill Gas Collections System Alterations at S-2 Altamont Landfill

Waste Management of Alameda County; PLANT # 2066

APPLICATION # 20251

I. BACKGROUND

Waste Management of Alameda County operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). This facility includes an active landfill: S-2 Altamont Landfill with Landfill Gas Collection System.

As described in the District's May 6, 2009 Administrative Condition Change Report for Application # 16863 and Condition # 19235, Part 1a, the landfill gas collection system for the S-2 Altamont Landfill consists of 124 vertical wells, 1 horizontal collector, and 1 leachate collection riser as of May 1, 2009. The remaining gas collection system alterations that were authorized per Application #16863 included:

- install up to 0 additional vertical wells,
- decommission up to 5 vertical wells,
- install up to 25 horizontal collectors, and
- decommission up to 4 horizontal collectors.

These remaining collection system alterations that were authorized pursuant to Application #16863 will be cancelled and replaced by the alterations requested below pursuant to Application #20251:

- install up to 120 additional vertical wells,
- decommission up to 50 vertical wells,
- install up to 20 additional horizontal collectors, and
- decommission up to 15 horizontal collectors.

These proposed changes will result in a net increase of 70 vertical wells and a net increase of 5 horizontal collectors.

Waste Management's consultant, Cornerstone, has requested that the gas collection system alterations requested above be authorized immediately pursuant to the accelerated permit

program. The District has approved this request and these alterations are authorized as the date that the application was declared complete (March 18, 2009).

II. COLLECTION SYSTEM DESCRIPTION

As of May 1, 2009, the landfill gas collection system for the S-2 Altamont Landfill consisted of the following collection system components: 124 vertical wells, 1 horizontal trench collector, and 1 leachate collection system clean-out riser. Condition # 19235, Part 1a reflects this current list of collection system components. Specific component identification numbers are listed in Table 1.

Table 1. Landfill Gas Collection System Components Operating as of 5/1/2009

Vertical Landfill Gas Extraction Wells							Other
VW-#	VW-#	VW-#	VW-#	VW-#	VW-#	VW-#	Components
3	426	472	494	514	534	555	HC-107
15	443	473	495	515	535	556	LCRS-201
24	444	474	496	516	536	557	
53	445	475	497	517	537	558	
54	449	476	498	518	538		
56	450	477	499	519	539		
59	451	478	500	520	540		
64	455	479	501	521	541		
69	456	480	502	522	542		
71	457	482	503	523	543		
77	458	483	504	524	544		
80	460	484	505	525	545		
84	461	485	506	526	546		
85	462	486	507	527	547		
87	464	487	508	528	548		
88	466	488	509	529	550		
401	467	489	510	530	551		
402	468	490	511	531	552		
404	469	491	512	532	553		
405	471	492	513	533	554		

III. EMISSIONS

Maximum permitted emissions from landfills, and in particular, the emissions arising from the waste decomposition process, are determined using empirical equations and site specific factors including: the maximum permitted decomposable waste capacity for the site, historical and

projected waste disposal rates, site specific landfill gas constituent data, an assumed landfill gas collection system capture efficiency, and maximum allowable emission rates from the authorized control devices. The District evaluates the efficacy of each site's landfill gas collection system design through the permit application process to ensure that the overall landfill gas collection system is adequate and will achieve the minimum landfill gas capture efficiency that was assumed for the site and will prevent surface leaks in excess of the Regulation 8-34-303 leak limit. Any alterations to the landfill gas collection system design that are authorized by the District are intended to ensure that the landfill gas collection system will continue to adequately control the landfill gas from a site and will not result in any emission increases for a site.

The potential emission impacts of the specific collection system alterations that are proposed for this site are discussed in more detail below.

Impacts of Collection System Alterations on Landfill Emissions:

Waste Management has proposed collection system alterations that will result in a net increase of 70 vertical wells and a net increase of 5 horizontal collectors. These net increases in the number of gas collectors are expected to result in a sufficient density of collectors in newly filled waste areas to capture the projected increases in landfill gas generation for this site. These alterations are also intended to repair deteriorating collection system components. These collection system component alterations are expected to prevent surface leaks and will not result in landfill surface emission increases.

Using the reported landfill gas collection rates for each control device and average methane concentrations at each device (measured during 2008 source tests), the District determined that the annual average landfill gas collection rate for 10/1/07 to 9/30/08 was 3874 scfm (50% methane). During 10/1/07 to 9/30/08, the landfill was operating an average of 83 gas collection components, and the average gas collection rate per component was 47 scfm. Between October 2008 and May 2009, Waste Management installed an additional 40 vertical wells. Between May 2009 and May 2011, Waste Management has proposed to have a net increase of 70 vertical wells and 5 horizontal collectors. The vertical wells are expected to increase the gas capture rate by at least 25 scfm per well, while the horizontal collectors are expected to increase the gas capture rate by at least 10 scfm per collector. If all proposed collection system alterations are completed, the total gas collection rate is expected to increase by 2800 scfm. The expected gas collection rate in 2011 will be: 3874 + 2800 = 6674 scfm.

Using the LANDGEM empirical model, site-specific waste disposal history, and default methane generation rate parameters for dry areas, the District estimates that the average landfill gas generation rate from the Altamont Landfill (for gas containing 50% methane) was 7340 scfm for 2008 and will be 8077 scfm in 2011. Based comparisons of the expected collection rates for 2008 and 2011 versus the projected landfill gas generation rates for 2008 and 2011, the District finds that the 2008 landfill gas collection system was capturing 53% of the gas generated in

2008, while the proposed gas collection system is expected to capture 83% of the gas generated in 2011.

The 2008 gas capture rate of 53% far below the target gas capture rate of 75%. Even if the accuracy of the LANDGEM model is taken into consideration and the projected gas generation rate for 2008 is lowered by 20%, the 2008 gas capture is still too low. The District concludes that the gas collection system that was in place during 2008 was likely inadequate, and this gas collection system needs to be upgraded and expanded. As of May 1, 2009, Waste Management has installed 40 additional vertical wells. These well installations improve the gas capture rate for 2009 and are expected to provide marginally adequate landfill gas emissions control for 2009. However, additional gas collection system expansions are necessary to keep up with the projected gas generation rate increases in 2010 and 2011.

The projected capture efficiency of 83% for the proposed collection system is acceptable, because it is higher than the target capture efficiency of 75%, which was used to determine fugitive landfill emission rates for Fill Area 1. As shown above, the installation of the proposed additional gas collection system components should be able to keep up with the expected increases in gas generation rate over the next two years. Therefore, these proposed collection system alterations will not result in any additional fugitive landfill gas emissions.

Impacts of Collection System Alterations on Control Device Capacity:

Currently, Waste Management vents all of their collected landfill gas to the on-site energy recovery equipment (two turbines and two IC engines) and an enclosed flare. The annual average capacities of the existing control devices are: 3210 scfm for the turbines, 1174 scfm for the engines, and 2381 scfm for the flare. The total current control capacity is 6765 scfm. This control device capacity exceeds the expected collection rate for 2011 (6674 scfm). Therefore, the proposed gas collection alterations will not require any additional control capacity.

A second flare is under construction and will be ready to operate within a few months. The new flare will add 4427 scfm of control capacity. When this flare begins operation, the total capacities will be 4384 scfm for energy recovery devices and 6808 scfm for flares (total capacity of 11,192 scfm). Upon start-up of A-16, the flare capacity will now be sufficient to control all of the gas that is expected to be collected from Fill Area 1, in the event of a power outage or other problem that prevents operation of the energy recovery devices.

Currently, the energy recovery devices do not have sufficient capacity to control all of the gas that is expected to be collected through 2011. The surplus gas must be vented to a flare. However, an LNG Plant is also under construction that will process an average of 2096 scfm of landfill gas. When this plant is operational, the energy recovery equipment will have a total capacity of 6480 scfm and will be able to control most of the gas collected from Fill Area 1. Flares will still be required to handle a small gas surplus.

IV. STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

This application is for a change of permit conditions at the S-2 Landfill with Gas Collection System that involves some physical alterations of the gas collection system, but that will not involve any modifications to the source (S-2). The gas collection system is part of the landfill gas abatement systems for the landfill. The proposed alterations do not result in any emission increases. Therefore, this application is categorically exempt from CEQA review pursuant to Regulation 2-1-312.2. In addition, the Engineering Evaluation for this application uses fixed standards and objective measurements and does not involve any element of discretion. Consequently, no further CEQA review is required.

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

Regulation 2, Rule 2:

Since this application does not result in any emission increases, this project is not subject to New Source Review (NSR). No new BACT, Offset or PSD requirements will apply.

New Source Review for Toxic Air Contaminants:

This application does not result in any increases of Toxic Air Contaminants (TACs). Therefore, NSR for TACs is not triggered, and no new T-BACT requirements will apply.

Regulation 2, Rule 6:

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act (40 CFR, Part 70) and BAAQMD Regulation 2, Rule 6, Major Facility Review (MFR), because it is a major facility for NO_x and CO emissions and also because it is a designated facility (since it is subject to the control requirements of the Emission Guidelines for MSW Landfills). Therefore, this facility is required to have an MFR permit pursuant to Regulations 2-6-301 and 2-6-304.

The initial MFR Permit for this facility was issued on December 1, 2003 and was last revised on October 9, 2008. Since this application will result in permit condition modifications, a minor revision of the Title V permit will be required. This Title V permit revision will be handled pursuant to Application # 20252.

Regulation 8, Rule 34:

Waste Management's Altamont Landfill (S-2) is subject to Regulation 8, Rule 34. S-2 is expected to comply with Regulation 8-34-301 by:

(a) continuously operating the gas collection system and continuously operating gas control systems (including S-6, S-7, S-23, S-24, and A-15),
(b) having no leaks (exceeding 1000 ppmv) from the gas collection system, and
(c) processing all collected gases in control devices achieving at least 98% NMOC destruction efficiency (or emitting less than 20 ppmv of NMOC from the IC engines and gas turbines).

The S-2 Altamont Landfill is also subject to Regulation 8-34-303, which limits leaks on the surface of the landfill to less than 500 ppmv as methane. This site has generally been complying with the surface leak requirements. However, surface leaks above the standard are occasionally discovered by the facility and are typically eliminated within a few days of discovery. The proposed collection system alterations will keep pace with the expected increases in gas production rate at this site and are expected to prevent excessive surface leaks at this landfill.

By 2011, Fill Area 1 will essentially cover the entire permitted fill area of 9,950,000 ft^2 (about 228 acres). For deep interior wells, well spacing should be less than 300 feet. For an area of 9,950,000 ft^2 and a minimum interior well spacing of 300 feet, the landfill should have at least 141 interior wells. The circumference of Fill Area 1 is estimated to be 11,200 feet. For perimeter wells, well spacing should be less than 200 feet apart. If wells are spaced every 200 feet along the circumference of Fill Area 1, the landfill should have at least 56 perimeter wells. Thus, Fill Area 1 should have at least 197 wells when it reaches full capacity with an average radius of influence of 127 feet.

The landfill gas collection system currently includes 124 vertical wells and 2 other collectors. Waste Management is proposing a net increase of 70 vertical wells and 5 horizontal collectors over the next two years for a proposed total of 194 vertical wells and 7 horizontal collectors. After installation of these proposed wells, the collection system will have an average coverage area of 51,289 ft^2 per vertical well. The average radius of influence will be 128 feet for each vertical well with an average well spacing of 256 feet. The proposed well density appears to be sufficient. However, Waste Management has not supplied a detailed drawing of the proposed gas collection system. The well density will be evaluated in more detail after Waste Management submits the requested map.

The proposed collection system alterations will, in part, assure compliance with the collection system installation dates specified in Regulation 8-34-304. This site is complying with all applicable monitoring requirements (8-34-505-510).

Federal Requirements:

EG for MSW Landfills: The landfill at this facility is subject to the 40 CFR Part 60, Subpart Cc Emission Guidelines (EG) for Municipal Solid Waste (MSW) Landfills. Effective November 19, 2001, the District's Regulation 8, Rule 34 was approved into the State Plan for MSW Landfills (40 CFR 62.1115). Regulation 8, Rule 34 is now the approved method for implementing this federal EG. Since the S-2 Altamont Landfill with Gas Collection System is expected to comply with Regulation 8, Rule 34, this landfill will also comply with 40 CFR, Part 60, Subpart Cc and 40 CFR 62.1115.

NESHAPs for MSW Landfills: Any landfills that are subject to the landfill gas collection and control requirements of either the NSPS for MSW Landfills or the EG for MSW Landfills are also subject to the NESHAPs for MSW Landfills (40 CFR, Part 63, Subpart AAAA). This NESHAP requires that subject facilities prepare and implement startup, shutdown, malfunction plans and additional reporting requirements. All applicable requirements are contained in the existing MFR permit, and this facility is expected to comply with these requirements.

V. Permit Condition Revisions

The District is proposing to revise Condition # 19235, Part 1, as shown below in strike through and underline formatting. The proposed revisions to Part 1b(i) identify the collection system alterations that are being authorized pursuant to this Authority to Construct. No other condition changes are proposed.

Condition # 19235
FOR: S-2 ALTAMONT LANDFILL WITH LANDFILL GAS COLLECTION SYSTEM, A-15 LANDFILL GAS FLARE, AND A-16 LANDFILL GAS FLARE:

1. The S-2 Altamont Landfill (Fill Area 1) shall be equipped with a landfill gas collection system, which shall be operated continuously as defined in Regulation 8-34-219, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Section 113. Individual wells, collectors, and adjustment valves shall not be disconnected, removed, or completely closed, without prior written authorization from the District, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Sections 113, 116, 117, or with Part 1c below. The gas collection system shall also be operated in accordance with the wellhead requirements described in Part 1d. (Basis: Regulations 8-34-301.1, 8-34-303, 8-34-304, 8-34-305, and 8-34-404)
    a. The Permit Holder has been issued a Permit to Operate for the landfill gas collection system components listed below as of May 1, 2009. Well and collector locations are as described in detail in Permit Application #16863.

i. The authorized number of landfill gas collection system components is the baseline count listed below plus any components installed and minus any components decommissioned pursuant to subpart 1b, as evidenced by start-up and decommissioning notification letters submitted to the District.
- 124 vertical wells
- 1 horizontal trench collector (shredded tires may be used as fill material)
- 1 leachate collection system clean-out riser

b. The Permit Holder has been ~~issued an Authority to Construct to allow for the~~ authorized to make the landfill gas collection system alterations described below pursuant to Permit Application #~~ 16863~~20251. All collection system alterations shall comply with subparts 1b(i-vii) below.

i. The authorized collection system alterations are:
- Install up to ~~0~~120 vertical wells
- Permanently decommission up to ~~5~~50 vertical wells
- Install up to ~~25~~20 horizontal trench collectors
- Permanently decommission up to ~~4~~15 horizontal trench collectors
- Modify wellhead monitoring locations, as needed, provided that each landfill gas collection system component identified in Part 1a and each new collection system component installed per Part 1b is adequately represented by a wellhead monitoring location. The Permit Holder shall maintain documentation on site that identifies all landfill gas collection system components that are represented by each wellhead monitoring location.

ii. The Permit Holder shall apply for and receive an Authority to Construct before altering the landfill gas collection components described subpart 1a. Installing, altering, or permanently decommissioning a vertical well, horizontal collector, or other gas collection component is subject to the Authority to Construct requirement, unless this change constitutes a replacement as defined in subpart 1b(iii) below.

iii. Replacement of landfill gas collection system components with identical or functionally equivalent components will not be deemed an alteration and will not subject to the Authority to Construct requirement under the following circumstances. If a well or collector will be shut down and replaced by a new well or collector in essentially the same location as the old component and this decommission/installation will be

accomplished in accordance with Regulations 8-34-117 and 8-34-118, then this activity shall be considered a component replacement that is not subject to the Authority to Construct requirement. For each individual well or collector replacement, this subpart authorizes a maximum vacuum disconnection time of five consecutive days for compliance with Regulation 8-34-117.5. The disconnected component and the new component shall not be counted toward the subpart 1b(i) limits; the numbers of replacement wells and replacement collectors are not limited. Alterations, repairs, or replacements of non-perforated piping sections (such as risers, laterals, or header pipes), piping connectors, or valves are not subject to the Authority to Construct requirement.

iv. At least three days prior to initiating operation of a well or collector installed pursuant to subpart 1b, the Permit Holder shall submit a start-up notice to the District that contains the component ID number for each new well or collector and the anticipated initial start-up date for each new component.

v. For each well or collector that is permanently decommissioned after June 20, 2007, the Permit Holder shall submit a decommissioning notice to the District within no later than three working days after the component was disconnected from vacuum system. This decommissioning notice shall contain the component ID for each well or collector that was decommissioned, the date and time that each component was disconnected from the vacuum system, and the reason the component was decommissioned.

vi. Within six months of installing a new component or permanently decommissioning an existing component, the Permit Holder shall prepare an updated map of the landfill gas collection system that identifies the ID numbers and locations of all operable wells and collectors. On this map or in accompanying documentation, the Permit Holder shall summarize all component changes that were made since the last map was prepared. The previous collection system map, the updated collection system map, and the component change summary shall be provided to District staff upon request.

vii. If the Permit Holder has a net reduction (number of decommissioned components minus the number of installed components) of more than five components within a 120-day period, the Permit Holder shall submit a more comprehensive decommissioning notice to the District. In addition to the

information required by subpart 1b(v), this comprehensive decommissioning notice shall include the maps and documentation required by subpart 1b(vi), shall identify all component changes that have occurred but that are not included on the most recently updated map, shall identify any components that are temporarily disconnected from vacuum pursuant to subpart 1c, shall provide estimated vacuum reconnection dates for these components, shall include a list of all well installations that are expected to occur within the next 120 days, and shall discuss the reasons why this reduction in gas collection components is not expected to result in surface emission leaks. Upon request, the Permit Holder shall provide wellhead monitoring data, surface leak monitoring data, records of repair attempts made to date, and other information to support the need for a net collection component reduction of more than five wells. The District may require additional surface monitoring to verify that this net component reduction is not causing landfill surface leaks. The District will notify the Permit Holder in writing of any additional surface monitoring that is required pursuant to this subpart.

VI. RECOMMENDATION

Issue a Change of Conditions for Condition # 19235 that will authorize the landfill gas collection system alterations described below.

S-2 Altamont Landfill with Landfill Gas Collection System

- Install up to 120 additional vertical wells
- Permanently decommission up to 50 vertical wells
- Install up to 20 additional horizontal trench collectors
- Permanently decommission up to 15 horizontal trench collectors

By: Carol S. Allen Date
Senior Air Quality Engineer

Engineering Evaluation
for
Landfill Gas Collection System Alterations
at S-2 Altamont Landfill

Waste Management of Alameda County; PLANT # 2066

APPLICATION # 23198

VII. BACKGROUND

Waste Management of Alameda County operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). This facility includes an active landfill: S-2 Altamont Landfill with Landfill Gas Collection System.

As described in the District's May 19, 2011 Administrative Condition Change Report for Application # 20251 and Condition # 19235, Part 1a, the landfill gas collection system for the S-2 Altamont Landfill consists of 130 vertical wells, 1 horizontal collector, and 1 leachate collection riser as of May 19, 2009. The remaining gas collection system alterations that were authorized per Application #20251 included:

- install up to 64 additional vertical wells,
- decommission up to 0 vertical wells,
- install up to 20 horizontal collectors, and
- decommission up to 15 horizontal collectors.

These remaining collection system alterations that were authorized pursuant to Application #20251 will be cancelled and replaced by the alterations requested below pursuant to Application #23198:

- install up to 120 additional vertical wells,
- decommission up to 100 vertical wells,
- install up to 25 additional horizontal collectors, and
- decommission up to 15 horizontal collectors.

These proposed changes will result in a net increase of 20 vertical wells and a net increase of 10 horizontal collectors.

Waste Management's consultant, Cornerstone, has requested that the gas collection system alterations requested above be authorized immediately pursuant to the accelerated permit program. The District has approved this request and these alterations are authorized as the date that the application was declared complete: April 8, 2011.

VIII. COLLECTION SYSTEM DESCRIPTION

As of May 19, 2011, the landfill gas collection system for the S-2 Altamont Landfill consisted of the following collection system components: 130 vertical wells, 1 horizontal trench collector, and 1 leachate collection system clean-out riser. Condition # 19235, Part 1a reflects this current list of collection system components. Specific component identification numbers are listed in Table 1.

Table 1. Landfill Gas Collection System Components Operating as of 5/19/2011

Vertical Landfill Gas Extraction Wells							Other
VW-#	VW-#	VW-#	VW-#	VW-#	VW-#	VW-#	Components
3	471	502	524	552	581	605	HC-107
53	472	503	526	553	582	606	LCRS-201
54	473	504	527	554	583	607	
56	474	506	528	555	585	608	
59	475	507	529	557	588	609	
64	477	508	531	559 †	589	610	
71	482	509	533	564	590	611	
77	483	510	534	565	591	612	
87	484	511	535	566	592	613	
449	485	512	536	568	593	614	
450	486	513	537	569	595		
451	487	514	538	570	596		
455	488	515	539	571	597		
461	489	516	540	572	598		
462	490	517	541	573	599		
464	491	518	545	574	600		
466	492	519	547 †	577	601		
467	497	520	548	578	602		
468	500	522	550	579	603		
469	501	523	551	580	604		

† Well IDs 547 and 559 were temporarily off-line as of 5/5/2011. In accordance with Condition # 19235, Part 1c, these wells shall not be disconnected from vacuum for more than 120 days.

IX. EMISSIONS

Maximum permitted emissions from landfills, and in particular, the emissions arising from the waste decomposition process, are determined using empirical equations and site specific factors including: the maximum permitted decomposable waste capacity for the site, historical and projected waste disposal rates, site specific landfill gas constituent data, an assumed landfill gas

collection system capture efficiency, and maximum allowable emission rates from the authorized control devices. The District evaluates the efficacy of each site's landfill gas collection system design through the permit application process to ensure that the overall landfill gas collection system is adequate and will achieve the minimum landfill gas capture efficiency that was assumed for the site and will prevent surface leaks in excess of the Regulation 8-34-303 leak limit. Any alterations to the landfill gas collection system design that are authorized by the District are intended to ensure that the landfill gas collection system will continue to adequately control the landfill gas from a site and will not result in any emission increases for a site.

The potential emission impacts of the specific collection system alterations that are proposed for this site are discussed in more detail below.

Impacts of Collection System Alterations on Landfill Emissions:

Using the reported landfill gas collection rates for each control device and average methane concentrations at each device (measured during 2010 source tests), the District determined that the annual average landfill gas collection rate for 10/1/10 to 9/30/11 was 3731.5 scfm at an average of 52.2% methane (3896 scfm at 50% methane). The landfill currently has 133 gas collection components, and the average gas collection rate per component is 29.3 scfm.

Using the LANDGEM empirical model, site-specific waste disposal history, and default methane generation rate parameters for dry areas, the District estimates that the average landfill gas generation rate from the Altamont Landfill (for gas containing 50% methane) was 7837 scfm for 2010. The actual collection rate for 2010 is about 50% of the projected landfill gas generation rate for 2010. This 50% gas capture rate falls below the target gas capture rate of 75%.

Waste Management has proposed collection system alterations that will result in a net increase of 20 vertical wells and a net increase of 10 horizontal collectors. These net increases in the number of gas collectors should boost the overall gas capture rate at this landfill.

These proposed alterations are also intended to repair deteriorating collection system components. These collection system component alterations are expected to prevent surface leaks and will not result in landfill surface emission increases.

Impacts of Collection System Alterations on Control Device Capacity:

Fill Area 1 is expected to reach maximum capacity by 2014, and the maximum expected landfill gas generation rate was determined to be 8618 scfm using LANDGEM. Currently, Waste Management vents their collected landfill gas to a variety of on-site landfill gas control devices: two turbines, two IC engines, two enclosed flares, and an LNG Plant. The energy recovery devices can handle up to 7749 scfm of landfill gas while the flares can handle an additional 6807 scfm of landfill gas. The total capacity of the current landfill gas control system is 14,556 scfm

of gas. Thus, the existing landfill gas control equipment has sufficient capacity to handle all of the gas that could potentially be collected from Fill Area 1.

The current gas collection rate is 3896 scfm at 50% methane. The landfill gas collection system alterations are expected to increase this gas capture rate by about 600 scfm, resulting in a projected gas capture rate of about 4496 scf by 2013. Both the energy recovery devices and the flares have sufficient capacity to handle all of this collected gas.

Control system capacity is not limiting the gas capture rate at this landfill.

X. STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

This application is for a change of permit conditions at the S-2 Landfill with Gas Collection System that involves some physical alterations of the gas collection system, but that will not involve any modifications to the source (S-2). The gas collection system is part of the landfill gas abatement systems for the landfill. The proposed alterations do not result in any emission increases. Therefore, this application is categorically exempt from CEQA review pursuant to Regulation 2-1-312.2. In addition, the Engineering Evaluation for this application uses fixed standards and objective measurements and does not involve any element of discretion. Consequently, no further CEQA review is required.

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

Regulation 2, Rule 2:

Since this application does not result in any emission increases, this project is not subject to New Source Review (NSR). No new BACT, Offset or PSD requirements will apply.

New Source Review for Toxic Air Contaminants:

This application does not result in any increases of Toxic Air Contaminants (TACs). Therefore, NSR for TACs is not triggered, and no new T-BACT requirements will apply.

Regulation 2, Rule 6:

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act (40 CFR, Part 70) and BAAQMD Regulation 2, Rule 6, Major Facility Review (MFR), because it is a major facility for NO_x and CO emissions and also because it is a designated facility (since it is subject to the control requirements of the Emission Guidelines for MSW

Landfills). Therefore, this facility is required to have an MFR permit pursuant to Regulations 2-6-301 and 2-6-304.

The initial MFR Permit for this facility was issued on December 1, 2003 and was last revised on October 9, 2008. Since this application will result in permit condition modifications, a minor revision of the Title V permit will be required. This Title V permit revision will be handled pursuant to Application # 20252.

Regulation 8, Rule 34:

Waste Management's Altamont Landfill (S-2) is subject to Regulation 8, Rule 34. S-2 is expected to comply with Regulation 8-34-301 by:

(a) continuously operating the gas collection system and continuously operating gas control systems (including S-6, S-7, S-23, S-24, S-210, A-15, and A-16),
(b) having no leaks (exceeding 1000 ppmv) from the gas collection system, and
(c) processing all collected gases in control devices achieving at least 98% NMOC destruction efficiency (or emitting less than 20 ppmv of NMOC from the IC engines and gas turbines).

The S-2 Altamont Landfill is also subject to Regulation 8-34-303, which limits leaks on the surface of the landfill to less than 500 ppmv as methane. This site has generally been complying with the surface leak requirements. However, surface leaks above the standard are occasionally discovered by the facility and are typically eliminated within a few days of discovery. The proposed collection system alterations will keep pace with the expected increases in gas production rate at this site and are expected to prevent excessive surface leaks at this landfill.

For deep interior wells, well spacing should be less than 300 feet with each well achieving a radius of influence of about 150 feet. For perimeter wells, well spacing should be less than 200 feet apart. Based on maps of the gas collection system, the current vertical wells are 150-300 feet apart and appear to be of sufficient density.

When Fill Area 1 reaches full capacity in 2014, it will cover the entire permitted fill area of 9,950,000 ft^2 (about 228 acres). For an area of influence of 70,686 ft^2/well, the landfill should have at least 141 interior wells. The landfill currently has 131 vertical wells and is proposing a net increase of 20 wells. Therefore, this requirement appears to be satisfied.

The final circumference of Fill Area 1 is estimated to be 11,200 feet. If wells are spaced every 200 feet along the circumference of Fill Area 1, the landfill should have at least 56 perimeter wells. Additional perimeter wells will need to be added when this site reaches full capacity.

The proposed collection system alterations are necessary to maintain compliance with the collection system installation dates specified in Regulation 8-34-304. This site is complying with all applicable monitoring requirements (8-34-505-510).

Federal Requirements:

EG for MSW Landfills: The landfill at this facility is subject to the 40 CFR Part 60, Subpart WWW NSPS for Municipal Solid Waste (MSW) Landfills due to the recently approved landfill expansion (See Application # 14814). Compliance with the District's Regulation 8, Rule 34 operating requirements is expected to ensure compliance with all applicable federal NSPS operating provisions. Waste Management is expected to comply with all additional notification and reporting requirements as discussed in the Engineering Evaluation for Application # 14814.

NESHAPs for MSW Landfills: Any landfills that are subject to the landfill gas collection and control requirements of either the NSPS for MSW Landfills or the EG for MSW Landfills are also subject to the NESHAPs for MSW Landfills (40 CFR, Part 63, Subpart AAAA). This NESHAP requires that subject facilities prepare and implement startup, shutdown, malfunction plans and additional reporting requirements. All applicable requirements are contained in the existing MFR permit, and this facility is expected to comply with these requirements.

XI. Permit Condition Revisions

The District is proposing to revise Condition # 19235, Part 1, as shown below in strike through and underline formatting. The proposed revisions to Part 1b(i) identify the collection system alterations that are being authorized pursuant to this Authority to Construct. No other condition changes are proposed.

Condition # 19235
FOR: S-2 ALTAMONT LANDFILL WITH LANDFILL GAS COLLECTION SYSTEM, A-15 LANDFILL GAS FLARE, AND A-16 LANDFILL GAS FLARE:

1. The S-2 Altamont Landfill (Fill Area 1) shall be equipped with a landfill gas collection system, which shall be operated continuously as defined in Regulation 8-34-219, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Section 113. Individual wells, collectors, and adjustment valves shall not be disconnected, removed, or completely closed, without prior written authorization from the District, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Sections 113, 116, 117, or with Part 1c below. The gas collection system shall also be operated in accordance with the wellhead requirements described in Part 1d. (Basis: Regulations 8-34-301.1, 8-34-303, 8-34-304, 8-34-305, and 8-34-404)
    a. The Permit Holder has been issued a Permit to Operate for the landfill gas collection system components listed below as of May 19, 2011. Well and collector locations are as described in detail in Permit Application #20251.

i. The authorized number of landfill gas collection system components is the baseline count listed below plus any components installed and minus any components decommissioned pursuant to subpart 1b, as evidenced by start-up and decommissioning notification letters submitted to the District.
- 130 vertical wells
- 1 horizontal trench collector (shredded tires may be used as fill material)
- 1 leachate collection system clean-out riser

b. The Permit Holder has been authorized to make the landfill gas collection system alterations described below pursuant to Permit Application #~~20251~~23198. All collection system alterations shall comply with subparts 1b(i-vii) below.

i. The authorized collection system alterations are:
- Install up to ~~64~~120 vertical wells
- Permanently decommission up to ~~0~~100 vertical wells
- Install up to ~~20~~25 horizontal trench collectors
- Permanently decommission up to 15 horizontal trench collectors
- Modify wellhead monitoring locations, as needed, provided that each landfill gas collection system component identified in Part 1a and each new collection system component installed per Part 1b is adequately represented by a wellhead monitoring location. The Permit Holder shall maintain documentation on site that identifies all landfill gas collection system components that are represented by each wellhead monitoring location.

ii. The Permit Holder shall apply for and receive a~~n Authority to Construct~~ Change of Conditions before altering the landfill gas collection components described subpart 1a. Installing, altering, or permanently decommissioning a vertical well, horizontal collector, or other gas collection component is subject to ~~the Authority to Construct~~ this requirement, unless this change constitutes a replacement as defined in subpart 1b(iii) below.

iii. Replacement of landfill gas collection system components with identical or functionally equivalent components will not be deemed an alteration and will not subject to ~~the Authority to Construct requirement~~ subpart 1b(ii) under the following circumstances. If a well or collector will be shut down and replaced by a new well or collector in essentially the same

location as the old component and this decommission/installation will be accomplished in accordance with Regulations 8-34-117 and 8-34-118, then this activity shall be considered a component replacement that is not subject to the Authority to Construct requirement. For each individual well or collector replacement, this subpart authorizes a maximum vacuum disconnection time of five consecutive days for compliance with Regulation 8-34-117.5. The disconnected component and the new component shall not be counted toward the subpart 1b(i) limits; the numbers of replacement wells and replacement collectors are not limited. Alterations, repairs, or replacements of non-perforated piping sections (such as risers, laterals, or header pipes), piping connectors, or valves are not subject to ~~the~~ an Authority to Construct requirement.

iv. At least three days prior to initiating operation of a well or collector installed pursuant to subpart 1b, the Permit Holder shall submit a start-up notice to the District that contains the component ID number for each new well or collector and the anticipated initial start-up date for each new component.

v. For each well or collector that is permanently decommissioned after June 20, 2007, the Permit Holder shall submit a decommissioning notice to the District within no later than three working days after the component was disconnected from vacuum system. This decommissioning notice shall contain the component ID for each well or collector that was decommissioned, the date and time that each component was disconnected from the vacuum system, and the reason the component was decommissioned.

vi. Within six months of installing a new component or permanently decommissioning an existing component, the Permit Holder shall prepare an updated map of the landfill gas collection system that identifies the ID numbers and locations of all operable wells and collectors. On this map or in accompanying documentation, the Permit Holder shall summarize all component changes that were made since the last map was prepared. The previous collection system map, the updated collection system map, and the component change summary shall be provided to District staff upon request.

vii. If the Permit Holder has a net reduction (number of decommissioned components minus the number of installed components) of more than five components within a 120-day period, the Permit Holder shall submit a more comprehensive

decommissioning notice to the District. In addition to the information required by subpart 1b(v), this comprehensive decommissioning notice shall include the maps and documentation required by subpart 1b(vi), shall identify all component changes that have occurred but that are not included on the most recently updated map, shall identify any components that are temporarily disconnected from vacuum pursuant to subpart 1c, shall provide estimated vacuum reconnection dates for these components, shall include a list of all well installations that are expected to occur within the next 120 days, and shall discuss the reasons why this reduction in gas collection components is not expected to result in surface emission leaks. Upon request, the Permit Holder shall provide wellhead monitoring data, surface leak monitoring data, records of repair attempts made to date, and other information to support the need for a net collection component reduction of more than five wells. The District may require additional surface monitoring to verify that this net component reduction is not causing landfill surface leaks. The District will notify the Permit Holder in writing of any additional surface monitoring that is required pursuant to this subpart.

c. The Permit Holder may temporarily disconnect individual wells or collectors from the vacuum system, provided that all requirements of this subpart are satisfied. (Basis: Regulation 8-34-404)

i. No more than five (5) landfill gas collection system components (wells or collectors) may be temporarily disconnected from the vacuum system at any one time pursuant to subpart 1c.

ii. For each individual well or collector that is disconnected from the vacuum system pursuant to subpart 1c, the total vacuum system disconnection time shall not exceed 120 days during any 12-month period.

iii. Collection system components that are disconnected from the vacuum system are not subject to wellhead limits (Regulation 8-34-305 or Part 1d, as applicable) or monthly wellhead monitoring requirements (Regulation 8-34-505) during this vacuum disconnection time.

iv. Wells or collectors that are temporarily disconnected from the vacuum system continue to be subject to the component leak limit (Regulation 8-34-301.2) and the quarterly leak testing requirement (Regulation 8-34-503) at all times. In addition, the Permit Holder shall conduct the following component leak monitoring at each component that has been disconnected from the vacuum system

pursuant to subpart 1c: test for component leaks using the procedures identified in Regulation 8-34-602 within 10 calendar days of disconnection from vacuum and again within 1 month of disconnection from vacuum. If a component leak is detected at the well, the Permit Holder shall take all steps necessary to reduce the leak below the applicable limit, including reconnecting the well to the vacuum system, if no other corrective action measures are successful within the time frames allowed by Rule 34.

v. For each well disconnection event, the Permit Holder shall record each affected well ID number, all well disconnection dates and times, all well reconnection dates and times, all related monitoring dates and monitoring results in a District approved log. This log shall also include an explanation of why the temporary well shut down was necessary and shall describe all adjustments or repairs that were made in order to allow this well to operate continuously, to reduce leaks, or to achieve compliance with an applicable limit. All records shall be retained for a minimum of five years and shall be made available to District staff upon request.

d. Each landfill gas collection system component listed in Part 1a shall be operated in compliance with the wellhead limits of Regulation 8-34-305, unless an alternative wellhead limit has been approved for that component and the operator complies with all of the additional requirements identified in this subpart. Components that are subject to an alternative wellhead limit may still use the Regulation 8-34-414 repair schedule for operator discovered excesses of the alternative limit; however, invoking this repair schedule does not replace the monitoring requirements described in Parts 1d(ii-viii). (Basis: Regulations 8-34-305 and 8-34-414)

i. For each of the wells identified in Part 1d(ii), the Regulation 8-34-305.2 wellhead temperature limit does not apply, and the landfill gas temperature at each wellhead shall not exceed 145 degrees F.

ii. The wells that are subject to the Part 1d(i) alternative wellhead temperature limit are:

#449, #474, #475, #477, #484, #487, #497, #500, #501, #513, #515, #519, #523, #526, #547, #548, #557, #559, #564, #565, #566, #568, #569, #570, #571, #574, #579, #601, #603, #611, and #612.

If any other component has a wellhead temperature of 131 degrees F or higher, the operator may elect to add this component to the above list of alternative temperature limit wells by satisfying all of the following requirements:

- The wellhead temperature shall not exceed 145 degrees F.

- The carbon monoxide (CO) concentration in the wellhead gases shall not exceed 500 ppmv.
- Prior to adding a component to the list in this subpart, the operator shall monitor the gas in the component for CO concentration at least two times, with no more than 15 days between tests. CO monitoring shall continue on a monthly basis, or more frequently if required by subparts 1d(iv-vii), until the operator is allowed to discontinue CO monitoring per subpart 1d(vii).
- The operator shall comply with all applicable monitoring and record keeping requirements in subparts 1d(iii-viii).
- The component shall not exceed any wellhead limit other than temperature and shall have had no excesses of wellhead limits (other than temperature) during the 120 days prior to adding this component to the list in this subpart.
- Within 30 days of adding a component to the list in this subpart, the operator shall notify the District in writing that the operator is requesting to add the component to the Part 1d(ii) list of alternative temperature limit wells. This notification shall include the well ID number, a map of the collection system to identify the location of this well, and the dates and results of all monitoring conducted on the well to verify that the above requirements have been satisfied.
- If the Regulation 8-34-414 repair schedule has been invoked for the wellhead temperature excess, and the operator has met the requirements of Sections 414.1 and 414.2, then compliance with the requirements of this subpart shall be deemed an acceptable resolution of the wellhead temperature excess in lieu of the collection system expansion specified in Sections 414.3 and 414.4.

iii. The operator shall demonstrate compliance with the alternative wellhead temperature limit in Part 1d(i) by monitoring and recording the temperature of the landfill gas in each wellhead on a monthly basis, in accordance with Regulations 8-34-501.4, 8-34-501.9, and 8-34-505.

iv. If the temperature of the landfill gas in a wellhead exceeds 140 degrees F, the operator shall investigate the possibility of a subsurface fire at the wellhead by monitoring for CO concentration in the wellhead gases and by searching for smoke, smoldering odors, combustion residues, and other fire indicators in the wellhead and in the landfill area near this wellhead. Within 5 days of triggering a fire investigation, the operator shall measure the CO

concentration in the landfill gas at the wellhead using a portable CO monitor or an EPA approved test method. CO monitoring shall continue according to the frequency specified in subparts 1d(v-vii).

v. If the CO concentration is greater than 500 ppmv, the operator shall immediately take all steps necessary to prevent or extinguish the subsurface fire, including disconnecting the well from the vacuum system if necessary. If the well is not disconnected from the vacuum system or upon reconnecting a well to the vacuum system, the operator shall monitor the well for CO concentration, wellhead temperature, and other fire indicators on at least a weekly basis until the CO concentration drops to 500 ppmv or less.

vi. If the CO concentration is less than or equal to 500 ppmv but greater than 100 ppmv, the operator shall monitor for CO concentration at least twice per month (not less than once every 15 days) until the CO concentration drops to 100 ppmv or less. Wellhead temperature and other fire indicators shall be evaluated at each of these semimonthly-monitoring events.

vii. If the CO concentration is less than or equal to 100 ppmv, the operator shall monitor for CO concentration on a monthly basis. CO monitoring may be discontinued if three consecutive CO measurements are 100 ppmv or less and the wellhead temperature during each of these three monitoring events is 140 degrees F or less. If a component has three or more CO measurements of 100 ppmv or less but the wellhead temperature was greater than 140 degrees F, the operator must receive written approval from the District before discontinuing the monthly CO monitoring at that component.

viii. The permit holder shall record the dates and results of all monitoring events required by this subpart in a District approved log. If Part 1d(v) applies, the operator shall also describe all actions taken to prevent or extinguish the fire.

XII. RECOMMENDATION

Issue a Change of Conditions for Condition # 19235 that will authorize the landfill gas collection system alterations described below.

S-2 Altamont Landfill with Landfill Gas Collection System

- Install up to 120 additional vertical wells
- Permanently decommission up to 100 vertical wells
- Install up to 25 additional horizontal trench collectors
- Permanently decommission up to 15 horizontal trench collectors

By: Carol S. Allen Date
Senior Air Quality Engineer

APPENDIX E

REPORTS FOR NEW FLARE AND FLARE CONDITION CHANGES

TITLE V APPLICATION # 19207

NSR APPLICATIONS # 19206 & 21044

ENGINEERING EVALUATION

APPLICATION # 19206

Waste Management of Alameda County; Site # A2066

A. BACKGROUND

Waste Management of Alameda County operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). This facility includes an active municipal solid waste landfill (S-2 Altamont Landfill). As required by BAAQMD Regulation 8, Rule 34, this landfill is equipped with an active landfill gas collection system and a landfill gas control system. The current landfill gas control system includes: two 3 MW landfill gas fired turbines (S-6 and S-7 Gas Turbines), two 1877 bhp landfill gas fired Engines (S-23 and S-24 IC Engines), and one 71 MM BTU/hour enclosed flare (A-15 Landfill Gas Flare). The site also has numerous permitted and exempt devices that support the landfill, including: waste water processing operations, green waste storage and processing operations, portable and emergency standby power generation, and a non-retail gasoline dispensing facility.

Waste Management submitted Application # 19206 to request an Authority to Construct and Permit to Operate for a new Landfill Gas Flare (A-16). This new flare will control emissions from a proposed new Liquefied Natural Gas (LNG) Plant (S-210), and it will provide additional back-up landfill gas control capacity for the existing Fill Area 1 of the S-2 Altamont Landfill. The A-16 Flare will also be equipped to burn landfill gas condensate (up to 5 gallons/minute). The alternative operating scenarios are described in more detail below.

Currently, landfill gas collected from Fill Area 1 is controlled by the S-6 and S-7 Gas Turbines, the S-23 and S-24 IC engines, and the A-15 Flare. Landfill gas is preferentially vented to the energy recovery devices. However, the current landfill gas collection rate (3670 scfm) exceeds the capacity of these energy recovery devices. The additional collected gas is currently being abated by the A-15 Flare.

Waste Management has requested an Authority to Construct and Permit to Operate (Application # 19045) for a new LNG Plant (S-210) that will clean the landfill gas collected from Fill Area 1 and process it into a concentrated liquid methane stream. The carbon dioxide waste gas stream from the S-210 LNG Plant will be blended with landfill gas and abated by A-16. A-16 will also control emissions from S-210 during various LNG Plant start-up procedures, maintenance activities, and trip/upset scenarios.

When the LNG Plant is not operating, the A-16 Flare will be available to control collected landfill gas that exceeds the capacity of the current energy recovery devices (S-6, S-7, S-23, and S-24). In the future, the A-15 Flare will only be used when one of these energy recovery devices

goes down and only if the landfill gas collection rate exceeds the capacity of the remaining operating equipment.

Landfill Gas Control System Capacity Requirements:

The federal Emission Guidelines for Municipal Solid Waste Landfills (40 CFR Part 60, Subpart Cc) requires that landfills subject this requirement have sufficient landfill gas control system capacity to control all of the landfill gas that is expected to be generated by the landfill during the life of the collection system. For this site, the existing permitted landfill (Fill Area 1 of the S-2 Altamont Landfill) is expected to reach its peak landfill gas generation rate within 4 or 5 years. Therefore, the control system for Fill Area 1 should be equipped to handle this peak gas generation rate for Fill Area 1 (8616 scfm of landfill gas at 50% methane, which is equivalent to 2.251E6 MM BTU/year of heat input). In addition, the back-up control devices (in this case, the landfill gas flare) ought to have sufficient capacity to handle the maximum expected gas capture rate for Fill Area 1. If the 50% gas capture rate for 2008 is applied to the maximum projected gas generation rate for Fill Area 1, the maximum expected gas capture rate is 4307 scfm of landfill gas at 50% methane (equivalent to 1.125E6 MM BTU/year). The current and proposed landfill gas control system capacities for various proposed operating scenarios are compared to these minimum capacity requirements in Table 1 on the following page.

As shown in Table 1, the current total control system capacity (1.767E6 MM BTU/year) does not satisfy the minimum control system capacity requirement for Fill Area 1, because it is not sufficient to handle the maximum projected gas generation rate for Fill Area 1 (2.251E6 MM BTU/year). Consequently, additional landfill gas control system capacity is necessary for Fill Area 1. In addition, the current flare capacity (0.622E6 MM BTU/year) is less than both the maximum expected gas capture rate (1.125E6 MM BTU/year) and the current actual average gas capture rate (0.957E6 MM BTU/year). Therefore, Fill Area 1 needs more flaring capacity, in case none of the energy recovery devices are able to operate.

After installation of the new A-16 Flare and until the proposed LNG Plant is installed and operating, landfill gas will preferentially be sent to the energy recovery devices (S-6, S-7, S-23 and S-24) and then to A-16. As shown in Table 1, this proposed operating scenario provides the minimum landfill gas control capacity that is required for Fill Area 1.

After installation of the LNG Plant, landfill gas will preferentially be delivered to the LNG Plant and A-16 (at a reduced rate that is sufficient to control the LNG Plant waste gas emissions) and then to the energy recovery devices. This proposed operating scenario also provides the minimum required landfill gas control system capacity for Fill Area 1.

While the other operating scenarios presented in Table 1 do not satisfy the minimum control system capacity requirement (total capacity for operating devices is less than 2.251 MM BTU/year), these alternative operating scenarios and the operation of A-16 alone will provide sufficient control capacity to handle the maximum expected gas capture rate (at least 1.125E6 MM BTU/year) for Fill Area 1. Therefore, these alternative operating scenarios are acceptable back-up operating scenarios for the two main operating scenarios discussed above.

Table 1. Comparison of Current and Proposed Control System Capacities for Various Possible Operating Scenarios

	Current: Control System Capacity MM BTU/year	Proposed: Turbines & Engines plus New Flare MM BTU/year	Proposed: Turbines & Engines Plus LNG Plant MM BTU/year	Proposed: LNG Plant Plus Both Flares MM BTU/year	Proposed: LNG Plant Plus New Flare MM BTU/year	Proposed: Flares Only MM BTU/year
S-6 Gas Turbine, landfill gas fired	0.4192 E6	0.4192 E6	0.4192 E6			
S-7 Gas Turbine, landfill gas fired	0.4192 E6	0.4192 E6	0.4192 E6			
S-23 IC Engine, landfill gas fired, 1877 bhp	0.1533 E6	0.1533 E6	0.1533 E6			
S-24 IC Engine, landfill gas fired, 1877 bhp	0.1533 E6	0.1533 E6	0.1533 E6			
S-210 LNG Plant, 1500 MM BTU/day			0.5475 E6	0.5475 E6	0.5475 E6	
A-15 Landfill Gas Flare	0.6218 E6			0.6218 E6		0.6218 E6
A-16 Landfill Gas Flare		1.1563 E6	0.7074 E6	0.7074 E6	0.7074 E6	1.1563 E6
Total For Energy Recovery Devices & LNG Plant	1.145 E6	1.145 E6	1.693 E6	0.548 E6	0.548 E6	
Total For LFG Flares	0.622 E6	1.563 E6	0.707 E6	1.572 E6	0.707 E6	1.778 E6
Total For All Operating LFG Control Devices	1.767 E6	2.301 E6	2.400 E6	1.877 E6	1.255 E6	1.778 E6
Required Control System Capacity for Fill Area 1	2.251 E6	2.251 E6	2.251 E6	2.251 E6	2.251 E6	2.251 E6
2008 Actual Average Collection Rate	0.958 E6					
2008 Projected Gas Generation Rate	1.917 E6					
2008 Gas Collection System Capture Efficiency	49.98%					
Maximum Expected Gas Capture Rate	1.125 E6	1.125 E6	1.125 E6	1.125 E6	1.125 E6	1.125 E6

B. EMISSIONS

The A-16 Flare has a maximum heat input rate of 132 MM BTU/hour (4400 scfm of Landfill Gas at 500 BTU/scf) and may operate continuously (24 hours/day and 365 days/year). The criteria and toxic air contaminant emissions from A-16 were calculated based on the assumption that A-16 is burning landfill gas collected from Fill Area 1 at these maximum possible operating rates. The criteria pollutant emissions from A-16 are summarized in Table 2. The toxic air contaminant (TAC) emissions for the TACs with the largest health impacts are summarized in Table 3.

When the flare is abating the S-210 LNG Plant, the LNG Plant waste gases will be blended with a sufficient amount of landfill gas to obtain at least 30% methane in the blended gas, which is the minimum inlet methane concentration necessary for the flare to meet its guaranteed destruction efficiency levels. The maximum inlet flow rate is expected to be 3000 scfm while the LNG Plant is operating. The waste gas is derived from processing landfill gas and will have similar TAC constituents. While the blended gas may have slightly higher concentration levels of a few individual TACs compared to landfill gas alone, the inlet mass flow rate for each TAC in this blended gas is expected to be lower than the inlet mass flow rate when the flare is burning strictly landfill gas at the maximum flow rate of 4400 scfm. Likewise, condensate injection is not expected to result in a higher inlet mass flow rate of TACs than the inlet TAC flow rate that occurs when the flare is burning 4400 scfm of landfill gas. Since A-16 is expected to achieve at least 98% destruction for each individual TAC, regardless of whether the flare is burning condensate, waste gases, or landfill gas alone, these alternative operating scenarios will not result in any higher outlet POC or TAC emission rates than the levels listed in Tables 2 and 3.

Table 2. Maximum Criteria Pollutant Emissions From A-16 Landfill Gas Flare

Pollutant	Abated Emission Factor lbs / M scf	Abated Emission Factor lbs / MM BTU	Maximum Hourly Emissions lbs/hour	Maximum Daily Emissions lbs/day	Max Proposed Annual Emissions tons/year	Max Permitted Annual Emissions tons/year
NO_x	0.02982	0.06000	3.936	190.08	34.690	34.690
CO	0.09939	0.20000	13.119	633.60	115.632	95.000
PM_{10}	0.00850	0.01710	1.122	54.19	9.889	9.889
SO_2	0.03310	0.06662	4.370	211.04	38.515	38.515
POC	0.00695	0.01398	0.917	44.29	8.083	8.083
NPOC	0.00014	0.00028	0.018	0.89	0.162	0.162

Table 3. Summary of Significant TAC Emissions From A-16 Landfill Gas Flare

Significant TACs	LFG Concentration ppbv	Abated Factor lbs/M scf	Abated Factor lbs/MM BTU	Hourly Emissions Pounds/Hour	Annual Emissions Pounds/Year
Acrylonitrile	500	1.371E-06	2.759E-06	3.642E-04	3.2
Benzene	3500	1.413E-05	2.843E-05	3.753E-03	32.9
Benzyl Chloride	600	3.956E-06	7.961E-06	1.051E-03	9.2
1,3 Butadiene	16600	4.640E-05	9.338E-05	1.233E-02	108.0
Carbon Tetrachloride	100	7.949E-07	1.600E-06	2.112E-04	1.8
Chloroform	100	6.169E-07	1.241E-06	1.639E-04	1.4
1,4 Dichlorobenzene	2800	2.127E-05	4.280E-05	5.650E-03	49.5
1,4 Dioxane	8	3.775E-08	7.596E-08	1.003E-05	0.1
Ethylene Dibromide	100	9.708E-07	1.954E-06	2.579E-04	2.3
Ethylene Dichloride	250	1.279E-06	2.573E-06	3.396E-04	3.0
Ethylidene Dichloride	1700	8.694E-06	1.749E-05	2.309E-03	20.2
Formaldehyde		1.800E-04	3.622E-04	4.781E-02	418.8
Hydrogen Bromide	2000	4.181E-04	8.414E-04	1.111E-01	973.0
Hydrogen Chloride	110000	1.036E-02	2.085E-02	2.753E+00	24114.3
Hydrogen Fluoride	15000	7.754E-04	1.560E-03	2.060E-01	1804.3
Hydrogen Sulfide	200000	3.522E-04	7.087E-04	9.355E-02	819.5
Isopropyl Alcohol	140000	4.348E-04	8.749E-04	1.155E-01	1011.7
Methyl Bromide	200	9.813E-07	1.975E-06	2.606E-04	2.3
Methyl t-Butyl Ether	400	1.822E-06	3.667E-06	4.840E-04	4.2
Methylene Chloride	15000	6.584E-05	1.325E-04	1.749E-02	153.2
Perchloroethylene	8000	6.856E-05	1.380E-04	1.821E-02	159.5
1,1,2,2 Tetrachloroethane	550	4.771E-06	9.600E-06	1.267E-03	11.1
Toluene	200000	9.523E-04	1.916E-03	2.530E-01	2216.0
1,1,2 Trichloroethane	100	6.894E-07	1.387E-06	1.831E-04	1.6
Trichloroethylene	1700	1.154E-05	2.323E-05	3.066E-03	26.9
Vinyl Chloride	1200	3.876E-06	7.799E-06	1.030E-03	9.0
Xylenes	90000	4.938E-04	9.937E-04	1.312E-01	1149.0

Criteria Pollutant Emission Factors:

The NO_x and CO emission factors for A-16 are equal to the current RACT requirements for enclosed landfill gas flares: 0.06 pounds of NO_x per MM BTU and 0.20 pounds of CO per MM BTU. The flare vendor has guaranteed compliance with these emission limits for this flare while it is operating between 1400 °F and 1650 °F.

As indicated in Table 2, the proposed CO emission rate from A-16 will exceed 100 tons/year if no restrictions are placed on operation of this flare. Projects resulting in more than 100 tons/year of emission increases require a public notice and public comment pursuant to Regulation 2-2-405. Waste Management has requested that the District expedite this application so that the LNG Plant can be installed on schedule. In the interest of expediting the issuance of the Authority to Construct for this project and the related LNG project, the District and Waste Management have agreed to limit the annual CO emissions from A-16 to 95 tons/year. Compliance with this CO emission limit can be accomplished by either demonstrating that the heat input to A-16 does not exceed 950,000 MM BTU/year or by demonstrating that the actual CO emissions from A-16 do not exceed 0.164 pounds of CO per MM BTU. Waste Management has acknowledged that a public notice and public comment period would be required if this annual CO emission limit is increased in the future.

The PM_{10} emission factor for A-16 is derived from the AP-42 emission factor of 17 lbs PM_{10}/MM dscf of CH_4 burned. The Altamont Landfill gas is assumed to contain 50% methane with a heat content of 496.943 BTU/dscf. The PM_{10} factor is calculated below:
(17 lbs PM_{10}/1E6 dscf CH_4)*(0.5 dscf CH_4/1.0 dscf LFG)/(496.943 BTU/dscf LFG)*
(1E6 BTU/MM BTU) = 0.01710 lbs PM_{10}/MM BTU

The sulfur dioxide (SO_2) emission factor is derived from the Condition # 19235, Part 11 landfill gas sulfur content limit of 200 ppmv of TRS expressed as H_2S. Assuming all of the TRS in the landfill gas is converted to SO_2, the proposed TRS limit is equivalent to the SO_2 emission factor derived below:
(200 scf H_2S/1E6 scf LFG)*(1 scf SO_2/1 scf H_2S)/(387.006 scf SO_2/lbmol SO_2)*
(64.059 lbs SO_2/lbmol)/(496.943 BTU/scf LFG)*(1E6 BTU/MM BTU)
= 0.06662 lbs SO_2/MM BTU

The POC and NPOC emission factors for A-16 are derived from the Regulation 8-34-301.3 outlet NMOC concentration limit of 30 ppmv of NMOC as methane at 3% oxygen. This NMOC outlet concentration limit results in higher emissions than organic emissions calculated using the NMOC inlet concentration limit (600 ppmv of NMOC as hexane in landfill gas) and 98% destruction efficiency. The POC emission rate is assumed to be 100% of the NMOC emission rate, while the NPOC emission rate is assumed to be no more than 2% of the total NMOCs, based on site-specific NPOC concentration data. Detailed calculations are available in the attached spreadsheets. The derived organic emission factors for the flares are:
0.01398 lbs POC/MM BTU and 0.00028 lbs NPOC/MM BTU.

Toxic Emission Factors:

Residual TAC emissions from A-16 include all of the compounds listed in Table 3, except formaldehyde, hydrogen bromide, hydrogen chloride, and hydrogen fluoride. Maximum proposed residual landfill gas emissions from the flares were calculated based on the inlet landfill gas TAC concentrations listed in Table 3, the molecular weights for these TACs, and an assumed flare destruction efficiency of 98% by weight for each individual compound. For most of these residual TACs, the maximum expected inlet landfill gas concentration listed in Table 3 was derived from the annual landfill gas characterization tests that Waste Management conducted during 2002 through 2008. For compounds that were not tested at this site (1,3 butadiene, and 1,4 dioxane), the inlet concentrations were estimated based on AP-42 default concentration data. Detailed calculations are presented in the attached spreadsheets.

The secondary formaldehyde emission rate from A-16 was calculated using the CATEF emission factor for landfill gas fired turbines.

Secondary acid gas emission factors (HBr, HCl, and HF) were calculated from the following estimated ion concentrations: 2,000 ppbv of bromine, 110,000 ppbv of chlorine, and 15,000 ppbv of fluorine. These ion concentrations were derived from the 2002-2008 analytical data.

Cumulative Emission Increases:

The S-2 Altamont Landfill (Fill Area 1) is a grandfathered source that was initially permitted prior to April 5, 1991. Although the District is evaluating a proposed landfill expansion for S-2 pursuant to Application #14814, this current flare project (Application #19206) does not involve any changes in the capacity of Fill Area 1. The additional control capacity provided by the proposed A-16 Landfill Gas Flare is necessary to meet current regulatory requirements for Fill Area 1, regardless of whether or not the District grants the requested expansion into Fill Area 2. Therefore, the S-2 Altamont Landfill remains a grandfathered source for the purposes of Application # 19206.

The maximum potential POC and NPOC waste decomposition emissions attributed to the grandfathered S-2 Altamont Landfill include the fugitive POC and NPOC emissions that escape from S-2 plus a minimum level of residual POC and NPOC emissions that are emitted from required landfill gas control equipment. As discussed in the Background Section, the A-16 Landfill Gas Flare is a required control device for the existing permitted S-2 Altamont Landfill (Fill Area 1). Although the residual POC and NPOC emissions from A-16 have not been identified before, these residual emissions are part of the existing potential to emit for the grandfathered S-2 Altamont Landfill. Therefore, these residual POC and NPOC emissions are not considered to be emission increases for Application # 19206.

Since the A-16 Landfill Gas Flare is a new device and all permitted secondary emissions A-16 will be in addition the permitted emission levels from other existing control devices, the secondary emissions from A-16 shall be considered Cumulative Emission Increases for this application. Cumulative Emission Increases for this application are summarized in Table 4.

Since this site has more than 35 tons/year of NO_x emissions, NO_x emission increases are subject to Regulation 2-2-302 offset requirements. However, the A-16 Landfill Gas Flare

qualifies for the H&S Code 42301.2 offset relief provisions, because the NO_x emission increases from A-16 are secondary emissions from a required abatement device, and the capacity of the source being abated is not increasing. Therefore, the District will provide the necessary NO_x emission offsets for the A-16 Landfill Gas Flare on behalf of the applicant. To ensure that NO_x offset requirements are not avoided or circumvented in the future, the A-16 Flare, the proposed S-210 LNG Plant, and all other existing landfill gas combustion devices will be limited to burning or processing landfill gas collected from Fill Area 1 only.

Table 4. Cumulative Emission Increase Inventory Changes for Application # 19206

Pollutant	Current Balance Tons/Year	Emission Increases Tons/Year	Offsets From Account # 1157 Tons/Year	New Balance Tons/Year
CO	76.226	95.000		171.226
SO_2	9.290	38.515		47.805
NO_x	0.000	34.690	39.894	0.000
PM_{10}	7.562	9.889		17.451

Facility-Wide Potential to Emit:

The A-16 Landfill Gas Flare was included in the facility-wide Potential to Emit (PTE) summary to determine the applicability of various District and federal requirements. This PTE summary is presented in Table 5. The potential to emit for a site is generally determined by summing the maximum permitted or maximum potential emission rate for each source at the site. However, after A-16 is installed, this facility will have more total landfill gas combustion capacity (11,380 scfm) than the maximum projected landfill gas generation rate for Fill Area 1 (8618 scfm). Therefore, it is not feasible for all landfill gas combustion devices at this site to be operating simultaneously at their maximum permitted emission rates.

At the maximum permitted annual throughput rates, the engines and turbines can burn up to 4384 scfm of landfill gas. Based on a comparison of the actual landfill gas collection rate for 2008 versus the projected landfill gas generation rate for 2008, the landfill gas collection system is capturing 50% of the projected gas generation rate. Applying this capture rate to the maximum projected gas generation rate for Fill Area 1 yields a maximum expected landfill gas collection rate of 4307 scfm for Fill Area 1, which is less than the combined capacity of the turbines and engines. Thus, it is highly unlikely that that flares would be used at all, if the engines and turbines were running simultaneously at their maximum capacities. In this case, the maximum potential emissions due to landfill gas combustion would be due to turbine and engine emissions only (87.4 tons/year of NO_x, 169.6 tons/year of CO, etc.). If the flares were operating at the maximum expected collection rate 4307 scfm instead of the engines and turbines, these flare emissions would be less than the combined permitted emissions from the turbines and engines for all pollutants except SO_2, because the flares were subjected to a less stringent RACT fuel sulfur content limit than the BACT fuel sulfur content limits for the turbines and engines. For this “flares only” operating scenario, maximum flare emissions would be 37.5 tons/year of SO_2. The site-wide potential to emit for landfill gas combustion devices has been corrected at the bottom of Table 5 to reflect these two feasible operating scenarios with a site-wide maximum landfill gas combustion rate of 4307 scfm.

Table 5. Facility Wide Potential to Emit for Plant # 2066, January 2009

		Criteria Pollutants (Tons/Year)				
Device #	Device Description	PM10	POC	NOx	SO2	CO
S-2	Altamont Landfill	387.519	75.849	0.000	0.000	0.000
S-6	Gas Turbine	5.475	8.762	32.847	10.477	46.724
S-7	Gas Turbine	5.475	8.762	32.847	10.477	46.724
S-12	Knockout Vessel	0.000	0.002	0.000	0.000	0.000
S-19	Transfer Tank with Siphon Pump	0.000	0.043	0.000	0.000	0.000
S-20	Treated Effluent Storage Tank	0.000	0.001	0.000	0.000	0.000
S-23	Internal Combustion Engine	3.702	4.193	10.875	4.642	38.062
S-24	Internal Combustion Engine	3.702	4.193	10.875	4.642	38.062
S-28	Condensate Storage Tank	0.000	0.002	0.000	0.000	0.000
S-29	Green Waste Stockpiles	0.158	0.000	0.000	0.000	0.000
S-30	Portable Green Waste Grinder	3.402	0.000	0.000	0.000	0.000
S-31	Portable Diesel Engine for the Green Waste Grinder	0.161	0.161	9.998	0.270	5.805
S-99	Non-Retail Gasoline Dispensing Facility (GDF # 7123)	0.000	0.023	0.000	0.000	0.000
S-130	Equalization Tank	0.000	0.000	0.000	0.000	0.000
S-140	SBR 1, Aerated Biological Reactor	0.000	0.308	0.000	0.000	0.000
S-141	SBR 2, Aerated Biological Reactor	0.000	0.308	0.000	0.000	0.000
S-180	Sludge Thickening Tank	0.000	0.000	0.000	0.000	0.000
S-193	Diesel Engine (Emergency Generator at Fire Pump)	1.321	1.534	18.788	0.221	4.047
S-196	Diesel Engine (Emergency Generator at Scale House)	0.008	0.010	0.121	0.001	0.026
S-197	Diesel Engine (Portable Generator at Break Trailer)	0.737	0.855	10.479	0.123	2.257
S-198	Diesel Engine (Portable Generator for Vacuum Truck Pump)	1.600	1.858	22.758	0.267	4.902
S-199	Standby Engine (Flare Station)	0.002	0.002	0.032	0.002	0.017
S-200	Standby Engine (WWTP)	0.003	0.003	0.061	0.004	0.054
S-201	Standby Engine (Mntnc. Shop)	0.003	0.003	0.061	0.004	0.054
A-15	Landfill Gas Flare	5.318	4.435	18.654	20.711	93.268
A-16	Landfill Gas Flare	9.889	8.063	34.690	38.515	95.000

Device # Device Description	Criteria Pollutants (Tons/Year) PM10	POC	NOx	SO2	CO
Total for Landfill Gas Combustion Equipment	33.561	38.408	140.788	89.464	357.840
Total for All Other Sources	394.914	80.962	62.298	0.892	17.163
Total (sum of emissions for each source)	428.475	119.370	203.086	90.356	375.003
Total for LFG Combustion at Max Collection Rate	18.354	25.910	87.444	37.472	169.572
Total for All Other Sources	394.914	80.962	62.298	0.892	17.163
Total Feasible PTE for Site	413.268	106.872	149.742	38.364	186.735
Total Feasible PTE, excluding fugitives	25.591	31.023	149.742	38.364	186.735

Since landfill facilities are not one of 28 special PSD categories, landfill facilities are subject to a PSD major facility threshold of 250 tons/year for each of the pollutants listed in Table 5. In addition, fugitive emissions are excluded from this 250 ton/year major facility threshold. As shown in Table 5, the total feasible PTE (excluding fugitive PM_{10} and fugitive POC emissions) is less than 250 tons/year for each pollutant. Therefore, this site is not a PSD facility.

Since this site will emit more than 100 tons/year of NO_x and CO, Waste Management of Alameda County is a Title V major facility for these pollutants. It is not major for PM_{10}, POC, or SO_2 emissions.

Since NO_x and POC emissions (including fugitive POC emissions) are each greater than 35 tons/year, any NO_x or POC emission increases are subject to Regulation 2-2-302 offset requirements, and this site is not allowed withdraw emission reduction credits from the small facility banking account, except under special circumstances when state regulations authorizing offset relief supersede these District offsetting requirements.

Since this site is not a major facility for PM_{10} or SO_2, the Regulation 2-2-303 offset requirements do not apply to this facility.

C. STATEMENT OF COMPLIANCE

Regulation 2, Rule 1 (CEQA and Public Notification Requirements):

This application involves the permitting of an abatement device with no modification of the landfill source. This device will provide back-up control capacity to other existing landfill gas

control devices. This project will have no significant impact of biological resources, water quality, dust, smoke, odors, noise, or the need for municipal services. Since this application involves a permit for an abatement device only and there is no possibility that this device will have any significant adverse environmental impact, this application is categorically exempt from CEQA review pursuant to Regulation 2-1-312.2. No further CEQA review is required.

This site is a major facility, because NO_x and CO emissions have the potential to exceed 100 tons/year of CO, but this application is not for a new major facility. The landfill and flares are subject to source-specific MACT requirements instead of the Regulation 2-2-317 MACT requirement. As shown in Table 4, the cumulative emission increases for this application are less than the Regulation 2-2-221 major modification levels (40 tons/year of POC, NO_x, or SO_2, 15 tons/year of PM_{10}, and 100 tons/year of CO). Therefore, this application will not be subject to the Regulation 2-2-405 publication and public comment requirements.

The project is over 1000 feet from the nearest school and is therefore not subject to the public school notification requirements of Regulation 2-1-412.

Regulation 2, Rule 2 (New Source Review: BACT/RACT)

Regulation 8, Rule 34 requires that the S-2 Altamont Landfill be equipped to collect and control landfill gas in landfill gas flares or energy recovery devices in order to reduce POC emissions caused by waste decomposition in the landfill. The A-15 and A-16 Landfill Gas Flares are necessary to meet these BARCT requirements of Regulation 8, Rule 34. Pursuant to Regulation 2-2-112, the secondary emission increases from the A-16 Flare (NO_x, CO, SO_2, and PM_{10}) are exempt from the BACT requirements of Regulation 2-2-301, because A-16 is complying with BARCT for POC emissions. Regulation 2-2-112 requires that NO_x, CO, SO_2, and PM_{10} emissions from A-16 comply with RACT instead of BACT. As discussed in more detail below, A-16 will comply with RACT for each of these pollutants.

RACT for NO_x: The District's BACT/TBACT Workbook (Document # 80.1 12/16/91), the RACT limit for NO_x emissions from a landfill gas flare is 0.06 pounds NO_x/MM BTU. The District has permitted numerous other new landfill gas fired flares at this emission limit. While it may be feasible to achieve a lower NO_x emission level, the proposed NO_x limit allows a reasonable compliance margin and is accepted as RACT for landfill gas fired flares. Permit conditions will require that both the existing A-15 Flare and the new A-16 Flare meet this NO_x RACT limit. Waste Management will demonstrate compliance with this limit by conducting an annual source test. Annual source testing is a standard method of demonstrating compliance with NO_x RACT limits.

RACT for CO: RACT for CO is the same as the BACT requirements for POC and includes the use of an enclosed ground flare with (1) a minimum retention time of 0.6 seconds, (2) a minimum combustion zone temperature of 1400 °F, and (3) automatic controls for combustion air, gas shut-off, and flare restart. The existing A-15 Flare and the new A-16 Flare are enclosed ground flares that meet the three design criteria identified above. Therefore, A-15 and A-16 satisfy the RACT requirements for CO emissions. To ensure adequate POC destruction, permit conditions will require that the new A-16 Flare be maintained at a minimum combustion zone temperature of at least 1400 °F and will require Waste Management to demonstrate compliance with this temperature limit by continuously monitoring and recording the combustion zone

temperature. The District typically issues a CO limit of 0.20 pounds CO/MM BTU for new landfill gas flares. Permit conditions will require the A-16 Flare to meet this CO RACT limit. Waste Management will demonstrate compliance with this limit by conducting an annual source test. Annual source testing is a standard method of demonstrating compliance with CO RACT limits.

RACT for PM_{10}: PM_{10} emissions from landfill gas flares are low with emission rates that are similar to natural gas combustion. The use of fuel pretreatment systems to remove large particles and excess water are considered RACT for PM_{10} emissions from landfill gas fired flares. Since A-16 will be equipped with a fuel pretreatment system, it will comply with RACT for PM_{10} emissions. PM_{10} emissions monitoring is not justified for this new flare, because the emissions are low (less than 10 tons/year) and the expected grain loading rate of 0.0124 gr/dscf (see discussion for Regulation 6, Rule 1 below for calculations) is less than 10% of the limit (0.15 gr/dscf).

RACT for SO_2: Application # 10874 contains a detailed discussion of the SO_2 RACT determination for landfill gas flares. The District determined that landfill gas sulfur treatment systems do not constitute a "reasonably" available control measure for landfill gas containing less than about 500 ppmv of total reduced sulfur compounds. Instead, RACT for SO_2 emissions from landfill gas combustion operations was determined to be compliance with reasonable landfill gas sulfur content limits for the site. The District previously determined that 200 ppmv of TRS was a reasonable sulfur content limit for this site. The proposed A-16 Flare will be subject to this same existing limit.

Regulation 2, Rule 2 (New Source Review: Offsets)

Regulation 2-2-302 currently requires offsets for NO_x and POC emission increases if facility-wide emissions of that pollutant are greater than 10 tons/year. If facility-wide emissions are greater than 35 tons/year of NO_x or POC, the facility must usually provide their own offsets. However, H&S Code §42301.2 supersedes this District requirement, if the emission increases are due to secondary emissions from abatement devices, and if the capacity of the source being abated is not increasing.

> 42301.2. A district shall not require emission offsets for any emission increase at a source that results from the installation, operation, or other implementation of any emission control device or technique used to comply with a district, state, or federal emission control requirement, including, but not limited to, requirements for the use of reasonably available control technology or best available retrofit control technology, unless there is a modification that results in an increase in capacity of the unit being controlled.

Since this application does not involve any increases to the landfill and the A-16 Flare is necessary for compliance with BARCT requirements, H&S Code §42301.2 applies to the secondary pollutant emission increases from the flare in this application. Per Brian Bateman's direction and to ensure that no net increase requirements are fully satisfied, the District will provide the necessary emission reduction credits from an account created for projects subject to this H&S Code and funded from the small facility banking account.

From Table 4, this application will result in net cumulative increases of 34.690 tons/year of NO_x. The offset ratio is 1.15 to 1.0. Therefore, this application requires 39.894 tons/year of NO_x offsets from the H&S Code §42301.2 account. To prevent circumvention of these offset requirements, the A-16 Flare will be limited to controlling landfill gas from Fill Area 1 only. If the A-16 is permitted to control emissions from the proposed landfill expansion (Fill Area 2) in the future, any NO_x emission increases associated with this condition change will be subject to District offset requirements and Waste Management will be required to reimburse the District for the offsets provided pursuant to Application # 19206.

Regulation 2-2-303 requires offsets for SO_2 and PM_{10} emission increases if (a) the site is a major facility and (b) facility-wide emissions of SO_2 or PM_{10} are greater than 100 tons/year. Since this site is not a major facility of SO_2 or PM_{10} emissions, SO_2 and PM_{10} offsets are not required.

Regulation 2, Rule 5 (NSR of Toxic Air Contaminants):

Regulation 2, Rule 5 applies to projects, as defined in Regulation 2-5-216. As explained in the HRSA report for this application, the proposed new A-16 Flare is related to the proposed S-210 LNG Plant project in Application # 19045. The residual TAC emissions from A-16 will be due in part to control of S-210, which is a new source of TAC emissions. As a conservative assumption, the District evaluated the health impacts due to all TAC emissions (secondary and residual) from A-16, while A-16 was operating continuously at the maximum possible operating rate of 132 MM BTU/hour.

The District conducted this HRSA using the ISCST3 air dispersion model. Rural dispersion coefficients, Screen3 meteorological data, and real terrain data (Altamont, Byron Hot Springs, Clifton Court Forebay, and Midway quadrangles) were used in the dispersion model to determine 1-hour ground level concentrations. Detailed calculation procedures for the ISCST3 input factors are presented in the attached HRSA. Maximum health impacts for the TAC emissions from A-16 are presented in Table 6.

Table 6. Health Impacts Due to TAC Emissions from A-16 Flare

	Cancer Risk Per Million	*Chronic Hazard Index*	*Acute Hazard Index*
Worker	***0.43***	***0.06***	***0.01***
Resident	***0.37***	***0.04***	

Since the health risks from A-16 are less than the TBACT trigger levels of 1 in a million cancer risk and 0.2 chronic HI, TBACT is not required for A-16. Project health risks are less than the Regulation 2-5-302 limits of 10 in a million cancer risk, 1.0 chronic HI, and 1.0 acute HI. Therefore, this project will satisfy all Toxic NSR requirements.

Regulation 2, Rule 6 (Major Facility Review):

This facility is subject to MFR Permit requirements pursuant to Regulation 2-6-301, because it has the potential to emit more than 100 tons per year of nitrogen oxides and carbon monoxide.

It is also subject to MFR Permit requirements pursuant to Regulation 2-6-304, because it is a designated facility that is subject to the requirements of 40 CFR, Part 60, Subpart Cc Emission Guidelines for MSW Landfills.

The District issued the initial MFR Permit for this facility (Site # A2066) on December 1, 2003. This MFR Permit was last revised October 9, 2008. Waste Management has submitted Application # 19027 for the MFR permit changes necessary to include this new flare. These MFR permit revisions will be discussed in the Statement of Basis for Application # 19027.

Regulation 6, Rule 1 (General Requirements):

Particulate matter emissions from the A-16 Landfill Gas Flare are subject to Regulation 6. Section 6-310 limits PM emissions to 0.15 grains/dscf of exhaust. At the expected PM_{10} emission rate of 0.0171 lbs/MM BTU, the PM_{10} grain loading in the exhaust will be 0.0124 grains/sdcf at 0% O_2. This expected PM_{10} emission rate is far below the Regulation 6-310 grain-loading limit.

Regulation 8, Rule 34 (Solid Waste Disposal Sites):

Landfill gas flares are required to meet the requirements of Regulation 8, Rule 34. Regulation 8-34-301.3 requires the use on enclosed ground flares that have either a destruction efficiency of 98% by weight for NMOC or that emit no more than 30 ppmv of NMOC (as methane at 3% O_2, dry basis) from the flare. The manufacturer indicated that A-16 will comply with these NMOC destruction efficiency and outlet concentration limits. Continuous temperature monitoring (pursuant to Regulation 8-34-507) will ensure that this flare complies with 8-34-301.3 on an on-going basis. The flare will also equipped with a data recording system that will maintain all records required pursuant to Sections 501.2 and 501.3.

Regulation 9, Rule 1 (Sulfur Dioxide):

For gaseous combustion operations, Regulation 9-1-302 limits the SO_2 concentration in an exhaust stream to 300 ppmv (dry basis). At the revised peak inlet total reduced sulfur content of 200 ppmv (expressed as H_2S), the outlet SO_2 concentration will be 42 ppmv of SO_2 at 0% O_2. Therefore, this permit condition will ensure compliance with the Regulation 9-1-302 limit.

Federal Requirements:

The Altamont Landfill is currently subject to the Emission Guidelines for MSW Landfills (40 CFR Part 60, Subpart Cc) and to the NESHAP for MSW Landfills (40 CFR Part 63, Subpart AAAA). All existing applicable requirements are identified in the MFR Permit for Site # A2066. The addition of the A-16 Flare will ensure that this site has the minimum required back-up control capacity, but will not change any of the applicable requirements. Compliance with Regulation 8, Rule 34 and with the Title V reporting requirements for this site will ensure compliance with these federal requirements.

D. PERMIT CONDITIONS

The current permit conditions for the S-2 Altamont Landfill and Flares will be revised to include the A-16 Flare. For A-16, temperature monitoring and recording and source testing requirements will be added to these conditions. The changes to each part are identified below in strike through and underline formatting.

Condition # 19235

FOR: S-2 ALTAMONT LANDFILL WITH LANDFILL GAS COLLECTION SYSTEM, ~~AND~~ A-15 LANDFILL GAS FLARE, AND A-16 LANDFILL GAS FLARE:

1. The S-2 Altamont Landfill (Fill Area 1) shall be equipped with a landfill gas collection system, which shall be operated continuously as defined in Regulation 8-34-219, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Section 113. Individual wells, collectors, and adjustment valves shall not be disconnected, removed, or completely closed, without prior written authorization from the District, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Sections 113, 116, 117, or with Part 1c below. The gas collection system shall also be operated in accordance with the wellhead requirements described in Part 1d. (Basis: Regulations 8-34-301.1, 8-34-303, 8-34-304, 8-34-305, and 8-34-404)
   a. The Permit Holder has been issued a Permit to Operate for the landfill gas collection system components listed below as of July 1, 2008. Well and collector locations are as described in detail in Permit Application #16863.
      i. The authorized number of landfill gas collection system components is the baseline count listed below plus any components installed and minus any components decommissioned pursuant to subpart 1b, as evidenced by start-up and decommissioning notification letters submitted to the District.
         - 84 vertical wells
         - 1 horizontal trench collector (shredded tires may be used as fill material)
         - 1 leachate collection system clean-out riser
   b. The Permit Holder has been issued an Authority to Construct to allow for the landfill gas collection system alterations described below pursuant to Permit Application # 16863. All collection system alterations shall comply with subparts 1b(i-vii) below.
      i. The authorized collection system alterations are:
         - Install up to 38 vertical wells
         - Permanently decommission up to 19 vertical wells
         - Install up to 25 horizontal trench collectors
         - Permanently decommission up to 4 horizontal trench collectors
         - Modify wellhead monitoring locations, as needed, provided that each landfill gas collection system component identified in Part 1a and each new collection system

component installed per Part 1b is adequately represented by a wellhead monitoring location. The Permit Holder shall maintain documentation on site that identifies all landfill gas collection system components that are represented by each wellhead monitoring location.

ii. The Permit Holder shall apply for and receive an Authority to Construct before altering the landfill gas collection components described subpart 1a. Installing, altering, or permanently decommissioning a vertical well, horizontal collector, or other gas collection component is subject to the Authority to Construct requirement, unless this change constitutes a replacement as defined in subpart 1b(iii) below.

iii. Replacement of landfill gas collection system components with identical or functionally equivalent components will not be deemed an alteration and will not subject to the Authority to Construct requirement under the following circumstances. If a well or collector will be shut down and replaced by a new well or collector in essentially the same location as the old component and this decommission/installation will be accomplished in accordance with Regulations 8-34-117 and 8-34-118, then this activity shall be considered a component replacement that is not subject to the Authority to Construct requirement. For each individual well or collector replacement, this subpart authorizes a maximum vacuum disconnection time of five consecutive days for compliance with Regulation 8-34-117.5. The disconnected component and the new component shall not be counted toward the subpart 1b(i) limits; the numbers of replacement wells and replacement collectors are not limited. Alterations, repairs, or replacements of non-perforated piping sections (such as risers, laterals, or header pipes), piping connectors, or valves are not subject to the Authority to Construct requirement.

iv. At least three days prior to initiating operation of a well or collector installed pursuant to subpart 1b, the Permit Holder shall submit a start-up notice to the District that contains the component ID number for each new well or collector and the anticipated initial start-up date for each new component.

v. For each well or collector that is permanently decommissioned after [insert date of approval of this condition change], the Permit Holder shall submit a decommissioning notice to the District within no later than three working days after the component was disconnected from vacuum system. This decommissioning notice shall contain the component ID for each well or collector that was decommissioned, the date and time that each component was disconnected from the vacuum system, and the reason the component was decommissioned.

vi. Within six months of installing a new component or permanently decommissioning an existing component, the

Permit Holder shall prepare an updated map of the landfill gas collection system that identifies the ID numbers and locations of all operable wells and collectors. On this map or in accompanying documentation, the Permit Holder shall summarize all component changes that were made since the last map was prepared. The previous collection system map, the updated collection system map, and the component change summary shall be provided to District staff upon request.

vii. If the Permit Holder has a net reduction (number of decommissioned components minus the number of installed components) of more than five components within a 120-day period, the Permit Holder shall submit a more comprehensive decommissioning notice to the District. In addition to the information required by subpart 1b(v), this comprehensive decommissioning notice shall include the maps and documentation required by subpart 1b(vi), shall identify all component changes that have occurred but that are not included on the most recently updated map, shall identify any components that are temporarily disconnected from vacuum pursuant to subpart 1c, shall provide estimated vacuum reconnection dates for these components, shall include a list of all well installations that are expected to occur within the next 120 days, and shall discuss the reasons why this reduction in gas collection components is not expected to result in surface emission leaks. Upon request, the Permit Holder shall provide wellhead monitoring data, surface leak monitoring data, records of repair attempts made to date, and other information to support the need for a net collection component reduction of more than five wells. The District may require additional surface monitoring to verify that this net component reduction is not causing landfill surface leaks. The District will notify the Permit Holder in writing of any additional surface monitoring that is required pursuant to this subpart.

c. The Permit Holder may temporarily disconnect individual wells or collectors from the vacuum system, provided that all requirements of this subpart are satisfied. (Basis: Regulation 8-34-404)

i. No more than five (5) landfill gas collection system components (wells or collectors) may be temporarily disconnected from the vacuum system at any one time pursuant to subpart 1c.

ii. For each individual well or collector that is disconnected from the vacuum system pursuant to subpart 1c, the total vacuum system disconnection time shall not exceed 120 days during any 12-month period.

iii. Collection system components that are disconnected from the vacuum system are not subject to wellhead limits (Regulation 8-34-305 or Part 1d, as applicable) or monthly wellhead monitoring

requirements (Regulation 8-34-505) during this vacuum disconnection time.

iv. Wells or collectors that are temporarily disconnected from the vacuum system continue to be subject to the component leak limit (Regulation 8-34-301.2) and the quarterly leak testing requirement (Regulation 8-34-503) at all times. In addition, the Permit Holder shall conduct the following component leak monitoring at each component that has been disconnected from the vacuum system pursuant to subpart 1c: test for component leaks using the procedures identified in Regulation 8-34-602 within 10 calendar days of disconnection from vacuum and again within 1 month of disconnection from vacuum. If a component leak is detected at the well, the Permit Holder shall take all steps necessary to reduce the leak below the applicable limit, including reconnecting the well to the vacuum system, if no other corrective action measures are successful within the time frames allowed by Rule 34.

v. For each well disconnection event, the Permit Holder shall record each affected well ID number, all well disconnection dates and times, all well reconnection dates and times, all related monitoring dates and monitoring results in a District approved log. This log shall also include an explanation of why the temporary well shut down was necessary and shall describe all adjustments or repairs that were made in order to allow this well to operate continuously, to reduce leaks, or to achieve compliance with an applicable limit. All records shall be retained for a minimum of five years and shall be made available to District staff upon request.

d. Each landfill gas collection system component listed in Part 1a shall be operated in compliance with the wellhead limits of Regulation 8-34-305, unless an alternative wellhead limit has been approved for that component and the operator complies with all of the additional requirements identified in this subpart. Components that are subject to an alternative wellhead limit may still use the Regulation 8-34-414 repair schedule for operator discovered excesses of the alternative limit; however, invoking this repair schedule does replace the monitoring requirements described in Parts 1d(ii-viii). (Basis: Regulations 8-34-305 and 8-34-414)

i. For each of the wells identified in Part 1d(ii), the Regulation 8-34-305.2 wellhead temperature limit does not apply, and the landfill gas temperature at each wellhead shall not exceed 145 degrees F.

ii. The wells that are subject to the Part 1d(i) alternative wellhead temperature limit are:
#40, #401, #403, #443, #444, #456, #457, and #458.
If any other component has a wellhead temperature of 131 degrees F or higher, the operator may elect to add this component to the above list of alternative temperature limit wells by satisfying all of the following requirements:

- The wellhead temperature shall not exceed 145 degrees F.
- The carbon monoxide (CO) concentration in the wellhead gases shall not exceed 500 ppmv.
- Prior to adding a component to the list in this subpart, the operator shall monitor the gas in the component for CO concentration at least two times, with no more than 15 days between tests. CO monitoring shall continue on a monthly basis, or more frequently if required by subparts 1d(iv-vii), until the operator is allowed to discontinue CO monitoring per subpart 1d(vii).
- The operator shall comply with all applicable monitoring and record keeping requirements in subparts 1d(iii-viii).
- The component shall not exceed any wellhead limit other than temperature and shall have had no excesses of wellhead limits (other than temperature) during the 120 days prior to adding this component to the list in this subpart.
- Within 30 days of adding a component to the list in this subpart, the operator shall notify the District in writing that the operator is requesting to add the component to the Part 1d(ii) list of alternative temperature limit wells. This notification shall include the well ID number, a map of the collection system to identify the location of this well, and the dates and results of all monitoring conducted on the well to verify that the above requirements have been satisfied.
- If the Regulation 8-34-414 repair schedule has been invoked for the wellhead temperature excess, and the operator has ~~meet~~ met the requirements of Sections 414.1 and 414.2, then compliance with the requirements of this subpart shall be deemed an acceptable resolution of the wellhead temperature excess in lieu of the collection system expansion specified in Sections 414.3 and 414.4.

iii. The operator shall demonstrate compliance with the alternative wellhead temperature limit in Part 1d(i) by monitoring and recording the temperature of the landfill gas in each wellhead on a monthly basis, in accordance with Regulations 8-34-501.4, 8-34-501.9, and 8-34-505.

iv. If the temperature of the landfill gas in a wellhead exceeds 140 degrees F, the operator shall investigate the possibility of a subsurface fire at the wellhead by monitoring for CO concentration in the wellhead gases and by searching for smoke, smoldering odors, combustion residues, and other fire indicators in the wellhead and in the landfill area near this wellhead. Within 5 days of triggering a fire investigation, the operator shall measure the CO concentration in the landfill gas at the wellhead using a portable CO monitor or an EPA approved test method. CO monitoring shall continue according to the frequency specified in subparts 1d(v-vii).

v. If the CO concentration is greater than 500 ppmv, the operator shall immediately take all steps necessary to prevent or extinguish the subsurface fire, including disconnecting the well from the vacuum system if necessary. If the well is not disconnected from the vacuum system or upon reconnecting a well to the vacuum system, the operator shall monitor the well for CO concentration, wellhead temperature, and other fire indicators on at least a weekly basis until the CO concentration drops to 500 ppmv or less.

vi. If the CO concentration is less than or equal to 500 ppmv but greater than 100 ppmv, the operator shall monitor for CO concentration at least twice per month (not less than once every 15 days) until the CO concentration drops to 100 ppmv or less. Wellhead temperature and other fire indicators shall be evaluated at each of these semimonthly-monitoring events.

vii. If the CO concentration is less than or equal to 100 ppmv, the operator shall monitor for CO concentration on a monthly basis. CO monitoring may be discontinued if three consecutive CO measurements are 100 ppmv or less and the wellhead temperature during each of these three monitoring events is 140 degrees F or less. If a component has three or more CO measurements of 100 ppmv or less but the wellhead temperature was greater than 140 degrees F, the operator must receive written approval from the District before discontinuing the monthly CO monitoring at that component.

viii. The permit holder shall record the dates and results of all monitoring events required by this subpart in a District approved log. If Part 1d(v) applies, the operator shall also describe all actions taken to prevent or extinguish the fire.

2. All collected landfill gas from Fill Area 1 shall be vented to properly operating landfill gas control equipment as described below in Part 2a. Raw landfill gas shall not be vented to the atmosphere, except for unavoidable landfill gas emissions that occur during collection system installation, maintenance, or repair that is performed in compliance with Regulation 8, Rule 34, Sections 113, 116, 117, or 118 and for inadvertent component or surface leaks that do not exceed the limits specified in 8-34-301.2 or 8-34-303. (Basis: Regulations 8-34-301 and 8-34-303)

a. The Permit Holder may operate any combination of landfill gas control devices, including: A-15 Landfill Gas Flare, A-16 Landfill Gas Flare, S-6 Gas Turbine, S-7 Gas Turbine, S-23 Internal Combustion Engine, or S-24 Internal Combustion Engine; or may send landfill gas to ~~another facility~~ other sources for additional processing and control; provided that a minimum of 71.47 MM BTU/hour of landfill gas, averaged over any rolling 24-hour period, is collected and controlled by the entire landfill gas control system. The following time periods shall be excluded from the calculation of this rolling 24-hour average landfill gas collection rate:

i. time periods when the gas collection system is not operating because the Permit Holder is conducting inspection or maintenance on the landfill gas collection or control system and is operating in compliance with all applicable requirements of Regulation 8-34-113, and

ii. time periods when the Permit Holder is attempting to prevent or extinguish a fire and is operating in compliance with all applicable requirements of Regulation 8-34-117, and

iii. time periods when the Permit Holder is conducting a source test to determine the appropriate target landfill gas collection rate pursuant to subpart c below, provided that the target landfill gas collection rate during this source test time period is not less than 99% of the limit stated above, and this source test time period does not last more than 120 consecutive hours, and no more than one source test time period exclusion is claimed per calendar year.

b. To demonstrate compliance with this part, the Permit Holder shall record, on a monthly basis, the total landfill gas collection rate for the entire control system averaged over each rolling 24-hour period during the previous month. In this record, the Permit Holder shall also identify the control devices that were operating, time periods that were excluded from the 24-hour average calculation pursuant to subpart a(i, ii, or iii), and the reason for this exclusion. The Permit Holder shall maintain all records necessary to calculate these rolling 24 hour average landfill gas collection rates including: heat input rates to each on-site control device; flow rate records and methane concentration data for landfill gas that was sent off-site; and start-up and shut down times for each control device. For exclusion time periods, the Permit Holder shall also maintain records of inspection, maintenance, fire prevention, or source test activities that occurred to verify the applicability of this exclusion. All records shall be retained on site or shall be made readily available to District staff upon request for a period of at least five years from the date on entry.

c. The target landfill gas collection rate shall be reevaluated at least once every two years in accordance with the following procedures. The Permit Holder may reevaluate the target landfill gas collection rate during any surface emission monitoring event, provided that the Permit Holder complies with subpart a(iii) above. Prior to and during any surface emission monitoring event that is conducted to reevaluate the target landfill gas collection rate limit, the Permit Holder shall:

i. maintain the total landfill gas collection at no less than 99% of the limit in subpart a and no more than 110% of the limit in subpart a, for at least 48 hours before initiating the surface emission monitoring event and during the surface emission monitoring event,

ii. record the date and time that the surface emission monitoring event was initiated and completed,

iii. conduct the surface emission monitoring event in accordance with Regulation 8-34-506,

iv. record the measured concentration and location of any landfill surface area that was found to have a surface leak above the Regulation 8-34-303 surface emission leak standard,

v. measure and record the landfill gas flow rate (in standard cubic feet) to each control device and off-site pipeline in accordance with Regulation 8-34-508,

vi. measure and record the methane concentration in the landfill gas that is delivered to each control device and off-site pipeline in accordance with Regulation 8-34-604,

vii. calculate and record the hourly heat input rate to each control device and off-site pipeline using a high heating value for methane of 997.7 MM BTU/scf of landfill gas at 68 degrees F and 1 atm for each hour of the surface emission monitoring event, and viii calculate and record the total landfill gas heat input rate during the monitoring event, the duration of the monitoring event (in hours), and the average hourly landfill gas heat input rate during the monitoring event.

The following procedures shall be used to determine if the subpart a target landfill gas collection rate limit should be decreased, increased, or remain the same. The target landfill gas collection rate shall be revised in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415.

ix. If no surface emissions are detected during the surface emission monitoring event and the average hourly heat input rate measured during the event is greater than or equal to the target landfill gas collection rate limit in subpart a, then this limit should remain unchanged. No further action is required.

x. If no surface emissions are detected during the surface emission monitoring event and the average hourly heat input rate measured during the event is less than the target landfill gas collection rate limit in subpart a, then this limit may be decreased to the average hourly heat input limit measured during the surface emission monitoring event. The Permit Holder may submit permit applications to request that this limit be revised. The Permit Holder must obtain APCO approval before operating at the lower target landfill gas collection rate limit except as allowed under subpart a(iii).

xi. If surface emissions are detected during the surface emission monitoring event and the average hourly heat input rate measured during the event is less than the target landfill gas collection rate limit in subpart a, then this limit should not decreased, and the target landfill gas collection rate shall be reevaluated during the next scheduled quarterly surface emission monitoring event. If all surface leaks are corrected in accordance with Regulation 8-34-415, then no further action is required.

xii. If surface emissions are detected during a surface emission monitoring event and the average hourly heat input rate measured during the event is greater than the target landfill gas collection

rate limit in subpart a, then the target landfill gas collection rate shall be reevaluated during the next scheduled quarterly surface emission monitoring event. If all surface leaks are corrected in accordance with Regulation 8-34-415, then no further action is required. If surface emissions are detected during two or more surface emission monitoring events during a year, then the target landfill gas collection rate limit should be increased to the higher of the two average hourly heat input rates measured during these monitoring events. Within 30 days of conducting the second surface emission monitoring event at which surface leaks are detected, the Permit Holder shall submit permit applications to request a revision of the target landfill gas collection rate.

3. The A-15 and A-16 Landfill Gas Flares shall be fired on landfill gas collected from Fill Area 1 of the S-2 Altamont Landfill. The permit holder shall apply for and receive a Change of Permit Conditions before using these flares to control landfill gas collected from the proposed Fill Area 2. Propane may be used as a start-up fuel only. Landfill gas condensate may be injected into these flares~~A-15~~, provided that ~~the condensate injection rate does not exceed 3600 gallons during any day and A-15 complies~~ the flares comply with all limits in Parts ~~4~~3-10 and any other applicable emission limits during all times that condensate is being injected into~~ A-15~~ these flares. (Basis: Regulation 2-1-301)
   a. The condensate injection rate at A-15 shall not exceed 3600 gallons during any day, and
   b. The condensate injection rate at A-16 shall not exceed 7200 gallons during any day.

4. ~~The Heat Input to the A-15 Landfill Gas Flare shall not exceed 1704 million BTU per day and shall not exceed 621,785 million BTU per year~~The A-15 and A-16 Landfill Gas Flares shall comply with all of the heat input limits specified below. (Basis: Offsets and Cumulative Increase)
   a. For A-15, the heat input rate shall not exceed 1704 million BTU per day.
   b. For A-15, the heat input rate shall not exceed 621,785 million BTU per year.
   c. For A-16, the heat input rate shall not exceed 3168 million BTU per day.
   d. For A-16, the heat input rate shall not exceed 950,000 million BTU per year, unless the permit holder has demonstrated that A-16 is complying with the CO emission limit specified in Part 8c.
   e. For A-16, the heat input rate shall not exceed 1,156,320 million BTU per year.

5. The Landfill Gas Flares (A-15 and A-16) shall be equipped with both local and remote alarm systems. The local and remote alarms shall be activated whenever the total landfill gas collection for the site is less than the target landfill gas collection rate in Part 2a. When operation of A-15 or A-16 is necessary to meet the target landfill gas collection rate, the local and remote alarms shall be activated if the flare shuts down unexpectedly or if the combustion zone

temperature is less than the minimum temperature required by Part 10 below. (Basis: Regulation 8-34-301)

6. ~~The~~ Each Landfill Gas Flare (A-15 and A-16) shall be equipped with one flow meter and one recorder meeting the requirements of Regulation 8-34-508. (Basis: Offsets, Cumulative Increase, and Regulations 2-1-301, 8-34-301, 8-34-501.10, and 8-34-508)

7. Nitrogen oxide (NO_x) emissions from ~~the A-15~~ each Landfill Gas Flare (A-15 and A-16) shall ~~not exceed either:~~comply with the following emission limits:
   a. For A-15, the ~~an~~ exhaust concentration shall not exceed ~~of 44~~ 45 ppmv of NO_x, corrected to 3% oxygen, dry basis~~;~~, unless the permit holder can demonstrate that the ~~or~~emission rate does not exceed 0.06 pounds of NO_x (calculated as NO_2) per million BTU.
   b. For A-16, the exhaust concentration shall not exceed 45 ppmv of NO_x, corrected to 3% oxygen, dry basis, unless the permit holder can demonstrate that the ~~an~~ emission rate ~~of~~ does not exceed 0.06 pounds of NO_x (calculated as NO_2) per million BTU.

   (Basis: RACT and Offsets)

8. Carbon monoxide (CO) emissions from ~~the A-15~~ each Landfill Gas Flare (A-15 and A-16) shall ~~not exceed either:~~comply with the following emission limits:
   a. For A-15, the ~~an~~ exhaust concentration shall not exceed ~~of 361~~ 369 ppmv of CO, corrected to 3% oxygen, dry basis~~;~~ ~~or~~
   ~~b. unless the permit holder can demonstrate that the an emission rate of~~ does not exceed 0.30 pounds of CO per million BTU.
   b. For A-16, the exhaust concentration shall not exceed 246 ppmv of CO, corrected to 3% oxygen, dry basis, unless the permit holder can demonstrate that the emission rate does not exceed 0.20 pounds of CO per million BTU.
   c. To prevent triggering the requirements of Regulation 2-2-405, carbon monoxide emissions from A-16 shall not exceed 95 tons per year. Compliance with the Part 4d heat input limit and the Part 8b exhaust limits shall demonstrate compliance with this annual CO emission limit. If the heat input rate to A-16 exceeds the Part 4d limit, compliance with this annual CO emission rate limit shall be demonstrated by complying with the Part 4e heat input limit and the following exhaust limits (instead of the Part 8b exhaust limits): the concentration in the exhaust from A-16 shall not exceed 202 ppmv of CO, corrected to 3% oxygen, dry basis, unless the permit holder can demonstrate that the emission rate from A-16 does not exceed 0.164 pounds of CO per million BTU.

   (Basis: RACT and Cumulative Increase)

9. The Landfill Gas Flares (A-15 and A-16) shall comply with either the destruction efficiency or outlet concentration limit specified in Regulation 8-34-301.3. (Basis: Offsets, Cumulative Increase, and Regulation 8-34-301.3)

10. For each ~~The combustion zone temperature of the~~ Landfill Gas Flare (A-15 and A-16), the combustion zone temperature shall be maintained at a minimum of 1400 degrees Fahrenheit, averaged over any 3-hour period during all times that landfill gas is vented to the flare. If a source test demonstrates compliance with all applicable requirements at a different temperature the APCO ~~will~~ may revise the minimum combustion zone temperature limit in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415 and the following criteria. The minimum combustion zone temperature for a flare (T_{min}) shall be equal to the average combustion zone temperature determined during the most recent complying source test (T_{avg}) minus 50 degrees F, provided that the minimum combustion zone temperature is not less than 1400 degrees F:

$T_{min} = T_{avg} - 50$, for $T_{avg} >= 1450$ degrees F
$T_{min} = 1400$, for $T_{avg} < 1450$ degrees F

(Basis: RACT, Offsets, Cumulative Increase, Toxic Risk Management Policy, and Regulation 8-34-301.3)

11. The concentration of total reduced sulfur compounds in the collected landfill gas shall not exceed 200 ppmv (dry) expressed as hydrogen sulfide (H_2S). In order to demonstrate compliance with this part, the Permit Holder shall measure the total sulfur content in collected landfill gas in accordance with the monitoring schedule identified in Condition # 18773, Part 10. The landfill gas sample shall be taken from the main landfill gas header. (Basis: Regulation 9-1-302 and Cumulative Increase)

*12. The Permit Holder shall submit a permit application for a Change of Permit Conditions, if any site-specific landfill gas characterization test indicates that the landfill gas at this site contains any of the following compounds at a level greater than the concentration listed below. The Permit Application shall be submitted to the ~~Permit Services~~ Engineering Division, within 45 days of receipt of test results indicating a concentration above the levels listed below. (Basis: ~~Toxic Risk Management Policy~~Regulation 2-5-302)

Compound	Concentration (ppbv)
Acrylonitrile	500
Benzene	3300
Benzylchloride	600
1,4 Dichlorobenzene	1100
Ethylene Dibromide	300
Ethylene Dichloride	250
Ethylidene Dichloride	1200
Methylene Chloride	2500
Perchloroethylene	2400
1,1,2,2 Tetrachloroethane	550
Trichloroethylene	1400
Vinyl Chloride	1100

13. In order to demonstrate compliance with Regulation 8, Rule 34, Sections 301.3 and 412 and Parts 7 through 12 above, the Permit Holder shall ensure that a District approved source test is conducted annually on the A-15 and A-16 Landfill

Gas Flares. The annual source tests shall be conducted while the flare is operating at or near maximum operating rates and for each of the following operating conditions: (a) while the flare is burning landfill gas without any condensate injection, ~~and~~ (b) while the flare is burning landfill gas and condensate is being injected into the flare at or near the maximum injection rate ~~of 2.5 gallons/minute~~, and (c) while the A-16 flare is controlling emissions from the S-210 LNG Plant. Each source test shall determine the following:

a. landfill gas flow rate to the flare (dry basis);
b. concentrations (dry basis) of carbon dioxide (CO_2), nitrogen (N_2), oxygen (O_2), total hydrocarbons (THC), methane (CH_4), and total non-methane organic compounds (NMOC) in the landfill gas;
c. stack gas flow rate from the flare (dry basis);
d. concentrations (dry basis) of NO_x, CO, NMOC, and O_2 in the flare stack gas;
e. NMOC destruction efficiency achieved by the flare; and
f. average combustion zone temperature of the flare during the test period.

The first annual source test for the ~~A-15~~ A-16 Landfill Gas Flare shall be conducted within 120 days of the initial start up date for ~~A-15~~A-16. Testing of ~~A-15~~ A-16 while condensate is being injected or while A-16 is controlling emissions from the S-210 LNG Plant is not required until the first annual source test that is scheduled to occur after the date that ~~condensate injection~~ these operating scenarios commence~~s~~. Subsequent annual source tests shall be conducted ~~no sooner than 9 months and~~ no later than 12 months after the previous source test. Testing ~~of A-15~~ while condensate is being injected is not required, if condensate was not injected into the flare during any of the 12 consecutive months prior to the source test date. The Source Test Section of the District shall be contacted to obtain approval of the source test procedures at least 14 days in advance of each source test. The Source Test Section shall be notified of the scheduled test date at least 7 days in advance of each source test. The source test report shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 60 days of the test date. (Basis: RACT, Offsets, Cumulative Increase, ~~Toxic Risk Management Policy,~~ and Regulations 2-5-302, 8-34-301.3 and 8-34-412)

14. The Permit Holder shall conduct a characterization of the landfill gas concurrent with the annual source test required by Part 13 above. The landfill gas sample shall be drawn from the main landfill gas header. In addition to the compounds listed in Part 13b, the landfill gas shall be analyzed for the organic compounds listed below, except that acrylonitrile testing shall be conducted once every four years instead of annually. All concentrations shall be reported on a dry basis. The test report shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 60 days of the test date. (Basis: Toxic Risk Management Policy, Cumulative Increase, and Regulation 8-34-412)

Organic Compounds
acrylonitrile
benzene
benzyl chloride

carbon tetrachloride
chlorobenzene
chlorodifluoromethane
chloroethane
chloroform
1,1 dichloroethane
1,1 dichlorethene
1,2 dichloroethane
1,4 dichlorobenzene
dichlorodifluoromethane
dichlorofluoromethane
ethylbenzene
ethylene dibromide
fluorotrichloromethane
hexane
isopropyl alcohol
methylene chloride
methyl ethyl ketone
perchloroethylene
1,1,2,2 tetrachloroethane
toluene
1,1,1 trichloroethane
trichloroethylene
vinyl chloride
xylenes

15. In order to demonstrate compliance with the above conditions, the Permit Holder shall maintain the following records in a District approved logbook. All records shall be maintained on site or shall be made readily available to District staff upon request for a period of at least 5 years from the date of entry. These record keeping requirements do not replace the record keeping requirements contained in any applicable rules or regulations. (Basis: Offsets, Cumulative Increase, 2-6-501, 8-34-301, and 8-34-501)

a. For the Landfill Gas Flares (A-15 and A-16), record the date and time for each start-up and shut-down of ~~the~~ a flare and the reason for each shut-down.

b. Summarize the operating hours for ~~the~~ each Landfill Gas Flare (A-15 and A-16), on a daily basis.

c. Calculate and record, on a monthly basis, the maximum daily and total monthly heat input to ~~the~~ each Landfill Gas Flare (A-15 and A-16) based on operating hours for the flare, the landfill gas flow rate recorded pursuant to Part 6, the average methane concentration in the landfill gas as determined by the most recent source test, and a high heating value for methane of 997.7 BTU/ft^3 of landfill gas at 68 degrees F and 1 atmosphere.

d. Record the total amount of condensate (gallons~~/~~ per day) injected into ~~the~~ each ~~A-15~~ Landfill Gas Flare (A-15 and A-16) for each day that

condensate is injected into a flare~~A-15~~, and summarize these records on a monthly basis.

e. Maintain records of all test dates and test results performed to maintain compliance with Parts 12 and 13 or with any applicable rule or regulation.

16. Any emission reductions that may occur due to the shut-down or modification of S-23 IC Engine or S-24 IC Engine cannot be banked or used to generate contemporaneous on site emission reduction credits for other projects. All such emission reductions shall be use to reimburse the District Small Facility Banking Account (SFBA) for the emission reduction credits provided from the SFBA to offset NOx and POC emission increases from this equipment. Furthermore, the Permit Holder shall use any NOx or POC emission reduction credits generated at any of the Permit Holder's facilities, which are located within the District, to reimburse the SFBA for all emission reduction credits provided from the SFBA on behalf of the Permit Holder, before any of these credits could become eligible for banking. (Basis: Regulation 2-4-303.5)

17. [Reserved]

18. The Permit Holder shall comply with the following waste acceptance and disposal limits and shall obtain the appropriate New Source Review permit, if one of the following limits is exceeded:
    a. Total waste accepted and placed at the landfill shall not exceed 11,150 tons in any day (except during temporary emergency situations approved by the Local Enforcement Agency). (Basis: Regulation 2-1-301)
    b. The amount of non-hazardous sludge accepted and placed at the landfill shall not exceed 5,000 tons in any day. (Basis: Regulation 2-1-301)
    c. The maximum design capacity of the landfill (total volume of solid waste placed in the landfill where solid waste has the same meaning as the definition in 40 CFR Part 60.751) shall not exceed 58,900,000 cubic yards. (Basis: Regulation 2-1-301)
    d. The total cumulative amount of all waste placed in the landfill shall not exceed 47,100,000 tons. Exceedance of the cumulative tonnage limit is not a violation of the permit and does not trigger the requirement to obtain a New Source review permit, if the operator can, within 30 days of the date of discovery of the exceedance, provide documentation to the District demonstrating, in accordance with BAAQMD Regulation 2-1-234.3, that the limit should be higher. (Basis: Regulation 2-1-234.3)

19. Water and/or dust suppressants shall be applied to all unpaved roadways and active soil removal and fill areas associated with this landfill as necessary to prevent visible particulate emissions that persist for more than 3 minutes in any hour. Paved roadways at the facility shall be kept sufficiently clear of dirt and debris as necessary to prevent persistent visible particulate emissions from vehicle traffic or wind. (Basis: Regulations 2-1-403, 6-301, and 6-305)

20. This Part applies to the acceptance, handling, storage, and on-site reuse of VOC-laden soil. VOC-laden soil is any soil that contains volatile organic

compounds, as defined in Regulation 8-40-213, other than contaminated soil. As defined in Regulation 8-40-205, contaminated soil contains more than 50 ppmw of VOC or has a surface concentration greater than 50 ppmv of VOC as C1, and contaminated soil is subject to Part 21 below instead of this part. Materials containing only non-volatile hydrocarbons and materials meeting the requirements of Regulation 8-40-113 are not subject to this part. For each lot of VOC-laden soil accepted at this site, the Permit Holder shall comply with the limits and monitoring procedures identified in either subpart a or subpart b below to demonstrate compliance with the total carbon limits in Regulation 8-2-301. (Basis: Regulation 8-2-301)

a. Unless the Permit Holder demonstrates compliance with Regulation 8-2-301 in accordance with subpart b below, the Permit Holder shall limit the quantity of VOC laden soil handled per day such that no more than 15 pounds of total carbon could be emitted to the atmosphere per day. In order to demonstrate compliance with this subpart, the Permit Holder shall maintain the following records in a District approved log for all VOC-laden soil accepted at the landfill.
    i. Record on a daily basis the amount of VOC laden soil accepted for each truckload or each soil lot, as appropriate. This amount (in units of pounds per day) is Q in the equation in subpart a(iii) below.
    ii. Record on a daily basis the VOC content for each truckload or each soil lot, as appropriate. This VOC Content (C in the equation below) should be expressed as parts per million by weight as total carbon (or C1).
    iii. Calculate and record on a daily basis the VOC Emission Rate (E) using the following equation: $E = Q * C / 1E6$
    This equation may be applied to each truckload or to each soil lot received per day depending on the amount of soil that is represented by the VOC Content data. If the equation is applied to multiple loads per day, the VOC Emission Rate shall be totaled for all loads received each day.
    iv. Summarize all daily emission rates on a monthly and calendar year basis.
    v. All records shall be maintained on site or shall be made readily available to District staff upon request for at least 5 years from the date of entry.

b. Unless the Permit Holder demonstrates compliance with Regulation 8-2-301 in accordance with subpart a above, the Permit Holder shall screen each lot of VOC laden soil accepted per day for VOC surface emissions to show that each lot of VOC laden soil is not contaminated soil.
    i. The Permit Holder shall use the testing procedures outlined in Regulation 8-40-604.
    ii. The screening test shall be representative of the entire lot of VOC-laden soil. The soil surface shall be disturbed prior to screening to ensure that the screening is representative of the entire load.

iii. The Permit Holder shall maintain records of all testing conducted to satisfy this subpart and shall record the amount of VOC-laden soil accepted and the highest surface concentration measured pursuant to this subpart. These records shall be maintained for each truckload or each soil lot accepted, as appropriate, provided that the records are made or summarized on at least a daily basis.

iv. Summarize the daily soil acceptance rates and the weighted average of the surface concentration records on a monthly basis and for each calendar year.

v. All records shall be maintained on site or shall be made readily available to District staff upon request for at least 5 years from the date of entry.

21. This part applies to any on-site activities involving contaminated soil as defined in Regulation 8-40-205. Unless stated otherwise, all terms, standards, or procedures described in this part have the same meaning as the terms, standards, and procedures described in Regulation 8, Rule 40. (Basis: Regulation 2-1-301, 2-1-403, 8-40-301, 8-40-304 and 8-40-305)

a. The procedures listed below in subparts b-l do not apply if the following criteria are satisfied. However, the record keeping requirements in subpart m below are applicable.

i. The Permit Holder has appropriate documentation demonstrating that either the organic content of the soil or the organic concentration above the soil is below the "contaminated" level (as defined in Regulations 8-40-205, 207, and 211). The handling of soil containing in concentrations below the "contaminated" level is subject to Part 20 above.

ii. The Permit Holder has no documentation to prove that soil is not contaminated, but source of the soil is known and there is no reason to suspect that the soil might contain organic compounds.

b. The Permit Holder shall provide notification to the Compliance and Enforcement Division of the Permit Holder's intention to accept contaminated soil at the facility at least 24 hours in advance of receiving the contaminated soil. The Permit Holder shall provide an estimate of the amount of contaminated soil to be received, the degree of contamination (range and average VOC Content), and the type or source of contamination.

c. Any soil received at the facility that is known or suspected to contain volatile organic compounds (VOCs) shall be handled as if the soil were contaminated, unless the Permit Holder receives test results proving that the soil is not contaminated. To prove that the soil is not contaminated, the Permit Holder shall collect soil samples in accordance with Regulation 8-40-601 within 24 hours of receipt of the soil by the facility. The organic content of the collected soil samples shall be determined in accordance with Regulation 8-40-602.

i. If these test results indicate that the soil is still contaminated or if the soil was not sampled within 24 hours of receipt by the facility, the Permit Holder must continue to handle the soil in accordance

with the procedures subparts d-l below, until the soil has been placed in a final disposal location and adequately covered. Storing soil in a temporary stockpile or pit is not considered treatment. Co-mingling, blending, or mixing of soil lots is not considered treatment.

ii. If these test results indicate that the soil - as received at the facility - has an organic content of 50 ppmw or less, then the soil may be considered to be not contaminated and need not be handled in accordance with the procedures listed in subparts d-l below, but shall be handled in accordance with Part 20 above.

d. Any contaminated soil received at the facility shall be clearly identified as contaminated soil, shall be handled in accordance with subparts e-l below, and shall be segregated from non-contaminated soil. Contaminated soil lots may not be co-mingled, blended, or otherwise mixed with non-contaminated soil lots prior to treatment, reuse, or disposal. Mixing soil lots in an attempt to reduce the overall concentration of the contaminated soil or to circumvent any requirements or limits is strictly prohibited.

e. On-site handling of contaminated soil shall be limited to no more than 2 on-site transfers per soil lot. For instance, unloading soil from off-site transport vehicles into a temporary storage pile is considered one transfer. Moving soil from a temporary storage to a staging area is considered one transfer. Moving soil from a temporary storage pile to a final disposal site is one transfer. Moving soil from a staging area to a final disposal site is one transfer. Therefore, unloading soil from off-site transport into a temporary storage pile and then moving the soil from that temporary storage pile to the final disposal site is allowed. Unloading soil from off-site transport into a staging area and then moving the soil from that staging area to the final disposal site is allowed. However, unloading soil from off-site transport to a temporary storage pile, moving this soil to a staging area, and then moving the soil again to a final disposal site is 3 on-site transfers and is not allowed.

f. Contaminated soil shall either be deposited in a final disposal site or transported off-site for treatment:
   a. within 90 days, if the soil contains less than 500 ppmw of VOC, or
   b. within 45 days, if the soil contains 500 ppmw of VOC or more.

g. The total amount of contaminated soil disposed of at this site shall not exceed 6000 tons per day. (Basis: Regulation 2-1-301)

h. All active storage piles shall meet the requirements of Regulation 8-40-304 by using water sprays, vapor suppressants or approved coverings to minimize emissions. The exposed surface area of any active storage pile (including the active face at a landfill) shall be limited to 6000 ft2. The types of storage piles that may become subject to these provisions include (but are not limited to) truck unloading areas, staging areas, temporary stockpiles, soil on conveyors, bulldozers or trucks, the active face of a landfill, or other permanent storage pile at the final disposal location.

i. All inactive storage piles shall meet the requirements of Regulation 8-40-305 including the requirement to cover contaminated soil during periods of inactivity longer than one hour. The types of storage piles that may become subject to these provisions include (but are not limited to) soil on trucks or other on-site equipment, staging areas, temporary stockpiles, and the permanent storage pile at the final disposal location. District approved coverings for inactive storage piles include continuous heavy-duty plastic sheeting (in good condition, joined at the seams, and securely anchored) or encapsulating vapor suppressants (with re-treatment as necessary to prevent emissions).

j. The Permit Holder must:
   i. Keep contaminated soil covered with continuous heavy-duty plastic sheeting (in good condition, joined at the seams, and securely anchored) whenever soil is to be stored in temporary stockpiles or during on-site transport in trucks. Soil in trucks shall not be left uncovered for more than 1 hour.
   ii. Establish a tipping area for contaminated soils near the active face that is isolated from the tipping area for other wastes.
   iii. Spray contaminated soil with water or vapor suppressant immediately after dumping the soil from a truck at the tipping area.
   iv. Ensure that all contaminated soil is transferred from the tipping area to the active face immediately after spraying with water or vapor suppressant.
   v. Ensure that contaminated soil in the tipping area is not disturbed by subsequent trucks. Trucks shall not drive over contaminated soil in the tipping area or track contaminated soil out of the tipping area on their wheels.
   vi. Spray contaminated soil on the active face with water or vapor suppressant (to keep the soil visibly moist) until the soil can be covered with an approved covering.
   vii. Limit the area of exposed soil on the active face to no more than 6000 ft2.
   viii. Ensure that contaminated soil spread on the active face is completely covered on all sides with one of the following approved coverings: at least 6 inches of clean compacted soil, at least 12 inches of compacted garbage, or at least 12 inches of compacted green waste.
   ix. Ensure that covering of soil on the active face is completed within one hour of the time that the soil was first dumped from a truck at the tipping area.

k. Contaminated soil shall not be used as daily, intermediate, or final cover material for landfill waste operations unless the requirements of Regulation 8, Rule 40, Sections 116 or 117 have been satisfied.

l. Contaminated soil is considered to be a decomposable solid waste pursuant to Regulation 8, Rule 34. All contaminated soil disposed of at a site shall be included in any calculations of the amount of decomposable

waste in place for annual reporting requirements or for purposes of 8-34-111 or 8-34-304.

m. The Permit Holder shall keep the following records for each lot of soil received, in order to demonstrate on-going compliance with the applicable provisions of Regulation 8, Rule 40 and this part.

i. For all soil received by the facility (including soil with no known contamination), record the arrival date at the facility, the soil lot number, the amount of soil in the lot, the organic content or organic concentration of the lot (if known), the type of contamination (if any), and keep copies of any test data or other information that documents whether the soil is contaminated (as defined in 8-40-205) or not contaminated, with what, and by how much.

ii. If the soil is tested for organic content after receipt by the facility, a report with the sampling date, test results, and the date results were received.

iii. For all on-site handling of contaminated soil, use a checklist or other approved method to demonstrate that appropriate procedures were followed during all on-site handling activities. One checklist shall be completed for each day and for each soil lot (if multiple lots are handled per day).

iv. For soil aerated in accordance with 8-40-116 or 117 record the soil lot number, the amount of soil in the lot, the organic content, the final placement date, the final placement location, and describe how the soil was handled or used on-site.

v. For final disposal at a landfill, record on a daily basis the soil lot number, the amount of soil placed in the landfill, the disposal date, and the disposal location.

vi. Summarize the total amount of contaminated soil disposed of at this site on a monthly and calendar year basis to demonstrate compliance with subpart g.

All records shall be retained for at least 5 years from the date of entry and shall be made available for District inspection upon request.

22. To demonstrate compliance with Parts 18-21 and Regulation 8-34-304, the Permit Holder shall maintain the following records in a District approved logbook. All records shall be maintained on site or shall be made readily available to District staff upon request for a period of at least 5 years from the date of entry. These record keeping requirements do not replace the record keeping requirements contained in any applicable rules or regulations. (Basis: Regulations 2-1-301, 2-6-501, 6-301, 6-305, 8-2-301, 8-40-301, 8-34-304, and 8-34-501)

a. Record the total amount of municipal solid waste received at S-~~1~~2 on a daily basis. Summarize the daily waste acceptance records for each calendar month.

b. For each area or cell that is not controlled by a landfill gas collection system, maintain a record of the date that waste was initially placed in the

area or cell. Record the cumulative amount of waste placed in each uncontrolled area or cell on a monthly basis.

c. If the Permit Holder plans to exclude an uncontrolled area or cell from the collection system requirement, the Permit Holder shall also record the types and amounts of all non-decomposable waste placed in the area and the percentage (if any) of decomposable waste placed in the area.

d. Record the initial operation date for each new landfill gas well and collector.

e. Maintain an accurate map of the landfill that indicates the locations of all refuse boundaries and the locations of all wells and collectors (using unique identifiers) that are required to be operating continuously pursuant to Part 1a. Any areas containing only non-decomposable waste shall be clearly identified. This map shall be updated at least once a year to indicate changes in refuse boundaries and to include any newly installed wells and collectors.

f. Record of the dates, locations, and frequency per day of all watering activities on unpaved roads or active soil or fill areas. Record the dates, locations, and type of any dust suppressant applications. Record the dates and description of all paved road-cleaning activities. All records shall be summarized on monthly basis.

23. The annual report required by BAAQMD Regulation 8-34-411 shall be submitted in two semi-annual increments. The reporting period for the first increment of the Regulation 8-34-411 annual report that is submitted subsequent to the issuance of the MFR Permit for this site shall be from December 1, 2003 through April 30, 2004. This first increment report shall be submitted by May 31, 2004. The reporting periods and report submittal due dates for all subsequent increments of the Regulation 8-34-411 report shall be synchronized with the reporting periods and report submittal due dates for the semi-annual MFR Permit monitoring reports that are required by Section I.F of the MFR Permit for this site. A single report may be submitted to satisfy the requirements of Section I.F, Regulation 8-34-411, and 40 CFR Part 63.1980(a), provided that all items required by each applicable reporting requirement are included in the single report. (Basis: Regulation 8-34-411 and 40 CFR Part 63.1980(a))

E. RECOMMENDATION

Issue an Authority to Construct for the following abatement equipment subject to Condition # 19235.

A-16 Landfill Gas Flare; Shaw LFG Specialties, M/N EF1255l12, 132 MM BTU/hour, 5 gpm condensate injection; abating S-2 Altamont Landfill and S-210 LNG Plant.

Issue a Change of Permit Conditions for the following equipment, subject to Condition # 19235.

S-2 Altamont Landfill; abated by A-15 and A-16 Landfill Gas Flares.

Statement of Basis: Site A2066, Waste Management of Alameda County
Renewal Application # 18233 10840 Altamont Pass Road, Livermore, CA 94550
Revision Applications # 14816, 16525, 16696, 17220, 18820, 19046, 19207, & 20252

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

By: Carol S. Allen February 6, 2009
Senior Air Quality Engineer Date

PERMIT TO OPERATE REPORT

APPLICATION # 19206

Waste Management of Alameda County; Site # A2066

F. BACKGROUND

Pursuant to Application # 19206, the District approved an Authority to Construct on February 11, 2009 for a new Landfill Gas Flare (A-16) that would control landfill gas collected from Fill Area 1 of the Altamont Landfill (S-2) and waste gases from the LNG Plant (S-210). This flare is also equipped for landfill gas condensate injection. Waste Management of Alameda County began operating this flare on July 16, 2009.

An initial compliance demonstration source test was conducted on the A-16 Flare on November 9, 2009. At the time this test was conducted, the LNG Plant was not fully operational and insufficient LNG Plant waste gases were available to test the flare during this operating mode. Therefore, this initial source test only included two operating modes: (1) the flare burning landfill gas alone and (2) the flare burning landfill gas while landfill gas condensate is injected into the flare. All three operating modes were tested during the subsequent June 24, 2010 source test. As discussed in more detail below, the source tests indicate that A-16 is complying with all applicable requirements.

G. SOURCE TEST RESULTS

The results of the November 2009 and June 2010 source tests on the A-16 Landfill Gas Flare are summarized in the attached Table 1. As indicated in Table 1, A-16 achieved compliance with the maximum NOx, CO, and NMHC outlet concentration limits during each operating mode tested. The flare also complied with the alternative NOx and CO lbs/MM BTU limits and the alternative NMHC destruction efficiency limit during each test.

Regulation 8, Rule 34 requires that flare temperature be monitored continuously. Compliance with the minimum flare temperature limit demonstrates on-going compliance with the Regulation 8-34-301.3 NMHC emission limits. As indicated in Part 10 of Condition # 19235, the District typically establishes the minimum operating temperature limit for enclosed landfill gas flares based on the average temperature measured during a complying source test. The minimum temperature limit is equal to the average temperature measured during the source test minus 50 ˚F, or 1400 ˚F, whichever is higher. From Table 1, A-16 demonstrated compliance with the NMHC emission limits at average operating temperatures of 1559 ˚F and higher. Thus, the minimum combustion temperature limit for A-16 should be: (1559 – 50) = 1509 ˚F.

District staff has also reviewed the operating and source testing history for this site's A-15 Landfill Gas Flare, which controls landfill gas collected from S-2. A-15 is also equipped for condensate injection. A-15 began operating in 2003 and has had eight source tests conducted on it since it began operating. All source tests demonstrated compliance with the applicable

NOx, CO, and NMHC emission limits for A-15. During these compliant source tests, the average combustion temperature for A-15 ranged from 1531 ˚F to 1646 ˚F. The District typically uses the lowest average temperature measured during a compliant source test to establish the minimum operating temperature for a flare. The lowest averaged combustion temperature, 1531 ˚F, was measured during a 2005 source test, which is summarized in Table 2. Thus for A-15, the minimum combustion temperature limit should be: (1531 – 50) = 1481 ˚F.

H. PERMIT CONDITIONS

The District is proposing to revise the current permit conditions for the S-2 Altamont Landfill and Flares (Condition # 19235) to include the appropriate minimum temperature limits for the A-15 and A-16 Landfill Gas Flares and to delete obsolete text. The proposed changes to Parts 10 and 13 are identified below in strike through and underline formatting.

Condition # 19235

FOR: S-2 ALTAMONT LANDFILL WITH LANDFILL GAS COLLECTION SYSTEM, A-15 LANDFILL GAS FLARE, AND A-16 LANDFILL GAS FLARE:

10. For each Landfill Gas Flare (A-15 and A-16), the combustion zone temperature shall be maintained at ~~a~~the minimum ~~of 1400 degrees Fahrenheit, averaged over any 3-hour period during all times that landfill gas is vented to the flare~~ limits in 10a-b. If a source test demonstrates compliance with all applicable requirements at a different temperature the APCO may revise these minimum combustion zone temperature limits in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415 and the following criteria. The minimum combustion zone temperature for a flare (T_{min}) shall be equal to the average combustion zone temperature determined during the most recent complying source test (T_{avg}) minus 50 degrees F, provided that the minimum combustion zone temperature is not less than 1400 degrees F:

    $T_{min} = T_{avg} – 50$, for $T_{avg} >= 1450$ degrees F
    $T_{min} = 1400$, for $T_{avg} < 1450$ degrees F

(Basis: RACT, Offsets, Cumulative Increase, ~~Toxic Risk Management Policy~~TBACT, and Regulation 8-34-301.3)

a. For A-15, the combustion zone temperature shall be maintained at a minimum of 1481 degrees Fahrenheit, averaged over any 3-hour period during all times that landfill gas is vented to this flare.

b. For A-16, the combustion zone temperature shall be maintained at a minimum of 1509 degrees Fahrenheit, averaged over any 3-hour period during all times that landfill gas is vented to this flare.

13. In order to demonstrate compliance with Regulation 8, Rule 34, Sections 301.3 and 412 and Parts 7 through 12 above, the Permit Holder shall ensure that a District approved source test is conducted annually on the A-15 and A-16 Landfill Gas Flares. The annual source tests shall be conducted while the flare is operating at or near maximum operating rates and for each of the following operating conditions: (a) while the flare is burning landfill gas without any

condensate injection, (b) while the flare is burning landfill gas and condensate is being injected into the flare at or near the maximum injection rate, and (c) while the A-16 flare is controlling emissions from the S-210 LNG Plant. Each source test shall determine the following:

a. landfill gas flow rate to the flare (dry basis);
b. concentrations (dry basis) of carbon dioxide (CO_2), nitrogen (N_2), oxygen (O_2), total hydrocarbons (THC), methane (CH_4), and total non-methane organic compounds (NMOC) in the landfill gas;
c. stack gas flow rate from the flare (dry basis);
d. concentrations (dry basis) of NO_x, CO, NMOC, and O_2 in the flare stack gas;
e. NMOC destruction efficiency achieved by the flare; and
f. average combustion zone temperature of the flare during the test period.

~~The first annual source test for the A-16 Landfill Gas Flare shall be conducted within 120 days of the initial start-up date for A-16. Testing of A-16 while condensate is being injected or while A-16 is controlling emissions from the S-210 LNG Plant is not required until the first annual source test that is scheduled to occur after the date that these operating scenarios commence.~~ Subsequent annual source tests shall be conducted no later than 12 months after the previous source test. Testing while condensate is being injected is not required, if condensate was not injected into the flare during any of the 12 consecutive months prior to the source test date. The Source Test Section of the District shall be contacted to obtain approval of the source test procedures at least 14 days in advance of each source test. The Source Test Section shall be notified of the scheduled test date at least 7 days in advance of each source test. The source test report shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 60 days of the test date. (Basis: RACT, Offsets, Cumulative Increase, TBACT, ~~Toxic Risk Management Policy,~~ and Regulations 2-5-302, 8-34-301.3, and 8-34-412)

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

I. RECOMMENDATION

Issue a Change of Conditions and Permit to Operate for the following abatement equipment subject to Condition # 19235.

A-16 Landfill Gas Flare; Shaw LFG Specialties, M/N EF1255l12, 132 MM BTU/hour, 5 gpm condensate injection; abating S-2 Altamont Landfill and S-210 LNG Plant.

By: Carol S. Allen December 1, 2010
Supervising Air Quality Engineer Date

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

Table 1. Summary of Source Test Results for A-16 Landfill Gas Flare

	Limit	November 2009		June 2010		
Operating Mode	All	1	2	1	2	3
LFG Flow Rate, scfm	≤ 4400	3183	3212	3192	3194	2565
Heat Input, MM BTU/hour	≤ 132.0	99.7	100.0	101.5	95.7	59.3
Condensate Rate, gpm	≤ 5.0	0.0	0.5	0.0	1.12	1.12
NOx, ppmv @ 3% O2	≤ 45	31.6	31.6	29.9	27.0	17.9
NOx, lbs/MM BTU	≤ 0.06	0.042	0.042	0.039	0.038	0.025
CO, ppmv @ 3% O2	≤ 202	<1.9	14.8	21.1	4.5	7.6
CO, lbs/MM BTU	≤ 0.20	<0.001	0.012	0.017	0.004	0.006
NMHC, ppmv @ 3% O2	≤ 30	<1.9	<1.8	<1.8	<1.6	<1.8
NMHC, destruction eff.	≥ 98%	>99.8%	>99.8%	>99.94	>99.96	>99.5
Combustion Temp., ˚F	≥ 1400	1559	1559	1559	1567	1573

1. During operating mode 1, the flare is burning landfill gas alone.
2. During operating mode 2, the flare is burning landfill gas while landfill gas condensate is injected into the flare.
3. During operating mode 3, the flare is burning a mixture of landfill gas and LNG Plant waste gases. The reported LFG flow rate and heat input rate are the combined rates for this gas blend. Condensate injection may either be turned on or off during this operating mode.

Table 2. Summary of Source Test Results for A-15 Landfill Gas Flare

	Limit	August 2005		May 2010	
Operating Mode	All	1	2	1	2
LFG Flow Rate, scfm	≤ 2370	1569	1684	1575	1639
Heat Input, MM BTU/hour	≤ 71.0	46.4	51.1	47.5	49.7
Condensate Rate, gpm	≤ 2.5	0.0	2.2	0.0	1.9
NOx, ppmv @ 3% O2	≤ 45	24.0	29.4	29.5	32.5
NOx, lbs/MM BTU	≤ 0.06	0.031	0.038	0.039	0.043
CO, ppmv @ 3% O2	≤ 369	19.4	40.2	3.3	5.8
CO, lbs/MM BTU	≤ 0.30	0.015	0.031	0.003	0.005
NMHC, ppmv @ 3% O2	≤ 30	<1	<1	<2.0	<1.9
NMHC, destruction eff.	≥ 98%	>99.9	>99.9	>99.9	>99.9
Combustion Temp., ˚F	≥ 1400	1532	1531	1630	1630

1. During operating mode 1, the flare is burning landfill gas alone.
2. During operating mode 2, the flare is burning landfill gas while landfill gas condensate is injected into the flare.

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

Engineering Evaluation
for

Condensate Injection Rate Increase at S-15 Landfill Gas Flare

Waste Management of Alameda County; PLANT # 2066

APPLICATION # 21044

I. BACKGROUND

Waste Management of Alameda County operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). This facility includes an active landfill: S-2 Altamont Landfill with Landfill Gas Collection System, two Landfill Gas Flares (A-15 and A-16), and various other energy recovery and landfill gas processing equipment (S-6, S-7, S-23, S-24, and S-210).

This application concerns the 71 MM BTU/hour landfill gas flare (A-15). In addition to destroying landfill gas, the A-15 and A-16 Landfill Gas Flares are currently permitted to burn landfill gas condensate. Landfill gas condensate is produced at this site by temperature changes in the landfill gas collection field and by compression of the landfill gas prior to combustion in flares, gas turbines, or IC engines. The A-15 flare is permitted to burn up to 3600 gallons/day (2.5 gpm) of landfill gas condensate. The larger 132 MM BTU/hour flare (A-16) is permitted to burn up to 7200 gallons/day (5.0 gpm) of landfill gas condensate.

The condensate injection nozzle that was installed on A-15 actually has a maximum throughput capacity of 3.0 gallons/minute rather than 2.5 gpm. Waste Management has requested that the District increase the allowable condensate injection rate for A-15 to 4320 gallons/day – the equivalent of 3.0 gpm.

II. EMISSIONS

Initially, the District suspected that injecting condensate into the flare may increase the CO emissions from the flare. However, source test results for Waste Management's flares demonstrate that condensate injection has no statistically significant impact on the CO emission rate. Waste Management has conducted seven source tests at A-15 that included seven tests with condensate injection and 6 tests without condensate injection plus one test at A-16 (both with and without condensate injection). Without condensate injection, the CO emission rate ranged from 0.001 lbs CO/MM BTU to 0.051 lbs CO /MM BTU. With the exception of one outlier, CO emission rates ranged from 0.006 lbs CO/MM BTU to 0.031 lbs of CO/MM BTU, when the condensate injection rates ranged from 0.5 gpm to 2.6 gpm. As illustrated in the attached chart, the CO emission rate appears to have no correlation to the CO injection rate.

NOx emissions were reviewed in a similar manner. The source test results demonstrate that there is no apparent correlation between the flare's NOx emissions and the condensate injection rate. NMOC emissions were non-detect for most tests.

Since there appears to be no correlation between condensate injection rate and the flare's CO, NOx, or NMOC emission rates, increasing the condensate injection rate at A-15 should have no significant impact on flare emissions.

III. STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

This application is for a change of permit conditions at the A-15 Landfill Gas Flare that involves no physical alterations and no increases in emissions. Therefore, this application is categorically exempt from CEQA review pursuant to Regulation 2-1-312.1, and no further CEQA review is required.

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

Regulation 2, Rule 2:

Since this application does not result in any emission increases, this project is not subject to New Source Review (NSR). No new BACT, Offset or PSD requirements will apply.

New Source Review for Toxic Air Contaminants:

This application does not result in any increases of Toxic Air Contaminants (TACs). Therefore, NSR for TACs is not triggered, and no new T-BACT requirements will apply.

Regulation 2, Rule 6:

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act (40 CFR, Part 70) and BAAQMD Regulation 2, Rule 6, Major Facility Review (MFR), because it is a major facility for NO_x and CO emissions and also because it is a designated facility (since it is subject to the control requirements of the Emission Guidelines for MSW Landfills). Therefore, this facility is required to have an MFR permit pursuant to Regulations 2-6-301 and 2-6-304.

The initial MFR Permit for this facility was issued on December 1, 2003 and was last revised on October 9, 2008. Since this application will result in permit condition modifications, a minor revision of the Title V permit will be required. This Title V permit revision will be

handled pursuant to either Application #14816 or #18820 (these applications may be combined into a single action at a later date).

Regulation 6, Rule 1 (General Requirements):

Particulate matter emissions from the A-15 Landfill Gas Flare are subject to Regulation 6. Section 6-310 limits PM emissions to 0.15 grains/dscf of exhaust. At the expected PM_{10} emission rate of 0.0171 lbs/MM BTU, the PM_{10} grain loading in the exhaust will be 0.0124 grains/sdcf at 0% O_2. This expected PM_{10} emission rate is far below the Regulation 6-310 grain-loading limit. Condensate injection is not expected to have any significant impact on flare particulate emissions, because the condensate is filtered prior to injection into the flare.

Regulation 8, Rule 34:

The A-15 Landfill Gas Flare is subject to Regulation 8-34-301.3, which limits NMOC emissions from flares to less than 30 ppmv at 3% oxygen or more than 98% destruction efficiency by weight. The A-15 flare has had no detectable NMOC emissions during most source tests with a compliance ratio greater than 6:1 in all cases. Increasing the condensate injection should have no impact on the A-15 Flare's ability to comply with this Regulation 8, Rule 34 requirement.

Regulation 9, Rule 1 (Sulfur Dioxide):

For gaseous combustion operations, Regulation 9-1-302 limits the SO_2 concentration in an exhaust stream to 300 ppmv (dry basis). At the inlet landfill gas sulfur content limit of 200 ppmv (expressed as H_2S), the outlet SO_2 concentration will be 42 ppmv of SO_2 at 0% O_2. Landfill gas condensate is not expected to contain any significant quantities of sulfur compounds. Thus, this condensate injection rate increase will not impact the outlet SO_2 concentration.

Federal Requirements:

The Altamont Landfill is currently subject to the Emission Guidelines for MSW Landfills (40 CFR Part 60, Subpart Cc) and to the NESHAP for MSW Landfills (40 CFR Part 63, Subpart AAAA). All existing applicable requirements are identified in the MFR Permit for Site # A2066. Since the proposed condensate injection rate increase will not result in any emission increases, this permit condition change will not affect compliance with either of these federal requirements.

IV. Permit Condition Revisions

The District is proposing to revise Condition # 19235, Part 1, as shown below in strike through and underline formatting. The proposed revisions to Part 1b(i) identify the collection system alterations that are being authorized pursuant to this Authority to Construct. No other condition changes are proposed.

Condition # 19235
FOR: S-2 ALTAMONT LANDFILL WITH LANDFILL GAS COLLECTION SYSTEM, A-15 LANDFILL GAS FLARE, AND A-16 LANDFILL GAS FLARE:

No Changes to Parts 1-2

3. The A-15 and A-16 Landfill Gas Flares shall be fired on landfill gas collected from Fill Area 1 of the S-2 Altamont Landfill. The permit holder shall apply for and receive a Change of Permit Conditions before using these flares to control landfill gas collected from the proposed Fill Area 2. Propane may be used as a start-up fuel only. Landfill gas condensate may be injected into these flares, provided that the flares comply with all limits in Parts 3-10 and any other applicable emission limits during all times that condensate is being injected into these flares. (Basis: Regulation 2-1-301)
   a. The condensate injection rate at A-15 shall not exceed ~~3600~~ 4320 gallons during any day, and
   b. The condensate injection rate at A-16 shall not exceed 7200 gallons during any day.

No Changes to Parts 4-23

V. RECOMMENDATION

Issue a Change of Conditions for Condition # 19235 and the following equipment:

S-2 Altamont Landfill with Landfill Gas Collection System; abated by A-15 Landfill Gas Flare and A-16 Landfill Gas Flare.

By: Carol S. Allen Date
Principal Air Quality Engineer

APPENDIX F

REPORTS FOR LANDFILL EXPANSION

TITLE V APPLICATION # 14816

NSR APPLICATIONS # 14814

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

Final Decision Report

APPLICATION # 14814
Fill Area 2 Landfill Expansion Project
(S-2 Altamont Landfill)

Waste Management of Alameda County;
Site # A2066

prepared by:

Carol Allen

Principal Engineer

Toxic Evaluation Section

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

EXECUTIVE SUMMARY

This report documents the District's engineering review of Application # 14814 for the Fill Area 2 Landfill Expansion Project that was submitted by Waste Management of Alameda County (Site # A2066).

Project Summary

Waste Management requested permit condition revisions for the S-2 Altamont Landfill that would increase the total design capacity of the landfill up to 124.4 million cubic yards and that would allow waste disposal to begin in an adjacent canyon, designated as Fill Area 2. For the S-2 Altamont Landfill, the District proposed to limit the total amount of decomposable waste and cover materials to 88.000 million tons. The landfill is expected to reach full capacity in 2038.

Emissions Summary

For this project, the District is proposing to establish a maximum emission limit of 387.5 tons/year of fugitive PM_{10} due to waste disposal and haul road activities at the S-2 Altamont Landfill. This limit is equal to the actual baseline PM_{10} emission rate that was calculated for Fill Area 1 haul roads and waste disposal activities. After inclusion of the Fill Area 2 Expansion Project and the other permit condition revisions proposed for Application # 14814, the S-2 Altamont Landfill is expected to emit a maximum of 370.4 tons/year of PM_{10} from waste disposal and haul road activities. Since the proposed PM_{10} emissions are less than the actual baseline PM_{10} emissions, this project will not result in any PM_{10} emission increases.

After inclusion of the Fill Area 2 expansion project, the S-2 Altamont Landfill will emit a maximum of 113.8 tons per year of fugitive non-methane organic compounds (NMOC) due to waste decomposition processes. The District is proposing to limit precursor organic compound (POC) emissions from S-2 to 111.5 tons per year. The maximum expected emission rate of non-precursor organic compounds (NPOC) is 2.3 tons per year. This project results in 47.5 tons per year of fugitive POC emission increases and 1.0 ton per year of fugitive NPOC emission increases above actual baseline POC and NPOC emission levels.

All of the fugitive NMOC emissions from the landfill could be hazardous air pollutants (HAPs). Therefore, the maximum potential HAP emission rate for the modified landfill will be 113.8 tons per year. Maximum potential emissions from the modified landfill will exceed 10 tons per year for each of the following HAPs: methanol, toluene, and total xylenes.

This project will result in emission increases for numerous toxic air contaminants (TACs), and it is required to undergo a health risk screening analysis due these TAC emission increases. Ethyl benzene, benzene, perchloroethylene, and vinyl chloride emission increases have the largest

impacts on project cancer risks, while hydrogen sulfide emission increases have the largest influence on non-cancer health impacts from this project.

This project will increase the total site-wide POC, NPOC, and HAP emission levels for this facility. The proposed site-wide maximum permitted emission levels for each regulated air pollutant are summarized in Table A-1.

Table A-1. Proposed Maximum Permitted Emission Rates for Site # A2066

	CO [(1)] Tons/Year	NO_x Tons/Year	SO_2 Tons/Year	POC [(2)] Tons/Year	PM_{10} [(3)] Tons/Year	HAPs [(4)] Tons/Year
Total for Site # A2066, Including Fugitives	225.0	207.7	93.0	156.6	428.5	143.6
Total for Site # A2066, Excluding Fugitives [(5)]	225.0	207.7	93.0	43.8	40.8	29.8

(1) On November 3, 2009, the District approved permit condition revisions for this facility that established a site-wide cap on CO emissions. As shown above, this CO cap is 225.0 tons/year.

(2) The definition of precursor organic compounds (POC) is the same as the federal definition of volatile organic compounds (VOC), which excludes compounds that EPA has specifically identified as being non-photochemically reactive. For the purpose of federal PSD and non-attainment area NSR applicability, VOC emissions are equal to the non-fugitive POC emissions identified in this table.

(3) The point source (non-fugitive) PM_{10} emissions are all due to combustion devices (IC engines, gas turbines, and enclosed flares). For purposes of federal PSD and non-attainment area NSR applicability, $PM_{2.5}$ emissions may be assumed to be equal to the non-fugitive PM_{10} emissions identified in this table.

(4) Hazardous Air Pollutants (HAPs) include all compounds identified as HAPs by EPA. HAPs include both organic and inorganic compounds. Organic HAPs may include both VOC and non-photochemically reactive organic compounds.

(5) Since landfills are not one of the 28 special PSD categories of sources, the PSD major facility threshold for landfills is 250 tons/year of any regulated air pollutant and fugitive emissions should be excluded from the federal NSR applicability determinations for this site.

CEQA

The County of Alameda satisfied California Environmental Quality Act (CEQA) requirements by certifying a final revised EIR for the Fill Area 2 Expansion Project in January 2000. Since the project being reviewed by the District conforms with this revised final EIR, no further CEQA review is required.

District New Source Review

The Fill Area 2 Expansion Project triggers District BACT requirements and District offset requirements due to the POC emission increases from the landfill. This project also triggers District TBACT and project risk requirements due to the TAC emission increases. The S-2

Altamont Landfill will satisfy BACT and TBACT requirements by operating the existing landfill gas collection and control systems in Fill Area 1 in accordance with all applicable requirements and by installing and operating state-of-the-art landfill gas collection and control systems in Fill Area 2 after accumulating 1.0 million tons of waste in this disposal unit. Waste Management has surrendered POC emission reduction credits (ERCs) to offset the initial increment of POC emission increases for this project. Waste Management will supply additional POC ERCs in the future in accordance with a schedule contained in the permit conditions. Permit condition limits on landfill gas TAC concentrations and waste disposal rates will ensure that this project complies with the District project risk limits of 10.0 in a million cancer risk, 1.0 chronic hazard index, and 1.0 acute hazard index.

Federal New Source Review (PSD and Nonattainment Area NSR)

As shown in Table A-1, the total point source (non-fugitive) permitted emission rates for Site # A2066 are less than 250 tons for each regulated air pollutant. Therefore, this site is not subject to PSD.

This site is not a major stationary source for $PM_{2.5}$, because site-wide PM_{10} emissions (excluding fugitives) are less than 100 tons/year. In addition, this project results in 0.0 tons/year of PM_{10} emission increases.

Since this site will emit more than 100 tons/year of NO_x (an ozone precursor), it is a major stationary source for ozone. However, this project does not constitute a major modification because all of the POC emission increases for this project are fugitive in nature, and these fugitive emission increases are excluded from the significant emission increase applicability determination. Consequently, this site is not subject to any non-attainment area NSR requirements.

District Prohibitory Rules

Active landfills are subject to the following BAAQMD regulations:

- Regulation 6 Particulate Matter, Rule 1 General Requirements
- Regulation 8 Organic Compounds, Rule 34 Solid Waste Disposal Sites
- Regulation 9 Inorganic Gaseous Pollutants, Rule 2 Hydrogen Sulfide

The S-2 Altamont Landfill is expected to comply with all applicable provisions of these regulations. The Statement of Compliance Section of this report contains a detailed compliance discussion for each rule.

Federal NSPS and NESHAP Regulations

Since this project involves a horizontal expansion of the landfill and the total landfill design capacity will exceed 2.5 million Mg, this landfill expansion project triggers the federal New Source

Performance Standards (NSPS) for Municipal Solid Waste Landfills (40 CFR, Part 60, Subpart WWW). Currently, the S-2 Altamont Landfill is subject to the federal Emission Guidelines (EG) for MSW Landfills (40 CFR, Part 60, Subpart Cc), which requires that active landfills meet requirements that are essentially the same as these NSPS requirements (only the initial compliance dates were different). Since Waste Management has been complying with the EG provisions, the Altamont Landfill is expected to meet all NSPS provisions.

The S-2 Altamont Landfill is currently subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Municipal Solid Waste Landfills (40 CFR, Part 63, Subpart AAAA). This rule requires that subject landfills meet all of the NSPS/EG requirements for MSW Landfills and requires that subject landfills maintain and comply with start-up, shutdown, and malfunction plans and submit semi-annual monitoring and compliance reports. Waste Management has been complying with these NESHAP requirements.

Public and EPA Review

On April 22, 2009, the District issued a preliminary decision to approve permit condition revisions for the S-2 Altamont Landfill that would allow waste disposal to begin in an adjacent canyon designated as Fill Area 2 and would increase the total design capacity of the landfill up to 124.4 million cubic yards. In accordance with District Regulation 2-2-405, the District invited the public, EPA, CARB, and other agencies to comment on this project. A notice was published in the Tri-Valley Herald on April 30, 2009. Comments were accepted through June 1, 2009.

The District did not receive any comments on this project from the public, EPA, CARB, or other agencies, but the District did receive one comment letter for the applicant's consultant. In response to this comment, the District has clarified various statements in this report that discuss offset requirements for new or modified sources and abatement devices that may be used in the future to control landfill gas collected from Fill Area 2.

Title V Permit Requirements

The proposed landfill expansion project will require a significant revision of the Title V Permit for Site # A2066 in order to replace the EG requirements for MSW Landfills with the NSPS requirements for MSW Landfills and to incorporate the proposed permit condition revisions. The Title V permit revision will be handled in a separate action under Application # 14816.

Conclusion

The District has completed the compliance review for this project and has determined that the project, when operated in accordance with the permit conditions identified in this report, will comply with all applicable District, state, and federal requirements. The District has conducted the required public notification and comment procedures and has considered all comments received on

this project. The District is now ready to issue the final permit condition changes for this application.

BACKGROUND

This report documents the District's final engineering review of Application # 14814 for the Fill Area 2 Landfill Expansion Project that was submitted by Waste Management of Alameda County (Site # A2066) in 2006. On April 22, 2009, the District issued a preliminary decision to approve permit condition revisions for the S-2 Altamont Landfill that would allow Waste Management to begin disposal of waste in an adjacent canyon (Fill Area 2). The District provided the public, EPA, and other agencies the opportunity to comment on this project; however, the District did not receive any comments about this project from the public, EPA, or other agencies. The District did receive comments from the applicant's consultant requesting that the District clarify certain discussions in this report about the applicability of offset requirements for existing permitted landfill gas control devices. District staff have included these requested offset applicability clarifications in this final decision report. The facility equipment descriptions, emissions, health risk screening analysis, and permit conditions in this final decision report have also been updated by incorporating equipment and permit condition revisions that were approved by the District after the preliminary report was prepared. The Statement of Compliance Section for this report includes minor corrections to the preliminary decisions report's compliance discussion, which were identified during an internal staff review of this report. No changes have been made to the permit condition revisions that were proposed in the preliminary decision report. As indicated in Section F of this report, District staff conclude that this project will comply with all applicable District, state and federal requirements and recommend that the APCO approve the final issuance of the proposed permit condition revisions for this project.

Facility Description:

Waste Management of Alameda County operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). This facility includes an active municipal solid waste landfill (S-2 Altamont Landfill). As required by BAAQMD Regulation 8, Rule 34, this landfill is equipped with an active landfill gas collection system and a landfill gas control system. The landfill gas control system includes both energy recovery devices and an enclosed flare. Specifically, the current landfill gas control system consists of: two 3 MW landfill gas fired turbines (S-6 and S-7 Gas Turbines), two 1877 bhp landfill gas fired Engines (S-23 and S-24 IC Engines), and one 71 MM BTU/hour enclosed flare (A-15 Landfill Gas Flare). The District has also approved Authorities to Construct for a Liquefied Natural Gas (LNG) Plant (S-210) that will convert landfill gas into vehicle fuel quality LNG and for a 132 MM BTU/hour enclosed flare (A-16) at this site.

The site also has numerous permitted and exempt devices that support the landfill, including: waste water processing operations, green waste storage and processing operations, portable and emergency standby power generation, and a non-retail gasoline dispensing facility. The current facility equipment list is provided in Appendix A.

Application Summary:

This application concerns the S-2 Altamont Landfill. The maximum design capacity of the landfill is currently 58.9 million cubic yards for the area designated as Fill Area 1. The landfill is currently permitted to accept up to 11,150 tons/day of wastes and to accept a cumulative maximum of 47.1 million tons of decomposable waste (Condition # 19235, Part 18). These limits were imposed on S-2 during the initial Title V permitting process and reflected the limits contained in the Solid Waste Facility Permit for Fill Area 1, which was the basis for the District's initial authority to construct for S-2. The landfill design capacity, cumulative decomposable material limit, and daily waste acceptance limits define the capacity for a landfill source and are used in conjunction with detailed site-specific data to determine the maximum potential emissions for each regulated air pollutant and for each toxic air contaminant emitted from a landfill and its associated landfill gas control system.

Waste Management submitted this application to request an Authority to Construct for an expansion of their current landfill permit. Waste Management is proposing to begin disposal of wastes in a 250 acre area, designated as Fill Area 2, located adjacent to and east of Fill Area 1. Waste disposal will shift to Fill Area 2, when Fill Area 1 has reached full capacity, which is expected to occur in 2013. Fill Area 2 will continue accepting waste at the same current maximum daily rates as Fill Area 1 (11,150 tons/day and 557 refuse vehicles/day). Closure of Fill Area 2 is expected to occur in 2038.

This Fill Area 2 expansion will increase the maximum design capacity for the S-2 Altamont Landfill to 124.4 million cubic yards. Fill Area 2 will allow for the disposal of an additional 40 million tons of decomposable waste. Waste Management requested that the S-2 Altamont Landfill be permitted to have a cumulative total of 87.1 million tons of decomposable waste, which is consistent with the Solid Waste Facility Permit that was issued on August 22, 2005. Since 2000, this facility has been using decomposable materials - primarily shredded green waste – as one of the daily cover materials for the waste disposal operation. When the landfill reaches full capacity, the total amount of decomposable cover materials used at this site is expected to be 900,000 tons. The total cumulative amount of decomposable waste and cover materials placed in this site will be limited to 88.000 million tons.

District New Source Review Applicability:

Waste Management is proposing to increase both the maximum landfill design capacity and the cumulative decomposable material disposal limits for the S-2 Altamont Landfill that are contained in the current Title V permit for this site. Increasing the maximum design capacity of this landfill constitutes a modified source pursuant to Regulation 2-1-234.2.

Increasing the cumulative decomposable material disposal limit constitutes a modification of S-2 pursuant to Regulation 2-1-234.3, if this change will result in an emission increase. The proposed 40 million ton increase in the cumulative total amount of decomposable waste placed in the landfill will result in an increase in the maximum projected landfill gas generation rate for Altamont Landfill compared to the maximum projected gas generation rate for Fill Area 1 alone. (The current and proposed gas generation rates are discussed in detail in Section C of this report.) Both the current and proposed landfills are expected to have 25% fugitive emissions, and the organic and toxic concentrations in the landfill gas will not change appreciably. Consequently, the increase in gas generation rate at S-2 will also result in higher precursor and non-precursor organic compound (POC and NPOC) emission rates and higher toxic air contaminant (TAC) emission rates compared to the current maximum potential emissions from S-2. In accordance with Regulation 2-1-234.3.1, the proposed increase in the cumulative amount of decomposable materials placed in the landfill also constitutes a modification of S-2.

Pursuant to a separate permit application (Application #19045), Waste Management is constructing a liquefied natural gas (LNG) plant at this site, which will convert collected landfill gas into liquid methane. The LNG will be used as fuel for garbage truck haul fleets. This LNG Plant will initially be permitted to process gas from collected from Fill Area 1 only. In the future however, the LNG Plant is expected to provide a portion of the additional landfill gas control capacity that will be necessary for Fill Area 2. Waste Management has also received an Authority to Construct for a new landfill gas flare that will control waste gases from the LNG Plant and that will provide additional landfill gas control capacity for Fill Area 1 now and eventually for Fill Area 2. Any residual or secondary emissions from the LNG Plant and New Flare that are caused by burning landfill gas collected from Fill Area 2 are related projects to this landfill expansion. These emissions will be subject to new source review and offset requirements when the LNG plant and new flare are permitted to process gas collected from Fill Area 2. If any other new or modified landfill gas control devices are proposed for Fill Area 2 in the future, both the residual and secondary emissions from these devices will be similarly linked to this landfill expansion and subject to new source review. Since the residual and secondary emission rates associated with this Fill Area 2 expansion will depend on the type of control device proposed, the specific amount of residual and secondary emissions that are subject to NSR will be determined after Waste

Management submits the required application for the Fill Area 2 landfill gas collection and control system.[1]

Although this landfill expansion could potentially have resulted in additional particulate emissions, primarily due to the longer haul route that will be necessary to reach the Fill Area 2 disposal area, Waste Management has proposed to employ additional particulate emission control measures on both their paved and unpaved roads. These dust control measures will ensure that the particulate emissions from the proposed landfill operations will not exceed the current maximum potential particulate emission rate for Fill Area 1. Under these circumstances, this application will not result in particulate emission increases and will not trigger new source review for particulate matter emissions. A particulate emission limit and various monitoring and record keeping requirements will be imposed to ensure that the current maximum potential particulate emission rate (for Fill Area 1 alone) is not exceeded.

Federal New Source Review Applicability:

Federal prevention of significant deterioration (PSD) requirements apply to sites that have a potential to emit for a regulated air pollutant that is above the PSD major facility threshold for that site. Since this landfill facility is not in one of the 28 special PSD categories, this site has a PSD major facility threshold of 250 tons per year and fugitive emissions are excluded from the PSD applicability determination. As shown in Table A-1, the total point source (non-fugitive) permitted emission rates for Site # A2066 are less than 250 tons for each regulated air pollutant. Therefore, this site is not subject to PSD.

Since EPA has proposed to designate the BAAQMD as non-attainment for ozone and $PM_{2.5}$ [2], Bay Area facilities are potentially subject to federal nonattainment area new source review requirements. The major stationary source thresholds for Bay Area facilities are 100 tons/year for ozone precursors (VOC and NO_x). In accordance with EPA guidance, the major stationary source threshold for $PM_{2.5}$ is 100 tons/year of PM_{10}. Since this site will emit more than 100 tons/year of NO_x, it is a major stationary source for ozone. However, this site is not a major stationary source for $PM_{2.5}$, because site-wide PM_{10} emissions (excluding fugitives) are less than 100 tons/year.

---

[1] To prevent circumvention of offset requirements for residual and secondary emissions from S-210 and A-16, the LNG Plant and the 132 MM BTU/hour flare are currently permitted to burn gas collected from Fill Area 1 only. In accordance with the proposed changes to Condition # 19235, Part 1, Waste Management will be required to submit a permit application for condition changes to identify all equipment that will be used to control gas collected from Fill Area 2. Any emission increases associated with burning gas collected from Fill Area 2 will be subject to offset requirements. The state's offset relief provisions will not apply to secondary emission increases from abatement devices that are controlling gas generated in Fill Area 2.

[2] BAAQMD had briefly achieved attainment of the old federal 1-hour ozone standard, but EPA has proposed to classify BAAQMD as non-attainment for both the current and proposed versions of the federal 8-hour ozone standards. EPA has also proposed to classify the BAAQMD as non-attainment for the revised federal 24-hour $PM_{2.5}$ standard.

Since this facility is a major stationary source of an ozone precursor (NO_x, in this case), nonattainment NSR requirements (LAER and Offsets) will apply to any major modification of the facility that results in a significant emission increase. All of the emission increases for this project occur from a single source (the S-2 Altamont Landfill), and the 47.5 tons/year of POC emission increases for this project are all fugitive emissions. Since landfills are not one of the 28 special source categories, fugitive emissions are excluded from the significant emission increase determination. For federal NSR applicability purposes, this project has no point-source emission increases for ozone precursors (0.0 tons/year of non-fugitive VOC emission increases and 0.0 tons/year of non-fugitive NOx emission increases). Therefore, this project is not a major modification of Site # A2066, and there are no applicable federal NSR requirements.

NSPS Applicability:

This proposed landfill expansion is considered to be an NSPS modification pursuant to the Standards of Performance for Municipal Solid Waste Landfills (40 CFR, Part 60, Subpart WWW, Section 751), because it involves a horizontal expansion of the landfill that results in an increase in the design capacity of the landfill compared to the permitted design capacity as of May 30, 1991. Since the landfill is active, the total design capacity exceeds 2.5 million Mg and 2.5 million m^3, and the NMOC emission rate (calculated in accordance with 40 CFR 60.754) is greater than 50 Mg/year, this expansion triggers the NSPS landfill gas collection and control system requirements of 40 CFR 60.752(b)(2). Condition bases will be revised to include these newly applicable federal requirements. This application will also trigger a significant revision of the MFR Permit pursuant to Regulation 2-6-226.2 (see Application # 14816).

EMISSIONS

Overview:

Active MSW landfills are significant sources of precursor organic compound (POC) emissions and toxic air contaminant (TAC) emissions. After waste has been buried in a landfill, biological processes slowly break down the wastes and generate off-gases. These gases, collectively known as landfill gas, contain mainly methane and carbon dioxide, but they also contain small amounts of numerous different precursor and non-precursor organic compounds, toxic air contaminants, and reduced sulfur compounds. As landfill gas generation progresses, the gas pressure within the landfill builds and the gases migrate toward lower pressure areas. Eventually, landfill gas (containing POCs and TACs) will begin to seep through the surface of the landfill.

To minimize these fugitive surface emissions, many landfills are equipped with landfill gas collection systems. Landfill gas collection systems include a series of connected pipes with perforated pipe sections buried within the refuse. Active gas collection systems use blowers to

create a vacuum within the piping system, which draws the underground landfill gas into the buried perforated pipe sections. The blowers vent the collected landfill gas to a landfill gas control system.

Landfill gas control systems typically involve burning the collected landfill gas. Collected landfill gas typically has a high enough heat content (400-600 BTU/scf) that it may be used directly as fuel in an energy recovery device, or it may be burned in an enclosed ground flare without the need for supplemental fuel. In addition to emitting very small amounts of residual POCs and TACs, these landfill gas combustion devices generate carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), particulate matter (PM_{10}), and secondary TACs.

Active landfills also have high rates of particulate matter (PM_{10}) emissions resulting from cell construction and other site preparation activities, from vehicle travel on paved and unpaved roads, from waste filling and cover placement activities, from soil excavation processes, from cover material acceptance and preparation activities, and from wind erosion.

The proposed maximum project emissions and project emission increases resulting from each of the processes and activities discussed above are presented below.

Landfill Gas Generation Rates:

A site's landfill gas generation rate varies over the life of the landfill and cannot be measured directly. The amount of landfill gas that a particular landfill is currently generating or is capable of generating depends on many site-specific factors such as the amount of waste accepted annually in the past, the age of the wastes in the landfill, projected fill rates for the future, the types of wastes in the landfill, changes in the waste profile over time, and the temperature, moisture, and oxygen content within the waste at any given time.

Several empirical methods have been developed to estimate the landfill gas generation rate profiles for a site based on various site-specific input factors. The two most commonly used landfill gas generation rate models are: the Intergovernmental Panel on Climate Change (IPCC) Waste Model and the EPA Landfill Gas Emissions Model (LandGEM). The IPCC Waste Model has typically been used for greenhouse gas inventories, while the EPA LandGEM model has historically been used for criteria pollutant inventories and new source review purposes. These models require similar input information, but the IPCC model requires waste profile data in addition to the input parameters used by EPA's model.

For this application, the District used EPA's LandGEM, Version 3.02, to determine the current baseline, current maximum projected, and proposed maximum projected landfill gas generation rates for the S-2 Altamont Landfill. This spreadsheet based program determines the landfill gas generation rate for each year at a site based on annual decomposable material placement data for

the site and several other input parameters: the methane generation rate (k, $year^{-1}$), the potential methane generation capacity (L_0, m^3/Mg), and the landfill gas methane content (CH_4, % by volume). For these calculations, the District assumed that the landfill gas generated at this site will contain 50% methane by volume, which is the standard default assumption. Since Livermore weather data indicates that this area receives less than 25 inches of rain per year, the District assumed the methane generation rate was 0.02 $year^{-1}$ ($k = 0.02\ year^{-1}$), which is the standard default k value for arid areas. The District also used the default methane generation capacity that EPA recommends for arid area inventory calculations ($L_0 = 100\ m^3/Mg$).

As mentioned above, both the overall mass of decomposable materials in a landfill and the placement rate will impact the landfill gas generation rate profile for the landfill. For municipal solid waste landfills, the District typically assumes that all of the waste disposed of in the landfill is decomposable waste, unless the site provides site-specific waste profile data or annual disposal rates for inert materials. Decomposable cover materials - such as shredded green waste - contribute to the overall mass of decomposable material in a landfill and should be included in any landfill gas generation rate model for the landfill. For this project, the District calculated the historical decomposable material placement rates using these standard procedures and recently updated waste disposal data and cover usage data provided by Waste Management and SCS Engineers. Waste Management submitted a December 18, 2008 report entitled "2008 Review of Historic Waste Tonnage Reporting" to the District to correct the historic waste placement data that has been reported to the District in the past via the annual information update process. The correct annual solid waste disposal rate and cumulative waste-in-place rate for each year from 1980-2007 are identified in Appendix B of this report. Since Waste Management did not provide waste profile data or annual inert disposal rates, the District assumed that the solid waste disposed of in the landfill was 100% decomposable material. Since the year 2000, Waste Management has been using shredded green waste as a daily cover material at the Altamont Landfill. In a February 8, 2008 letter to the District, SCS Engineers provided the annual amounts of decomposable cover materials placed in Fill Area 1 of the Altamont Landfill. The District's calculated decomposable material placement history is presented in Appendix B.

The District evaluated landfill gas generation rates for various possible filling scenarios. The District and Waste Management agreed to base emission calculations on a fill rate of approximately 1.6 million tons/year of waste. The projected amount of decomposable cover materials placed in S-2 is assumed to decrease by about 5,000 tons/year for the remaining life of Fill Area 1 from the current 40,000 tons/year usage rate in 2008 to about 15,000 tons/year in 2013. For Fill Area 2 (2014 through 2038), the decomposable cover material usage rate is expected to be no more than 10,000 tons/year. Detailed future fill rate projections are presented in Appendix B.

The maximum amounts of decomposable materials placed in each fill area and the maximum projected landfill gas generation rates determined by the LandGEM program are summarized

below. As shown in Table C-1, the peak projected gas generation rate for Fill Area 2 is 7691 scfm of landfill gas. After waste placement shifts from Fill Area 1 to Fill Area 2, gas generation rate will decline in Fill Area 1 while it increases at Fill Area 2. The overall increase in the maximum projected landfill gas generation rate for the Altamont Landfill is 4308 scfm (Total Peak Generation for Fill Areas 1 and 2 Combined – Peak Generation for Fill Area 1).

Since the emissions from Fill Area 1 were never offset, cumulative emission increases for this landfill will be determined in accordance with Regulation 2-2-604.2, which requires a "Peak – Baseline" emissions comparison. For this application, the New Peak LFG Generation Rate minus the Current Baseline Landfill Gas Generation Rate is (12926 scfm – 6974 scfm) = 5952 scfm of LFG generation increases. All fugitive emissions associated with this 5952 scfm increase in landfill gas generation rate are part of this landfill expansion project and are subject to all applicable New Source Review requirements for these emission increases. In addition, any residual or secondary emission increases resulting from the future abatement of this landfill gas increase (by new or modified equipment) will be subject to NSR and, in particular to offset requirements for residual POC and secondary NO_x emission increases.

The detailed LandGEM results for Fill Area 1 alone, Fill Area 2 alone, and for the total projected Altamont Landfill (Fill Areas 1 and 2 combined) are presented in Appendix C.

Table C-1. Summary of Fill Area Contents and Projected Landfill Gas Generation Rates

	Decomposable Waste Tons-in-Place	Decomposable Cover Tons-in-Place	Total Decomposable Materials Tons-in-Place	As of Year	LFG Generation Rate scfm
Fill Area 1 Baseline (Average of 2005-2007)	1,296,246 Tons/Year	37,933 Tons/Year	38,571,729 As of 2007	2005-2007	6,974
Fill Area 1 Maximum Rates	47,100,000	650,000	47,750,000	2014	8,618
Fill Area 2 Maximum Rates	40,000,000	250,000	40,250,000	2039	7,691
Total Altamont Landfill	87,100,000	900,000	88,000,000	2038	12,926

Fugitive Emissions from the Altamont Landfill:

As required by BAAQMD Regulation 8, Rule 34 and the federal Emission Guidelines for MSW Landfills, the S-2 Altamont Landfill is equipped with an active landfill gas collection in Fill Area 1. BAAQMD Regulation 8, Rule 34 and the NSPS for MSW Landfills will require that the landfill expansion (Fill Area 2) be equipped with an active landfill gas collection system as well. The Fill Area 2 gas collection system must be operational by no later than 60 days after the date when Fill Area 2 has reached 1,000,000 tons of decomposable materials in place (approximately 9 months after waste disposal in Fill Area 2 commences for a fill rate of 1.6 million tons/year). The adequacy of the current and proposed gas collection systems are discussed in Section D of this report.

As discussed previously, this landfill expansion project is expected to result in emission increases for POCs, NPOCs, and individual TACs. Since POC emissions were not previously offset, cumulative POC emission increases for this project must be determined in accordance with Regulation 2-2-604.2. Thus, POC emission increases are the maximum permitted POC emissions for the proposed project (Proposed POC) minus the baseline POC emissions (Baseline POC). NPOC emission increases and individual TAC emission increases will be determined in a similar manner.

Proposed POC and NPOC:

Usually, the District calculates the total POC and NPOC emissions for a landfill as the fugitive emissions from the landfill surface plus the residual emissions from the gas control system. In this case however, Waste Management has numerous existing control devices (and each device type has a different emission factor for residual POCs and NPOCs), the current flare has more capacity than is currently being utilized, and Waste Management has proposed to install additional control devices (a new and unique LNG Plant plus a new Flare that will both abate the LNG Plant emissions and provide additional landfill gas control capacity) under separate applications. The maximum permitted residual emissions from the new proposed control processes should be based on the capacities of each process or device rather than associated with the projected gas generation rate increases for the landfill in order to allow the site maximum flexibility in choosing which combination of control devices to operate. Therefore, the additional residual emissions from each control device will be assessed in the application that will be required in the future for the Fill Area 2 landfill gas collection and control systems. Consequently, this application (#14814) for a change of conditions at the landfill will only include the fugitive emission increases at the landfill.

For the purposes of new source review, the District determines fugitive landfill emissions based on projected gas generation rates (determined in accordance with AP-42 Chapter 2.4) and the AP-42

average landfill gas collection system efficiency of 75%. Thus, the fugitive landfill gas flow rate is 25% (1-0.75) of the projected landfill gas generation rate for any given year.

Maximum permitted POC and NPOC emissions are based on the maximum projected landfill gas flow for Fill Areas 1 and 2 combined (13,030 scfm of landfill gas with 50% methane), the 25% fugitive gas flow rate explained above, and the following additional assumptions: the maximum non-methane organic compound concentration is 600 ppmv of NMOC (expressed as hexane) in landfill gas with 50% methane, the maximum POC emission rate is equal to 98% of the NMOC emission rate, and the maximum NPOC emission rate is equal to 2% of the NMOC emission rate. From Appendix C, the NMOC generation rate at 12,926 scfm of landfill gas and 600 ppmv of NMOC is: 455.125 tons/year of NMOC (expressed as hexane). Maximum permitted POC and NPOC emissions are:
(455.125 tons NMOC generated/year)*(0.25 tons NMOC emitted/ton NMOC generated)
*(0.98 tons POC/ton NMOC) = 111.506 tons/year of POC

(455.125 tons NMOC generated/year)*(0.25 tons NMOC emitted/ton NMOC generated)
*(0.02 tons NPOC/ton NMOC) = 2.276 tons/year of NPOC

Baseline POC and NPOC:

In accordance with Regulation 2-2-605, baseline POC and NPOC emissions for this project are the actual average emissions over the baseline period. For this application, the baseline period is the most recent three year period for which data is available: 2005, 2006, and 2007.

For consistency, baseline fugitive emissions will be calculated in the same manner as the proposed project fugitive emissions. The projected gas generation rates for 2005, 2006, and 2007 were determined using LandGEM with the same input assumptions used for the proposed project, except for the NMOC concentration. The baseline Fill Area 1 gas generation rates are presented in Appendix C and are summarized below. The standard fugitive emission rate assumption (25% emitted) was applied to these projected gas generation rates for 2005-2007.

Source testing data is available for each of the existing landfill gas control devices for the last three years. The NMOC concentrations measured during these tests were normalized to a methane concentration of 50% and then averaged for each year to determine the average landfill gas NMOC concentration for each year. The average NMOC concentrations and the resulting annual NMOC emissions are presented below.

Baseline POC and NPOC emissions were determined using the same distribution assumptions as the assumptions for maximum proposed emissions (98% by weight POC and 2% by weight NPOC). Baseline POC and NPOC emissions are presented below.

Table C-2. Baseline POC and NPOC Fugitive Emissions from S-2

Year	Projected LFG Generation Rate Scfm	NMOC Concentration ppmv as C6	NMOC Generated tons/year	NMOC Emitted tons/year	POC Emitted tons/year	NPOC Emitted tons/year
2005	6785	443.4	176.551	44.138	43.255	0.883
2006	6976	560.6	229.488	57.372	56.225	1.147
2007	7161	898.3	377.509	94.377	92.490	1.888
average	6974	634.1	261.183	65.296	63.990	1.306

POC and NPOC Emission Increases:

For this application, the emission increases related to waste decomposition are equal to the proposed fugitive POC and NPOC emissions minus the baseline POC and NPOC emissions. These emission increases are summarized below.

Table C-3. Emission Increases Resulting from Waste Decomposition at S-2

	POC tons/year	NPOC tons/year
Proposed Fugitive Emissions	111.506	2.276
Baseline Fugitive Emissions	63.990	1.306
Fugitive Emission Increases	47.516	0.970

Residual and Secondary Emissions from Landfill Gas Control Devices:

As discussed previously, the residual and secondary emissions from devices that will be used to control landfill gas from the Fill Area 2 expansion will be determined in A separate future application for the Fill Area 2 Collection and Control System. Due to the multiple types of existing control devices, the unique LNG Plant proposal for this site, and the unspecified nature of the Fill Area 2 abatement strategy, it is not possible at this time to exactly determine the proposed control device emissions, nor what portion of these emissions are due to the Fill Area 2 expansion.

In order to evaluate the ranges of the residual and secondary emissions that may be related to this Fill Area 2 expansion project, the District will estimate residual and secondary emissions for two gas flow rate scenarios and two types of possible abatement devices. This project will result in an increase of 5952 scfm of landfill gas generated: Peak Proposed Landfill Gas Generation Rate minus the Baseline (2005-2007 Average) Landfill Gas Generation Rate. If this site collects at least

75% of the generated gas, the minimum collection rate increase will be 4464 scfm of landfill gas. At 50% methane, landfill gas has a heat content of 497 BTU/scf. Thus, the minimum increase in control device capacity that will be necessary for the Fill Area 2 landfill expansion project is 133 MM BTU/hour. At the projected fill rates for Fill Area 2, the peak gas generation rate for Fill Area 2 alone will be 7691 scf of landfill gas. If Waste Management proposes to install a control device for Fill Area 2 alone and the device capacity is equal 100% of the maximum projected gas generation rate for Fill Area 2, the maximum heat input rate for a Fill Area 2 abatement project would be 229 MM BTU/hour. Landfill gas flares are generally the lowest emitting landfill gas control option for a site, while landfill gas fired IC engines typically have the highest emissions. The potential residual and secondary emissions for each type of device and each heat input scenario are presented in Table C-4.

Table C-4. Potential Residual and Secondary Emissions due to Fill Area 2 Expansion

	Flare Emission Factor	Flare Emissions at 133 MM BTU/hr	Flare Emissions at 229 MM BTU/hr
	lbs/MM BTU	Tons/Year	Tons/Year
POC	0.0125	7.3	12.5
NPOC	0.0003	0.2	0.3
NO_x	0.0600	35.0	60.2
CO	0.2000	116.5	200.6
SO_2	0.0500	29.1	50.2
PM_{10}	0.0171	10.0	17.2
	IC Engine Emission Factor	Engine Emissions at 133 MM BTU/hr	Engine Emissions at 229 MM BTU/hr
	lbs/MM BTU	Tons/Year	Tons/Year
POC	0.0501	29.2	50.3
NPOC	0.0010	0.6	1.0
NO_x	0.1520	88.5	153.0
CO	0.6340	369.3	635.9
SO_2	0.0500	29.1	50.2
PM_{10}	0.0483	28.1	48.4

When an exact abatement strategy for Fill Area 2 is proposed and submitted in the form of a permit application, the District will calculate the exact amount of residual and secondary emissions that are associated with this landfill expansion project and the exact amount of POC and NO_x offsets required due to NSR. As shown in Table C-4, residual POC emission increases could range form 7-50 tons/year, while secondary NO_x emission increases could range from 35-153 tons/year. The minimum additional offset requirements for residual and secondary emissions resulting from this landfill expansion project are: 8.4 tons/year of POC offsets and 40.3 tons/year of NO_x offsets. However, these offset requirements could increase significantly depending on the type of emission control device chosen for Fill Area 2.

To ensure that these offset requirements are not circumvented, the District is requiring that Waste Management submit the collection and control system design plan for Fill Area 2 in the form of a permit application for a Change of Conditions (see Condition # 19235, Part 1). This permit application will enable the District's review of the adequacy of the proposed collection and control systems for Fill Area 2 and will trigger the necessary new source review determination for any existing sources or abatement devices that will be modified in order to burn gas collected from Fill Area 2.

Particulate Emissions:

Both the current landfill operations and the proposed landfill operations will result in particulate matter emissions due to the delivery and placement of wastes, the excavation and storage of cover soil, the delivery and storage of alternative cover materials, and the placement of cover materials over the waste. The largest source of particulate emissions is vehicle travel on on-site roads. Vehicle travel emissions depend on the type of road, the silt content of the road surface materials, the weight of the vehicle fleet on the roads, the distance traveled by the vehicle fleet, rainfall and watering frequency, and other PM control measures employed by the facility.

The current maximum potential PM_{10} emission rate for the Fill Area 1 landfill operations and the proposed maximum PM_{10} emissions for the landfill operations after the Fill Area 2 expansion are compared in Table C-5. Since the proposed PM_{10} emissions will not exceed the current maximum potential PM_{10} emission rate, this application will not result in any PM_{10} emission increases. Permit conditions will be imposed to ensure compliance with the current Fill Area 1 maximum potential PM_{10} emission rate of 387.5 tons/year.

Table C-5. Comparison of Current and Proposed Maximum Potential PM_{10} Emissions

Description of Activity	Fill Area 2 Proposed PM10 Tons/Year	Fill Area 1 Maximum PTE PM10 Tons/Year
Vehicle and Mobile Equipment Travel on Paved and Unpaved Roads, including: main haul roads, perimeter roads, on-site cover soil delivery routes, and temporary fill area access routes	360.344	379.882
On-Site Cover Soil Excavation	4.031	2.755
Waste & Cover Material Delivery, Placement, and Compaction	6.018	4.882
Total Particulate Emissions from S-2	**370.393**	**387.519**

Detailed particulate emission calculations are presented in Appendix D for each current and proposed activity that will generate particulate emissions. The calculation procedures, throughput basis, and other major assumptions for each activity type and for each emission scenario are provided below.

Paved Roads:

Emissions from paved roads are calculated in accordance with the procedures identified in AP-42 Chapter 13.2.1 (November 2006). The PM_{10} emission factor (pounds PM_{10} per vehicle mile traveled) is determined using Equation 2:

$E = [k * (sL/2)^{0.65} * (W/3)^{1.5} - C] * [1 - (P/4N)]$

From Table 13.2.1-1, the particle size multiplier (k) is 0.016 lbs/VMT for PM_{10}. From Table 13.2.1-2, the brake and tire wear factor (C), is 0.00047 lbs/VMT for PM_{10}.

Rainfall will provide some natural mitigation of particulate emissions. Based on historical rainfall data for Livermore, Altamont Landfill receives an average of 59 days/year with at least 0.01 inches of precipitation (P). The number of days in the averaging period (N) is 365. Thus, rainfall is expected to control about 4% of the paved roadway emissions.

The road surface silt loading (sL) is different for each emissions scenario. For the current Fill Area 1 maximum potential emissions, sL is determined from Table 13.2.1-4. The mean silt loading for municipal solid waste landfills is 7.4 g/m^2. For proposed Fill Area 2 emissions, Waste Management will employ several PM_{10} emission reduction measures that are intended to reduce the mean silt loading on the paved roads. These emission reduction measures include truck wash stations near the unpaved portion of the travel route to reduce particulate drag-out onto the paved road, frequent roadway sweeping and/or vacuuming, and roadway water flushing as necessary. Waste Management expects these measures to reduce the mean silt loading on the paved haul roads to 2.0 g/m^2.

The weighted average vehicle fleet weight (W) is determined for each emissions scenario based on the number of vehicle trips for each type of vehicle and each paved road section, and the average vehicle weight on the paved road section for each type of vehicle. For Fill Area 1, the average vehicle fleet weight is 26.09 tons. For Fill Area 2, the vehicle fleet weight ranges from 25.22-25.75 tons for the vehicle fleets expected to be traveling on the various paved roadway segments.

Unpaved Roads:

Emissions from unpaved industrial roads are calculated in accordance with the procedures identified in AP-42 Chapter 13.2.2 (November 2006). The uncontrolled PM_{10} emission factor (pounds PM_{10} per vehicle mile traveled) is determined using Equation 1a:
$E = k * (s/12)^a * (W/3)^b$

From Table 13.2.2-2, the particle size multiplier (k) is 1.5 lbs/VMT and the empirical constants (a and b) are 0.9 and 0.45, respectively, for PM_{10} emissions from industrial roads.

The surface material silt content (s) is different for each type of unpaved road. For Fill Area 1, the District assumes that all unpaved roads are dirt roads made from on-site material. From Table 13.2.2.1, the mean silt content for disposal routes at MSW landfills is 6.4% (the range is 2.2%-21%). Several years ago, Waste Management measured the silt content on unpaved roads at the Altamont Landfill for Application # 3421. The measured surface silt content ranged from 54%-

80%. This measured surface silt content data for Altamont Landfill is extraordinarily high compared to silt content data reported by EPA for other landfills and other industrial facilities. In addition, Equation 1a was determined based on unpaved road silt contents ranging from 1.8%-25.2%. The quality of Equation 1a is seriously degraded for silt content values outside of this range. In order to preserve the validity of Equation 1a, the District assumed that the surface silt content for Fill Area 1 unpaved roads is at the high end of the range for this equation (s=25.2%). This assumption is more consistent with the surface silt content expected for landfills, and will result in a conservative estimate of PM_{10} emissions for Altamont Landfill.

For Altamont Landfill after the expansion into Fill Area 2, Waste Management is proposing to use gravel or other low silt content materials for temporary roads within Fill Area 2 and for the roads from the on-site soil stockpiles to the active face. Waste Management expects to maintain surface silt contents of 6.4% or less at these new unpaved roads (s=6.4%). Existing perimeter roads and roads to the green waste processing area will remain dirt roads. For these dirt roads, the District uses the same silt content assumption as for the Fill Area 1 analysis (s=25.2%).

As with paved roads, the weighted average vehicle fleet weight (W) is determined for each emissions scenario based on the number of vehicle trips for each type of vehicle and each unpaved road section, and the average vehicle weight on the unpaved road section for each type of vehicle.

Soil Excavation:

The PM_{10} emission factor for cover soil excavation is determined using AP-42 Chapter 11.9. From Table 11.9-4, the emission factor for topsoil removal by scrapers is 0.058 lbs of TSP per ton of soil removed. The District assumes that 50% of the TSP emissions from this activity are PM_{10}.

Waste and Cover Material Delivery:

The AP-42 Chapter 13.2.4 drop loading equation is used to calculate the PM_{10} emission factors for the delivery of waste or cover materials to the active face. Equation 1 states:
E (lbs PM_{10}/ton) = k * 0.0032 * (U/5)^1.3 / (M/2)^1.4
For PM_{10}, k is 0.35. The average wind speed for the site (U) is 7.8 mph. Although the moisture content of wastes and cover materials are expected to be 11%-20%, this range exceeds the moisture content range for the equation. To retain the quality rating for this emission factor, the District will use the maximum moisture content for which the equation as evaluated (M=4.8%).

Waste and Cover Material Placement and Compaction:

Bulldozers are used to distribute the waste and cover materials over the active face of the landfill. Large compactors compact the wastes and cover materials. The emissions during the bulldozing

activity are based on AP-42 Chapter 11.9, Table 11.9-1. For overburden, PM10 emissions are: 0.75*1.0*(s^1.5)/(M^1.4) pounds/hour. From Table 13.2.3-1, AP-42 states that this dozer equation should be used for compactor emissions as well. From Table 13.2.4-1, the average silt (s) and moisture (M) values for waste are: s=12% and M=11%; the average silt and moisture values for cover materials are: s=9% and M=12%. Waste Management provided daily and annual operating time estimates for waste bulldozing activities. The District estimated operating times for cover bulldozing activities and for compactor activities based on Waste Management's data. The hourly emission rates were converted to pounds/ton emission factors based on the annual waste and cover throughput rates.

Current Maximum Potential PM_{10} Emission Calculations for Fill Area 1:

According to the updated waste acceptance records provided for this application, the maximum waste acceptance rate for the landfill was 1.9 million tons/year from 1992-1998. Based on more recent actual throughput and vehicle travel records reported by Waste Management, the District estimated that the cover material usage rate during the 1992-1998 peak waste acceptance period was 50% of the annual waste disposal rate (950,000 tons/year of cover). Green waste was not used as cover material for the Altamont Landfill during the 1990s. The District assumed that 80% of the cover soil was delivered from off-site locations (760,000 tons/year), while 20% of the cover soil was excavated on-site (190,000 tons/year). The District assumed that the vehicle weights and load weights for this time period were the same as the proposed vehicle fleet. The District used waste and cover soil throughput rates and the expected vehicle load weights to determine the number of vehicle trips for each type of vehicle. The District calculated trip distances using Waste Management's detailed route maps for Fill Area 1.

Proposed Maximum Potential PM_{10} Emission Calculations for Fill Area 2:

For the Altamont Landfill, the maximum annual waste throughput was determined based on the peak waste acceptance rate of 11,150 tons/day and 312 days of operation (3,478,800 tons/year of waste). The corresponding maximum cover material usage rates are 2484 tons/day and 775,077 tons/year. The maximum possible annual waste acceptance rate of 3.5 million tons is much higher than the predicted annual waste acceptance rate of 1.6 million tons/year (which was used for POC emission calculations). Thus, proposed the PM_{10} emissions determined for this application will likely be much higher than actual site emissions.

The vehicle trips for waste are consistent with the 3.5 million tons/year waste acceptance rate. In order to retain maximum flexibility in choosing cover materials for this site, Waste Management estimated the cover material truck trips based on a worst case throughput rate for each type of cover material that might be used: 70,700 tons/year of green waste delivered from off-site, 61,000 tons/year of processed green waste from off-site, 498,000 tons/year of soil from off-site, 278,000

tons/year of soil from on-site excavation, and 345,600 tons/year of non-green waste alternative daily cover material. Actual cover material throughput rates will be much lower than the combined total of the throughput rates listed above.

Waste Management is proposing to pave the main haul route from the current paved entrance road to the Fill Area 2 access point. Temporary roads within Fill Area 2 and roads traveled by soil scrapers to Fill Area 2 will be improved with gravel surfaces, dust suppressants and other measures to reduce PM emissions.

In addition to waste and cover material delivery, some of the on-site paved and unpaved roads are traveled by trucks and other mobile devices. For instance, bulldozers travel from the maintenance shed to the active face, trucks travel on-site to remove condensate or leachate, and miscellaneous employee vehicles transport workers to job sites. Some of these vehicle trips will be diverted from unpaved roads to paved roads to achieve additional PM emission reductions.

Toxic Air Contaminant Emissions:

Detailed discussions of the Toxic Air Contaminant (TAC) emission rates from the proposed landfill and the TAC emission calculation procedures are presented in the Health Risk Screening Analysis (HRSA) Reports for this project and a subsequent related diesel engine project. The February 25, 2009 HRSA and the subsequent July 7, 2009 HRSA are attached as Appendix E-1 and Appendix E-2, respectively. The maximum hourly TAC emission rates for this project are listed in Table 3a of Appendix E-1. These hourly TAC emission rates are based on peak fugitive landfill gas emission rates for Fill Areas 1 and 2 combined and are used to determine acute non-carcinogenic health impacts for the proposed landfill. The maximum annual and 70-year average TAC emission rate increases for this project are presented in Tables 3a and 3b of Appendix E-2 and are used to determine chronic non-cancer health impacts and increased cancer risk for the Fill Area 2 expansion project. For the July 7, 2009 HRSA, the District determined maximum annual and 70-year average emission rate increases for each fill area rather than averaging the emission increases over the entire proposed combined fill area. This refinement results in a more accurate estimate of off-site ground level concentrations.

STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

The operations and equipment described in this application were subject to an Environmental Impact Report (EIR) for which the County of Alameda was the lead agency. A revised final EIR was certified for the Fill Area 2 Landfill Expansion project in January 2000. A lawsuit delayed action on this EIR, but the lawsuit has now been settled. District staff have reviewed the certified final EIR and settlement agreement requirements and have determined that the proposed operations

and equipment described in the application are expected to comply with all applicable District requirements. The District is proposing permit condition revisions that will ensure compliance with these applicable requirements. No additional air quality mitigation measures (beyond those required by the final EIR and settlement agreement) were deemed necessary. Therefore, this application has satisfied all requirements of Regulation 2-1-310. No further CEQA review is required.

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

Regulation 2, Rule 2:

Best Available Control Technology:

As shown in Table C-3, this application will result in 47.5 tons/year of POC emission increases and 1.0 tons/year of NPOC emission increases. These annual emission increases are equivalent to 260.4 pounds/day of POC increases and 5.3 pounds/day of NPOC increases. Since POC emission increases will exceed 10 pounds/day, this project triggers Best Available Control Technology (BACT) for POC emissions pursuant to Regulation 2-2-301.

BACT for POC emissions from a landfill includes the installation of a state-of-the-art landfill gas collection system that minimizes landfill surface emissions and a state-of-the-art landfill gas control system that destroys collected landfill gas to the maximum extent possibly for the particular device employed. The landfill gas collection and control systems must be operated continuously and must – as a minimum – satisfy all performance and operating requirements specified in BAAQMD Regulation 8, Rule 34 and the federal NSPS for MSW Landfills (40 CFR, Part 60, Subpart WWW). To satisfy BACT for this landfill, Fill Area 2 must be equipped with such state-of-the-art landfill gas collection and control systems. The District will evaluate the specific design criteria for the Fill Area 2 landfill gas collection and control systems when Waste Management submits the required Landfill Gas Collection and Control System Plan for this fill area, which is due 90 days prior to the date on which the collection and control system is required to begin operation (per Regulation 8-34-408.3) This plan will include criteria such as construction materials, types of gas collectors proposed, placement schedule for vertical wells and horizontal collectors, density, depth, and length of the wells and collectors, detailed descriptions of the daily and intermediate landfill caps, procedures for inspecting, maintaining and repairing the cap and the collectors, capacity of the gas mover system, landfill gas control strategies, start-up, shut-down, and malfunction plan updates, and applications for all new landfill gas control devices and any permit condition changes necessary to allow the site to begin collecting and burning gas from the new fill area. When this plan is submitted, the District will ensure that the collection and control systems designs achieve a BACT level of control for POC emissions.

For large active landfills, the operating requirements and other standards specified in BAAQMD Regulation 8-34 are at least as stringent as the Subpart WWW performance standards. Thus, compliance with Regulation 8, Rule 34 will assure compliance with Subpart WWW and with BACT for the landfill's fugitive POC emissions. The existing Altamont Landfill (Fill Area 1) is equipped with a continuously operating landfill gas collection system and multiple landfill gas control devices that have been generally operating in compliance with all applicable requirements of Regulation 8, Rule 34. Waste Management has quickly corrected the few isolated instances of non-compliance with the surface emission leak standard, component leak standard, down time restrictions, and key emission control system operating parameter limits. This good compliance record is expected to continue as filling shifts from Fill Area 1 to Fill Area 2 and the gas collection and control systems for Fill Area 2 are installed. Therefore, the District expects that Waste Management will comply with BACT for landfill POC emissions.

As discussed in Section C of this report, the proposed particulate emissions from the landfill and on-site roadways (after implementing the PM emission reduction measures required by the final EIR and settlement agreement) will not exceed the maximum potential PM emission levels for the current Fill Area 1 operations. Therefore, this application will not result in any PM emission increases. BACT is not required for the PM_{10} emissions from this landfill; however, Waste Management must demonstrate that actual PM_{10} emissions from their current and future landfill operations will not exceed the maximum potential PM_{10} emission level that was calculated in this application for Fill Area 1. Detailed record keeping and reporting procedures are included in the permit conditions to ensure that PM_{10} emissions will not increase above this maximum permitted level.

Offsets:

As discussed previously, this application only addresses fugitive landfill emissions. The residual and secondary emissions from new or modified landfill gas control devices and any potential offset requirements resulting from new or modified control devices burning gas from Fill Area 2 will be determined in the future applications for the specific control device proposed.

Since this application results in POC emission increases, and the facility emits more than 35 tons/year of POC emissions, this facility is required to provide POC emission reduction credits (ERCs) to offset the POC increases at a ratio of 1.15:1.0, pursuant to Regulation 2-2-302. With the limitations identified in the proposed permit condition revisions, this project will result in 47.516 tons/year of POC emission increases. The total POC offset requirement for this project is (47.516*1.15) = 54.643 tons/year.

As discussed in the emission calculations section of this report, the permitted fugitive POC emission rate from the landfill is highly dependent on the rate at which decomposable materials (wastes and decomposable cover materials) are placed in the landfill as well as the POC concentration in the landfill gas. The calculated POC increases for this project could change significantly if the annual decomposable material placement rate or the landfill gas POC concentration is lower or higher than anticipated. Due to these uncertainties, the District has agreed that Waste Management may provide the required ERCs for this project in increments (every two years). Prior to receiving an increase in the cumulative decomposable material placement limit for the landfill, Waste Management must surrender the required ERCs, in accordance with the schedule in Table D-1 (see also Condition # 19235, Part 17).

In December 2008, Waste Management surrendered Banking Certificate # 995 for 12.087 tons/year of POC emission reduction credits and Banking Certificate # 1002 for 8.816 tons/year of POC emission reduction credits.[3] These 20.903 tons/year of POC credits are sufficient to offset the first increment of POC emission increases (11.114 tons/year of ERCs required to offset 9.664 tons/year of POC increases) and to allow the District to raise the cumulative decomposable material placement limit for S-2 to 48.337 million tons. For future offset increments, the amount of ERCs due will be based on the proposed increase in the cumulative decomposable material disposal limit for the next time period. For each increment, the District will review actual decomposable material placement rates, the actual average fill rate, the proposed fill rate, the proposed decomposable material limit, the actual average landfill gas NMOC concentration, and the proposed landfill gas NMOC concentration to determine if this project's POC increases and POC offset requirements need to be adjusted.

Table D-1. Incremental POC Offset Schedule

ERC Due Date and Effective Date for New Limits	Amount of ERCs Due tons/year of POC	Fugitive Emission Limit tons/year of POC	Cumulative Decomposable Material Placement Limit million tons	Annual Decomposable Material Placement Limit tons/year	Landfill Gas Concentration Limit ppmv NMOC (rolling 3-year average, expressed as C_6 and corrected to 50% CH_4)
Surrendered by Waste Management	11.114	73.654	48.337	1,630,000	600
1/2/13	4.349	77.436	51.557	1,610,000	600

[3] As of November 13, 2008, Waste Management holds a total of 40.423 tons/year of POC emission reduction credits in the following Banking Certificates: #995 for 12.087 TPY POC, #1002 for 8.816 TPY POC, #1003 for 6.153 TPY POC, #1004 for 1.000 TPY POC, #1005 for 12.367 TPY POC. Waste Management will need to purchase the additional required credits for this project as prior to the January 2025 due date in order to obtain the post-2025 increases in the decomposable material placement limit.

1/2/15	4.167	81.059	54.777	1,610,000	600
1/2/17	4.003	84.540	57.997	1,610,000	600
1/2/19	3.846	87.884	61.217	1,610,000	600
1/2/21	3.695	91.098	64.437	1,610,000	600
1/2/23	3.551	94.185	67.657	1,610,000	600
1/2/25	3.411	97.152	70.877	1,610,000	600
1/2/27	3.278	100.002	74.097	1,610,000	600
1/2/29	3.149	102.740	77.317	1,610,000	600
1/2/31	3.026	105.371	80.537	1,610,000	600
1/2/33	2.907	107.899	83.757	1,610,000	600
1/2/35	4.148	111.506	88.000	1,610,000	600

Regulation 2-2-303 offset requirements for PM_{10} and SO_2 emission increases only apply if the application results in emission increases for these pollutants. Since this application will not result in PM_{10} or SO_2 emission increases, PM_{10} and SO_2 offsets are not required.

PSD:

Since landfill facilities are not one of 28 special PSD categories, landfill facilities are subject to a PSD major facility threshold of 250 tons/year for each regulated air pollutant (CO, NO_x, POC, SO_2, and PM_{10}). In addition, fugitive emissions are excluded from this PSD applicability determination.

The District conducted a detailed potential to emit (PTE) evaluation for Site # A2066 during the evaluation of Application # 19206 for the proposed A-16 Landfill Gas Flare. This PTE was updated in October 2009 by adding maximum permitted emission levels for five diesel engines that the District issued permits to operate for in August 2009. The District also incorporate permit condition revisions for Application # 18819 that was approved on November 3, 2009, which increased maximum permitted CO emissions for A-16 but also established a site-wide cap of 225.0 tons/tear of CO. The revised potential to emit summary for this facility is presented in Table A-1 of this report. Since federal PSD applicability determinations exclude fugitive emissions, the District presented the facility-wide emissions summary for both cases: total for all emission types and the total for point source only emissions, which exclude fugitive emissions.

As shown in Table A-1, the site-wide non-fugitive emissions are less than 250 tons/year for each regulated air pollutant. Therefore, this site is not subject to PSD.

Public Comment:

Since this facility is a major facility, and this application will result in more than 40 tons/year of POC emission increases, this application triggered the publication and public comment requirements of Regulation 2-2-405.

The only comment that the District received on this application was from the applicant's consultant, SCS Engineers. SCS Engineers requested clarification about offset requirements for the existing landfill gas fired energy recovery devices (S-6, S-7, S-23, and S-24). Current permit conditions for these energy recovery devices do not specify or limit the source of the landfill gas that is burned in these devices. The District confirmed that these energy recovery devices would be able to burn gas collected from Fill Area 2 without triggering a new offset review as long as burning Fill Area 2 landfill gas would not result in any emission increases above the currently permitted levels for these sources. The District has clarified this point in this document; however, this clarification does not change any of the District's conclusions about this project and does not necessitate any revisions of the proposed conditions changes.

New Source Review for Toxic Air Contaminants:

The toxic air contaminant emissions associated with this project and the resulting health impacts are described in detail in the Health Risk Screening Analysis in Appendix E. The results of the HRSA are summarized below.

Table D-2. Health Impacts for the Altamont Landfill Expansion Project (Application #141814) and Related Diesel Engine Replacement Project (Application #17305)

Health Impact Type	*Receptor*	*Max. Project Impacts*	*Source Risk for S-2*	*Source Risk for A-15*	*Source Risk for A-16*	*Max Source Risk for any Diesel Tipper Engine*
Cancer Risk (in a million)	*Resident*	*9.94*	*9.71*	*0.01*	*0.06*	*0.72*
Cancer Risk (in a million)	*Worker*	*4.41*	*3.75*	*0.01*	*0.13*	*0.57*
Chronic HI	*Resident*	*0.14*	*0.14*	*< 0.01*	*0.02*	*< 0.01*
Chronic HI	*Worker*	*0.06*	*0.06*	*< 0.01*	*0.06*	*< 0.01*
Acute HI	*Resident or Worker*	*0.90*	*0.90*	*< 0.01*	*0.01*	*NA*

Since the source risk for the S-2 Altamont Landfill will exceed a cancer risk of 1 in a million, Best Available Control Technology for Toxics (TBACT) is required for S-2 pursuant to Regulation 2-5-301. TBACT for a landfill is the same as the BACT requirements discussed above for POC

emission increases. The District expects that Waste Management will satisfy TBACT by installing and properly operating state-of-the-art landfill gas collection and control systems in Fill Area 2 and by maintaining state-of-the-art landfill gas collection and control systems in Fill Area 1.

The total project emission increases will result in a cancer risk of less than 10 in a million and a chronic hazard index (HI) of less than 1.0. The maximum acute HI is also less than 1.0 for emissions from the landfill, flares, and waste tipper engines which are related devices. Therefore, this project will comply with the project risk limits in Regulation 2-5-302.

Regulation 2, Rule 6:

This facility is currently subject to the Operating Permit requirements of Title V of the federal Clean Air Act (40 CFR, Part 70) and BAAQMD Regulation 2, Rule 6, Major Facility Review (MFR), because it is a major facility for NO_x and CO emissions, which are each permitted to exceed 100 tons/year. This facility is also a designated facility, because it was subject to the control requirements of the Emission Guidelines for MSW Landfills (40 CFR, Part 60, Subpart Cc) and will become subject to the control requirements of the NSPS for MSW Landfills (40 CFR, part 60, Subpart WWW) upon approval of this application. Therefore, Waste Management's Altamont Landfill Facility (Site # A2066) is required to have an MFR permit pursuant to Regulations 2-6-301 and 2-6-304.

The MFR Permit for this facility was initially issued on December 1, 2003 and was last revised on October 9, 2008. Since this application will trigger the NSPS for MSW Landfills, this project will require a significant revision of the MFR Permit. With this permit revision, POC and PM_{10} emissions will also permitted to exceed 100 tons/year each, but these emissions are primarily due to fugitive emissions that are exempt from the Title V applicability threshold. Since non-fugitive POC and PM_{10} emissions are each less than 100 tons/year, this facility will not be a Title V major facility for POC or PM_{10} emissions. This Title V permit revision will be handled pursuant to Application # 14816. All applicable sections of the NSPS for MSW Landfills will be added to the MFR permit and the Emission Guidelines for MSW Landfills will be removed from the permit. All permit condition changes noted below will also be incorporated into the Application # 14816 Significant Revision of the MFR Permit for Site # A2066.

Regulation 6, Rule 1:

Regulation 6-1-301 limits the visible emissions from each activity at the landfill, soil excavation areas, soil stockpiles, and on-site roadways to Ringelmann 1.0. In accordance with Regulation 6-1-401, the operator will be required to observe all roads and all loading, unloading, scraping, bulldozing, and compacting operations and to take whatever action is necessary to control emissions, if any visible emissions are identified.

Regulation 8, Rule 34:

The S-2 Altamont Landfill and gas collection systems are expected to comply with Regulation 8 Rule 34 Section 301 by:

(a) continuously operating the gas collection system and control devices,
(c) having no component leaks (exceeding 1000 ppmv) from the gas collection or control systems, and
(c) processing all collected gases in control devices (S-5, S-6, S-23, S-24, S-210, A-15, or A-16) achieving either 98% NMOC destruction efficiency or meeting the appropriate outlet NMOC concentration limit.

The S-2 Altamont Landfill (Fill Area 1 currently and Fill Area 2 after filling commences) is also subject to 8-34-303, which limits leaks on the surface of the landfill to less than 500 ppmv as methane. This facility is expected to continue to comply with this limit in the future.

For Fill Area 2, Regulation 8-34-304.3 is expected to result in the earliest trigger date for installing the landfill gas collection and control system in Fill Area 2. Regulation 8-34-304.3 requires that the gas collection system begin operation within 60 days of the date on which the total amount of decomposable materials placed in Fill Area 2 reaches 1 million tons. At the expected decomposable material fill rate of 1.61 million tons/year, Fill Area 2 will reach 1 million tons of decomposable materials after about 7 ½ months of operation. Therefore, the collection and control system for Fill Area 2 should begin operating no later than 9 ½ months after filling in Fill Area 2 commences.

The wells in the Fill Area 1 gas collection system are subject to the Regulation 8-34-305 Wellhead Standards, except where alternative wellhead standards have been approved in the permit conditions. The Fill Area 2 gas collection system will be subject to these same standards.

Waste Management has submitted the Amended Design Capacity Report required by Regulation 8-34-405.

In accordance with Regulation 8-34-408, a Collection and Control System Design Plan is required for Fill Area 2. Pursuant to 8-34-408.3, this plan is due 90 days prior to the date on which the gas collection system is required to begin operation. For Fill Area 2, the estimated plan due date is 6 ½ months after filling in Fill Area 2 commences.

Regulation 8, Rule 34, Sections 411, 412, 413, 414, 415, 416, 501, 503, 504, 505, 506, 507, 508, 509, and 510 are on-going administrative and monitoring requirements. Waste Management is expected to comply with these repairing, monitoring, testing, record keeping, and reporting requirements whenever necessary.

Regulation 9, Rule 2:

Regulation 9, Rule 2, Section 301 limits the off-site ground level concentration of hydrogen sulfide (H_2S) that may occur due to any facility's emissions. The off-site ground level concentration limits are: 0.03 ppmv of H_2S averaged over any 60-minute period and 0.06 ppmv of H_2S averaged over any 3-minute period.

Based on the air dispersion modeling analysis conducted for the HRSA, the maximum off-site H_2S concentration will be 36.2845 $\mu g/m^3$ averaged over a 1-hour period. At standard conditions, this concentration is equal to 0.026 ppmv of H_2S averaged over a 60-minute period.

(36.2845 μg H_2S/m^3 air)*(1E-6 $g/\mu g$)/(34.076 g/mol)*(24.055 L/mol)*(0.001 m^3/L)
= 2.6E-8 m^3 H_2S/m^3 air = 0.026 ppmv of H_2S, maximum ground level concentration

Short term concentrations may be estimated from the 1-hour concentration using a power law equation: $Y_{3\text{-min}} = Y_{60\text{-min}} * (60/3)^{\wedge}p$, where p ranges from 0.167-0.5, depending on the stability class. The maximum H_2S concentration for the Altamont Landfill occurred at hour 99042512 of the SCREEN3 met data set, which has stability class F. The stability classes E and F, the exponent (p) is 0.167. The short term hydrogen sulfide concentration is estimated to be:

(0.026)*(60/3)^0.167 = 0.043 ppmv of H_2S averaged over any 3-minute period.

Thus, the above air dispersion modeling data demonstrates that this project will comply with ground level concentration limits in Regulation 9-2-301. Off-site ground level monitoring was not deemed to be necessary for this facility.

Federal Requirements:

EG: This facility is currently subject to the Emission Guidelines (EG) for Municipal Solid Waste Landfills (40 CFR, Part 60, Subpart Cc.) These requirements are implemented through Regulation 8 Rule 34. Compliance with Regulation 8, Rule 34 assures compliance with Subpart Cc. All applicable provisions are contained in the Title V permit for this facility. As discussed below, the Fill Area 2 Expansion Project will trigger the NSPS requirements for the S-2 Altamont Landfill. Subpart WWW will replace Subpart Cc.

NSPS: As defined in 40 CFR Part 60.751, the Fill Area 2 expansion of the S-2 Altamont Landfill is a "modification" because it includes a horizontal expansion of the landfill that will increase the design capacity above the level the site was permitted for as of May 30, 1991. Upon commencement of construction of Fill Area 2, S-2 is subject to the 40 CFR, Part 60, Subpart WWW, New Source Performance Standards (NSPS) for Municipal Solid Waste (MSW) Landfills. A detailed description of all applicable NSPS requirements and the effective dates for these requirements will be included in the Title permit revision (Application # 14816). In accordance with 40 CFR Part 60.753(a)(1), the gas collection system for Fill Area 2 must be installed and operating by no later than 5 years after waste placement commences in this new active cell.

However, Waste Management must comply with the District's more stringent due date for commencing gas collection in Fill Area 2 (Regulation 8-34-304.3). Compliance with Regulation 8, Rule 34 is expected to ensure compliance with all applicable provisions of Subpart WWW.

NESHAPS: This facility is subject to the 40 CFR, Part 63, Subpart A General Requirements and Subpart AAAA NESHAP requirement for MSW Landfills. This facility has the start-up, shut-down, malfunction plan required by Subpart AAAA, and it has been submitting the required semi-annual reports. The SSM Plan will need to be updated to include any new gas collection systems and any new control devices. The Title V permit contains a detailed list of all applicable provisions. This facility is expected to continue to comply with the requirements of 40 CFR, Part 63, Subparts A and AAAA.

Landfill Gas Collection and Control System Adequacy:

As required by BAAQMD Regulation 8, Rule 34 and the federal 40 CFR, Parts 60 and 63 provisions that are applicable to MSW Landfills, the S-2 Altamont Landfill (Fill Area 1) must be equipped with an active landfill gas collection system and numerous landfill gas control devices. A landfill gas collection system must be installed in Fill Area 2 shortly after waste placement commences pursuant to District requirements.

In accordance with 40 CFR Part 60.759(c), the gas mover equipment for each landfill gas control system should be designed to handle the maximum gas generation flow rate over the period of intended use (up to 15 years). As shown in Appendix C, the gas generation rate for Fill Area 1 is expected to peak in about 4 years. Therefore, the existing gas mover equipment for Fill Area 1 should be designed to handle this peak gas generation rate of 8618 scfm for Fill Area 1. Waste disposal in Fill Area 2 is expected to commence in 2013 with emissions beginning in 2014. The gas mover equipment for Fill Area 2 should be designed for to handle the gas that will be generated at Fill Area 2 through 2029. From Appendix C, the Fill Area 2 gas generation rate for 2029 is 5208 scfm.

This facility is equipped with several different types of landfill gas control equipment: gas turbines, internal combustion engines, and an enclosed flare. An LNG Plant (S-210) and a second enclosed flare (A-16) have been built and are undergoing start-up operation. The total control system capacity is assumed to be the design capacity for the gas mover equipment. The capacities for each device and for the total current landfill gas control system are described in Table D-3.

Table D-3. Existing and Proposed Landfill Gas Control System Capacity

Existing Devices	Device Type	Maximum Capacity *		Annual Capacity *	
		MM BTU/hr	scfm of LFG	MM BTU/year	Avg. scfm
S-6	Gas Turbine	57.4	1925	838,480	3210

S-7	Gas Turbine	57.4	1925		
S-23	IC Engine	17.5	587	153,300	587
S-24	IC Engine	17.5	587	153,300	587
A-15	Enclosed Flare	70.98	2380	621,385	2379
Total for Existing LFG Control System		220.8	7404	1,766,465	6762
Proposed Devices	Device Type	Maximum Capacity *		Annual Capacity *	
		MM BTU/hr	scfm of LFG	MM BTU/year	Avg. scfm
S-210	LNG Plant	81.25	2725	547,500	2096
A-16	Enclosed Flare	132.00	4427	1,156,320	4427
Total for Existing and Proposed Control Systems		434.03	14555	3,470,285	13285

* For these calculations, landfill gas was assumed to have a heat capacity of 497 BTU/scf at 50% methane.

The annual average control capacity for the existing landfill gas control system is 6762 scfm of landfill gas. The existing control system capacity is about 78% of the maximum projected gas generation rate for Fill Area 1 (8618 scfm in year 2014). The existing control system capacity is sufficient for the maximum expected collection rate from Fill Area 1 (8618*0.75 = 6464 scfm), but it falls short of the gas mover capacity required pursuant to 40 CFR Part 60.759(c). After the installation of either the proposed LNG Plant or the proposed second flare, the control system for Fill Area 1 will have the capacity necessary to satisfy 40 CFR Part 60.759(c). The installation of both the LNG Plant and the second flare will provide sufficient control capacity for the projected maximum gas generation for Fill Areas 1 and 2 combined (12,926 scfm), but Waste Management is not proposing to use A-16 to control gas from Fill Area 2 at this time. The adequacy of the landfill gas collection and control systems for Fill Area 2 will be evaluated in detail when Waste Management submits the Landfill Gas Collection and Control System Plan for Fill Area 2.

Due to a level of uncertainty in the gas generation rate projections reported in Table C-1, it is important to compare gas generation rate projections to actual site collection rates. The projected gas generation rate for 2007 is 7161 scfm of landfill gas at 50% methane (3580 scfm of methane). The actual gas collection rate reported by Waste Management was 4070 scfm of landfill (for the 12-month period ending 9/30/07). The average methane concentration in the landfill gas at this site is 52.2% CH_4 (2125 scfm of methane). Comparing the actual collected methane rate to the projected methane generation rate for 2007 indicates that Waste Management is collecting about 59% of the projected methane generation rate. Since excessive surface leaks have not been found at Fill Area 1, the existing gas collection system is adequate even though the collection rate is less than the expected gas capture efficiency of 75%.

Permit Conditions

The District is proposing to modify Condition # 19235 with the revisions identified below by strike through and underline formatting. These revisions will authorize the disposal of waste in Fill Area 2, modify the design capacity and cumulative placement limits for the Altamont Landfill (for Fill Areas 1 and 2 combined), establish new POC and PM10 emission limits for S-2, and require new monitoring procedures, tests, records, and reports that will assure compliance with the new emission limits.

Condition # 19235
FOR: S-2 ALTAMONT LANDFILL WITH LANDFILL GAS COLLECTION SYSTEM, A-15 LANDFILL GAS FLARE, AND A-16 LANDFILL GAS FLARE:

1. The S-2 Altamont Landfill (Fill Area 1) shall be equipped with a landfill gas collection system, which shall be operated continuously as defined in Regulation 8-34-219, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Section 113. Individual wells, collectors, and adjustment valves shall not be disconnected, removed, or completely closed, without prior written authorization from the District, unless the Permit Holder complies with all applicable provisions of Regulation 8, Rule 34, Sections 113, 116, 117, or with Part 1c below. The gas collection system shall also be operated in accordance with the wellhead requirements described in Part 1d. The Regulation 8-34-408 Collection and Control System Design Plan for Fill Area 2 shall be submitted to the District in the form of a permit application for a Change of Conditions at least 30 days prior to the date on which Fill Area 2 is expected to reach 1 million tons of decomposable material in place. (Basis: Regulations 8-34-301.1, 8-34-303, 8-34-304, 8-34-305, and 8-34-404)
   a. The Permit Holder has been issued a Permit to Operate for the landfill gas collection system components listed below as of July 1, 2008. Well and collector locations are as described in detail in Permit Application #16863.
      i. The authorized number of landfill gas collection system components is the baseline count listed below plus any components installed and minus any components decommissioned pursuant to subpart 1b, as evidenced by start-up and decommissioning notification letters submitted to the District.
         - 84 vertical wells
         - 1 horizontal trench collector (shredded tires may be used as fill material)
         - 1 leachate collection system clean-out riser

b. The Permit Holder has been issued an Authority to Construct to allow for the landfill gas collection system alterations described below pursuant to Permit Application # 16863. All collection system alterations shall comply with subparts 1b(i-vii) below.

i. The authorized collection system alterations are:
- Install up to 38 vertical wells
- Permanently decommission up to 19 vertical wells
- Install up to 25 horizontal trench collectors
- Permanently decommission up to 4 horizontal trench collectors
- Modify wellhead monitoring locations, as needed, provided that each landfill gas collection system component identified in Part 1a and each new collection system component installed per Part 1b is adequately represented by a wellhead monitoring location. The Permit Holder shall maintain documentation on site that identifies all landfill gas collection system components that are represented by each wellhead monitoring location.

ii. The Permit Holder shall apply for and receive an Authority to Construct before altering the landfill gas collection components described subpart 1a. Installing, altering, or permanently decommissioning a vertical well, horizontal collector, or other gas collection component is subject to the Authority to Construct requirement, unless this change constitutes a replacement as defined in subpart 1b(iii) below.

iii. Replacement of landfill gas collection system components with identical or functionally equivalent components will not be deemed an alteration and will not subject to the Authority to Construct requirement under the following circumstances. If a well or collector will be shut down and replaced by a new well or collector in essentially the same location as the old component and this decommission/installation will be accomplished in accordance with Regulations 8-34-117 and 8-34-118, then this activity shall be considered a component replacement that is not subject to the Authority to Construct requirement. For each individual well or collector replacement, this subpart authorizes a maximum vacuum disconnection time of five consecutive days for compliance with Regulation 8-34-117.5. The disconnected component and the new component shall not be counted toward the subpart 1b(i) limits; the numbers of replacement wells and

replacement collectors are not limited. Alterations, repairs, or replacements of non-perforated piping sections (such as risers, laterals, or header pipes), piping connectors, or valves are not subject to the Authority to Construct requirement.

iv. At least three days prior to initiating operation of a well or collector installed pursuant to subpart 1b, the Permit Holder shall submit a start-up notice to the District that contains the component ID number for each new well or collector and the anticipated initial start-up date for each new component.

v. For each well or collector that is permanently decommissioned after [insert date of approval of this condition change], the Permit Holder shall submit a decommissioning notice to the District within no later than three working days after the component was disconnected from vacuum system. This decommissioning notice shall contain the component ID for each well or collector that was decommissioned, the date and time that each component was disconnected from the vacuum system, and the reason the component was decommissioned.

vi. Within six months of installing a new component or permanently decommissioning an existing component, the Permit Holder shall prepare an updated map of the landfill gas collection system that identifies the ID numbers and locations of all operable wells and collectors. On this map or in accompanying documentation, the Permit Holder shall summarize all component changes that were made since the last map was prepared. The previous collection system map, the updated collection system map, and the component change summary shall be provided to District staff upon request.

vii. If the Permit Holder has a net reduction (number of decommissioned components minus the number of installed components) of more than five components within a 120-day period, the Permit Holder shall submit a more comprehensive decommissioning notice to the District. In addition to the information required by subpart 1b(v), this comprehensive decommissioning notice shall include the maps and documentation required by subpart 1b(vi), shall identify all component changes that have occurred but that are not included on the most recently updated map, shall identify any components that are temporarily disconnected from vacuum pursuant to subpart 1c, shall provide estimated vacuum reconnection dates

for these components, shall include a list of all well installations that are expected to occur within the next 120 days, and shall discuss the reasons why this reduction in gas collection components is not expected to result in surface emission leaks. Upon request, the Permit Holder shall provide wellhead monitoring data, surface leak monitoring data, records of repair attempts made to date, and other information to support the need for a net collection component reduction of more than five wells. The District may require additional surface monitoring to verify that this net component reduction is not causing landfill surface leaks. The District will notify the Permit Holder in writing of any additional surface monitoring that is required pursuant to this subpart.

c. The Permit Holder may temporarily disconnect individual wells or collectors from the vacuum system, provided that all requirements of this subpart are satisfied. (Basis: Regulation 8-34-404)

i. No more than five (5) landfill gas collection system components (wells or collectors) may be temporarily disconnected from the vacuum system at any one time pursuant to subpart 1c.

ii. For each individual well or collector that is disconnected from the vacuum system pursuant to subpart 1c, the total vacuum system disconnection time shall not exceed 120 days during any 12-month period.

iii. Collection system components that are disconnected from the vacuum system are not subject to wellhead limits (Regulation 8-34-305 or Part 1d, as applicable) or monthly wellhead monitoring requirements (Regulation 8-34-505) during this vacuum disconnection time.

iv. Wells or collectors that are temporarily disconnected from the vacuum system continue to be subject to the component leak limit (Regulation 8-34-301.2) and the quarterly leak testing requirement (Regulation 8-34-503) at all times. In addition, the Permit Holder shall conduct the following component leak monitoring at each component that has been disconnected from the vacuum system pursuant to subpart 1c: test for component leaks using the procedures identified in Regulation 8-34-602 within 10 calendar days of disconnection from vacuum and again within 1 month of disconnection from vacuum. If a component leak is detected at the well, the Permit Holder shall take all steps necessary to reduce the leak below the applicable limit, including reconnecting the well to

the vacuum system, if no other corrective action measures are successful within the time frames allowed by Rule 34.

v. For each well disconnection event, the Permit Holder shall record each affected well ID number, all well disconnection dates and times, all well reconnection dates and times, all related monitoring dates and monitoring results in a District approved log. This log shall also include an explanation of why the temporary well shut down was necessary and shall describe all adjustments or repairs that were made in order to allow this well to operate continuously, to reduce leaks, or to achieve compliance with an applicable limit. All records shall be retained for a minimum of five years and shall be made available to District staff upon request.

d. Each landfill gas collection system component listed in Part 1a shall be operated in compliance with the wellhead limits of Regulation 8-34-305, unless an alternative wellhead limit has been approved for that component and the operator complies with all of the additional requirements identified in this subpart. Components that are subject to an alternative wellhead limit may still use the Regulation 8-34-414 repair schedule for operator discovered excesses of the alternative limit; however, invoking this repair schedule does replace the monitoring requirements described in Parts 1d(ii-viii). (Basis: Regulations 8-34-305 and 8-34-414)

i. For each of the wells identified in Part 1d(ii), the Regulation 8-34-305.2 wellhead temperature limit does not apply, and the landfill gas temperature at each wellhead shall not exceed 145 degrees F.

ii. The wells that are subject to the Part 1d(i) alternative wellhead temperature limit are:
#40, #401, #403, #443, #444, #456, #457, and #458.
If any other component has a wellhead temperature of 131 degrees F or higher, the operator may elect to add this component to the above list of alternative temperature limit wells by satisfying all of the following requirements:

- The wellhead temperature shall not exceed 145 degrees F.
- The carbon monoxide (CO) concentration in the wellhead gases shall not exceed 500 ppmv.
- Prior to adding a component to the list in this subpart, the operator shall monitor the gas in the component for CO concentration at least two times, with no more than 15 days between tests. CO monitoring shall continue on a monthly basis, or more frequently if required by subparts 1d(iv-vii), until the

operator is allowed to discontinue CO monitoring per subpart 1d(vii).

- The operator shall comply with all applicable monitoring and record keeping requirements in subparts 1d(iii-viii).
- The component shall not exceed any wellhead limit other than temperature and shall have had no excesses of wellhead limits (other than temperature) during the 120 days prior to adding this component to the list in this subpart.
- Within 30 days of adding a component to the list in this subpart, the operator shall notify the District in writing that the operator is requesting to add the component to the Part 1d(ii) list of alternative temperature limit wells. This notification shall include the well ID number, a map of the collection system to identify the location of this well, and the dates and results of all monitoring conducted on the well to verify that the above requirements have been satisfied.
- If the Regulation 8-34-414 repair schedule has been invoked for the wellhead temperature excess, and the operator has met the requirements of Sections 414.1 and 414.2, then compliance with the requirements of this subpart shall be deemed an acceptable resolution of the wellhead temperature excess in lieu of the collection system expansion specified in Sections 414.3 and 414.4.

iii. The operator shall demonstrate compliance with the alternative wellhead temperature limit in Part 1d(i) by monitoring and recording the temperature of the landfill gas in each wellhead on a monthly basis, in accordance with Regulations 8-34-501.4, 8-34-501.9, and 8-34-505.

iv. If the temperature of the landfill gas in a wellhead exceeds 140 degrees F, the operator shall investigate the possibility of a subsurface fire at the wellhead by monitoring for CO concentration in the wellhead gases and by searching for smoke, smoldering odors, combustion residues, and other fire indicators in the wellhead and in the landfill area near this wellhead. Within 5 days of triggering a fire investigation, the operator shall measure the CO concentration in the landfill gas at the wellhead using a portable CO monitor or an EPA approved test method. CO monitoring shall continue according to the frequency specified in subparts 1d(v-vii).

v. If the CO concentration is greater than 500 ppmv, the operator shall immediately take all steps necessary to prevent or extinguish the

subsurface fire, including disconnecting the well from the vacuum system if necessary. If the well is not disconnected from the vacuum system or upon reconnecting a well to the vacuum system, the operator shall monitor the well for CO concentration, wellhead temperature, and other fire indicators on at least a weekly basis until the CO concentration drops to 500 ppmv or less.

vi. If the CO concentration is less than or equal to 500 ppmv but greater than 100 ppmv, the operator shall monitor for CO concentration at least twice per month (not less than once every 15 days) until the CO concentration drops to 100 ppmv or less. Wellhead temperature and other fire indicators shall be evaluated at each of these semimonthly-monitoring events.

vii. If the CO concentration is less than or equal to 100 ppmv, the operator shall monitor for CO concentration on a monthly basis. CO monitoring may be discontinued if three consecutive CO measurements are 100 ppmv or less and the wellhead temperature during each of these three monitoring events is 140 degrees F or less. If a component has three or more CO measurements of 100 ppmv or less but the wellhead temperature was greater than 140 degrees F, the operator must receive written approval from the District before discontinuing the monthly CO monitoring at that component.

viii. The permit holder shall record the dates and results of all monitoring events required by this subpart in a District approved log. If Part 1d(v) applies, the operator shall also describe all actions taken to prevent or extinguish the fire.

2. All collected landfill gas from Fill Area 1 shall be vented to properly operating landfill gas control equipment as described below in Part 2a. Raw landfill gas shall not be vented to the atmosphere, except for unavoidable landfill gas emissions that occur during collection system installation, maintenance, or repair that is performed in compliance with Regulation 8, Rule 34, Sections 113, 116, 117, or 118 and for inadvertent component or surface leaks that do not exceed the limits specified in 8-34-301.2 or 8-34-303. (Basis: Regulations 8-34-301 and 8-34-303)

a. The Permit Holder may operate any combination of landfill gas control devices, including: A-15 Landfill Gas Flare, A-16 Landfill Gas Flare, S-6 Gas Turbine, S-7 Gas Turbine, S-23 Internal Combustion Engine, or S-24 Internal Combustion Engine; or may send landfill gas to other sources for additional processing and control; provided that a minimum of 71.47 MM BTU/hour of landfill gas, averaged over any rolling 24-hour period, is collected and controlled by the entire landfill gas control system. The

following time periods shall be excluded from the calculation of this rolling 24-hour average landfill gas collection rate:

i. time periods when the gas collection system is not operating because the Permit Holder is conducting inspection or maintenance on the landfill gas collection or control system and is operating in compliance with all applicable requirements of Regulation 8-34-113, and

ii. time periods when the Permit Holder is attempting to prevent or extinguish a fire and is operating in compliance with all applicable requirements of Regulation 8-34-117, and

iii. time periods when the Permit Holder is conducting a source test to determine the appropriate target landfill gas collection rate pursuant to subpart c below, provided that the target landfill gas collection rate during this source test time period is not less than 99% of the limit stated above, and this source test time period does not last more than 120 consecutive hours, and no more than one source test time period exclusion is claimed per calendar year.

b. To demonstrate compliance with this part, the Permit Holder shall record, on a monthly basis, the total landfill gas collection rate for the entire control system averaged over each rolling 24-hour period during the previous month. In this record, the Permit Holder shall also identify the control devices that were operating, time periods that were excluded from the 24-hour average calculation pursuant to subpart a(i, ii, or iii), and the reason for this exclusion. The Permit Holder shall maintain all records necessary to calculate these rolling 24 hour average landfill gas collection rates including: heat input rates to each on-site control device; flow rate records and methane concentration data for landfill gas that was sent off-site; and start-up and shut down times for each control device. For exclusion time periods, the Permit Holder shall also maintain records of inspection, maintenance, fire prevention, or source test activities that occurred to verify the applicability of this exclusion. All records shall be retained on site or shall be made readily available to District staff upon request for a period of at least five years from the date on entry.

c. The target landfill gas collection rate shall be reevaluated at least once every two years in accordance with the following procedures. The Permit Holder may reevaluate the target landfill gas collection rate during any surface emission monitoring event, provided that the Permit Holder complies with subpart a(iii) above. Prior to and during any surface emission monitoring event that is conducted to reevaluate the target landfill gas collection rate limit, the Permit Holder shall:

i. maintain the total landfill gas collection at no less than 99% of the limit in subpart a and no more than 110% of the limit in subpart a, for at least 48 hours before initiating the surface emission monitoring event and during the surface emission monitoring event,

ii. record the date and time that the surface emission monitoring event was initiated and completed,

iii. conduct the surface emission monitoring event in accordance with Regulation 8-34-506,

iv. record the measured concentration and location of any landfill surface area that was found to have a surface leak above the Regulation 8-34-303 surface emission leak standard,

v. measure and record the landfill gas flow rate (in standard cubic feet) to each control device and off-site pipeline in accordance with Regulation 8-34-508,

vi. measure and record the methane concentration in the landfill gas that is delivered to each control device and off-site pipeline in accordance with Regulation 8-34-604,

vii. calculate and record the hourly heat input rate to each control device and off-site pipeline using a high heating value for methane of 997.7 MM BTU/scf of landfill gas at 68 degrees F and 1 atm for each hour of the surface emission monitoring event, and

viii. calculate and record the total landfill gas heat input rate during the monitoring event, the duration of the monitoring event (in hours), and the average hourly landfill gas heat input rate during the monitoring event.

The following procedures shall be used to determine if the subpart a target landfill gas collection rate limit should be decreased, increased, or remain the same. The target landfill gas collection rate shall be revised in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415.

ix. If no surface emissions are detected during the surface emission monitoring event and the average hourly heat input rate measured during the event is greater than or equal to the target landfill gas collection rate limit in subpart a, then this limit should remain unchanged. No further action is required.

x. If no surface emissions are detected during the surface emission monitoring event and the average hourly heat input rate measured during the event is less than the target landfill gas collection rate limit in subpart a, then this limit may be decreased to the average hourly heat input limit measured during the surface emission

monitoring event. The Permit Holder may submit permit applications to request that this limit be revised. The Permit Holder must obtain APCO approval before operating at the lower target landfill gas collection rate limit except as allowed under subpart a(iii).

xi. If surface emissions are detected during the surface emission monitoring event and the average hourly heat input rate measured during the event is less than the target landfill gas collection rate limit in subpart a, then this limit should not decreased, and the target landfill gas collection rate shall be reevaluated during the next scheduled quarterly surface emission monitoring event. If all surface leaks are corrected in accordance with Regulation 8-34-415, then no further action is required.

xii. If surface emissions are detected during a surface emission monitoring event and the average hourly heat input rate measured during the event is greater than the target landfill gas collection rate limit in subpart a, then the target landfill gas collection rate shall be reevaluated during the next scheduled quarterly surface emission monitoring event. If all surface leaks are corrected in accordance with Regulation 8-34-415, then no further action is required. If surface emissions are detected during two or more surface emission monitoring events during a year, then the target landfill gas collection rate limit should be increased to the higher of the two average hourly heat input rates measured during these monitoring events. Within 30 days of conducting the second surface emission monitoring event at which surface leaks are detected, the Permit Holder shall submit permit applications to request a revision of the target landfill gas collection rate.

3. The A-15 and A-16 Landfill Gas Flares shall be fired on landfill gas collected from Fill Area 1 of the S-2 Altamont Landfill. The permit holder shall apply for and receive a Change of Permit Conditions before using these flares to control landfill gas collected from the proposed Fill Area 2. Propane may be used as a start-up fuel only. Landfill gas condensate may be injected into these flares, provided that the flares comply with all limits in Parts 3-10 and any other applicable emission limits during all times that condensate is being injected into these flares. (Basis: Regulation 2-1-301)

a. The condensate injection rate at A-15 shall not exceed 3600 gallons during any day, and

b. The condensate injection rate at A-16 shall not exceed 7200 gallons during any day.

4. The A-15 and A-16 Landfill Gas Flares shall comply with all of the heat input limits specified below. (Basis: Offsets and Cumulative Increase)
   a. For A-15, the heat input rate shall not exceed 1704 million BTU per day.
   b. For A-15, the heat input rate shall not exceed 621,785 million BTU per year.
   c. For A-16, the heat input rate shall not exceed 3168 million BTU per day.
   d. For A-16, the heat input rate shall not exceed 1,156,320 million BTU per year.

5. The Landfill Gas Flares (A-15 and A-16) shall be equipped with both local and remote alarm systems. The local and remote alarms shall be activated whenever the total landfill gas collection for the site is less than the target landfill gas collection rate in Part 2a. When operation of A-15 or A-16 is necessary to meet the target landfill gas collection rate, the local and remote alarms shall be activated if the flare shuts down unexpectedly or if the combustion zone temperature is less than the minimum temperature required by Part 10 below. (Basis: Regulation 8-34-301)

6. Each Landfill Gas Flare (A-15 and A-16) shall be equipped with one flow meter and one recorder meeting the requirements of Regulation 8-34-508. (Basis: Offsets, Cumulative Increase, and Regulations 2-1-301, 8-34-301, 8-34-501.10, and 8-34-508)

7. Nitrogen oxide (NO_x) emissions from each Landfill Gas Flare (A-15 and A-16) shall comply with the following emission limits:
   a. For A-15, the exhaust concentration shall not exceed 45 ppmv of NO_x, corrected to 3% oxygen, dry basis, unless the permit holder can demonstrate that the emission rate does not exceed 0.06 pounds of NO_x (calculated as NO_2) per million BTU.
   b. For A-16, the exhaust concentration shall not exceed 45 ppmv of NO_x, corrected to 3% oxygen, dry basis, unless the permit holder can demonstrate that the emission rate does not exceed 0.06 pounds of NO_x (calculated as NO_2) per million BTU.

   (Basis: RACT and Offsets)

8. Carbon monoxide (CO) emissions from each Landfill Gas Flare (A-15 and A-16) shall comply with the following emission limits:

a. For A-15, the exhaust concentration shall not exceed 369 ppmv of CO, corrected to 3% oxygen, dry basis, unless the permit holder can demonstrate that the emission rate does not exceed 0.30 pounds of CO per million BTU.

b. For A-16, the exhaust concentration shall not exceed 246 ppmv of CO, corrected to 3% oxygen, dry basis, unless the permit holder can demonstrate that the emission rate does not exceed 0.20 pounds of CO per million BTU.

(Basis: RACT, BACT, and Cumulative Increase)

9. The Landfill Gas Flares (A-15 and A-16) shall comply with either the destruction efficiency or outlet concentration limit specified in Regulation 8-34-301.3. (Basis: Offsets, Cumulative Increase, and Regulation 8-34-301.3)

10. For each Landfill Gas Flare (A-15 and A-16), the combustion zone temperature shall be maintained at a minimum of 1400 degrees Fahrenheit, averaged over any 3-hour period during all times that landfill gas is vented to the flare. If a source test demonstrates compliance with all applicable requirements at a different temperature the APCO may revise the minimum combustion zone temperature limit in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415 and the following criteria. The minimum combustion zone temperature for a flare (T_{min}) shall be equal to the average combustion zone temperature determined during the most recent complying source test (T_{avg}) minus 50 degrees F, provided that the minimum combustion zone temperature is not less than 1400 degrees F:

$T_{min} = T_{avg} - 50$, for $T_{avg} >= 1450$ degrees F

$T_{min} = 1400$, for $T_{avg} < 1450$ degrees F

(Basis: RACT, BACT, Offsets, Cumulative Increase, Toxic Risk Management Policy, and Regulation 8-34-301.3)

11. The concentration of total reduced sulfur compounds in the collected landfill gas shall not exceed 200 ppmv (dry) expressed as hydrogen sulfide (H_2S). In order to demonstrate compliance with this part, the Permit Holder shall measure the total sulfur content in collected landfill gas in accordance with the monitoring schedule identified in Condition # 18773, Part 10. The landfill gas sample shall be taken from the main landfill gas header. (Basis: Regulation 9-1-302 and Cumulative Increase)

*12. Prior to initiation of gas collection from Fill Area 2, t~~T~~he Permit Holder shall submit a permit application for a Change of Permit Conditions, if any site-specific landfill gas characterization test indicates that the landfill gas at this site contains any of the following compounds at a level greater than the concentration listed below. The Permit Application shall be submitted to the Engineering Division,

within 45 days of receipt of test results indicating a concentration above the levels listed below. Upon initiation of landfill gas collection from Fill Area 2, the concentrations of toxic air contaminants in landfill gas collected from either fill area of the Altamont Landfill shall not exceed the concentrations listed below. An excess of a Part 12 TAC concentration limit shall not be deemed a violation of this part, if the Permit Holder complies with the requirements in Part 12a and demonstrates to the District's satisfaction that increasing the concentration level of a compound will satisfy either Part 12b or Part 12c.

a. Within 45 days of receipt of test results indicating a concentration above the levels listed below, the Permit Holder shall submit a permit application to the Engineering Division of the District for a Change of Permit Conditions to increase the concentration level for that compound.

b. The Permit Holder shall demonstrate to the District's satisfaction that the requested higher concentration level for a compound will not result in an increase of the permitted emission level for that compound from the S-2 Altamont Landfill, as identified in the table below.

c. If the higher concentration level will result in an increase of the permitted emission level for one or more compounds, but this emission increase is accompanied by decreases in the permitted emission levels for one or more toxic air contaminants, the Permit Holder shall demonstrate to the District's satisfaction that the proposed emission changes will not result in a project risk that exceeds a limit in Regulation 2-5-302.

(Basis: Regulation 2-5-302)

Compound	Concentration in Collected LFG (ppbv)	Limit for Fugitive Emissions from S-2 pounds/year
Acrylonitrile	~~500~~300	70
Benzene	~~3300~~3,400	1,166
Benzylchloride	~~600~~500	278
Carbon Tetrachloride	100	68
Chloroform	100	52
1,4 Dichlorobenzene	~~1100~~2,600	1,678
Ethyl Benzene	30,000	13,987
~~Ethylene Dibromide~~	~~300~~	
Ethylene Dichloride	~~250~~200	87
Ethylidene Dichloride	~~1200~~1,400	608
Isopropyl Alcohol	200,000	54,782
Methyl Alcohol	600,000	84,427
Methylene Chloride	~~2500~~12,000	4,476
Methyl Ethyl Ketone	200,000	63,331
Perchloroethylene	~~2400~~7,300	5,316
1,1,2,2 Tetrachloroethane	~~550~~400	295
Toluene	200,000	80,925
Trichloroethylene	~~1400~~1,600	923
Vinyl Chloride	1100	302
Xylenes	90,000	41,960

13. In order to demonstrate compliance with Regulation 8, Rule 34, Sections 301.3 and 412 and Parts 7 through 12 above, the Permit Holder shall ensure that a District approved source test is conducted annually on the A-15 and A-16 Landfill Gas Flares. The annual source tests shall be conducted while the flare is operating at or near maximum operating rates and for each of the following operating conditions: (a) while the flare is burning landfill gas without any condensate injection, (b) while the flare is burning landfill gas and condensate is being injected into the flare at or near the maximum injection rate, and (c) while the A-16 flare is controlling emissions from the S-210 LNG Plant. Each source test shall determine the following:

a. landfill gas flow rate to the flare (dry basis);
b. concentrations (dry basis) of carbon dioxide (CO_2), nitrogen (N_2), oxygen (O_2), total hydrocarbons (THC), methane (CH_4), and total non-methane organic compounds (NMOC) in the landfill gas;
c. stack gas flow rate from the flare (dry basis);
d. concentrations (dry basis) of NO_x, CO, NMOC, and O_2 in the flare stack gas;

e. NMOC destruction efficiency achieved by the flare; and
f. average combustion zone temperature of the flare during the test period.

The first annual source test for the A-16 Landfill Gas Flare shall be conducted within 120 days of the initial start up date forA-16. Testing of A-16 while condensate is being injected or while A-16 is controlling emissions from the S-210 LNG Plant is not required until the first annual source test that is scheduled to occur after the date that these operating scenarios commence. Subsequent annual source tests shall be conducted no later than 12 months after the previous source test. Testing while condensate is being injected is not required, if condensate was not injected into the flare during any of the 12 consecutive months prior to the source test date. The Source Test Section of the District shall be contacted to obtain approval of the source test procedures at least 14 days in advance of each source test. The Source Test Section shall be notified of the scheduled test date at least 7 days in advance of each source test. The source test report shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 60 days of the test date. (Basis: RACT, Offsets, Cumulative Increase, and Regulations 2-5-302, 8-34-301.3 and 8-34-412)

14. The Permit Holder shall conduct a characterization of the landfill gas concurrent with the annual source test required by Part 13 above. The landfill gas sample shall be drawn from the main landfill gas header.

a. In addition to the compounds listed in Part 13b, the landfill gas shall be analyzed for the organic compounds listed below, except that acrylonitrile testing shall be conducted once every four years instead of annually. All concentrations shall be reported on a dry basis. The test report shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 60 days of the test date. (Basis: ~~Toxic Risk Management Policy~~AB-2588 Air Toxics Hot Spots Act, Cumulative Increase, and Regulations 2-5-501 and 8-34-412)

Organic Compounds
acrylonitrile
benzene
benzyl chloride
carbon tetrachloride
~~chlorobenzene~~
~~chlorodifluoromethane~~
~~chloroethane~~
chloroform
~~1,1 dichloroethane~~

~~1,1 dichlorethene~~
~~1,2 dichloroethane~~
1,4 dichlorobenzene
~~dichlorodifluoromethane~~
~~dichlorofluoromethane~~
ethylbenzene
~~ethylene dibromide~~
~~fluorotrichloromethane~~
~~hexane~~
ethylene dichloride (1,2 dichloroethane)
ethylidene dichloride (1,1 dichloroethane)
isopropyl alcohol
methyl alcohol
methylene chloride
methyl ethyl ketone
perchloroethylene
1,1,2,2 tetrachloroethane
toluene
~~1,1,1 trichloroethane~~
trichloroethylene
vinyl chloride
xylenes

b. The Permit Holder shall demonstrate compliance with the landfill gas NMOC concentration limit in part 17a by measuring the NMOC concentration in landfill gas collected from the S-2 Altamont Landfill at least twice during each calendar year. One of the two required annual tests shall be conducted concurrent with subpart a above. For each consecutive three-year period, the sample collection dates for the second annual sample shall be varied to ensure that at least one sample is collected during each quarter of a year (one sample shall be collected during January-March, one during April-June, one during July-September, and one during October-December). Analytical results from District approved source tests that were conducted for other purposes may be used to satisfy the requirements of this part provided the sample was tested for both total NMOC concentration and methane concentration using APCO approved test methods. The measured NMOC concentration shall be corrected to 50% methane using the following equation: corrected NMOC concentration = 0.5 * measured NMOC concentration / measured methane concentration. For each landfill gas NMOC concentration test, the Permit Holder shall maintain records of the

sample date, the measured NMOC concentration, the measured methane concentration, and the corrected NMOC concentration. The Permit Holder shall determine and record the average of the corrected NMOC concentration for each calendar quarter (if multiple tests are available for any one particular quarter) and the rolling three-year average of these quarterly average NMOC concentrations. All records shall be maintained on site or shall be made readily available to District staff upon request for at least 5 years from the date of entry.

15. In order to demonstrate compliance with the above conditions, the Permit Holder shall maintain the following records in a District approved logbook. All records shall be maintained on site or shall be made readily available to District staff upon request for a period of at least 5 years from the date of entry. These record keeping requirements do not replace the record keeping requirements contained in any applicable rules or regulations. (Basis: Offsets, Cumulative Increase, 2-6-501, 8-34-301, and 8-34-501)
    a. For the Landfill Gas Flares (A-15 and A-16), record the date and time for each start-up and shut-down of a flare and the reason for each shut-down.
    b. Summarize the operating hours for each Landfill Gas Flare (A-15 and A-16), on a daily basis.
    c. Calculate and record, on a monthly basis, the maximum daily and total monthly heat input to each Landfill Gas Flare (A-15 and A-16) based on operating hours for the flare, the landfill gas flow rate recorded pursuant to Part 6, the average methane concentration in the landfill gas as determined by the most recent source test, and a high heating value for methane of 997.7 BTU/ft^3 of landfill gas at 68 degrees F and 1 atmosphere.
    d. Record the total amount of condensate (gallons per day) injected into each Landfill Gas Flare (A-15 and A-16) for each day that condensate is injected into a flare, and summarize these records on a monthly basis.
    e. Maintain records of all test dates and test results performed to maintain compliance with Parts 12 and 13 or with any applicable rule or regulation.

16. Any emission reductions that may occur due to the shut-down or modification of S-23 IC Engine or S-24 IC Engine cannot be banked or used to generate contemporaneous on site emission reduction credits for other projects. All such emission reductions shall be use to reimburse the District Small Facility Banking Account (SFBA) for the emission reduction credits provided from the SFBA to offset NOx and POC emission increases from this equipment. Furthermore, the Permit Holder shall use any NOx or POC emission reduction credits generated at any of the Permit Holder's facilities, which are located within the District, to

reimburse the SFBA for all emission reduction credits provided from the SFBA on behalf of the Permit Holder, before any of these credits could become eligible for banking. (Basis: Regulation 2-4-303.5)

17. ~~[Reserved]~~This part becomes effective upon the date of the District's approval of a Change of Conditions for the Fill Area 2 Expansion of the S-2 Altamont Landfill. In order to assure compliance with District offsetting requirements for precursor organic compound (POC) emission increases at the S-2 Altamont Landfill, the Permit Holder shall submit the required amount of District approved POC emission reduction credits (ERC) in accordance with the schedule identified in Part 17a and shall comply with all associated limits, monitoring, record keeping, and reporting requirements in Parts 17a. The fugitive POC emissions, the associated amount of ERC credits due, and other related limits shall be reviewed and, if necessary, modified, in accordance with the procedures specified in Part 17b. (Basis: Regulation 2-2-302)

    a. The Permit Holder shall comply with all requirements and limits identified in the table below, unless the Permit Holder has submitted, in accordance with the provisions of Part 17b, a permit application to request a modification of a specific ERC amount or due date or a specific limit. This permit application submittal will temporarily suspend the specific ERC requirement or limit from the date of the application submittal until the District makes a final decision on the change request. The permit application submittal does not suspend any monitoring, record keeping, or reporting requirements in this subpart.

        i. By no later than the due date specified in column 1 of the table, the Permit Holder shall surrender the total amount of POC ERCs indicated in column 2 of the table. These ERCs shall be in the form of District approved banking certificates for POC emission reduction credits. The banking certificate submittal shall be addressed to the attention of the Director of the Engineering Division, BAAQMD, 939 Ellis Street, San Francisco, CA 94109.

        ii. The limits identified in columns 3 through 6 of the table apply to the S-2 Altamont Landfill (Fill Areas 1 and 2 combined). These limits become effective upon the date identified in column 1 and remain in effect until the Permit Holder has surrendered the amount of ERCs required for the subsequent set of limits, unless the limit has been temporarily suspended as specified in Part 17a.

        iii. The Permit Holder shall demonstrate compliance with the fugitive POC emission limits in column 3 of the table by complying with: the limits in columns 4, 5, and 6, the record keeping requirements in Part

22i, the monitoring requirements in Part 14b, and the fugitive POC emissions reassessment requirements of Part 17b.

iv. For the purposes of the decomposable material placement limits in columns 4 and 5, decomposable materials are as defined in Part 22i. The Permit Holder shall demonstrate compliance with the cumulative decomposable placement limit in column 4 using the record keeping and reporting procedures in Part 22. The annual decomposable material placement limit in column 5 applies to each calendar year. The Permit Holder shall demonstrate compliance with these limits using the record keeping and reporting procedures in Part 22. Prior to exceeding a cumulative or annual decomposable material placement limit, the Permit Holder shall either surrender the amount of ERCs required for the next subsequent set of limits or submit a permit application to request a change of conditions. Each permit application submittal shall include a reassessment of the fugitive POC emissions conducted in accordance with Parts 17b(ii-iv).

v. The landfill gas NMOC concentration limit applies on a rolling three-year average basis. The Permit Holder shall demonstrate compliance with this limit using the monitoring and record keeping requirements in Part 14b. If testing indicates that the three-year average NMOC concentration in landfill gas collected S-2 has or will exceed the limit in column 6, the Permit Holder shall submit a permit application to request an increase of this NMOC concentration limit, within 45 days of recording the exceedance. The permit application submittal shall include a reassessment of the fugitive POC emissions conducted in accordance with Parts 17b(ii-iv).

ERC Due Date and Effective Date for New Limits	Amount of ERCs Due tons/year of POC	Fugitive Emission Limit tons/year of POC	Cumulative Decomposable Material Placement Limit million tons	Annual Decomposable Material Placement Limit tons/year	Landfill Gas Concentration Limit ppmv NMOC (rolling 3-year average, expressed as C_6 and corrected to 50% CH_4)
*	11.114	73.654	48.337	1,630,000	600
1/2/13	4.349	77.436	51.557	1,610,000	600
1/2/15	4.167	81.059	54.777	1,610,000	600
1/2/17	4.003	84.540	57.997	1,610,000	600
1/2/19	3.846	87.884	61.217	1,610,000	600
1/2/21	3.695	91.098	64.437	1,610,000	600
1/2/23	3.551	94.185	67.657	1,610,000	600
1/2/25	3.411	97.152	70.877	1,610,000	600
1/2/27	3.278	100.002	74.097	1,610,000	600
1/2/29	3.149	102.740	77.317	1,610,000	600
1/2/31	3.026	105.371	80.537	1,610,000	600
1/2/33	2.907	107.899	83.757	1,610,000	600
1/2/35	4.148	111.506	88.000	1,610,000	600

* These limits and all subsequent limits are effective upon commencement of waste disposal in Fill Area 2.

b. The Permit Holder shall conduct a fugitive POC emissions reassessment for the S-2 Altamont Landfill in accordance with the schedule and procedures identified below.

i. A reassessment of the annual fugitive POC emission rate from the S-2 Altamont Landfill (Fill Areas 1 and 2 combined) shall be submitted to the District each year by no later than July 1st. The first reassessment is due the first July 1st after waste placement in Fill Area 2 commences. The reassessment shall be addressed to the attention of the District permit engineer assigned to this site, Engineering Division, BAAQMD, 939 Ellis St., San Francisco, CA 94109.

ii. The fugitive POC emissions reassessment shall use the EPA LANDGEM program to determine the projected amount of landfill gas (scfm) and NMOC (tons/year) that will be generated by S-2 (Fill Areas 1 and 2 combined) for each year from 1980 through at least 2080. The Permit Holder shall use the following LANDGEM User Input Data: methane generation rate (k) = 0.02 $year^{-1}$, potential

methane generation capacity (L_0) = 100 m^3/Mg, methane content = 50%. The Permit Holder shall use the best available data for the amount of decomposable materials placed in the landfill from 1980 through 2008. For calendar year 2009 and later, the Permit Holder shall use the annual decomposable material placement data recorded pursuant to Part 22. For the user-specified NMOC concentration in LANDGEM, the Permit Holder shall use the most recent three-year average NMOC concentration data (ppmv of NMOC expressed as hexane and corrected to 50% methane) recorded pursuant to Part 14b.

iii. Each reassessment report shall include the fugitive POC emission rate determined for the current calendar year and for each subsequent year through the projected peak landfill gas generation year. Fugitive POC emissions shall be determined using the following equation:

$POC_{fugitive} = NMOC_{generated} * 0.25 * 0.98$

where: $POC_{fugitive}$ is the projected amount of fugitive POC emissions (tons/year) for a particular calendar year

$NMOC_{generated}$ is the projected amount of NMOC generated (tons/year) as determined by LANDGEM using the User-Input Data discussed above.

0.25 is the assumed fugitive emission fraction (75% captured and 25% fugitive) for the total NMOC generated

0.98 is the assumed POC fraction (by weight) of the total NMOC emission rate

iv. The current and projected annual fugitive POC emission rates determined per Part 17b(iii) shall be compared to the fugitive POC emission limits in the table in Part 17a. If the projected peak fugitive POC emission rate for the landfill is less than the maximum POC emissions limit in the table, the Permit Holder may, at his or her discretion, request that the District modify the Part 17a table limits and ERC submittal requirements based on the updated fugitive POC emissions calculations. This condition change request shall be submitted in the form of a District permit application, and the District will handle the request as an administrative permit condition change. If the peak fugitive POC emissions for S-2 are projected to exceed the maximum fugitive POC emission limit of 111.506 tons/year, the Permit Holder must submit a permit application to request an increase of this limit by no later than October 1st of the year in which the fugitive POC emissions reassessment was due. In this latter case, the permit application cannot be handled

administratively, but the District will review the circumstances leading to the need to increase the maximum fugitive POC emissions for the landfill to determine if the change constitutes an alteration or a modification of S-2.

18. The Permit Holder shall comply with the following waste acceptance and disposal limits and shall obtain the appropriate New Source Review permit, if one of the following limits is exceeded:
    a. Total waste accepted and placed at the landfill shall not exceed 11,150 tons in any day (except during temporary emergency situations approved by the Local Enforcement Agency). (Basis: Regulation 2-1-301)
    b. The amount of non-hazardous sludge accepted and placed at the landfill shall not exceed 5,000 tons in any day. (Basis: Regulation 2-1-301)
    c. The maximum design capacity of the landfill (total volume of solid waste placed in the landfill where solid waste has the same meaning as the definition in 40 CFR Part 60.751) shall not exceed ~~58,900,000~~ 124,400,000 cubic yards. (Basis: Regulation 2-1-301)
    d. The total cumulative amount of all waste placed in Fill Area 1 of the landfill shall not exceed 47,100,000 tons. Exceedance of the cumulative tonnage limit is not a violation of the permit and does not trigger the requirement to obtain a New Source review permit, if the operator can, within 30 days of the date of discovery of the exceedance, provide documentation to the District demonstrating, in accordance with BAAQMD Regulation 2-1-234.3, that the limit should be higher. (Basis: Regulation 2-1-234.3)

19. This part applies to any activities associated with or related to the S-2 Altamont Landfill that generate particulate matter emissions including, but not limited to: waste and cover material delivery, placement, and compaction; on-site excavation of cover soil; and vehicle and mobile equipment travel on paved and unpaved roads within the property boundaries of Site # A2066.
    a. For current landfill operations associated with or supporting waste disposal in Fill Area 1, ~~W~~water and/or dust suppressants shall be applied to all unpaved roadways and active soil removal and fill areas associated with this landfill as necessary to prevent visible particulate emissions that persist for more than 3 minutes in any hour. Paved roadways at the facility shall be kept sufficiently clear of dirt and debris as necessary to prevent persistent visible particulate emissions from vehicle traffic or wind. This subpart shall remain in effect until waste disposal in Fill Area 1 ceases. (Basis: Regulations 2-1-403, 6-1-301, and 6-1-305)

b. Effective upon commencement of waste disposal in Fill Area 2, the Permit Holder shall comply with the following particulate emission limits:
   i. Total particulate emissions from the S-2 Altamont Landfill and the associated waste and cover material excavation, delivery, placement, and compaction operations shall not exceed 387.5 tons of PM10 during any calendar year. (Basis: Regulation 2-1-301)
   ii. Each particulate emitting operation associated with S-2 shall be abated to the extent necessary to ensure compliance with the Ringelmann No. 1 limitation in Regulation 6-1-301. (Basis: Regulation 6-1-301)

c. Effective upon commencement of waste disposal in Fill Area 2, the main haul route for Fill Area 2, from the entrance gate off of Altamont Pass Road to the edge of the Fill Area 2 disposal area shall be paved with asphaltic concrete or other similar material. For these paved road segments, the Permit Holder shall employ all paved road dust control measures necessary to maintain compliance with the PM10 emission limits in subpart b. Paved road dust control measures may include: use of truck wash stations, sweeping, vacuuming, and water flushing to maintain an average paved road surface silt loading of 2.0 g/m^2 or less. If the average paved road surface silt loading is determined to be greater than 2.0 g/m^2, the Permit Holder shall limit the types and numbers of vehicles traveling on this paved road to ensure that the subpart b PM10 emission limits are not exceeded. (Basis: Regulation 2-1-403)

d. Effective upon commencement of waste disposal in Fill Area 2, any temporary roads used for delivering soil from on-site cover soil excavation areas to Fill Area 2 and any temporary roads within Fill Areas 2 used for waste or cover material delivery shall be paved with gravel or other aggregate based materials. For these gravel road segments, the Permit Holder shall employ all gravel road dust control measures necessary to maintain compliance with the PM10 emission limits in subpart b. Gravel road dust control measures may include: application of dust suppressants at least once per month and use of frequent water spraying during dry periods. If the average gravel road surface material silt content is greater than 6.4%, the Permit Holder shall limit the types and numbers of vehicles traveling on these gravel roads to ensure that the subpart b PM10 emission limits are not exceeded. (Basis: Regulation 2-1-403)

e. Effective upon commencement of waste disposal in Fill Area 2, the Permit Holder shall apply dust suppressants and water sprays to unpaved roads at a sufficient rate and frequency to ensure compliance with the subpart b PM10 emission limits. (Basis: Regulation 2-1-403)

f. Effective upon commencement of waste disposal in Fill Area 2, the Permit Holder shall use water sprays and dust suppressants at the active face and at soil stockpiles at the rate and frequency necessary to ensure compliance with the subpart b PM10 emission limits and to prevent wind erosion from these areas. (Basis: Regulation 2-1-403)

g. Inactive landfill surfaces shall be re-vegetated as soon as possible. If necessary, dust suppressants or water sprays shall be used on any inactive landfill surfaces without vegetation at the rate and frequency necessary to prevent wind erosion. (Basis: Regulation 2-1-403)

h. If the dust control measures in Part 19(c-g) are not sufficient to maintain compliance with the PM10 emission limits in Part 19(b), the Permit Holder shall employ any other measures deemed necessary by the APCO. Such additional control measures may include: increasing frequency of road sweeping, vacuuming, water flushing, dust suppressant applications, or water spray applications; using additional truck wash stations; and paving additional road segments, parking areas, or equipment staging areas with asphaltic concrete, gravel, or other appropriate materials. (Basis: Regulation 2-1-403)

i. In order to demonstrate compliance with the PM10 emission limit in Part 19(b)(i), the Permit Holder shall calculate and record the PM10 emission rate for the S-2 Altamont Landfill on an annual basis using APCO approved emission calculation methods. The Permit Holder shall obtain APCO approval for these calculation methods prior to commencing waste disposal at Fill Area 2. The PM10 calculation procedures shall be based on EPA's most recent AP-42 procedures and site-specific data collected pursuant to subparts j and k below. (Basis: Regulation 2-1-403)

j. Within six months of commencing waste disposal at Fill Area 2, and at least once every five years thereafter, the Permit Holder shall determine, using APCO approved procedures, the average paved road surface silt loading (g/m^2) for the main haul route to Fill Area 2, the average surface material silt content (%) for Fill Area 2 gravel road segments, the average surface material silt content for Fill Area 2 unpaved road segments, and the actual length of each road segment. (Basis: Regulation 2-1-403)

k. Upon commencing waste disposal in Fill Area 2, the Permit Holder shall maintain the following records in a District approved log:

   i. Maintain a description of the vehicle fleet traveling on each road segment within this site (types of vehicles, empty weights, loaded weights, and types of materials carried by the vehicles). For each calendar year, estimate the average vehicle fleet weight and the annual vehicle fleet trips for each road segment.

ii For each calendar year, estimate the amount of each type of cover material used at Fill Area 2, the total amount of all cover materials used at Fill Area 2, and the amount of soil excavated for cover material from on-site locations.

iii. Maintain a description of the types of off-road mobile equipment used at the active face (bulldozers, compactors, etc.) and the numbers of each type of equipment that are employed during an operating day. For each calendar year, estimate the annual operating hours at the active face for each type of equipment.

iv. Maintain a dust control plan that identifies the anticipated locations for dust suppressant and water spray applications, the types of dust suppressants that may be used, the application rates for each type of dust suppressant and for the water sprays, the anticipated application frequency for each type of dust suppressant and for the water sprays, a description of all paved road cleaning procedures (sweeping, vacuuming, water flushing), the anticipated frequency for all paved road cleaning procedures, the locations of truck wash stations, and truck wash station operating procedures.

v. For each calendar year, maintain sufficient records to demonstrate, to the APCO's satisfaction, that the dust control plan was properly implemented including any supporting documentation, such as rain fall data for each day of the year. For unpaved roads, these records should include the dates that dust suppressants were applied, the dates that water sprays were applied, and the frequency of water spray reapplications on these dates. On operating days when water sprays are not employed on unpaved road, the records shall include the reason why water sprays were not employed. For paved roads, these records should include the dates that the paved roads were cleaned and a description of the cleaning procedures used. For truck wash stations, maintain records of operating days. For areas other than roads, the records should include dates of dust suppressant application and frequency of water spray applications.

vi. All records shall be maintained on site or shall be made readily available to District staff upon request for at least 5 years from the date of entry.

(Basis: Regulation 2-1-403)

20. This Part applies to the acceptance, handling, storage, and on-site reuse of VOC-laden soil. VOC-laden soil is any soil that contains volatile organic compounds, as defined in Regulation 8-40-213, other than contaminated soil. As defined in

Regulation 8-40-205, contaminated soil contains more than 50 ppmw of VOC or has a surface concentration greater than 50 ppmv of VOC as C1, and contaminated soil is subject to Part 21 below instead of this part. Materials containing only non-volatile hydrocarbons and materials meeting the requirements of Regulation 8-40-113 are not subject to this part. For each lot of VOC-laden soil accepted at this site, the Permit Holder shall comply with the limits and monitoring procedures identified in either subpart a or subpart b below to demonstrate compliance with the total carbon limits in Regulation 8-2-301. (Basis: Regulation 8-2-301)

a. Unless the Permit Holder demonstrates compliance with Regulation 8-2-301 in accordance with subpart b below, the Permit Holder shall limit the quantity of VOC laden soil handled per day such that no more than 15 pounds of total carbon could be emitted to the atmosphere per day. In order to demonstrate compliance with this subpart, the Permit Holder shall maintain the following records in a District approved log for all VOC-laden soil accepted at the landfill.
    i. Record on a daily basis the amount of VOC laden soil accepted for each truckload or each soil lot, as appropriate. This amount (in units of pounds per day) is Q in the equation in subpart a(iii) below.
    ii. Record on a daily basis the VOC content for each truckload or each soil lot, as appropriate. This VOC Content (C in the equation below) should be expressed as parts per million by weight as total carbon (or C1).
    iii. Calculate and record on a daily basis the VOC Emission Rate (E) using the following equation: $E = Q * C / 1E6$
    This equation may be applied to each truckload or to each soil lot received per day depending on the amount of soil that is represented by the VOC Content data. If the equation is applied to multiple loads per day, the VOC Emission Rate shall be totaled for all loads received each day.
    iv. Summarize all daily emission rates on a monthly and calendar year basis.
    v. All records shall be maintained on site or shall be made readily available to District staff upon request for at least 5 years from the date of entry.

b. Unless the Permit Holder demonstrates compliance with Regulation 8-2-301 in accordance with subpart a above, the Permit Holder shall screen each lot of VOC laden soil accepted per day for VOC surface emissions to show that each lot of VOC laden soil is not contaminated soil.
    i. The Permit Holder shall use the testing procedures outlined in Regulation 8-40-604.

ii. The screening test shall be representative of the entire lot of VOC-laden soil. The soil surface shall be disturbed prior to screening to ensure that the screening is representative of the entire load.

iii. The Permit Holder shall maintain records of all testing conducted to satisfy this subpart and shall record the amount of VOC-laden soil accepted and the highest surface concentration measured pursuant to this subpart. These records shall be maintained for each truckload or each soil lot accepted, as appropriate, provided that the records are made or summarized on at least a daily basis.

iv. Summarize the daily soil acceptance rates and the weighted average of the surface concentration records on a monthly basis and for each calendar year.

v. All records shall be maintained on site or shall be made readily available to District staff upon request for at least 5 years from the date of entry.

21. This part applies to any on-site activities involving contaminated soil as defined in Regulation 8-40-205. Unless stated otherwise, all terms, standards, or procedures described in this part have the same meaning as the terms, standards, and procedures described in Regulation 8, Rule 40. (Basis: Regulation 2-1-301, 2-1-403, 8-40-301, 8-40-304 and 8-40-305)

a. The procedures listed below in subparts b-l do not apply if the following criteria are satisfied. However, the record keeping requirements in subpart m below are applicable.

i. The Permit Holder has appropriate documentation demonstrating that either the organic content of the soil or the organic concentration above the soil is below the "contaminated" level (as defined in Regulations 8-40-205, 207, and 211). The handling of soil containing in concentrations below the "contaminated" level is subject to Part 20 above.

ii. The Permit Holder has no documentation to prove that soil is not contaminated, but source of the soil is known and there is no reason to suspect that the soil might contain organic compounds.

b. The Permit Holder shall provide notification to the Compliance and Enforcement Division of the Permit Holder's intention to accept contaminated soil at the facility at least 24 hours in advance of receiving the contaminated soil. The Permit Holder shall provide an estimate of the amount of contaminated soil to be received, the degree of contamination (range and average VOC Content), and the type or source of contamination.

c. Any soil received at the facility that is known or suspected to contain volatile organic compounds (VOCs) shall be handled as if the soil were contaminated, unless the Permit Holder receives test results proving that the soil is not contaminated. To prove that the soil is not contaminated, the Permit Holder shall collect soil samples in accordance with Regulation 8-40-601 within 24 hours of receipt of the soil by the facility. The organic content of the collected soil samples shall be determined in accordance with Regulation 8-40-602.

i. If these test results indicate that the soil is still contaminated or if the soil was not sampled within 24 hours of receipt by the facility, the Permit Holder must continue to handle the soil in accordance with the procedures subparts d-l below, until the soil has been placed in a final disposal location and adequately covered. Storing soil in a temporary stockpile or pit is not considered treatment. Co-mingling, blending, or mixing of soil lots is not considered treatment.

ii. If these test results indicate that the soil - as received at the facility - has an organic content of 50 ppmw or less, then the soil may be considered to be not contaminated and need not be handled in accordance with the procedures listed in subparts d-l below, but shall be handled in accordance with Part 20 above.

d. Any contaminated soil received at the facility shall be clearly identified as contaminated soil, shall be handled in accordance with subparts e-l below, and shall be segregated from non-contaminated soil. Contaminated soil lots may not be co-mingled, blended, or otherwise mixed with non-contaminated soil lots prior to treatment, reuse, or disposal. Mixing soil lots in an attempt to reduce the overall concentration of the contaminated soil or to circumvent any requirements or limits is strictly prohibited.

e. On-site handling of contaminated soil shall be limited to no more than 2 on-site transfers per soil lot. For instance, unloading soil from off-site transport vehicles into a temporary storage pile is considered one transfer. Moving soil from a temporary storage to a staging area is considered one transfer. Moving soil from a temporary storage pile to a final disposal site is one transfer. Moving soil from a staging area to a final disposal site is one transfer. Therefore, unloading soil from off-site transport into a temporary storage pile and then moving the soil from that temporary storage pile to the final disposal site is allowed. Unloading soil from off-site transport into a staging area and then moving the soil from that staging area to the final disposal site is allowed. However, unloading soil from off-site transport to a temporary storage pile, moving this soil to a staging area, and then moving the soil again to a final disposal site is 3 on-site transfers and is not allowed.

f. Contaminated soil shall either be deposited in a final disposal site or transported off-site for treatment:
   a. within 90 days, if the soil contains less than 500 ppmw of VOC, or
   b. within 45 days, if the soil contains 500 ppmw of VOC or more.

g. The total amount of contaminated soil disposed of at this site shall not exceed 6000 tons per day. (Basis: Regulation 2-1-301)

h. All active storage piles shall meet the requirements of Regulation 8-40-304 by using water sprays, vapor suppressants or approved coverings to minimize emissions. The exposed surface area of any active storage pile (including the active face at a landfill) shall be limited to 6000 ft2. The types of storage piles that may become subject to these provisions include (but are not limited to) truck unloading areas, staging areas, temporary stockpiles, soil on conveyors, bulldozers or trucks, the active face of a landfill, or other permanent storage pile at the final disposal location.

i. All inactive storage piles shall meet the requirements of Regulation 8-40-305 including the requirement to cover contaminated soil during periods of inactivity longer than one hour. The types of storage piles that may become subject to these provisions include (but are not limited to) soil on trucks or other on-site equipment, staging areas, temporary stockpiles, and the permanent storage pile at the final disposal location. District approved coverings for inactive storage piles include continuous heavy-duty plastic sheeting (in good condition, joined at the seams, and securely anchored) or encapsulating vapor suppressants (with re-treatment as necessary to prevent emissions).

j. The Permit Holder must:
   i. Keep contaminated soil covered with continuous heavy-duty plastic sheeting (in good condition, joined at the seams, and securely anchored) whenever soil is to be stored in temporary stockpiles or during on-site transport in trucks. Soil in trucks shall not be left uncovered for more than 1 hour.
   ii. Establish a tipping area for contaminated soils near the active face that is isolated from the tipping area for other wastes.
   iii. Spray contaminated soil with water or vapor suppressant immediately after dumping the soil from a truck at the tipping area.
   iv. Ensure that all contaminated soil is transferred from the tipping area to the active face immediately after spraying with water or vapor suppressant.
   v. Ensure that contaminated soil in the tipping area is not disturbed by subsequent trucks. Trucks shall not drive over contaminated soil in

the tipping area or track contaminated soil out of the tipping area on their wheels.

vi. Spray contaminated soil on the active face with water or vapor suppressant (to keep the soil visibly moist) until the soil can be covered with an approved covering.

vii. Limit the area of exposed soil on the active face to no more than 6000 ft2.

viii. Ensure that contaminated soil spread on the active face is completely covered on all sides with one of the following approved coverings: at least 6 inches of clean compacted soil, at least 12 inches of compacted garbage, or at least 12 inches of compacted green waste.

ix. Ensure that covering of soil on the active face is completed within one hour of the time that the soil was first dumped from a truck at the tipping area.

k. Contaminated soil shall not be used as daily, intermediate, or final cover material for landfill waste operations unless the requirements of Regulation 8, Rule 40, Sections 116 or 117 have been satisfied.

l. Contaminated soil is considered to be a decomposable solid waste pursuant to Regulation 8, Rule 34. All contaminated soil disposed of at a site shall be included in any calculations of the amount of decomposable waste in place for annual reporting requirements or for purposes of 8-34-111 or 8-34-304.

m. The Permit Holder shall keep the following records for each lot of soil received, in order to demonstrate on-going compliance with the applicable provisions of Regulation 8, Rule 40 and this part.

i. For all soil received by the facility (including soil with no known contamination), record the arrival date at the facility, the soil lot number, the amount of soil in the lot, the organic content or organic concentration of the lot (if known), the type of contamination (if any), and keep copies of any test data or other information that documents whether the soil is contaminated (as defined in 8-40-205) or not contaminated, with what, and by how much.

ii. If the soil is tested for organic content after receipt by the facility, a report with the sampling date, test results, and the date results were received.

iii. For all on-site handling of contaminated soil, use a checklist or other approved method to demonstrate that appropriate procedures were followed during all on-site handling activities. One checklist shall be completed for each day and for each soil lot (if multiple lots are handled per day).

iv. For soil aerated in accordance with 8-40-116 or 117 record the soil lot number, the amount of soil in the lot, the organic content, the final placement date, the final placement location, and describe how the soil was handled or used on-site.

v. For final disposal at a landfill, record on a daily basis the soil lot number, the amount of soil placed in the landfill, the disposal date, and the disposal location.

vi. Summarize the total amount of contaminated soil disposed of at this site on a monthly and calendar year basis to demonstrate compliance with subpart g.

All records shall be retained for at least 5 years from the date of entry and shall be made available for District inspection upon request.

22. To demonstrate compliance with Parts ~~18~~17-21 and Regulation 8-34-304, the Permit Holder shall maintain the following records in a District approved logbook. All records shall be maintained on site or shall be made readily available to District staff upon request for a period of at least 5 years from the date of entry. These record keeping requirements do not replace the record keeping requirements contained in any applicable rules or regulations. (Basis: Regulations 2-1-301, 2-6-501, 6-301, 6-305, 8-2-301, 8-40-301, 8-34-304, and 8-34-501)

a. Record the total amount of municipal solid waste received at S-2 on a daily basis. Summarize the daily waste acceptance records for each calendar month.

b. For each area or cell that is not controlled by a landfill gas collection system, maintain a record of the date that waste was initially placed in the area or cell. Record the cumulative amount of waste placed in each uncontrolled area or cell on a monthly basis.

c. If the Permit Holder plans to exclude an uncontrolled area or cell from the collection system requirement, the Permit Holder shall also record the types and amounts of all non-decomposable waste placed in the area and the percentage (if any) of decomposable waste placed in the area.

d. Record the initial operation date for each new landfill gas well and collector.

e. Maintain an accurate map of the landfill that indicates the locations of all refuse boundaries and the locations of all wells and collectors (using unique identifiers) that are required to be operating continuously pursuant to Part 1a. Any areas containing only non-decomposable waste shall be clearly identified. This map shall be updated at least once a year to indicate changes in refuse boundaries and to include any newly installed wells and collectors.

f. Record of the dates, locations, and frequency per day of all watering activities on unpaved roads or active soil or fill areas. Record the dates, locations, and type of any dust suppressant applications. Record the dates and description of all paved road-cleaning activities. All records shall be summarized on monthly basis.

g. Record the date on which waste placement in Fill Area 2 commences.

h. Record the date on which waste placement in Fill Area 1 ceases.

i. Effective upon commencement of waste disposal in Fill Area 2, the Permit Holder shall demonstrate compliance with the cumulative and annual average decomposable material placement limits in Part 17a by maintaining the following records in a District approved log. For the purposes of Part 17 and this subpart, decomposable materials shall include all wastes disposed of in either fill area of the landfill other than quantities of inert (non-decomposable) wastes recorded pursuant to subpart c, all daily cover materials that are decomposable, any decomposable materials that are used in the construction of the intermediate cover for an area unless the decomposable materials were placed on the uppermost surface and were being used for the purpose of erosion control or revegetation of the intermediate landfill surface.

i. Maintain quarterly estimates of the total amount of all decomposable materials used for either daily or intermediate cover at each fill area of the landfill and summarize these estimates for each calendar year.

ii. Using the waste acceptance records required by Part 22a-c and the decomposable cover material estimates required above, summarize the total amount (in tons) of decomposable materials placed in the landfill for each calendar year. If Fill Area 1 and Fill Area 2 are both accepting waste during a year, maintain separate calendar year totals for each fill area as well as the total calendar year decomposable material placement amount for the entire landfill. Clearly identify the type and amount of any inert or non-decomposable wastes that are being excluded from these annual totals.

iii. Determine and record the cumulative amount (in tons) of decomposable materials placed in the S-2 Altamont Landfill as of December 31st for each calendar year. Prior to commencement of waste disposal in Fill Area 2, the best available decomposable material placement data shall be used to determine the cumulative amount of decomposable materials placed in Fill Area 1 of S-2.

iv. The cumulative amount of decomposable materials recorded pursuant to Part 22i(iii) shall be reported to the District pursuant to

the annual information update request for this facility under S-2, source code: G7145580.

23. The annual report required by BAAQMD Regulation 8-34-411 shall be submitted in two semi-annual increments. The reporting period for the first increment of the Regulation 8-34-411 annual report that is submitted subsequent to the issuance of the MFR Permit for this site shall be from December 1, 2003 through April 30, 2004. This first increment report shall be submitted by May 31, 2004. The reporting periods and report submittal due dates for all subsequent increments of the Regulation 8-34-411 report shall be synchronized with the reporting periods and report submittal due dates for the semi-annual MFR Permit monitoring reports that are required by Section I.F of the MFR Permit for this site. A single report may be submitted to satisfy the requirements of Section I.F, Regulation 8-34-411, and 40 CFR Part 63.1980(a), provided that all items required by each applicable reporting requirement are included in the single report. (Basis: Regulation 8-34-411 and 40 CFR Part 63.1980(a))

RECOMMENDATION

The District has completed the public comment period required by Regulation 2-2-405, and has considered all comments received about this project. The District finds that this project will comply with all applicable requirements. Therefore, the District recommends that a Change of Conditions be issued for the following equipment:

S-2 Altamont Landfill: Authorize and Incorporate the Fill Area 2 Expansion

By: Carol S. Allen Date
Senior Air Quality Engineer

APPENDIX A

CURRENT EQUIPMENT LIST

FOR SITE # A2066

Current Equipment List for Site # A2066

Source #	Source Description	*
S-2	Altamont Landfill with Landfill Gas Collection System	
S-6	Gas Turbine	
S-7	Gas Turbine	
S-12	Knockout Vessel, V-101	Exempt
S-19	Transfer Tank with Siphon Pump	
S-20	Treated Effluent Storage Tank	Exempt
S-23	Internal Combustion Engine	
S-24	Internal Combustion Engine	
S-28	Condensate Storage Tank	Exempt
S-29	Green Waste Stockpiles	
S-30	Portable Green Waste Grinding Operation	Exempt
S-31	PERP Diesel Engine for Green Waste Grinder	Exempt
S-99	Non-Retail Gasoline Dispensing Facility G # 7123	
S-130	Equalization Tank, storage and neutralization of wastewater	Exempt
S-140	SBR 1, aerated biological reactor	
S-141	SBR 2, aerated biological reactor	
S-180	Sludge Thickening	Exempt
S-193	Diesel Engine (for fire pump at Gas Plant)	
S-196	Diesel Engine (for emergency standby generator at Scale House)	
S-197	Diesel Engine (for portable generator at Break Trailer)	
S-198	Diesel Engine (for vacuum truck pump)	
S-199	Emergency Standby Diesel Genset (Flare Station)	
S-200	Emergency Standby Diesel Genset Set (WWTP)	
S-201	Emergency Standby Diesel Genset (Maintenance Shop)	
S-206	Portable Diesel Engine for Tipper #83	
S-207	Portable Diesel Engine for Tipper #93	
S-208	Portable Diesel Engine for Tipper #70	
S-209	Portable Diesel Engine for Tipper #71	
S-214	Portable Diesel Engine for Air Compressor	

Abatement Device #	Abatement Device Description
A-6	Fogging System for S-6 Gas Turbine
A-7	Fogging System for S-7 Gas Turbine
A-15	Landfill Gas Flare
A-130	Carbon Adsorption System
A-206	Catalyzed Diesel Particulate Filter
A-207	Catalyzed Diesel Particulate Filter
A-208	Catalyzed Diesel Particulate Filter
A-209	Catalyzed Diesel Particulate Filter

* Sources identified as “Exempt” are exempt from District permitting requirements.

Proposed Equipment at Site # A2066 (Approved For Construction and Start-Up)

Source #	Source Description	*
S-210	Liquefied Natural Gas Plant	
S-211	LNG Storage Tank	Exempt
S-212	LNG Storage Tank	Exempt
S-213	LNG Storage Tank	Exempt
A-16	Landfill Gas Flare	

* Sources identified as "Exempt" are exempt from District permitting requirements.

Proposed Equipment at Site # A2066 (Undergoing District Evaluation)

Source #	Source Description	*
S-216	Waste Water Treatment Plant: alteration to add leachate ponds	
A-15	Landfill Gas Flare: alteration to increase leachate injection rate	
S-32	Windrow Composting Operations	
S-34	Compost Screening Operations	
S-35	Finished Compost Storage and Loading Operations	

* Sources identified as "Exempt" are exempt from District permitting requirements.

APPENDIX B

DECOMPOSABLE MATERIAL PLACEMENT DATA

FOR S-2 ALTAMONT LANDFILL

Decomposable Material Placement History For Fill Area 1

	Amount of Decomposable Wastes Placed in S-2	Amount of Decomposable Cover Materials Placed in S-2	Total Amount of Decomposable Materials Placed in S-2	Cumulative Total of All Decomposable Materials in S-2	Total Amount of Decomposable Materials Placed in S-2	Cumulative Total of All Decomposable Materials in S-2
Year	tons/year	tons/year	tons/year	tons-in-place	Mg/year	Mg-in-place
1980	49,500		49,500	49,500	44,906	44,906
1981	614,600		614,600	664,100	557,556	602,461
1982	683,400		683,400	1,347,500	619,970	1,222,431
1983	807,400		807,400	2,154,900	732,461	1,954,892
1984	1,352,000		1,352,000	3,506,900	1,226,514	3,181,406
1985	1,415,000		1,415,000	4,921,900	1,283,666	4,465,073
1986	1,517,000		1,517,000	6,438,900	1,376,199	5,841,272
1987	1,591,000		1,591,000	8,029,900	1,443,331	7,284,603
1988	1,585,000		1,585,000	9,614,900	1,437,888	8,722,491
1989	1,707,000		1,707,000	11,321,900	1,548,564	10,271,055
1990	1,961,000		1,961,000	13,282,900	1,778,989	12,050,044
1991	1,810,000		1,810,000	15,092,900	1,642,004	13,692,049
1992	1,668,078		1,668,078	16,760,978	1,513,255	15,205,303
1993	1,526,390		1,526,390	18,287,368	1,384,718	16,590,021
1994	1,502,203		1,502,203	19,789,571	1,362,776	17,952,797
1995	1,563,486		1,563,486	21,353,057	1,418,371	19,371,167
1996	1,472,987		1,472,987	22,826,044	1,336,271	20,707,439
1997	1,509,626		1,509,626	24,335,670	1,369,510	22,076,948
1998	1,534,539		1,534,539	25,870,209	1,392,110	23,469,059
1999	1,463,998		1,463,998	27,334,207	1,328,117	24,797,175
2000	1,496,182	10,515	1,506,697	28,840,904	1,366,853	26,164,028
2001	1,453,330	51,275	1,504,605	30,345,509	1,364,955	27,528,983
2002	1,339,641	75,235	1,414,876	31,760,385	1,283,554	28,812,537
2003	1,284,321	122,415	1,406,736	33,167,121	1,276,169	30,088,706
2004	1,290,315	111,755	1,402,070	34,569,191	1,271,937	31,360,643
2005	1,302,603	38,815	1,341,418	35,910,609	1,216,914	32,577,556
2006	1,303,241	34,015	1,337,256	37,247,865	1,213,138	33,790,695
2007	1,282,894	40,970	1,323,864	38,571,729	1,200,989	34,991,684

Decomposable Material Placement Projections For Fill Areas 1 and 2

	Amount of Decomposable Wastes Placed in S-2	Amount of Decomposable Cover Materials Placed in S-2	Total Amount of Decomposable Materials Placed in S-2	Cumulative Total of All Decomposable Materials in S-2	Total Amount of Decomposable Materials Placed in S-2	Cumulative Total of All Decomposable Materials in S-2
Year	tons/year	tons/year	tons/year	tons-in-place	Mg/year	Mg-in-place
2008	1,600,000	40,005	1,640,005	40,211,734	1,487,788	36,479,472
2009	1,600,000	35,000	1,635,000	41,846,734	1,483,247	37,962,719
2010	1,600,000	30,000	1,630,000	43,476,734	1,478,711	39,441,430
2011	1,600,000	25,000	1,625,000	45,101,734	1,474,175	40,915,605
2012	1,600,000	20,000	1,620,000	46,721,734	1,469,639	42,385,244
2013	1,600,000	15,000	1,615,000	48,336,734	1,465,103	43,850,348
2014	1,600,000	10,000	1,610,000	49,946,734	1,460,567	45,310,915
2015	1,600,000	10,000	1,610,000	51,556,734	1,460,567	46,771,483
2016	1,600,000	10,000	1,610,000	53,166,734	1,460,567	48,232,050
2017	1,600,000	10,000	1,610,000	54,776,734	1,460,567	49,692,617
2018	1,600,000	10,000	1,610,000	56,386,734	1,460,567	51,153,185
2019	1,600,000	10,000	1,610,000	57,996,734	1,460,567	52,613,752
2020	1,600,000	10,000	1,610,000	59,606,734	1,460,567	54,074,320
2021	1,600,000	10,000	1,610,000	61,216,734	1,460,567	55,534,887
2022	1,600,000	10,000	1,610,000	62,826,734	1,460,567	56,995,455
2023	1,600,000	10,000	1,610,000	64,436,734	1,460,567	58,456,022
2024	1,600,000	10,000	1,610,000	66,046,734	1,460,567	59,916,589
2025	1,600,000	10,000	1,610,000	67,656,734	1,460,567	61,377,157
2026	1,600,000	10,000	1,610,000	69,266,734	1,460,567	62,837,724
2027	1,600,000	10,000	1,610,000	70,876,734	1,460,567	64,298,292
2028	1,600,000	10,000	1,610,000	72,486,734	1,460,567	65,758,859
2029	1,600,000	10,000	1,610,000	74,096,734	1,460,567	67,219,427
2030	1,600,000	10,000	1,610,000	75,706,734	1,460,567	68,679,994
2031	1,600,000	10,000	1,610,000	77,316,734	1,460,567	70,140,561
2032	1,600,000	10,000	1,610,000	78,926,734	1,460,567	71,601,129
2033	1,600,000	10,000	1,610,000	80,536,734	1,460,567	73,061,696
2034	1,600,000	10,000	1,610,000	82,146,734	1,460,567	74,522,264
2035	1,600,000	10,000	1,610,000	83,756,734	1,460,567	75,982,831
2036	1,600,000	10,000	1,610,000	85,366,734	1,460,567	77,443,399
2037	1,600,000	10,000	1,610,000	86,976,734	1,460,567	78,903,966
2038	1,023,266	10,000	1,023,266	88,000,000	928,291	79,832,257

APPENDIX C

LANDGEM RESULTS

FOR S-2 ALTAMONT LANDFILL

LandGEM Input Parameters for Fill Area 1

LANDFILL CHARACTERISTICS		
Landfill Open Year	**1980**	
Landfill Closure Year (with 80-year limit)	**2013**	
Actual Closure Year (without limit)	***2013***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity	**47,750,000**	*short tons*
MODEL PARAMETERS		
Methane Generation Rate, k	**0.020**	*year^{-1}*
Potential Methane Generation Capacity, L_o	**100**	*m^3/Mg*
NMOC Concentration	**548**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

LandGEM Results for Fill Area 1

Year	Decomposable Materials Accepted *Tons/Year*	Cumulative Decomposable Materials *Tons-in-Place*	Landfill Gas Generated *ft^3/min*	NMOC Generated *Tons/Year*
1980	49,500	0	0	0.000
1981	614,600	49,500	12	0.385
1982	683,400	664,100	161	5.164
1983	807,400	1,347,500	323	10.383
1984	1,352,000	2,154,900	512	16.464
1985	1,415,000	3,506,900	829	26.666
1986	1,517,000	4,921,900	1155	37.157
1987	1,591,000	6,438,900	1500	48.234
1988	1,585,000	8,029,900	1855	59.668
1989	1,707,000	9,614,900	2202	70.828
1990	1,961,000	11,321,900	2572	82.718
1991	1,810,000	13,282,900	2996	96.350
1992	1,668,078	15,092,900	3375	108.537
1993	1,526,390	16,760,978	3712	119.376
1994	1,502,203	18,287,368	4008	128.898
1995	1,563,486	19,789,571	4293	138.044
1996	1,472,987	21,353,057	4586	147.485
1997	1,509,626	22,826,044	4852	156.034
1998	1,534,539	24,335,670	5122	164.700
1999	1,463,998	25,870,209	5392	173.388
2000	1,506,697	27,334,207	5639	181.355
2001	1,504,605	28,840,904	5893	189.496
2002	1,414,876	30,345,509	6140	197.460
2003	1,406,736	31,760,385	6361	204.567
2004	1,402,070	33,167,121	6576	211.471
2005	1,341,418	34,569,191	6785	218.201
2006	1,337,256	35,910,609	6976	224.326
2007	1,323,864	37,247,865	7161	230.297
2008	1,640,005	38,571,729	7340	236.046
2009	1,635,000	40,211,734	7592	244.142

Year	Decomposable Materials Accepted *Tons/Year*	Cumulative Decomposable Materials *Tons-in-Place*	Landfill Gas Generated *ft^3/min*	NMOC Generated *Tons/Year*
2010	1,630,000	41,846,734	7837	252.039
2011	1,625,000	43,476,734	8077	259.741
2012	1,620,000	45,101,734	8310	267.252
2013	1,028,266	46,721,734	8538	274.575
2014	0	47,750,000	8618	277.145
2015	0	47,750,000	8447	271.657
2016	0	47,750,000	8280	266.278
2017	0	47,750,000	8116	261.005
2018	0	47,750,000	7956	255.837
2019	0	47,750,000	7798	250.771
2020	0	47,750,000	7644	245.805
2021	0	47,750,000	7492	240.938
2022	0	47,750,000	7344	236.167
2023	0	47,750,000	7198	231.491
2024	0	47,750,000	7056	226.907
2025	0	47,750,000	6916	222.414
2026	0	47,750,000	6779	218.010
2027	0	47,750,000	6645	213.693
2028	0	47,750,000	6513	209.461
2029	0	47,750,000	6384	205.314
2030	0	47,750,000	6258	201.248
2031	0	47,750,000	6134	197.263
2032	0	47,750,000	6013	193.357
2033	0	47,750,000	5894	189.529
2034	0	47,750,000	5777	185.776
2035	0	47,750,000	5663	182.097
2036	0	47,750,000	5550	178.491
2037	0	47,750,000	5440	174.957
2038	0	47,750,000	5333	171.493
2039	0	47,750,000	5227	168.097
2040	0	47,750,000	5124	164.768
2041	0	47,750,000	5022	161.506
2042	0	47,750,000	4923	158.308
2043	0	47,750,000	4825	155.173
2044	0	47,750,000	4730	152.100
2045	0	47,750,000	4636	149.088
2046	0	47,750,000	4544	146.136
2047	0	47,750,000	4454	143.243
2048	0	47,750,000	4366	140.406
2049	0	47,750,000	4280	137.626
2050	0	47,750,000	4195	134.901
2051	0	47,750,000	4112	132.230
2052	0	47,750,000	4030	129.611
2053	0	47,750,000	3951	127.045
2054	0	47,750,000	3872	124.529
2055	0	47,750,000	3796	122.063
2056	0	47,750,000	3721	119.646
2057	0	47,750,000	3647	117.277
2058	0	47,750,000	3575	114.955

Year	Decomposable Materials Accepted *Tons/Year*	Cumulative Decomposable Materials *Tons-in-Place*	Landfill Gas Generated *ft^3/min*	NMOC Generated *Tons/Year*
2059	0	47,750,000	3504	112.679
2060	0	47,750,000	3434	110.447
2061	0	47,750,000	3366	108.260
2062	0	47,750,000	3300	106.117
2063	0	47,750,000	3234	104.015
2064	0	47,750,000	3170	101.956
2065	0	47,750,000	3108	99.937
2066	0	47,750,000	3046	97.958
2067	0	47,750,000	2986	96.018
2068	0	47,750,000	2927	94.117
2069	0	47,750,000	2869	92.253
2070	0	47,750,000	2812	90.427
2071	0	47,750,000	2756	88.636
2072	0	47,750,000	2702	86.881
2073	0	47,750,000	2648	85.161
2074	0	47,750,000	2596	83.474
2075	0	47,750,000	2544	81.821
2076	0	47,750,000	2494	80.201
2077	0	47,750,000	2445	78.613
2078	0	47,750,000	2396	77.057
2079	0	47,750,000	2349	75.531
2080	0	47,750,000	2302	74.035
2081	0	47,750,000	2257	72.569
2082	0	47,750,000	2212	71.132
2083	0	47,750,000	2168	69.724
2084	0	47,750,000	2125	68.343
2085	0	47,750,000	2083	66.990
2086	0	47,750,000	2042	65.663
2087	0	47,750,000	2001	64.363
2088	0	47,750,000	1962	63.089
2089	0	47,750,000	1923	61.839
2090	0	47,750,000	1885	60.615
2091	0	47,750,000	1848	59.415
2092	0	47,750,000	1811	58.238
2093	0	47,750,000	1775	57.085
2094	0	47,750,000	1740	55.955
2095	0	47,750,000	1706	54.847
2096	0	47,750,000	1672	53.761
2097	0	47,750,000	1639	52.696
2098	0	47,750,000	1606	51.653
2099	0	47,750,000	1574	50.630
2100	0	47,750,000	1543	49.627
2101	0	47,750,000	1513	48.645
2102	0	47,750,000	1483	47.681
2103	0	47,750,000	1453	46.737
2104	0	47,750,000	1425	45.812
2105	0	47,750,000	1396	44.905
2106	0	47,750,000	1369	44.015
2107	0	47,750,000	1342	43.144

Year	Decomposable Materials Accepted *Tons/Year*	Cumulative Decomposable Materials *Tons-in-Place*	Landfill Gas Generated *ft^3/min*	NMOC Generated *Tons/Year*
2108	0	47,750,000	1315	42.290
2109	0	47,750,000	1289	41.452
2110	0	47,750,000	1263	40.631
2111	0	47,750,000	1238	39.827
2112	0	47,750,000	1214	39.038
2113	0	47,750,000	1190	38.265
2114	0	47,750,000	1166	37.507
2115	0	47,750,000	1143	36.765
2116	0	47,750,000	1121	36.037
2117	0	47,750,000	1098	35.323
2118	0	47,750,000	1077	34.624
2119	0	47,750,000	1055	33.938
2120	0	47,750,000	1034	33.266

LandGEM Input Parameters for Fill Area 2

LANDFILL CHARACTERISTICS		
Landfill Open Year	**2013**	
Landfill Closure Year (with 80-year limit)	**2038**	
Actual Closure Year (without limit)	***2038***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity	**40,250,000**	*short tons*
MODEL PARAMETERS		
Methane Generation Rate, k	**0.020**	*year^{-1}*
Potential Methane Generation Capacity, L_o	**100**	*m^3/Mg*
NMOC Concentration	**600**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

LandGEM Results for Fill Area 2

Year	Decomposable Materials Accepted *Tons/Year*	Cumulative Decomposable Materials *Tons-in-Place*	Landfill Gas Generated *ft^3/min*	NMOC Generated *Tons/Year*
2013	586,734	0	0	0.000
2014	1,610,000	586,734	142	5.002
2015	1,610,000	2,196,734	529	18.630
2016	1,610,000	3,806,734	908	31.987
2017	1,610,000	5,416,734	1280	45.081
2018	1,610,000	7,026,734	1645	57.914
2019	1,610,000	8,636,734	2002	70.494
2020	1,610,000	10,246,734	2352	82.825
2021	1,610,000	11,856,734	2696	94.911
2022	1,610,000	13,466,734	3032	106.758
2023	1,610,000	15,076,734	3362	118.371
2024	1,610,000	16,686,734	3685	129.754
2025	1,610,000	18,296,734	4002	140.911
2026	1,610,000	19,906,734	4313	151.847
2027	1,610,000	21,516,734	4617	162.567
2028	1,610,000	23,126,734	4916	173.074
2029	1,610,000	24,736,734	5208	183.374
2030	1,610,000	26,346,734	5495	193.469
2031	1,610,000	27,956,734	5776	203.365
2032	1,610,000	29,566,734	6051	213.064
2033	1,610,000	31,176,734	6321	222.572
2034	1,610,000	32,786,734	6586	231.891
2035	1,610,000	34,396,734	6845	241.026
2036	1,610,000	36,006,734	7100	249.980
2037	1,610,000	37,616,734	7349	258.756
2038	1,023,266	39,226,734	7593	267.359
2039	0	40,250,000	7691	270.789
2040	0	40,250,000	7538	265.427
2041	0	40,250,000	7389	260.171
2042	0	40,250,000	7243	255.020

Year	Decomposable Materials Accepted *Tons/Year*	Cumulative Decomposable Materials *Tons-in-Place*	Landfill Gas Generated *ft^3/min*	NMOC Generated *Tons/Year*
2043	0	40,250,000	7099	249.970
2044	0	40,250,000	6959	245.020
2045	0	40,250,000	6821	240.169
2046	0	40,250,000	6686	235.413
2047	0	40,250,000	6554	230.751
2048	0	40,250,000	6424	226.182
2049	0	40,250,000	6297	221.704
2050	0	40,250,000	6172	217.313
2051	0	40,250,000	6050	213.010
2052	0	40,250,000	5930	208.793
2053	0	40,250,000	5813	204.658
2054	0	40,250,000	5697	200.606
2055	0	40,250,000	5585	196.633
2056	0	40,250,000	5474	192.740
2057	0	40,250,000	5366	188.923
2058	0	40,250,000	5259	185.182
2059	0	40,250,000	5155	181.515
2060	0	40,250,000	5053	177.921
2061	0	40,250,000	4953	174.398
2062	0	40,250,000	4855	170.945
2063	0	40,250,000	4759	167.560
2064	0	40,250,000	4665	164.242
2065	0	40,250,000	4572	160.990
2066	0	40,250,000	4482	157.802
2067	0	40,250,000	4393	154.677
2068	0	40,250,000	4306	151.614
2069	0	40,250,000	4221	148.612
2070	0	40,250,000	4137	145.670
2071	0	40,250,000	4055	142.785
2072	0	40,250,000	3975	139.958
2073	0	40,250,000	3896	137.186
2074	0	40,250,000	3819	134.470
2075	0	40,250,000	3752	131.807
2076	0	40,250,000	3678	129.197
2077	0	40,250,000	3605	126.639
2078	0	40,250,000	3534	124.131
2079	0	40,250,000	3464	121.673
2080	0	40,250,000	3395	119.264
2081	0	40,250,000	3328	116.903
2082	0	40,250,000	3262	114.588
2083	0	40,250,000	3197	112.319
2084	0	40,250,000	3134	110.095
2085	0	40,250,000	3072	107.915
2086	0	40,250,000	3011	105.778
2087	0	40,250,000	2952	103.683
2088	0	40,250,000	2893	101.630
2089	0	40,250,000	2836	99.618
2090	0	40,250,000	2780	97.645
2091	0	40,250,000	2725	95.712

Year	Decomposable Materials Accepted *Tons/Year*	Cumulative Decomposable Materials *Tons-in-Place*	Landfill Gas Generated *ft^3/min*	NMOC Generated *Tons/Year*
2092	0	40,250,000	2671	93.817
2093	0	40,250,000	2618	91.959
2094	0	40,250,000	2566	90.138
2095	0	40,250,000	2515	88.353
2096	0	40,250,000	2465	86.604
2097	0	40,250,000	2417	84.889
2098	0	40,250,000	2369	83.208
2099	0	40,250,000	2322	81.560
2100	0	40,250,000	2276	79.945
2101	0	40,250,000	2231	78.362
2102	0	40,250,000	2187	76.810
2103	0	40,250,000	2143	75.290
2104	0	40,250,000	2101	73.799
2105	0	40,250,000	2059	72.337
2106	0	40,250,000	2018	70.905
2107	0	40,250,000	1978	69.501
2108	0	40,250,000	1939	68.125
2109	0	40,250,000	1901	66.776
2110	0	40,250,000	1863	65.454
2111	0	40,250,000	1826	64.157
2112	0	40,250,000	1790	62.887
2113	0	40,250,000	1755	61.642
2114	0	40,250,000	1720	60.421
2115	0	40,250,000	1686	59.225
2116	0	40,250,000	1653	58.052
2117	0	40,250,000	1620	56.903
2118	0	40,250,000	1588	55.776
2119	0	40,250,000	1556	54.671
2120	0	40,250,000	1526	53.589
2121	0	40,250,000	1495	52.528
2122	0	40,250,000	1466	51.488
2123	0	40,250,000	1437	50.468
2124	0	40,250,000	1408	49.469
2125	0	40,250,000	1380	48.489
2126	0	40,250,000	1353	47.529
2127	0	40,250,000	1326	46.588
2128	0	40,250,000	1300	45.665
2129	0	40,250,000	1274	44.761
2130	0	40,250,000	1249	43.875
2131	0	40,250,000	1224	43.006
2132	0	40,250,000	1200	42.154
2133	0	40,250,000	1176	41.320
2134	0	40,250,000	1153	40.502
2135	0	40,250,000	1130	39.700
2136	0	40,250,000	1108	38.913
2137	0	40,250,000	1086	38.143
2138	0	40,250,000	1064	37.388
2139	0	40,250,000	1043	36.647
2140	0	40,250,000	1023	35.922

Year	Decomposable Materials Accepted *Tons/Year*	Cumulative Decomposable Materials *Tons-in-Place*	Landfill Gas Generated *ft^3/min*	NMOC Generated *Tons/Year*
2141	0	40,250,000	1002	35.210
2142	0	40,250,000	982	34.513
2143	0	40,250,000	963	33.830
2144	0	40,250,000	944	33.160
2145	0	40,250,000	925	32.503
2146	0	40,250,000	907	31.860
2147	0	40,250,000	889	31.229
2148	0	40,250,000	871	30.610
2149	0	40,250,000	854	30.004
2150	0	40,250,000	837	29.410
2151	0	40,250,000	821	28.828
2152	0	40,250,000	804	28.257
2153	0	40,250,000	788	27.697

LandGEM Input Parameters for Fill Areas 1 and 2 Combined

LANDFILL CHARACTERISTICS		
Landfill Open Year	**1980**	
Landfill Closure Year (with 80-year limit)	**2038**	
Actual Closure Year (without limit)	***2038***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity	**88,000,000**	*short tons*
MODEL PARAMETERS		
Methane Generation Rate, k	**0.020**	*year^{-1}*
Potential Methane Generation Capacity, L_o	**100**	*m^3/Mg*
NMOC Concentration	**600**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

LandGEM Results for Fill Areas 1 and 2 Combined

Year	Decomposable Materials Accepted *Tons/Year*	Cumulative Decomposable Materials *Tons-in-Place*	Landfill Gas Generated *ft^3/min*	NMOC Generated *Tons/Year*
1980	49,500	0	0	0.000
1981	614,600	49,500	12	0.422
1982	683,400	664,100	161	5.654
1983	807,400	1,347,500	323	11.368
1984	1,352,000	2,154,900	512	18.027
1985	1,415,000	3,506,900	829	29.197
1986	1,517,000	4,921,900	1155	40.683
1987	1,591,000	6,438,900	1500	52.811
1988	1,585,000	8,029,900	1855	65.329
1989	1,707,000	9,614,900	2202	77.549
1990	1,961,000	11,321,900	2572	90.567
1991	1,810,000	13,282,900	2996	105.493
1992	1,668,078	15,092,900	3375	118.836
1993	1,526,390	16,760,978	3712	130.704
1994	1,502,203	18,287,368	4008	141.130
1995	1,563,486	19,789,571	4293	151.143
1996	1,472,987	21,353,057	4586	161.480
1997	1,509,626	22,826,044	4852	170.841
1998	1,534,539	24,335,670	5122	180.328
1999	1,463,998	25,870,209	5392	189.841
2000	1,506,697	27,334,207	5639	198.563
2001	1,504,605	28,840,904	5893	207.477
2002	1,414,876	30,345,509	6140	216.197
2003	1,406,736	31,760,385	6361	223.979
2004	1,402,070	33,167,121	6576	231.537
2005	1,341,418	34,569,191	6785	238.906
2006	1,337,256	35,910,609	6976	245.612
2007	1,323,864	37,247,865	7161	252.150
2008	1,640,005	38,571,729	7340	258.444
2009	1,635,000	40,211,734	7592	267.309
2010	1,630,000	41,846,734	7837	275.956

Year	Decomposable Materials Accepted *Tons/Year*	Cumulative Decomposable Materials *Tons-in-Place*	Landfill Gas Generated *ft^3/min*	NMOC Generated *Tons/Year*
2011	1,625,000	43,476,734	8077	284.388
2012	1,620,000	45,101,734	8310	292.611
2013	1,615,000	46,721,734	8538	300.629
2014	1,610,000	48,336,734	8760	308.445
2015	1,610,000	49,946,734	8977	316.064
2016	1,610,000	51,556,734	9189	323.532
2017	1,610,000	53,166,734	9397	330.852
2018	1,610,000	54,776,734	9600	338.028
2019	1,610,000	56,386,734	9800	345.061
2020	1,610,000	57,996,734	9996	351.955
2021	1,610,000	59,606,734	10188	358.712
2022	1,610,000	61,216,734	10376	365.335
2023	1,610,000	62,826,734	10560	371.828
2024	1,610,000	64,436,734	10741	378.192
2025	1,610,000	66,046,734	10918	384.430
2026	1,610,000	67,656,734	11092	390.544
2027	1,610,000	69,266,734	11262	396.537
2028	1,610,000	70,876,734	11429	402.412
2029	1,610,000	72,486,734	11592	408.170
2030	1,610,000	74,096,734	11753	413.814
2031	1,610,000	75,706,734	11910	419.346
2032	1,610,000	77,316,734	12064	424.769
2033	1,610,000	78,926,734	12215	430.085
2034	1,610,000	80,536,734	12363	435.295
2035	1,610,000	82,146,734	12508	440.402
2036	1,610,000	83,756,734	12650	445.408
2037	1,610,000	85,366,734	12789	450.315
2038	1,023,266	86,976,734	12926	455.125
2039	0	88,000,000	12918	454.837
2040	0	88,000,000	12662	445.830
2041	0	88,000,000	12411	437.002
2042	0	88,000,000	12166	428.349
2043	0	88,000,000	11925	419.867
2044	0	88,000,000	11689	411.553
2045	0	88,000,000	11457	403.404
2046	0	88,000,000	11230	395.416
2047	0	88,000,000	11008	387.586
2048	0	88,000,000	10790	379.912
2049	0	88,000,000	10576	372.389
2050	0	88,000,000	10367	365.015
2051	0	88,000,000	10162	357.787
2052	0	88,000,000	9960	350.703
2053	0	88,000,000	9763	343.758
2054	0	88,000,000	9570	336.951
2055	0	88,000,000	9380	330.279
2056	0	88,000,000	9195	323.739
2057	0	88,000,000	9012	317.329
2058	0	88,000,000	8834	311.045
2059	0	88,000,000	8659	304.886
2060	0	88,000,000	8488	298.849
2061	0	88,000,000	8320	292.931

Year	Decomposable Materials Accepted *Tons/Year*	Cumulative Decomposable Materials *Tons-in-Place*	Landfill Gas Generated *ft^3/min*	NMOC Generated *Tons/Year*
2062	0	88,000,000	8155	287.131
2063	0	88,000,000	7993	281.445
2064	0	88,000,000	7835	275.872
2065	0	88,000,000	7680	270.410
2066	0	88,000,000	7528	265.055
2067	0	88,000,000	7379	259.807
2068	0	88,000,000	7233	254.662
2069	0	88,000,000	7089	249.620
2070	0	88,000,000	6949	244.677
2071	0	88,000,000	6811	239.832
2072	0	88,000,000	6677	235.083
2073	0	88,000,000	6544	230.428
2074	0	88,000,000	6415	225.865
2075	0	88,000,000	6288	221.393
2076	0	88,000,000	6163	217.009
2077	0	88,000,000	6041	212.712
2078	0	88,000,000	5922	208.500
2079	0	88,000,000	5804	204.371
2080	0	88,000,000	5689	200.325
2081	0	88,000,000	5577	196.358
2082	0	88,000,000	5466	192.470
2083	0	88,000,000	5358	188.659
2084	0	88,000,000	5252	184.923
2085	0	88,000,000	5148	181.261
2086	0	88,000,000	5046	177.672
2087	0	88,000,000	4946	174.154
2088	0	88,000,000	4848	170.705
2089	0	88,000,000	4752	167.325
2090	0	88,000,000	4658	164.012
2091	0	88,000,000	4566	160.764
2092	0	88,000,000	4475	157.581
2093	0	88,000,000	4387	154.461
2094	0	88,000,000	4300	151.402
2095	0	88,000,000	4215	148.404
2096	0	88,000,000	4131	145.465
2097	0	88,000,000	4050	142.585
2098	0	88,000,000	3969	139.762
2099	0	88,000,000	3891	136.994
2100	0	88,000,000	3814	134.282
2101	0	88,000,000	3738	131.623
2102	0	88,000,000	3664	129.016
2103	0	88,000,000	3592	126.462
2104	0	88,000,000	3521	123.957
2105	0	88,000,000	3451	121.503
2106	0	88,000,000	3382	119.097
2107	0	88,000,000	3316	116.739
2108	0	88,000,000	3250	114.427
2109	0	88,000,000	3186	112.161
2110	0	88,000,000	3122	109.940
2111	0	88,000,000	3061	107.763
2112	0	88,000,000	3000	105.630

Year	Decomposable Materials Accepted *Tons/Year*	Cumulative Decomposable Materials *Tons-in-Place*	Landfill Gas Generated *ft^3/min*	NMOC Generated *Tons/Year*
2113	0	88,000,000	2941	103.538
2114	0	88,000,000	2882	101.488
2115	0	88,000,000	2825	99.478
2116	0	88,000,000	2769	97.508
2117	0	88,000,000	2715	95.578
2118	0	88,000,000	2661	93.685
2119	0	88,000,000	2608	91.830
2120	0	88,000,000	2556	90.012

APPENDIX D

PARTICULATE EMISSION CALCULATIONS

FOR S-2 ALTAMONT LANDFILL

APPENDIX E-1

FEBRUARY 25, 2009
HEALTH RISK ASSESSMENT

FOR THE ALTAMONT LANDFILL EXPANSION PROJECT

APPLICATION # 14184

APPENDIX E-2

JULY 7, 2009
HEALTH RISK ASSESSMENT

FOR THE ALTAMONT LANDFILL EXPANSION PROJECT

APPLICATION # 14184

and

A PORTABLE DIESEL ENGINE REPLACEMENT PROJECT

APPLICATION # 17305

APPENDIX G

REPORTS FOR CO CAP

TITLE V APPLICATION # 18820

NSR APPLICATIONS # 18819 & 22039

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

Final Decision Report:
For Approval of Site-Wide CO Emission Cap

at:

Waste Management of Alameda County; Site # A2066

APPLICATION # 18819

BACKGROUND

Waste Management of Alameda County operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). This facility includes an active municipal solid waste landfill (S-2 Altamont Landfill). District permits for the S-2 Altamont Landfill currently include Fill Area 1 and allow this fill area to contain up to 47.1 million tons of decomposable waste. The District has proposed to approve permit condition changes for S-2 (see Application # 14814) that will add a second disposal unit (Fill Area 2) to S-2 and will increase the total permitted capacity to 88.0 million tons of decomposable waste and cover materials.

As required by BAAQMD Regulation 8, Rule 34, this landfill is equipped with an active landfill gas collection system and a landfill gas control system. The existing landfill gas control system includes: two 3 MW landfill gas fired turbines (S-6 and S-7 Gas Turbines), two 1877 bhp landfill gas fired Engines (S-23 and S-24 IC Engines), and one 71 MM BTU/hour enclosed flare (A-15 Landfill Gas Flare). Waste Management has recently completed construction of a 13,300 gallon/day liquefied natural gas plant (S-210) and a 132 MM BTU/hour enclosed flare (A-16). Both landfill gas flares are equipped for condensate injection. The site also has numerous permitted and exempt devices that support the landfill, including: waste water processing operations, green waste storage and processing operations, portable and emergency standby power generation, and a non-retail gasoline dispensing facility.

Waste Management submitted this application to request a site-wide carbon monoxide (CO) emission cap for the entire facility to clarify that the current facility is not a major source of CO emissions and to ensure that this site would not trigger federal prevention of significant deterioration (PSD) requirements in the future. The PSD threshold for this facility is 250 tons/year of CO emissions. Waste Management has agreed to accept a site-wide CO emissions cap of 225 tons/year.

When the A-16 Flare was permitted pursuant to Application # 19206, the District limited CO emissions from A-16 to 95 tons/year to prevent triggering a public notice requirement for this application. The District imposed various operating restrictions to ensure compliance with this emission limit. Waste Management is now requesting to remove these operating restrictions and to

permit A-16 – on an individual basis - for its full CO emissions potential (115.632 tons/year) but subject to the proposed site-wide CO cap limitations instead.

Public Notice

This application required a public notice pursuant to Regulation 2-2-405, because it involved a project with more than 100 tons/year of CO emission increases (A-16). On June 25, 2009, the District made a preliminary decision to approve the permit condition changes identified in the Preliminary Decision Report for Application #18819. Public notices describing this project and the District's preliminary decision to approve permit condition revisions for this facility were published in the Oakland Tribune and the Tri-Valley Herald on July 10, 2009. The District accepted public comment on this project through August 14, 2009.

Public Comments and District Responses

The District did not receive any written comments on this project from the public, EPA, other agencies, or the applicant.

The District did receive verbal comments from EPA expressing concern about the District's CO potential to emit (PTE) calculations, and in particular, about the procedure the District used to estimate the maximum amount of landfill gas that could be collected in the future from Fill Area 1 of the Altamont Landfill. Regardless of the procedures used to estimate future landfill gas collection rates from Fill Area 1, the proposed CO cap will ensure that site-wide CO emissions will not exceed the 250 tons/year PSD threshold.

STATEMENT OF COMPLIANCE

The District's June 12, 2009 Preliminary Decision Report for Application # 18819 described in detail how the proposed permit condition revisions will comply with District, state and federal requirements. The following updated Statement of Compliance is intended to clarify various applicable requirements for the A-16 Landfill Gas Flare and replaces the Section E Statement of Compliance in the Preliminary Decision Report.

Regulation 2, Rule 1:

CEQA:
Application # 18819 involves the modification of the existing permit for an abatement device: the A-16 Landfill Gas Flare. The A-16 Flare is currently permitted to burn landfill gas collected from the existing permitted S-2 Altamont Landfill (Fill Area 1), waste gas from the S-210 LNG Plant, and landfill gas condensate. The proposed permit modification will remove the current CO emissions limitation of 95.0 tons/year, which will allow the flare to operate continuously at

maximum capacity, but it will not change any other operating restrictions for A-16, S-2, or S-210. The A-16 Flare will have a new maximum annual emission rate of 115.6 tons/year of CO, which is 20.6 tons/year of CO greater than the current permitted level for this flare. No emission limit changes are necessary for the other pollutants, because the flare was previously permitted at the maximum potential emission rate for all other pollutants.

Application # 18819 also involves the establishment of a site-wide CO emission limit that will allow this site to avoid federal PSD requirements in the future. This site-wide CO cap project does not modify any sources or allow any emission increases.

Although the Application # 18819 projects do not involve modifications of any sources, the District is also concurrently considering a potentially related project in a separate permitting action. Pursuant to Application # 14814, the District has proposed to approve the Fill Area 2 Landfill Expansion Project.[4] If this Fill Area 2 Expansion Project is approved, it will increase the peak landfill gas collection rate for this site. At some time in the future, the District anticipates that Waste Management may need to modify the permits for the A-16 Flare and the S-210 LNG Plant or may need to request permits for new landfill gas control equipment in order to control the landfill gas that will be collected from Fill Area 2. The District has considered this possibility and has demonstrated (see Section C of the June 12, 2009 Preliminary Decision Report for Application # 18819) that site-wide CO emissions will remain below the proposed CO cap at the gas collection rates anticipated for the modified landfill. Since the District's approval of the Application # 14814 landfill expansion project will not impact the District's conclusions or proposed decisions regarding Application # 18819, Application # 18819 will - for the purposes of CEQA - be considered a separate and unrelated project from the landfill expansion.

The Application # 18819 projects discussed above will have no significant impact of biological resources, water quality, dust, smoke, odors, noise, or the need for municipal services. These projects involve a permit change for an abatement device and the establishment of a new site-wide emission limit. Together, these projects will allow an increase in the permitted CO emission level from one abatement device, but will reduce the total permitted CO emission level for the entire facility. Neither of these permit condition changes will allow the modification of any existing sources. There is no possibility that these projects will have any significant adverse environmental

[4] Pursuant to Application # 14814, the District has proposed to approve the Fill Area 2 Expansion of the Altamont Landfill. This project was subject to an Environmental Impact Report (EIR). The County of Alameda was the lead agency for this EIR. A revised final EIR was certified for the Fill Area 2 Landfill Expansion Project in January 2000. A lawsuit delayed action on this EIR, but the lawsuit has now been settled. District staff reviewed the certified final EIR and settlement agreement requirements and determined that the proposed operations and equipment described in Application # 14814 will comply with all applicable District requirements. The District has proposed permit condition revisions that will ensure compliance with all applicable requirements. No additional air quality mitigation measures (beyond those required by the final EIR and settlement agreement) were deemed necessary. Application # 14814 satisfied all requirements of Regulation 2-1-310.

impacts. Therefore, Application #18819 is categorically exempt from CEQA review pursuant to Regulations 2-1-312.1 and 2-1-312.2. No further CEQA review is required.

Public Comment:
Since this facility is a Title V major facility (because it has the potential to emit more than 100 tons/year of NOx and CO) and this application will result in more than 100 tons/year of CO emission increases, this application is considered a major modification pursuant to 2-2-221. This application also triggered the publication and public comment requirements of Regulation 2-2-405, which have been satisfied.

In addition, this application will establish a site-wide CO emissions limit that will reduce the site-wide permitted emission level for this facility and will allow this site to avoid PSD in the future by keeping site-wide CO emissions below the 250 tons/year PSD major facility threshold.

School Notification:
The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

Regulation 2, Rule 2:

As discussed in Section E, the proposed permit condition revisions for the A-16 Landfill Gas Flare will result in a net cumulative emission increase of 20.6 tons/year of CO and a total cumulative emission increase for A-16 of 115.6 tons/year of CO. Regulation 2, Rule 2 applies to this project, because it will result in a cumulative emission increase.

BACT/RACT:
Regulation 8, Rule 34 requires emission controls for landfills that meet certain waste capacity and age thresholds to reduce the POC emissions that result from the waste decomposition process. The control requirements in this rule are considered to be Best Available Retrofit Control Technology, or BARCT, for waste decomposition emissions. The S-2 Altamont Landfill exceeds the Regulation 8, Rule 34 size thresholds and is subject to this BARCT requirement to collect and control landfill gas. The A-15 and A-16 Landfill Gas Flares are a necessary part of the BARCT landfill gas control system for the Altamont Landfill.

Although Regulation 2-2-112 exempts the secondary emission increases from an abatement device from Best Available Control Technology (BACT) requirements if the abatement device is necessary to achieve a BARCT or BACT control requirement for another pollutant, the A-16 Flare must comply with federal BACT requirements for CO emissions, because the total CO emission increases from A-16 will exceed 100 tons/year of CO.

BACT for CO: From the District's BACT/TBACT Guideline (Document # 80.1), BACT for CO is the same as the BACT requirements for POC emissions from a landfill gas flare. BACT for Flare CO and POC emissions includes the use of an enclosed ground flare with (1) a minimum retention time of 0.6 seconds, (2) a minimum combustion zone temperature of 1400 °F, and (3) automatic

controls for combustion air, gas shut-off, and flare restart. The new A-16 Flare is an enclosed ground flare and meets the three design criteria identified above. Therefore, A-16 satisfies District BACT requirements for CO emissions.

The District routinely issues a BACT CO emission limit of 0.20 pounds CO/MM BTU for new enclosed landfill gas flares. The vendor for A-16 has guaranteed that A-16 will comply with a CO emission limit of 0.20 pounds/MM BTU during all operating conditions including: when the flare is burning landfill gas only, when the flare is burning landfill gas and waste gases from the S-210 LNG Plant, and when the flare is burning landfill gas with condensate injection. Alternative CO emission limits are reviewed below.

The federal RACT/BACT/LAER Clearinghouse cites a wide range of CO emission rate limits for landfill gas flares. The flare types, sizes, and emission limits are summarized in Table 1.

Table 1. Summary of RACT/BACT/LAER Citations for Landfill Gas Flares

Citation	Flare Type	Condensate Injection	Capacity MM BTU/hr	CO Limit or Equivalent lbs/MM BTU	Basis
NH-0014	Open	None	125.4	0.37	BACT-PSD
AZ-0042	Enclosed	Unknown	Unknown	0.13	Case-by-Case
VA-0294	Enclosed	Unknown	2@71 & 3@100	0.17	BACT-PSD
CA-1008	Enclosed	Unknown	248	0.01	BACT-PSD
NJ-0053	Open	None	90	0.18	BACT-PSD

For enclosed flares, the equivalent CO emission rate limits ranged from 0.01-0.17 pounds of CO per MM BTU. The CA-1008 citation for the lowest emission limit (0.01 lbs/MMBTU) indicates that this limit is low and may not be achievable in all cases. The AZ-0042 CO limit of 0.13 lbs/MMBTU was established for reasons other than BACT-PSD and is not necessarily applicable to this project. The VA-0294 project included three 100 MM BTU/hour flares, which are closest to the flare capacity for the A-16 Flare (132 MM BTU/hour). However, the VA-0294 flares were limited to pounds/hour CO emission rates and not to the calculated equivalent limit of 0.17 lbs/MM BTU. None of the flares identified in Table 1 appeared to have been permitted for condensate injection or for burning waste gases other than landfill gas. While none of these projects are identical to the proposed A-16 Flare, the VA-0294 project is the most closely related project with an equivalent emission limit of 0.17 pounds of CO/MM BTU.

Since 2003, Waste Management has been operating an enclosed flare (A-15) at the project site that is equipped for condensate injection. While condensate was injected into A-15, the measured CO emission rates ranged from 0.006-0.213 lbs/MM BTU with an average of 0.05 lbs/MM BTU. When this flare was burning landfill gas only, the highest measured CO emission rate was only 0.051 lbs/MM BTU. On average, the measured CO emission rates were higher and more variable than the CO emission rates measured while the flare was burning landfill gas only.

Considering the source test data for A-15, it is appropriate to allow a flare equipped for condensate injection to have a higher CO emission limit than the limit for an enclosed flare burning only landfill gas. In addition to burning condensate, the A-16 Flare will be burning a unique waste gas. Consequently, it is appropriate for A-16 to have a higher CO emission limit than 0.17 lbs CO/MM BTU. The District's routine CO emission limit for new flares (0.20 lbs CO/MM BTU) is deemed to be BACT for the A-16 Landfill Gas Flare.

Waste Management will demonstrate compliance with this limit by conducting an annual source test. Annual source testing is a standard method of demonstrating compliance with CO BACT limits.

Offsets:
There are no offset requirements for CO emission increases.

PSD:
The proposed site-wide cap on CO emissions (225.0 tons/year) and the record keeping requirements in the proposed Condition # 24373 will ensure that this facility will not exceed the federal PSD major facility threshold of 250 tons/year of CO. Since this site is not a PSD major facility, the PSD sections (304-306) of Regulation 2, Rule 2 do not apply to Site # A2066.

District Prohibitory Rules:

There are no other applicable District rules that limit CO emissions from landfill gas flares.

State and Federal Regulations:

There are no applicable state or federal regulations that limit CO emissions from landfill gas flares.

Permit Conditions

The District is adding a new set of permit conditions (Condition # 24373) that will apply to all non-mobile combustion devices operated at this facility. These conditions will establish the site-wide CO cap of 225 tons/year, which will keep this site from triggering PSD, and will impose additional monitoring and record keeping requirements to ensure compliance with this site-wide CO cap. The proposed conditions have been updated to conform to the current equipment list for this facility The revised conditions are listed below, with the changes noted in strikeout and underline format.

In addition, the District is modifying Condition # 19235, Parts 4, 8, and 10 by removing the current 95 tons/year CO emission limitation and clarifying the basis for the CO emission limit.

Condition # 24373

FOR: ALL NON-MOBILE COMBUSTION EQUIPMENT AT SITE # A2066 INCLUDING BUT NOT LIMITED TO LANDFILL GAS FIRED DEVICES (A-15, A-16, S-6, S-7, S-23, S-24) AND DIESEL FIRED ENGINES (S-31, S-193, S-196, S-197, S-198, S-199, S-200, S-201, S-206, S-207, S-208, S-209, S-214~~, S-215~~):

1. Carbon monoxide (CO) emissions from each landfill gas fired combustion device located at Site # A2066 shall not exceed the emission rate identified below, during any consecutive rolling 12-month period. Each CO limit in this part is derived from but does not replace source-specific emissions related limitations that may be contained in other permit conditions for these devices. (Basis: Cumulative Increase and Regulation 2-1-301)

A-15	Landfill Gas Flare:	93.268 tons of CO per year
A-16	Landfill Gas Flare:	115.632 tons of CO per year
S-6	Gas Turbine:	56.064 tons of CO per year
S-7	Gas Turbine:	56.064 tons of CO per year
S-23	IC Engine:	38.062 tons of CO per year
S-24	IC Engine:	38.062 tons of CO per year

2. Total site-wide carbon monoxide (CO) emissions from all non-mobile combustion equipment located at Site # A2066 shall not exceed 225.0 tons of CO during any consecutive rolling 12-month period. For the purposes of this condition, non-mobile combustion equipment includes all stationary and portable combustion devices other than mobile sources, as defined in 40 CFR Part 51.50. (Basis: Regulation 2-1-403: Avoidance of PSD)

3. To demonstration compliance with Parts 1 and 2, the owner or operator of Site # A2066 shall comply with the following record keeping procedures. (Basis: Regulations 2-1-301 and 2-1-403)
   a. For each stationary or portable non-mobile combustion device that is operated at Site # A2066 and has the potential to emit more than 2 tons per year of a regulated air pollutant, the owner or operator shall, on a monthly basis, calculate and record the CO emissions (tons of CO per calendar month) from the device. The CO emissions shall be calculated using District approved procedures, emission factors, and operating records, as described below for each type of device.
      i. For the A-15 and A-16 Landfill Gas Flares, the monthly CO emissions from each flare shall be calculated using the monthly heat input rate (MM BTU per month) to each flare and the District approved CO emission factor (pounds of CO per MM BTU). The monthly heat input rate to each flare is recorded pursuant to Condition # 19235, Part 15c. The District approved CO emission factor for each flare is the highest of the CO emission rates measured for any particular flare operating condition during the most recent annual source test for that flare. These CO emission rates shall be determined from data collected pursuant to Condition # 19235, Parts 13a-d.

ii. For the S-6 and S-7 Gas Turbines, the monthly CO emissions from each turbine shall be calculated using the monthly heat input rate (MM BTU per month) to each gas turbine and the District approved CO emission factor (pounds of CO per MM BTU) for each turbine. The monthly heat input rate to each turbine shall be calculated from data recorded pursuant to Condition # 18773, Part 8. The District approved CO emission factor for each turbine is the CO emission rate reported during the most recent annual source test for that turbine pursuant to Condition # 18773, Part 11g.

iii. For the S-23 and S-24 Internal Combustion Engines, the monthly CO emissions from each engine shall be calculated using the monthly heat input rate (MM BTU per month) to each engine and the monthly average CO emission factor (pounds of CO per MM BTU) for each engine. The monthly heat input rate to each engine is recorded pursuant to Condition # 18773, Part 11c. The monthly average CO emission factor for each engine shall be calculated and recorded using the monthly average CO concentrations recorded pursuant to Condition # 19237, Part 9a and a CO emissions correlation factor (pounds of CO per MM BTU per PPMV of CO at 15% O_2). This CO emissions correlation factor shall be determined from the most recent annual source test for each engine using data recorded pursuant to Condition # 19237, Parts 10a-d and 10g.

iv. For diesel fired IC engines subject to this subpart (S-31, S-193, S-197, S-198, S-206, S-207, S-208, and S-209), the monthly CO emissions from each engine shall be calculated using the monthly operating rate (operating hours per month) for each engine, the rated power output (bhp) for each engine, the CARB certified emission factor (grams/bhp-hour) for each engine, and appropriate conversion factors. The monthly operating rates for each engine shall be determined from monthly records of the totalizing hour meter readings for each engine. If the engine is not equipped with a totalizing hour meter, monthly operating hours shall be determined based on daily operating time records for the engine while it is operating at this site.

v. For any other types of combustion devices subject to this subpart, the monthly CO emissions shall be calculated using District approved monthly operating rate records and District approved CO emission factors. The District approved CO emission factors are the same as those described below in Part 3b(i-ii) The District approved operating rate records shall be expressed in units appropriate for the CO emission factor for that device. If the device is equipped with a totalizing hour meter, fuel flow meter, or other continuous meter, the owner or operator shall use monthly records of meter readings to determine the monthly operating rate. If the device is not equipped with a meter, the owner or operator shall use either daily operating records or monthly fuel usage records to determine the monthly operating rate.

vi. The owner or operator shall maintain records of any supporting data used to determine the monthly CO emission rate from each device subject to this

subpart. This data may include but is not limited to equipment capacities, fuels used, fuel heating values, certifications, guarantees, compliance demonstration test results, meter readings, operating records, calculation procedures, and conversion factors.

vii. When CO emission factors need to be increased to reflect new source test data or new hand-held CO monitor data, the new emission factor shall become effective for the month in which the test was conducted and each subsequent month. If the new CO emission factor is lower than the factor currently in effect, the owner or operator has the option to continue using the higher factor and to not use this new lower factor. Any changes to the list of devices subject to this subpart, the CO emission factors, the monthly operating rates, and the resulting monthly CO emissions records shall be incorporated into these records within 6 months of the effective date of the new data.

b. For each stationary or portable non-mobile combustion device that is operated at Site # A2066 and has the potential to emit 2 tons per year or less of a regulated air pollutant, the owner or operator shall maintain a record of the maximum potential annual CO emissions (tons of CO per year) from each subject device and the total monthly CO emissions potential (tons of CO per month) from all of these less than significant sources. The maximum potential annual CO emissions from each device and the total monthly CO emissions potential from all devices shall be calculated using District approved procedures, emission factors, and maximum operating rates, as described below.

i. For internal combustion engines, District approved emission factors include (in order of priority): CARB certified emissions factors, CARB tier standards, EPA tier standards, and AP-42 emission factors.

ii. For combustion devices other than engines, District approved emission factors include (in order of priority): factors derived from an applicable District, state, or federal standards; factors derived from manufacturer's not to exceed emission rate guarantees; and AP-42 emission factors.

iii. The District approved maximum operating rate for a device is equal to: either the maximum rated output (bhp) for an IC engine or the maximum rated heat input (MM BTU per hour based on the HHV of the fuel) for other combustion devices multiplied by either the maximum possible or maximum allowable annual operating rate for the device. An annual operating rate of less than 8760 hours/year (24 hrs/day and 365 days/year) may only be used if the device is subject to a District permit condition, District regulation, state ATCM, or federal NSPS/NESHAP that limits the annual operating time for that device.

iv. The maximum potential annual CO emissions (tons per year) from a device is equal to the District approved emission factor for the device multiplied by the District approved maximum operating rate for the device and any necessary conversion factors.

v. The total monthly CO emissions potential from less than significant sources (tons of CO per month) is equal to the sum of the maximum potential annual CO emissions from all less than significant sources subject to this subpart divided by 12.

vi. The owner or operator shall maintain records that identify all non-mobile combustion devices subject to this subpart. The owner or operator shall also maintain records of any data used to demonstrate that a source qualifies for this subpart or used to determine the maximum potential CO emissions from a device. This supporting data may include but is not limited to equipment capacities, fuels used, fuel heating values, certifications, guarantees, AP-42 emission factors, regulatory limits, calculation procedures, and conversion factors.

vii. The total monthly CO emissions potential for less than significant sources shall be updated within 6 months of operating a new device to this site that is subject to this subpart. For PERP registered engines that may be changed or replaced frequently, the operator may determine a worst-case maximum potential annual CO emission rate for the activity based on the highest possible CO emission factor, the highest possible engine capacity, and the highest possible operating rate. If this worst-case engine scenario is used, total monthly CO emissions would not need to be updated for PERP engine replacements, provided the replacement PERP engine does not exceed any of the worst-case engine assumptions for that activity.

c. Using the monthly CO emissions data from each device recorded pursuant to subparts a and b above, the owner or operator shall calculate and record the total monthly CO emissions from all non-mobile combustion devices operated at this site.

d. Using the monthly site-wide CO emissions total from subpart c, the owner or operator shall calculate and record the total annual site-wide CO emissions from all non-mobile combustion devices, for each rolling consecutive 12-month period.

e. All records required by Parts 3a-d above shall be available for District inspection within 6 months of the final APCO approval date for the Change of Conditions associated with Application # 18819. All records shall be kept on-site or made readily available to District staff upon request, and all records shall be retained for at least five years from the date of entry.

Condition # 19235

FOR: S-2 ALTAMONT LANDFILL WITH LANDFILL GAS COLLECTION SYSTEM, A-15 LANDFILL GAS FLARE, AND A-16 LANDFILL GAS FLARE:

No Changes to Parts 1-2

3. The A-15 and A-16 Landfill Gas Flares shall be fired on landfill gas collected from Fill Area 1 of the S-2 Altamont Landfill. The permit holder shall apply for and receive a Change of Permit Conditions before using these flares to control landfill gas collected from the proposed Fill Area 2. Propane may be used as a start-up fuel only. Landfill gas condensate may be injected into these flares, provided that the flares comply with all limits in Parts 3-10 and any other applicable emission limits during all times that condensate is being injected into these flares. (Basis: Regulation 2-1-301)
   a. The condensate injection rate at A-15 shall not exceed 3600 gallons during any day, and
   b. The condensate injection rate at A-16 shall not exceed 7200 gallons during any day.

4. The A-15 and A-16 Landfill Gas Flares shall comply with all of the heat input limits specified below. (Basis: Offsets and Cumulative Increase)
   a. For A-15, the heat input rate shall not exceed 1704 million BTU per day.
   b. For A-15, the heat input rate shall not exceed 621,785 million BTU per year.
   c. For A-16, the heat input rate shall not exceed 3168 million BTU per day.
   ~~d. For A-16, the heat input rate shall not exceed 950,000 million BTU per year, unless the permit holder has demonstrated that A-16 is complying with the CO emission limit specified in Part 8c.~~
   ~~e~~d. For A-16, the heat input rate shall not exceed 1,156,320 million BTU per year.

5. The Landfill Gas Flares (A-15 and A-16) shall be equipped with both local and remote alarm systems. The local and remote alarms shall be activated whenever the total landfill gas collection for the site is less than the target landfill gas collection rate in Part 2a. When operation of A-15 or A-16 is necessary to meet the target landfill gas collection rate, the local and remote alarms shall be activated if the flare shuts down unexpectedly or if the combustion zone temperature is less than the minimum temperature required by Part 10 below. (Basis: Regulation 8-34-301)

6. Each Landfill Gas Flare (A-15 and A-16) shall be equipped with one flow meter and one recorder meeting the requirements of Regulation 8-34-508. (Basis: Offsets, Cumulative Increase, and Regulations 2-1-301, 8-34-301,
8-34-501.10, and 8-34-508)

7. Nitrogen oxide (NO_x) emissions from each Landfill Gas Flare (A-15 and A-16) shall comply with the following emission limits:

a. For A-15, the exhaust concentration shall not exceed 45 ppmv of NO_x, corrected to 3% oxygen, dry basis, unless the permit holder can demonstrate that the emission rate does not exceed 0.06 pounds of NO_x (calculated as NO_2) per million BTU.

b. For A-16, the exhaust concentration shall not exceed 45 ppmv of NO_x, corrected to 3% oxygen, dry basis, unless the permit holder can demonstrate that the emission rate does not exceed 0.06 pounds of NO_x (calculated as NO_2) per million BTU.

(Basis: RACT and Offsets)

8. Carbon monoxide (CO) emissions from each Landfill Gas Flare (A-15 and A-16) shall comply with the following emission limits:

a. For A-15, the exhaust concentration shall not exceed 369 ppmv of CO, corrected to 3% oxygen, dry basis, unless the permit holder can demonstrate that the emission rate does not exceed 0.30 pounds of CO per million BTU.

b. For A-16, the exhaust concentration shall not exceed 246 ppmv of CO, corrected to 3% oxygen, dry basis, unless the permit holder can demonstrate that the emission rate does not exceed 0.20 pounds of CO per million BTU.

~~c. To prevent triggering the requirements of Regulation 2-2-405, carbon monoxide emissions from A-16 shall not exceed 95 tons per year. Compliance with the Part 4d heat input limit and the Part 8b exhaust limits shall demonstrate compliance with this annual CO emission limit. If the heat input rate to A-16 exceeds the Part 4d limit, compliance with this annual CO emission rate limit shall be demonstrated by complying with the Part 4e heat input limit and the following exhaust limits (instead of the Part 8b exhaust limits): the concentration in the exhaust from A-16 shall not exceed 202 ppmv of CO, corrected to 3% oxygen, dry basis, unless the permit holder can demonstrate that the emission rate from A-16 does not exceed 0.164 pounds of CO per million BTU.~~

(Basis: RACT, BACT, and Cumulative Increase)

9. The Landfill Gas Flares (A-15 and A-16) shall comply with either the destruction efficiency or outlet concentration limit specified in Regulation 8-34-301.3. (Basis: Offsets, Cumulative Increase, and Regulation 8-34-301.3)

10. For each Landfill Gas Flare (A-15 and A-16), the combustion zone temperature shall be maintained at a minimum of 1400 degrees Fahrenheit, averaged over any 3-hour period during all times that landfill gas is vented to the flare. If a source test demonstrates compliance with all applicable requirements at a different temperature the APCO may revise the minimum combustion zone temperature limit in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415 and the following criteria. The minimum combustion zone temperature for a flare (T_{min}) shall be equal to the average combustion zone temperature determined during the most recent complying source test (T_{avg}) minus 50 degrees F, provided that the minimum combustion zone temperature is not less than 1400 degrees F:

$T_{min} = T_{avg} - 50$, for $T_{avg} >= 1450$ degrees F
$T_{min} = 1400$, for $T_{avg} <$ 1450 degrees F

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

(Basis: RACT, BACT, Offsets, Cumulative Increase, Toxic Risk Management Policy, and Regulation 8-34-301.3)

No Changes to Parts 11-23

RECOMMENDATION

The District has conducted the required public comment period, has considered all responses received concerning these projects, and has determined that these projects will comply with all applicable requirements. Therefore, staff recommends that the District adopt Condition # 24373 that will apply to:

Site # A2066 Waste Management of Alameda County:
Adoption of Site-Wide CO Cap

Staff also recommends that the District issue a Change of Conditions for Condition # 19235 that applies to:

S-2 Altamont Landfill:
Increase Annual CO Limit for A-16 Flare

By: Carol S. Allen Date
Principal Air Quality Engineer

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

ENGINEERING EVALUATION

for

Permit Condition Changes at S-2, S-6 & S-7, and S-23 & S-24

Waste Management of Alameda County; PLANT # 2066

APPLICATION # 22039

BACKGROUND

Waste Management of Alameda County (WM) operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). This site includes an active MSW landfill, landfill gas collection and control equipment, landfill gas energy recovery equipment, green waste processing operations, waste water treatment operations, and numerous diesel engines that provide primary power to portable equipment and emergency power to other operations.

WM submitted this application to request various condition changes for the following sources: Altamont Landfill (S-2), LFG-Fired Gas Turbines (S-6 and S-7), and LFG-Fired IC Engines (S-23 and S-24). The requested permit condition changes concern gas collection system operating requirements, source testing procedures, and record keeping requirements. These condition changes will not impact emission limits or reduce monitoring frequencies. The changes are discussed in detail below for each type of source.

WM also requested to modify the reporting periods and compliance certification period in Sections I.F and I.G of their Title V Permit. These changes will be made during the next revision of the Title V Permit.

Permit Condition Revisions

<u>S-2 Altamont Landfill (Condition # 19235)</u>

Requested Change to Part 1c: This part describes the landfill gas collection for the Altamont Landfill, the operating requirements for the whole collection system and for individual components, and alternative operating limits and procedures that the District has approved for individual wells and collectors. WM has requested that the District delete Part 1c(ii), which limits the vacuum system disconnection time to 120 days in a 12-month period for an individual well or collector that has been temporarily disconnected from the vacuum system in accordance with Regulation 8-34-404.

In Application # 15498, WM requested to have the ability to temporarily disconnect a few wells from the landfill gas collection system while the operators determine the best way to resolve a compliance issue at that well. Occasionally, landfill operators will encounter problems with a well (wellhead limit excesses, damaged or improperly functioning wells, loss of gas generation near the well, etc.) that cannot be fixed by adjusting the well vacuum or conducting routine repairs around the well casing. Possible courses of action for resolving such problems include replacing the well with a new well located in essentially the same location, permanently decommissioning the well and installing a new well in a substantially different location, permanently decommissioning the well with no well replacement (due to having too many wells with overlapping areas of influence in one area), or operating the individual well on a less than continuous basis (for example, turning the vacuum on to this well during wet months and turning it off during dry months when gas production is very low). Determining which of these possible actions is the best course of action is often not easy to ascertain. Temporarily turning off the problem well and observing changes at neighboring wells and adjacent surface areas can often help the operator determine the best course of action. In addition, well problems can occur on short notice, and the problem well may need to be shut down immediately for safety concerns. In response to this request, the District adopted Part 1c, which was intended to give operators the flexibility of turning off up to 5 wells (less than 10% of the total number of collection components) for up to 120 days to allow landfill operators to quickly isolate leaking wells or to further evaluate the best course of action for resolving wellhead limit compliance issues that may be the result of uncontrollable gas production fluctuations.

The District imposed the 120 days/year limit of the vacuum system disconnection time to ensure that these isolated well disconnection events would indeed remain temporary in nature. This 120 day time period was intended to the give operator the additional time that may be needed to determine a permanent solution to a component leak or other wellhead compliance issue.

Elimination of this vacuum system disconnection time limit would not be appropriate. Without any sort of vacuum disconnection time limit, the operator has no incentive to determine or resolve the root cause of the compliance issue at the well. Elimination of this 120 day limit could result in an essentially permanent shutdown of a well without following the District's established procedures in Part1b for permanently shutting down a well or collector.

Furthermore, WM appears to be using this subpart to shutdown wells to accommodate waste filling needs. Part 1c was never intended to be used for this purpose. Regulations 8-34-116 or 8-34-117 or Part 1b are the appropriate governing criteria for well shutdowns that may be necessary to accommodate waste filling. I have informed the consultant, Cornerstone, that they should be using Part 1b for such cases, and that the District would not be approving this requested change.

Requested Clarification of Part 1d: This subpart describes the alternative wellhead limits that have been approved for this landfill gas collection system and the procedures for including an individual well in the list of wells that are subject to these alternative limits. An earlier version on Part 1d contained a typographical error (the word "not" was missing from the last sentence of Part 1d). This typographical error was correct in February 2011. Part 1d now reads:

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

1. a. …
   b. …
   c. …
   d. Each landfill gas collection system component listed in Part 1a shall be operated in compliance with the wellhead limits of Regulation 8-34-305, unless an alternative wellhead limit has been approved for that component and the operator complies with all of the additional requirements identified in this subpart. Components that are subject to an alternative wellhead limit may still use the Regulation 8-34-414 repair schedule for operator discovered excesses of the alternative limit; however, invoking this repair schedule does not replace the monitoring requirements described in Parts 1d(ii-viii). (Basis: Regulations 8-34-305 and 8-34-414)
      i. …
      viii. …

The current condition is the correct version and no changes to Part 1d are necessary.

Requested Change to Part 13: This part identifies the source testing requirements and notification procedures for the annual source tests at A-15 and A-16. Source test normally requires that a source test protocol be submitted 14 days in advance of the scheduled source test date and that notification about the scheduled test date be submitted at least 7 days prior to the scheduled test date. WM has requested to be able to submit both the protocol and the test date notification in a single document at least 14 days prior to the scheduled test date. This change is acceptable. Part 13 will be modified as follows:

13. In order to demonstrate compliance with Regulation 8, Rule 34, Sections 301.3 and 412 and Parts 7 through 12 above, the Permit Holder shall ensure that a District approved source test is conducted annually on the A-15 and A-16 Landfill Gas Flares. The annual source tests shall be conducted while the flare is operating at or near maximum operating rates and for each of the following operating conditions: (a) while the flare is burning landfill gas without any condensate injection, (b) while the flare is burning landfill gas and condensate is being injected into the flare at or near the maximum injection rate, and (c) while the A-16 flare is controlling emissions from the S-210 LNG Plant. Each source test shall determine the following:
    a. landfill gas flow rate to the flare (dry basis);
    b. concentrations (dry basis) of carbon dioxide (CO_2), nitrogen (N_2), oxygen (O_2), total hydrocarbons (THC), methane (CH_4), and total non-methane organic compounds (NMOC) in the landfill gas;
    c. stack gas flow rate from the flare (dry basis);
    d. concentrations (dry basis) of NO_x, CO, NMOC, and O_2 in the flare stack gas;
    e. NMOC destruction efficiency achieved by the flare; and
    f. average combustion zone temperature of the flare during the test period.

    Each ~~Subsequent~~ annual source test~~s~~ shall be conducted no later than 12 months after the previous source test on that device. Testing while condensate is being injected is not required, if condensate was not injected into the flare during any of the 12 consecutive months prior to the source test date. The Source Test Section of the District shall be contacted to obtain approval of the source test procedures at least 14 days in advance of each source test. The Source Test Section shall be notified of the scheduled test date at least 7 days in advance of each source test. The procedures and notification may also be submitted in a combined document at least 14 days in advance of each

source test. The source test report shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 60 days of the test date. (Basis: RACT, Offsets, Cumulative Increase, TBACT, and Regulations 2-5-302, 8-34-301.3, and 8-34-412)

S-6 and S-7 Gas Turbines (Condition # 18773)

Requested Change to Parts 8 and 8a: This part identifies the heat input limits for the gas turbines and describes the monitoring and record keeping procedures necessary to verify compliance with this heat input limit. WM has requested to modify the form of the daily limit from MM BTU during any day to MM BTU during any rolling 24-hour period. WM has also requested to clarify that a continuous landfill gas flow rate monitor is one that measures and records gas flow rate at least once every 15 minutes. This monitoring measurement frequency (once every 15 minutes) is consistent with Regulation 8-34-508 and has always been allowed. This is simply a clarification and not a change. Part 8 will be modified as follows:

8. The heat input to each Gas Turbine (S-6 and S-7) shall not exceed 1378 MM BTU during any ~~day~~ rolling 24-hour period. The combined heat input to both Gas Turbines (S-6 and S-7) shall not exceed 838,480 MM BTU during any consecutive 12-month period. To demonstrate compliance with this part, the Permit Holder shall maintain the following records in a District-approved logbook:
   a. Continuous~~ly~~ monitoring and records of the landfill gas flow rate to the turbines recorded at least once every 15 minutes in accordance with Regulations 8-34-508 and 8-34-501.10.
   b. On a daily basis, measure and record the methane concentration, temperature, and pressure of the landfill gas at the landfill gas flow rate monitor.
   c. On a daily basis, measure and record the operating rate and operating time for each turbine.
   d. On a monthly basis, calculate and record the maximum daily heat input rate to each gas turbine and the total annual heat input rate (for the previous 12 consecutive months) to both gas turbines using the above records, the heat content (HHV) for methane of 1013 BTU/scf at 60 degrees F, and District-approved calculation procedures.

   All records shall be maintained on site or shall be made readily available to District staff upon request for a period of at least 5 years from the date of entry. These record keeping requirements do not replace the record keeping requirements contained in any applicable rules or regulations. (Basis: Cumulative Increase and Regulation 2-1-301)

Requested Change to Part 9: This part identifies the combustion chamber discharge temperature limit for the gas turbines. It also describes how this limit should be established and monitored.

Initially, WM requested to add text that would allow them to test outside of the specified temperature range during a source test in order to establish a new allowable temperature range. After discussing this matter with source test, WM and the District agreed that this testing could be accommodated by the Enforcement Division's October 31, 2006 Trial Testing Policy concerning source tests outside permitted parametric operating ranges or normal operating ranges. WM revised their request to include language that would specifically allow them to use this policy. The District agreed to change Part 9 as follows:

9. The combustion chamber discharge temperature for each Gas Turbine shall be maintained between 855 and 1220 degrees Fahrenheit, averaged over any 3-hour period, unless the District grants permission to perform source testing outside of this permitted range in accordance with the Enforcement Division's Trial Testing Policy. If a source test demonstrates compliance with all applicable requirements at different minimum or maximum temperatures, the APCO may revise these temperature limits, in accordance with the procedures identified in Regulation 2-6-414 or 2-6-415, based on the following criteria. The minimum combustion chamber discharge temperature for S-6 and S-7 shall be equal to the average combustion chamber discharge temperature measured during a complying source test (NMHC and CO emission limits were met) minus 50 degrees F. The maximum combustion chamber discharge temperature for S-6 and S-7 shall be equal to the average combustion chamber discharge temperature measured during a complying source test (NOx emission limit was met) plus 50 degrees F. To demonstrate compliance with these temperature limits and Regulations 8-34-501.11 and 509, each Gas Turbine shall be equipped with a continuous temperature monitor and recorder, which will accurately measure the combustion chamber discharge temperature for each Gas Turbine. (Basis: Regulations 8-34-301.4, 8-34-501.11 and 8-34-509)

Requested Change to Part 11: This part describes the annual source testing requirements for the gas turbines. There was a discrepancy between the Part 11 text stored in databank versus the Part 11 text in the Title V permit. The District determined that the Title V permit contained the correct text. The four load test that was in the data bank condition applied only to an initial compliance demonstration test and was supposed to have been removed in 2004. This error has been corrected. WM has also requested that the District remove subpart 11h and the 40 CFR references in the condition basis as these were all related to this initial compliance demonstration test. The District agrees.

In addition to these changes, WM has asked the District to add to Part 11 the same source test notification clarification that was discussed above for Condition # 19235, Part 13. For consistency with the flare source test procedures in Condition # 19235 Part 13, the District is proposing to remove the requirement to test the turbines "no sooner than 9 months" after the previous source test. The changes to Part 11 are as follows:

11. In order to demonstrate compliance with Regulations 8-34-301.4, 8-34-412, 8-34-509, and 9-9-301.1; Parts 1, 2, and 8 above; and 40 CFR 60.332(a)(2); the Permit Holder shall ensure that a District approved source test is conducted annually on each Gas Turbine (S-6 and S-7). The annual source test shall be conducted under normal operating conditions and shall determine the following:
    a. landfill gas flow rate to each gas turbine (dry basis);
    b. concentrations (dry basis) of carbon dioxide (CO_2), nitrogen (N_2), oxygen (O_2), methane (CH_4), and total non-methane organic compounds (NMOC) in the landfill gas;
    c. stack gas flow rate from each gas turbine (dry basis);
    d. concentrations (dry basis) of NO_x, CO, NMOC, and O_2 in the stack gas;
    e. NMOC destruction efficiency achieved by each turbine;
    f. average temperature in the combustion chamber discharge of each gas turbine during the test period;
    g. emission rates in pounds per MM BTU of NO_x (calculated as NO_2) and CO~~; and~~

~~h. mean NO_x concentration corrected to 15% O_2 and ISO standard ambient conditions using the correction equation in 40 CFR 60.335(b)(1).~~

Each annual source test shall be conducted ~~no sooner than 9 months and~~ no later than 12 months after the previous source test on that device. The Source Test Section of the District shall be contacted to obtain approval of the source test procedures at least 14 days in advance of each source test. The Source Test Section shall be notified of the scheduled test date at least 7 days in advance of each source test. The procedures and notification may also be submitted in a combined document at least 14 days in advance of each source test. The source test report shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 60 days of the test date. (Basis: Cumulative Increase, Regulations 2-1-301, 8-34-301.4, 8-34-412, 8-34-509, and 9-9-301.1, and 40 CFR 60.8, 60.332(a)(2) and 60.335)

S-23 and S-24 IC Engines (Conditions # 19237 and # 24373)

Requested Change to Condition # 19237, Part 10: This part describes the annual source testing requirements for the IC engines. WM has requested to modify the source testing notice as discussed above for Condition # 19235, Part 13. For consistency with the flare source test procedures in Condition # 19235 Part 13, the District is also proposing to remove the requirement to test the engines "no sooner than 6 months" after the previous source test. The proposed changes to Part 10 are identified below:

10. In order to demonstrate compliance with Parts 6 through 9 above and Regulations 8-34-301.4, 9-8-302.1, and 9-8-302.3, the Permit Holder shall ensure that a District approved source test is conducted annually on each IC Engine (S-23 and S-24). Each annual ~~S~~source test~~s~~ shall be conducted ~~no sooner than 6 months and~~ no later than 12 months after the previous source test on that device. The Source Test Section of the District shall be contacted to obtain approval of the source test procedures at least 14 days in advance of each source test. The Source Test Section shall be notified of the scheduled test date at least 7 days in advance of each source test. The procedures and notification may also be submitted in a combined document at least 14 days in advance of each source test. The source test report shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 60 days of the test date. The annual source tests shall determine the following:
    a. total flow rate of all gaseous fuel to each IC Engine (dry basis);
    b. concentrations (dry basis) of carbon dioxide (CO_2), nitrogen (N_2), oxygen (O_2), methane (CH_4), and total non-methane organic compounds (NMOC) in the combined gaseous fuel burned in each IC Engine
    c. exhaust gas flow rate from each IC Engine (dry basis);
    d. concentrations (dry basis) of NO_x, CO, CH_4, NMOC, and O_2 in the exhaust gas from each IC Engine;
    e. emission rate of formaldehyde in the exhaust from each IC Engine (once every four years);
    f. NMOC destruction efficiency achieved by each IC Engine; and
    g. CO and O_2 concentrations in the exhaust from each engine shall be measured using the portable flue gas analyzer method described in Part 9 above. The Permit Holder shall determine a correlation ratio by dividing the corrected CO concentration (at 15% O_2 dry) measured by the portable analyzer by the corrected NMOC outlet concentration (at 3% O_2 dry) determined from subpart d. If this correlation ratio is less than2.1, the Permit Holder

shall submit a permit application for a change of conditions within 45 days of receiving the test results.

(Basis: BACT, Offsets, Cumulative Increase, Toxic Risk Management Policy, and Regulations 8-34-301.4, 8-34-412, 9-8-302.1, and 9-8-302.3)

Requested Change to Condition # 24373, Part 3a(iii): This part describes the record keeping procedures needed to demonstrate compliance with the site-wide annual CO cap. WM has requested to correct a typographical error in Part 3 and to remove a reference to Condition # 19237, Part 10g. Subpart 10g is used for establishing a correlation between NMOC emissions and measured CO concentration. Subpart 10g is not needed for calculating CO emissions. The proposed changes to Part 3 are shown below.

3. To demonstration compliance with Parts 1 and 2, the owner or operator of Site # A2066 shall comply with the following record keeping procedures. (Basis: Regulations 2-1-301 and 2-1-403)
   a. For each stationary or portable non-mobile combustion device that is operated at Site # A2066 and has the potential to emit more than 2 tons per year of a regulated air pollutant, the owner or operator shall, on a monthly basis, calculate and record the CO emissions (tons of CO per calendar month) from the device. The CO emissions shall be calculated using District approved procedures, emission factors, and operating records, as described below for each type of device.
      i. For the A-15 and A-16 Landfill Gas Flares, the monthly CO emissions from each flare shall be calculated using the monthly heat input rate (MM BTU per month) to each flare and the District approved CO emission factor (pounds of CO per MM BTU). The monthly heat input rate to each flare is recorded pursuant to Condition # 19235, Part 15c. The District approved CO emission factor for each flare is the highest of the CO emission rates measured for any particular flare operating condition during the most recent annual source test for that flare. These CO emission rates shall be determined from data collected pursuant to Condition # 19235, Parts 13a-d.
      ii. For the S-6 and S-7 Gas Turbines, the monthly CO emissions from each turbine shall be calculated using the monthly heat input rate (MM BTU per month) to each gas turbine and the District approved CO emission factor (pounds of CO per MM BTU) for each turbine. The monthly heat input rate to each turbine shall be calculated from data recorded pursuant to Condition # 18773, Part 8. The District approved CO emission factor for each turbine is the CO emission rate reported during the most recent annual source test for that turbine pursuant to Condition # 18773, Part 11g.
      iii. For the S-23 and S-24 Internal Combustion Engines, the monthly CO emissions from each engine shall be calculated using the monthly heat input rate (MM BTU per month) to each engine and the monthly average CO emission factor (pounds of CO per MM BTU) for each engine. The monthly heat input rate to each engine is recorded pursuant to Condition # ~~18773~~ 19237, Part 11c. The monthly average CO emission factor for each engine shall be calculated and recorded using the monthly average CO concentrations recorded pursuant to Condition # 19237, Part 9a and a CO emissions correlation factor (pounds of CO per MM BTU per PPMV of CO at 15% O_2). This CO emissions correlation factor shall be determined from

the most recent annual source test for each engine using data recorded pursuant to Condition # 19237, Parts 10a-d ~~and 10g~~.

iv. For diesel fired IC engines subject to this subpart (S-31, S-193, S-197, S-198, S-206, S-207, S-208, and S-209), the monthly CO emissions from each engine shall be calculated using the monthly operating rate (operating hours per month) for each engine, the rated power output (bhp) for each engine, the CARB certified emission factor (grams/bhp-hour) for each engine, and appropriate conversion factors. The monthly operating rates for each engine shall be determined from monthly records of the totalizing hour meter readings for each engine. If the engine is not equipped with a totalizing hour meter, monthly operating hours shall be determined based on daily operating time records for the engine while it is operating at this site.

v. For any other types of combustion devices subject to this subpart, the monthly CO emissions shall be calculated using District approved monthly operating rate records and District approved CO emission factors. The District approved CO emission factors are the same as those described below in Part 3b(i-ii) The District approved operating rate records shall be expressed in units appropriate for the CO emission factor for that device. If the device is equipped with a totalizing hour meter, fuel flow meter, or other continuous meter, the owner or operator shall use monthly records of meter readings to determine the monthly operating rate. If the device is not equipped with a meter, the owner or operator shall use either daily operating records or monthly fuel usage records to determine the monthly operating rate.

vi. The owner or operator shall maintain records of any supporting data used to determine the monthly CO emission rate from each device subject to this subpart. This data may include but is not limited to equipment capacities, fuels used, fuel heating values, certifications, guarantees, compliance demonstration test results, meter readings, operating records, calculation procedures, and conversion factors.

vii. When CO emission factors need to be increased to reflect new source test data or new hand-held CO monitor data, the new emission factor shall become effective for the month in which the test was conducted and each subsequent month. If the new CO emission factor is lower than the factor currently in effect, the owner or operator has the option to continue using the higher factor and to not use this new lower factor. Any changes to the list of devices subject to this subpart, the CO emission factors, the monthly operating rates, and the resulting monthly CO emissions records shall be incorporated into these records within 6 months of the effective date of the new data.

b. For each stationary or portable non-mobile combustion device that is operated at Site # A2066 and has the potential to emit 2 tons per year or less of a regulated air pollutant, the owner or operator shall maintain a record of the maximum potential annual CO emissions (tons of CO per year) from each subject device and the total monthly CO emissions potential (tons of CO per month) from all of these less than significant sources. The maximum potential annual CO emissions from each device and the total monthly CO emissions potential from all devices shall be calculated using District approved procedures, emission factors, and maximum operating rates, as described below.

i. For internal combustion engines, District approved emission factors include (in order of priority): CARB certified emissions factors, CARB tier standards, EPA tier standards, and AP-42 emission factors.

ii. For combustion devices other than engines, District approved emission factors include (in order of priority): factors derived from an applicable District, state, or federal standards; factors derived from manufacturer's not to exceed emission rate guarantees; and AP-42 emission factors.

iii. The District approved maximum operating rate for a device is equal to: either the maximum rated output (bhp) for an IC engine or the maximum rated heat input (MM BTU per hour based on the HHV of the fuel) for other combustion devices multiplied by either the maximum possible or maximum allowable annual operating rate for the device. An annual operating rate of less than 8760 hours/year (24 hrs/day and 365 days/year) may only be used if the device is subject to a District permit condition, District regulation, state ATCM, or federal NSPS/NESHAP that limits the annual operating time for that device.

iv. The maximum potential annual CO emissions (tons per year) from a device is equal to the District approved emission factor for the device multiplied by the District approved maximum operating rate for the device and any necessary conversion factors.

v. The total monthly CO emissions potential from less than significant sources (tons of CO per month) is equal to the sum of the maximum potential annual CO emissions from all less than significant sources subject to this subpart divided by 12.

vi. The owner or operator shall maintain records that identify all non-mobile combustion devices subject to this subpart. The owner or operator shall also maintain records of any data used to demonstrate that a source qualifies for this subpart or used to determine the maximum potential CO emissions from a device. This supporting data may include but is not limited to equipment capacities, fuels used, fuel heating values, certifications, guarantees, AP-42 emission factors, regulatory limits, calculation procedures, and conversion factors.

vii. The total monthly CO emissions potential for less than significant sources shall be updated within 6 months of operating a new device to this site that is subject to this subpart. For PERP registered engines that may be changed or replaced frequently, the operator may determine a worst-case maximum potential annual CO emission rate for the activity based on the highest possible CO emission factor, the highest possible engine capacity, and the highest possible operating rate. If this worst-case engine scenario is used, total monthly CO emissions would not need to be updated for PERP engine replacements, provided the replacement PERP engine does not exceed any of the worst-case engine assumptions for that activity.

c. Using the monthly CO emissions data from each device recorded pursuant to subparts a and b above, the owner or operator shall calculate and record the total monthly CO emissions from all non-mobile combustion devices operated at this site.

d. Using the monthly site-wide CO emissions total from subpart c, the owner or operator shall calculate and record the total annual site-wide CO emissions from all non-mobile combustion devices, for each rolling consecutive 12-month period.

e. All records required by Parts 3a-d above shall be available for District inspection within 6 months of the final APCO approval date for the Change of Conditions associated with Application # 18819. All records shall be kept on-site or made readily available to District staff upon request, and all records shall be retained for at least five years from the date of entry.

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

EMISSIONS

The proposed condition changes will not affect permitted emission levels or emission limits. Therefore, this application will not result in any emission increases.

STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

This application involves the modification of permit conditions for existing equipment that does not allow any emission increases and that does not involve any physical changes to the equipment. These permit condition changes relate to source testing, notification, and record keeping procedures, and they have no possibility of causing any adverse environmental impacts. Therefore, the approval of these condition changes is categorically exempt from CEQA review pursuant to Regulation 2-1-312.1. No further CEQA review is required.

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

Regulation 2, Rules 2 and 5:

Since this application does not result in any emission increases, new source review requirements are not triggered, and Regulation 2, Rules 2 and 5 do not apply.

Regulation 2, Rule 6:

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act (40 CFR, Part 70) and BAAQMD Regulation 2, Rule 6, Major Facility Review (MFR), because it is a major facility for NO_x and CO emissions. Therefore, this facility is required to have an MFR permit pursuant to Regulations 2-6-301.

The MFR Permit for this facility was initially issued on December 1, 2003 and was last revised on October 9, 2008. The condition changes discussed in this application will be incorporated into the Title V permit when the Title V permit is renewed under Application # 18233.

District, State, and Federal Regulations:

These permit condition changes do not affect the applicability of any District, State, or Federal regulations. All applicable regulations are discussed in the initial applications for these devices and in the most recent Title V permit for these devices.

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

RECOMMENDATION

Issue a Change of Conditions for the following sources:

S-2 Altamont Landfill equipped with Landfill Gas Collection System; abated by A-15 and A-16 Landfill Gas Flares
Subject to Condition # 19235

S-6 Gas Turbine; abated by A-6 Fogging System; and
S-7 Gas Turbine; abated by A-7 Fogging System
Subject to Condition # 18773

S-23 Internal Combustion Engine; and
S-24 Internal Combustion Engine
Subject to Condition # 19237 and # 24373

By: Carol S. Allen Date
Supervising Air Quality Engineer

APPENDIX H

REPORTS FOR GREEN WASTE PROCESING OPERATIONS

TITLE V APPLICATION # 17220

NSR APPLICATIONS # 17215

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

Engineering Evaluation

for

Green Waste Processing Operations (S-29, S-30, and S-31)

Waste Management of Alameda County; PLANT # 2066

APPLICATION # 17215

BACKGROUND

Waste Management of Alameda County operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). Waste Management submitted this application at the District's request in order to permit the existing green waste processing operations, which began in 1995. The existing green waste processing operations include the following sources:

S-29 Green Waste Stockpiles
S-30 Portable Green Waste Grinding Operation; Moorbark, Model 1300, 40 tons/hour.
S-31 Portable Diesel Engine for a Green Waste Grinder; Caterpillar, Model 3412E, Model Year 2000; 860 bhp, 1649 in^3, 44.8 gallons/hour of diesel oil.

Waste Management has submitted CARB Portable Equipment Registration Permits for the S-30 Portable Green Waste Grinding Operation and the S-31 Portable Diesel Engine for a Green Waste Grinder, which are owned and operated by an independent contractor: Bio Fuel Systems. Since these sources (S-30 and S-31) have PERP permits, Waste Management believes these sources are exempt from District permitting requirements per Regulation 2-1-105.3.

NSR Applicability:

The green waste processing operations are a new source of PM_{10} emissions, which Waste Management has been operating for many years without proper permits. Although Waste Management believed that green waste processing was part of the landfill source, the green waste processing operations are actually separate and distinct sources of emissions from the landfill source.

When the landfill first began operating at this site, yard waste, tree trimmings, and other green wastes were not segregated from the general waste stream and were simply disposed of as waste in the landfill. In the mid 1990's, the California Integrated Waste Management Board (CIWMB) changed their daily cover requirements and began allowing landfills to use shredded green waste as daily cover material (as an alternative to clean soil) on the landfill active face. Many Bay Area landfills, including the Altamont Landfill, obtained approval from CIWMB to use shredded green waste as ADC at their sites. Since the green waste will decompose in the same manner, regardless of whether it is buried as a waste or used as a daily cover material and then buried the next day, and particulate emissions due to using a green waste cover material were expected to be no greater than

using soil as cover material, this change (using green waste as daily cover material instead of soil) did not trigger an NSR modification of the landfill source.

However, to prepare the green waste for use as cover material, the green waste must be shredded - typically by a tub grinder. In the mid to late 1990s, several Bay Area landfills obtained permits to operate for green waste stockpiles (incoming green waste and shredded green waste), tub grinders, screens, and the diesel engines that were being used to power the grinders and screens.

Waste Management began processing green waste at this site in 1995, but never applied for permits for the stockpiles, the grinder, or the engine powering the grinder. Before 1995, green waste was not separated from the waste stream, was not stored on-site, and was not shredded or ground. After 1995, green waste has been separated from the general waste stream (both before and after receipt at the site) and stored separately from the landfill waste stream. Presently, the green waste is stored at a location that is separate from the locations of the cover soil stockpiles and from the active face of the landfill. When a sufficient amount of green waste has been obtained, Waste Management brings in a contractor to grind the green waste into material suitable for use as daily cover until the in-coming green waste stockpile is depleted. The shredded green waste from this grinding operation is stored near the location of the in-coming green waste stockpile. The in-coming green waste stockpile builds up again, while the shredded green waste stockpile is slowly depleted as the shredded green waste is moved to other areas of the site. These two green waste stockpiles are present at the Altamont Landfill Facility essentially year round and the loading/unloading operations at these stockpiles are either conducted by Waste Management staff or conducted by contractors with oversight by WM staff. Thus, these green waste stockpiles (S-29) are clearly new stationary sources of air emissions that are owned or operated by Waste Management, and S-29 is a distinctly separate source from the Fill Area 1 waste disposal source (S-2).

The S-29 Green Waste Stockpiles will include one or more stockpiles for in-coming green waste as received from off-site delivery vehicles and will include one or more stockpiles of shredded green waste that have been processed by the S-30 Portable Green Waste Grinding Operation. Most of the shredded green waste will be used as cover material at the S-2 Altamont Landfill (Fill Area 1), but some shredded green waste may also be used for landscaping and erosion control throughout Waste Management's property. Waste Management has requested an Authority to Construct for a proposed composting facility that will use shredded green waste from these green waste stockpiles as a feedstock to the proposed composting process. This proposed composting operation may impact throughput limits and permit requirements for the green waste processing operations described in this application.

Since Waste Management typically processes about 30,000 tons/year of green waste at S-29, this source does not qualify for the Regulation 2-1-115.2.3 permit exemption for biomass handling sources that have a total throughput of less than 500 tons per year. The maximum permitted throughput rate for S-29 will be 68,040 tons/year of green waste, which is derived from limits on the portable diesel engine and portable green waste grinder permit exemptions that are discussed in more detail below.

Permit Exemption Determinations:

At the Altamont Landfill Facility, green waste grinding is conducted by a third party contractor, that both owns and operates the grinding equipment and the associated diesel engine that provides power to this grinding equipment. The contractor has provided portable equipment registration permits (PERP) for both the tub grinder (S-30) and the associated diesel engine (S-31) that Bio Fuel Systems is currently using. To qualify for a PERP, the operation cannot emit more than 10.0 tons/year of regulated air pollutant at any one facility. The contractor conducts green waste grinding at the Altamont Landfill Facility only on an as-needed basis (usually about once every two months). The tub grinder and engine do not remain at Waste Management's Altamont Landfill Facility for more than 12 consecutive months, and these portable grinding devices are used at other locations when the equipment is not needed at the Altamont Landfill Facility. Thus, the portable equipment registration permits appear to be valid registration permits for operations that are both temporary and portable. Consequently, the S-30 Portable Green Waste Grinding Operation qualifies for an exemption from District permit requirements per Regulation 2-1-105.3.8, and the S-31 Portable Diesel Engine for a Green Waste Grinder qualifies for an exemption from District permit requirements per Regulation 2-1-105.3.

EMISSIONS

S-29 Green Waste Stockpiles:

Particulate matter is emitted from stockpiles in during the transfer of material in and out of the stockpile, due to wind erosion, and due to vehicle traffic in the storage area. Vehicle traffic emissions are estimated elsewhere for the whole facility. Stockpile material handling and wind erosion emissions will be accounted for at S-29.

Particulate emissions due to material deposition and removal operations are estimated using the AP-42 empirical emission factor equation for drop material transfers (AP-42, Chapter 13.2.4):

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

where:

E	=	Emission Factor, pounds of PM_{10} per ton of material transferred
k	=	Particle Size Multiplier (dimensionless), k = 0.35 for PM_{10}
U	=	Mean Wind Speed, miles per hour, U = 17 mph per WM data
M	=	Moisture Content (%), Assume M = 30% for Green Waste

Using the site-specific data noted above, the emission factor was determined to be 1.24 E-4 pounds PM_{10}/ton material transferred. Since the site-specific mean wind speed and moisture content data exceed the range of source conditions for which this equation is valid, the quality rating of this site-specific emission factor is reduced to C.

If the maximum values for the moisture content and mean wind speed ranges are used with this equation, instead of the site-specific values noted above, the emission factor for an aggregate drop transfer would be 1.37E-3 lbs/ton. It is reasonable to assume that this factor would be appropriate for the soil/fines found in green waste loads and that green waste loads could contain up to 10% soil/fines. In this case, the emission factor for a green waste load is estimated to be 1.37E-4 lbs/ton of green waste.

The estimated emission factor for a green waste load (1.37E-4 lbs/ton) is only about 10% higher than the factor calculated above based on site-specific date (1.24E-4 lbs/ton). After reviewing this alternative emission factor data, the District concludes that the site-specific drop transfer emission factor (1.24E-4 pounds of PM_{10} per ton of green waste transferred) will provide a reasonable emission estimate even though the site-specific data exceed the wind speed and moisture ranges for the empirical equation.

The maximum throughput rate for the S-29 Green Waste Stockpile is assumed to be the same as the maximum throughput rate for the green waste shredder (68,040 tons/year). Waste Management stated that the typical green waste throughput rate is only about 30,000 tons/year (about half of the maximum rate). The stockpile operations will have 2 drop transfers (material coming in and material going out) for each type of green waste stockpile (unprocessed green waste and shredded green waste) for a total of 4 transfers per ton of incoming unprocessed green waste. Material transfer emissions for S-29 are summarized in Table 1 below.

Wind erosion emissions for S-29 are estimated using the procedures in AP-42 Chapter 13.2.5:

$E = k * \Sigma P_i$ (for i = 1 to N disturbances)

where:

E	=	Emission Factor, g particulate emissions/m^2 of disturbed surface area
k	=	Particle Size Multiplier (dimensionless), k = 0.5 for PM_{10}
P	=	Erosion Potential for a Dry Exposed Surface, g/m^2 per disturbance
N	=	Number of disturbances per year

$P_i = 58*(u^* - u_t^*)^2 + 25*(u^* - u_t^*)$ or $P = 0$ for $u^* \leq u_t^*$

where:

u^*	=	Friction Velocity (m/s),
u^*	=	$0.053 * u_{10}^+ = 0.053*15.2 = 0.805$ m/s
u_{10}^+	=	Fastest Mile of Reference Anemometer (m/s),
u_{10}^+	=	15.2 m/s (34.0 mph): Livermore weather station, KCALICER6, 2007
u_t^*	=	Threshold Friction Velocity (m/s)

For unprocessed green waste, the threshold friction velocity is assumed to be 1.02 m/s (similar to overburden in Table 13.2.5-2). Since $u^* \leq u_t^*$ (0.805 < 1.02) for unprocessed green waste, $P_i = 0$ g/m^2 and E = 0 g/m^2 for the unprocessed green waste stockpiles.

For shredded green waste, the threshold friction velocity is assumed to be 0.55 m/s (similar to ground coal in Table 13.2.5-2). For the shredded green waste stockpiles, P = 10.163 g/m^2. From the Livermore weather station data, 59 days/year had a wind speed in excess of 23.2 mph, which is the speed necessary to exceed u_t^* = 0.55. However, only 33 days/year of sufficient wind speed occurred during February through November when rainfall is low. During December and January (when rainfall is plentiful), wind erosion emissions are assumed to be 0. The stockpile disturbance areas were estimated to be 820 ft^2 (typical) and 8200 ft^2 (maximum) for a 15 foot high by 100 foot diameter shredded green waste stockpile with a maximum of 33 disturbances per year that resulted in emissions. Wind erosion emissions for S-29 are summarized in Table 1.

Table 1. Summary of Particulate Emissions from S-29 Green Waste Stockpile

	Daily PM_{10} (lbs/day)		Annual PM_{10} (tons/year)	
	typical	maximum	typical	maximum
Material Handling Emissions	0.20	0.48	0.007	0.017
Wind Erosion Emissions	0.85	8.53	0.014	0.141
Total for S-29	1.05	9.01	0.022	0.158

The overall databank emission factor for S-29 is calculated below:
(0.158 tons PM_{10}/year)*(2000 lbs PM_{10}/ton PM_{10})/(68,040 tons green waste/year)
= 4.635E-3 lbs PM_{10}/ton green waste

S-30 Portable Green Waste Grinding Operation:

From the CARB Portable Equipment Registration Permit (#117640) for this grinder, the grinder is limited to processing 200,000 tons/year of green waste and to an emission rate of 10 tons/year of PM_{10}. At these limits, the maximum emission rate for S-30 is 0.1 pounds PM_{10}/ton.

From BAAQMD Permit Handbook Chapter 11.3, the typical uncontrolled emission factor for a wood waste tub grinder is 0.024 pounds TSP/ton. The PM_{10} fraction is about 60% of TSP. Water sprays are expected to achieve 50% control of PM_{10} emissions. The resulting typical abated emission factor is 7.2E-3 pounds PM_{10}/ton.

The S-30 portable grinder can process up to 40 tons/hour with a typical operating rate of 10 hours/day and a maximum operating rate of 24 hours/day.

Based on the 10 ton/year emission limit for the S-31 portable engine and a certified NOx emission rate of 6.2 g/bhp-hour, the S-31 engine can only operate at maximum horsepower (860 bhp) for 1701 hours/year. This annual operating time limitation will also apply to the S-30 portable grinder. Therefore, maximum annual throughput for S-30 at this site is 68,040 tons/year. As with the S-29 Stockpiles, the typical throughput rate for S-30 is 30,000 tons/year.

Typical and maximum daily and annual particulate emission rates for S-30 are summarized in Table 2.

Table 2. Summary of Particulate Emissions from S-30 Portable Green Waste Grinder

	Operating Time		Green Waste		PM_{10} Factor	PM_{10} Emissions	
	Hours / Day	Hours / Year	Tons / Day	Tons / Year	Pounds/Ton	Pounds / Day	Tons / Year
Typical	10	750	400	30,000	0.0072	2.88	0.108
Maximum	24	1701	960	68,040	0.1000	96.00	3.402

S-31 Portable Diesel Engine for Green Waste Grinder:

From the CARB Portable Equipment Registration Permit (#117639), this diesel engine is a Caterpillar, 3412E, Model Year 2000, 860 bhp engine that will burn a maximum of 44.8 gallons/hour of diesel oil. The engine family is YCPXL27.0HRP. The CARB certification is EO # U-R-1-126. CARB certified emission factors, the maximum bhp, and typical and maximum operating times were used to determine the typical and maximum expected emission rates for S-31 operating at this site. As discussed previously, to qualify for a CARB PERP, a device cannot emit more than 10 tons/year of any pollutant at any site. To meet this emission limit for NO_x emissions from S-31, the engine cannot operate for more than 1701 hours at maximum horsepower. The emission factors and typical and maximum emission rates for S-31 are summarized in Table 3.

Table 3. Emissions Summary from S-31 Portable Diesel Engine for Green Waste Grinder

	Operating Time	CARB Certified Emission Factors (g/bhp-hour)				
		NO_x	CO	SO_2 (1)	THC	PM
Load Weighted Factor:		6.2	3.6	0.17	0.1	0.1
		Hourly Emissions (Pounds/Hour)				
at 860 bhp	Hours	NO_x	CO	SO_2	THC	PM
Maximum:	1	11.755	6.826	0.318	0.190	0.190
		Daily Emissions (Pounds/Day)				
at 860 bhp	Hours/Day	NO_x	CO	SO_2	THC	PM
Typical:	10	117.55	68.26	3.18	1.90	1.90
Maximum:	24	282.12	163.81	7.63	4.55	4.55
		Annual Emissions (Tons/Year)				
at 860 bhp	Hours/Year	NO_x (2)	CO	SO_2	THC	PM
Typical:	750	4.408	2.560	0.119	0.071	0.071
Maximum: (2)	1701	9.998	5.805	0.270	0.161	0.161

(1) The sulfur dioxide emission factor is a based on a maximum fuel sulfur content of 0.05% S by weight and the maximum diesel fuel usage rate of 44.8 gallons/hour at 860 bhp.

(2) To ensure that NO_x emissions will not exceed the 10 ton/year/site PERP qualification criteria, the engine operating rate for this site must be limited to 1,463,201 bhp-hours/year, or 1701 hours/year at the maximum power rating of 860 bhp.

Cumulative Emission Increases:

Since the S-30 Portable Green Waste Grinder and S-31 Portable Diesel Engine are exempt from BAAQMD permit requirements, the emissions from S-30 and S-31 are not included in the plant cumulative emission increase inventory. For this application, only the emissions from S-29 are included in the cumulative increase inventory. The cumulative increase inventory changes are summarized in Table 4.

Table 4. Cumulative Emission Increase Inventory for Plant # 2066

Pollutant	Current Balance Tons/Year	Emission Increases Tons/Year	ERCs & Offsets Tons/Year	Origin	New Balance Tons/Year
POC	0.000				
NOx	0.000				
SO2	9.290				
PM10	7.404	0.158			7.562
CO	76.226				
NPOC	0.597				

Facility-Wide Potential to Emit:

The applicability of offsets and PSD requirements, Title V, and other federal provisions depend on the maximum potential emission rates for the site. The site-wide potential to emit in Table 5 was updated to include S-29, S-30, and S-31. Equipment that is exempt from permitting requirements is not included in the final summary.

Table 5. Potential to Emit Evaluation for Plant # 2066

			Criteria Pollutants (Tons/Year)					Other Pollutants (Tons/Year)		
Device #	Device Description	Permitted (P) or Exempt (E)	PM10	POC	NOx	SO2	CO	NPOC	HAPs	CO2 equiv
S-2	Altamont Landfill (1)	P	183.600							
S-2	Altamont Landfill	P								294227
S-2	Altamont Landfill (2)	P	0.000	122.681	0.000	0.000	0.000	2.974		
S-6	Gas Turbine	P	5.475	8.762	32.847	10.477	46.724	0.000	0.440	48132
S-7	Gas Turbine	P	5.475	8.762	32.847	10.477	46.724	0.000	0.440	48132
S-12	Knockout Vessel	E	0.000	0.002	0.000	0.000	0.000	0.001	0.002	0
S-19	Transfer Tank with Siphon Pump	P	0.000	0.043	0.000	0.000	0.000	0.007	0.043	0
S-20	Treated Effluent Storage Tank	E	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0
S-23	Internal Combustion Engine	P	3.702	4.193	10.875	4.642	38.062	0.248	2.943	18417
S-24	Internal Combustion Engine	P	3.702	4.193	10.875	4.642	38.062	0.248	2.943	18417
S-28	Condensate Storage Tank	E	0.000	0.002	0.000	0.000	0.000	0.001	0.002	0
S-29	Green Waste Stockpiles	P	0.158	0.000	0.000	0.000	0.000	0.000	0.000	0
S-30	Portable Green Waste Grinder	E	3.402	0.000	0.000	0.000	0.000	0.000	0.000	0
S-31	Portable Diesel Engine for the Green Waste Grinder	E	0.161	0.161	9.998	0.270	5.805	0.000	0.020	856
S-99	Non-Retail Gasoline Dispensing Facility (GDF # 7123)	P	0.000	0.023	0.000	0.000	0.000	0.000	0.023	0
S-130	Equalization Tank	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
S-140	SBR 1, Aerated Biological Reactor	P	0.000	0.308	0.000	0.000	0.000	0.027	0.308	0
S-141	SBR 2, Aerated Biological Reactor	P	0.000	0.308	0.000	0.000	0.000	0.027	0.308	0
S-180	Sludge Thickening Tank	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
S-193	Diesel Engine (Emergency Generator at Fire Pump)	P	1.321	1.534	18.788	0.221	4.047	0.000	0.016	699
S-196	Diesel Engine (Emergency Generator at Scale House)	P	0.008	0.010	0.121	0.001	0.026	0.000	0.000	4
S-197	Diesel Engine (Portable Generator at Break Trailer)	P	0.737	0.855	10.479	0.123	2.257	0.000	0.009	390
S-198	Diesel Engine (Portable Generator for Vacuum Truck Pump)	P	1.600	1.858	22.758	0.267	4.902	0.000	0.020	846
S-199	Standby Engine (Flare Station)	P	0.002	0.002	0.032	0.002	0.017	0.000	0.000	7

Statement of Basis: Site A2066, Waste Management of Alameda County
Renewal Application # 18233 10840 Altamont Pass Road, Livermore, CA 94550
Revision Applications # 14816, 16525, 16696, 17220, 18820, 19046, 19207, & 20252

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

			Criteria Pollutants (Tons/Year)					Other Pollutants (Tons/Year)		
Device #	Device Description	Permitted (P) or Exempt (E)	PM10	POC	NOx	SO2	CO	NPOC	HAPs	CO2 equiv
S-200	Standby Engine (WWTP)	P	0.003	0.003	0.061	0.004	0.054	0.000	0.000	11
S-201	Standby Engine (Mntnc. Shop)	P	0.003	0.003	0.061	0.004	0.054	0.000	0.000	11
A-15	Landfill Gas Flare	P	5.318	4.435	18.654	23.012	93.268	1.007	6.529	72333

	Criteria Pollutants (Tons/Year)					Other Pollutants (Tons/Year)		
	PM10	POC	NOx	SO2	CO	NPOC	HAPs	CO2 equiv
Total for Site # A2066	214.665	158.138	168.396	54.142	280.003	4.540	14.047	502484
Exempt Sources Only	3.563	0.166	9.998	0.270	5.805	0.002	0.025	856
Permitted Sources Only	211.102	157.972	158.398	53.871	274.198	4.537	14.022	501628
Fugitive Emissions	183.758	122.681	0.000	0.000	0.000	2.974	0.000	294227
Permitted - Fugitives = Permitted Point Source Emissions	30.908	35.458	168.396	54.142	280.003	1.566	14.047	208257

STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

This application was submitted to obtain a permit for the existing green waste stockpiles that have been operating at this facility since the mid 1990's. This S-29 Green Waste Stockpile source results in small particulate emission increases that do not trigger BACT requirements and that are not subject to offset requirements. Therefore, this source is complying with the no-net-increase provisions of Regulation 2, Rule 2. There is no possibility that this project will have any significant adverse impact on any environmental media or resources. Therefore, this application is categorically exempt from CEQA review pursuant to Regulation 2-1-312.11, and no further CEQA review is required.

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

Regulation 2, Rule 2:

At the maximum expected operating rate 960 tons/day, particulate emissions from S-29 are less than 10 pounds/day. Therefore, S-39 is not subject to the BACT requirements of Regulation 2-2-301.

This application will not result in any cumulative emission increases of NO_x or POC emissions. Therefore, Regulation 2-2-302 does not apply.

Regulation 2-2-303 offset requirements for PM_{10} and SO_2 emission increases only apply if the site is determined to be a major facility of either PM_{10} or SO_2. From Regulation 2-1-204.1, fugitive emissions are only included for the source categories specified in 40 CFR 70.2. Since landfills are not one of these specified categories, the fugitive landfill emissions are excluded from the major facility determination. As shown in Table 5, the emissions from permitted point sources (excluding fugitive emissions) are: 30.9 tons/year of PM_{10} and 54.1 tons/year of SO_2. Since these emission rates do not exceed 100 tons/year, this site is not a major facility of PM_{10}, and PM_{10} offsets are not required.

This site is a PSD facility, because it has the potential to emit more than 250 tons/year of CO. However, Regulation 2-2-304.3 is not triggered because the cumulative emission increases for this application are less than 15 tons/year of PM_{10}.

Regulation 2-2-308 does not apply because this facility is not located within 10 kilometers of a Class 1 Area

New Source Review for Toxic Air Contaminants:

This application does not result in any increases of Toxic Air Contaminants (TACs). Therefore, NSR for TACs is not triggered, and no new T-BACT requirements will apply.

Regulation 2, Rule 6:

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act (40 CFR, Part 70) and BAAQMD Regulation 2, Rule 6, Major Facility Review (MFR), because it is a major facility for NO_x and CO emissions and also because it is a designated facility (since it is subject to the control requirements of the Emission Guidelines for MSW Landfills). Therefore, this facility is required to have an MFR permit pursuant to Regulations 2-6-301 and 2-6-304.

The MFR Permit for this facility was initially issued on December 1, 2003 and was last revised on December 11, 2007. Since this application will result in permit condition modifications, a revision of the Title V permit will also be required. This Title V permit revision will be handled pursuant to Application # 17220. The S-29 Green Waste Stockpiles and the permit conditions noted below will be added to the Title V permit for Site # A2066. Since S-30 and S-31 will each be permitted to emit more than 2 tons/year of a regulated air pollutant at this site, these sources are defined as significant sources pursuant to Regulation 2-6-239. Therefore, S-30 and S-31 must also be included in the Title V even though these sources are exempt from District permit requirements.

Regulation 6, Rule 1:

The S-29 Green Waste Stockpiles, S-30 Portable Green Waste Grinder, and S-31 Portable Diesel Engine for the Green Waste Grinder are subject to Regulation 6, Rule 1.

Regulation 6-1-301 limits the visible emissions from each of these sources to Ringelmann 1.0. In accordance with Regulation 6-1-401, the operator will be required to observe all green waste loading, unloading, and grinding operations and to take whatever action is necessary to control emissions, if any visible emissions are identified.

Regulation 6-1-310 applies to the S-31 Portable Diesel Engine and limits the exhaust point emission rate to 0.15 gr/dscf. For the maximum fuel use rate of 44.8 gallons/hour, the theoretical exhaust rate from S-31 is:
(44.8 gals/hr)/(60 min/hr)*(0.137 MM BTU/gal)*(9190 dscf/MM BTU) = 940 dscfm
At the maximum hourly emission rate of 0.190 pounds PM_{10}/hour from S-31, the maximum grain loading in the exhaust is:
(0.190 lbs/hour)*(7000 grains/lb)/(940 dscf/min)/(60 min/hr) = 0.024 grains/sdcf
At the typical outlet oxygen concentration of 10%, the exhaust flow rate will be 1802 dscfm, and the exhaust point grain loading will be 0.012 gr/sdcf.
Since there is a high margin of compliance with this grain loading limit and the particulate emission rate has been certified, it is not necessary to conduct any addition compliance demonstration monitoring for this limit.

Regulation 6-1-311 applies to the S-30 Portable Green Waste Grinder. The maximum processing rate for S-30 is 40 tons/hour (80,000 pounds/hour). For processing rates larger than 57,320 pounds/hour, Section 311 limits particulate emissions to 40 pounds/hour. The maximum

permitted hourly emission rate from S-30 is 4 pounds/hour, but emissions are not expected to exceed 0.3 pounds/hour using the typical emission factor for green waste tub grinders. Since the emission limit is more than 100 times the expected emission rate, additional monitoring to demonstrate compliance with this emissions limit is not justified.

Regulation 8, Rule 2:

This rule applies to diesel oil fired IC engines. Regulation 8-2-301 limits total carbon emissions to either 15 pounds/day or to an exhaust stack concentration of 300 ppmv. From Table 3, maximum emissions are 4.55 pounds of POC per day. Therefore, S-31 will comply with Regulation 8-2-301 by emitting less than 15 pounds/day of total carbon. Additional monitoring to verify compliance with this certified emission rate is not necessary.

Regulation 9, Rule 1:

The S-31 Portable Diesel Engine is subject to Regulation 9, Rule 1. Regulation 9-1-302 limits the SO_2 concentration in an exhaust point to 300 ppmv. The maximum SO_2 emission rate from S-31 is 0.318 pounds/hour. At the theoretical exhaust rate (940 sdcfm), the concentration of SO_2 in the exhaust is: 34 ppmv of SO_2. Since the expected SO_2 concentration in the exhaust is far less than 300 ppmv, additional compliance demonstration monitoring is not necessary.

Regulation 9-1-304 limits the sulfur content of liquid fuels to 0.5% by weight. Since S-31 will only use diesel oil containing less than 0.05% sulfur by weight, S-31 will comply with this limit. Fuel sulfur content records will verify compliance with this limit.

Regulation 9, Rule 8:

Although Regulation 9, Rule 8 now applies to diesel fueled internal combustion engines, the S-31 Portable Diesel Engine is exempt from this rule pursuant to Regulation 9-8-112, because it is registered as a portable engine pursuant to the Statewide Portable Equipment Registration Program.

State Requirements:

CARB's Airborne Toxic Control Measure (ATCM) for Diesel PM from Portable Engines (CCR Title 17, Section 93116) applies to portable diesel fueled engines that are rated at 50 bhp or more. S-31 will comply with CCR § 93116.3(a) by using CARB diesel fuel. S-31 satisfies CCR § 93116.3(b) because it is a certified engine that meets the applicable certification standards for it's model year (S-31 complies with Section 93116.3(b)(1)(A)). To comply with CCR § 93116.3(b)(3), this engine will either need to be equipped with verified control technology or replaced with an engine complying with EPA Tier 4 emission limit standards. Other future state standards and record keeping requirements are described in CARB's registration permit conditions.

Federal Requirements:

Portable tub grinders and portable diesel engines are not subject to any source-specific NSPS or NESHAP requirements.

The S-31 Portable Diesel Engine is subject to 40 CFR Part 89 Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines pursuant to Section 89.102 (greater than 560 kW and manufactured after January 1, 2000). Per Table 1 of Section 89.112, this engine (Model Year 2000, 860 bhp – 640 kW) is subject to Tier 1 emission standards, which limit emissions to: 9.2 g NO_x/kW-hr, 1.3 g HC/kW-hr, 11.4 g CO/kW-hr, and 0.54 g PM_{10}/kW-hr. Section 89.113 limits opacity to: 20% during acceleration mode, 15% during lugging mode, and 50% peak during either of the above modes. The engine family (YCPXL27.0HRP) has been certified to comply with these emission and opacity standards.

Permit Conditions

The District is proposing to impose the following conditions for S-29 to ensure compliance with District requirements.

Condition # 24061
FOR: S-29 GREEN WASTE STOCKPILES

1. The total amount of green waste (grass clippings, yard waste, landscape waste, wood waste, shredded green waste, shredded wood waste, or similar materials) received at S-29 from off-site locations shall not exceed 68,040 tons during any consecutive 12-month period. Food wastes shall not be stored or processed at S-29. (Basis: Cumulative Increase)

2. The S-29 Green Waste Stockpiles shall be watered down, as frequently as necessary, to prevent visible dust emissions during loading or unloading, as long as watering does not create a fire hazard, decomposition, or odor. Dry, dusty material shall be watered down before unloading from truck beds, as necessary to prevent visible emissions, as long as watering does not create a fire hazard, decomposition, or odor. To ensure compliance with this part, the Permit Holder shall visually observe all unloading, stockpiling, and loading operations and shall immediately initiate corrective actions, if any visible dust emissions are detected. (Basis: Regulation 6-301 and Regulation 2-6-503)

*3. Green waste shall be removed from the stockpiles, as frequently as necessary, to prevent decomposition and odors. (Basis: Regulation 1-301)
   a. If any stockpile is deemed to be odorous by a District inspector, the odorous stockpile shall be removed within 24 hours.
   b. If a District inspector finds odorous stockpiles associated with S-29 on two or more occasions during a 12-month period, the allowable stockpile storage time

shall immediately be reduced to 7 days, and no green waste shall remain in a stockpile for more than 7 consecutive days.

c. If the plant receives two or more Violation Notices from the District for "Public Nuisance" in any consecutive 12 month period, the owner/operator of this facility shall submit to the District, within 30 days, an application to modify the Permit to Operate to include the following additional odor control measures, as applicable, or any other measures that the District deems necessary and appropriate.
   i. Reduce the allowable stockpile storage time to 72 hours,
   ii. Modify stockpile dimensions or other storage practices to ensure that decomposition will not occur during storage,
   iii. Apply odor inhibitor solutions to the stockpiles at a District approved rate and frequency,
   iv. Discontinue use of green waste stockpiles during the ozone season or other appropriate time period.

4. In order to demonstrate compliance with Parts 1-3, the owner/operator shall maintain the records required below. All records shall be kept on site for a minimum of five years from the date of entry and shall be made available to District staff upon request. (Basis: Cumulative Increase and Regulations 2-6-501 and 6-301)
   a. Record the date, time, and amount of green waste received at each stockpile, and note if the green waste load came form an off-site location or the on-site green waste grinding operation.
   b. Summarize the total amount of green waste received from off-site locations for each month and for each consecutive rolling 12-month period.
   c. Record the date and time that water was applied to the stockpiles or associated loading or unloading operations.
   d. If a District inspector deems a stockpile to be odorous, record the date of inspection, the date the stockpile was declared odorous, the date the stockpile was removed, and describe what was done with the odorous stockpile.
   e. If the Part 3b or 3c(i) stockpile storage time limitations become applicable, the owner/operator shall begin recording the date, time, and amount of green waste removed from the stockpiles and shall determine and record the maximum stockpile storage time for each month and for each consecutive rolling 12-month period.

Permit conditions are not typically issued to sources that are exempt from District permit requirements. However, the permit conditions in CARB's registration permits must be included in the Title V permit. These conditions will be included by reference as indicated below. In addition, the District will limit the fuel usage rate at S-31 (equivalent to 10 tons/year of NO_x emissions) to ensure that that this engine will qualify for the portable equipment registration program and retain its exemption from District permitting requirements at this site. Record keeping requirements will be added to ensure compliance with this fuel usage limit.

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

Condition # 24062
FOR: S-30 PORTABLE GREEN WASTE GRINDING OPERATION

1. The Portable Equipment Registration Permit (PERP) conditions issued by CARB for the S-30 Portable Green Waste Grinding Operation (PERP # 117640), or the PERP conditions for any equivalent PERP registered tub grinder used as S-30 instead of the PERP # 117640 tub grinder, are hereby incorporated by reference. (Basis: CARB PERP)

Condition # 24063
FOR: S-31 PORTABLE DIESEL ENGINE FOR GREEN WASTE GRINDER

1. The Portable Equipment Registration Permit (PERP) conditions issued by CARB for the S-31 Portable Diesel Engine for Green Waste Grinder (PERP # 117639), or the PERP conditions for any equivalent PERP registered diesel engine used as S-31 instead of the PERP # 117639 diesel engine, are hereby incorporated by reference. (Basis: CARB PERP)

2. To qualify for the CARB Portable Equipment Registration Program and BAAQMD Regulation 2-1-105.3, this engine shall not emit more than 10.0 tons/year of NO_x. To ensure that this emission limit will be satisfied, this engine shall use no more than 76,205 gallons of fuel (diesel oil) at Site # A2066, during any consecutive 12-month period. To demonstration compliance with this fuel usage limit, the owner/operator of S-31 shall maintain daily records of the type and amount of all fuels used in S-31, while S-31 is operating at Site # A2066. These records shall also include the operating time for S-31, while it is located at Site # A2066. All fuel usage and operating records shall be summarized on a monthly basis showing the type of fuel used, the total amount of fuel used per month at this site, and the total operating time per month at this site. All fuel usage and operating records shall be made available to any District or CARB staff upon request and shall be retained with the engine for a minimum of five years from the date of entry. (Basis: Regulation 2-1-105.3)

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

RECOMMENDATION

Issue a Permit to Operate for the following source subject to Condition #24061:

S-29 Green Waste Stockpiles

Issue an Exemption Letter for the following sources, subject to Conditions #24062 and #24063, respectively:

S-30 Portable Green Waste Grinding Operation; Moorbark, Model 1300, 40 tons/hour (PERP # 117640); or equivalent PERP registered tub grinder; exempt per 2-1-105.3.

S-31 Portable Diesel Engine for a Green Waste Grinder; Caterpillar, Model 3412E, Model Year 2000; 860 bhp, 1649 in^3, 44.8 gallons/hour of diesel oil (PERP # 117639); or equivalent PERP registered diesel engine; exempt per 2-1-105.3.

By: Carol S. Allen Date
Senior Air Quality Engineer

APPENDIX I

REPORTS FOR LIQUEFIED NATURAL GAS PLANT

TITLE V APPLICATION # 19046

NSR APPLICATIONS # 19045

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

ENGINEERING EVALUATION

Waste Management of Alameda, Inc.; PLANT #2066

APPLICATION #19045

BACKGROUND

Waste Management of Alameda, Inc. operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). This facility includes the S-2 Altamont Landfill (Fill Area 1) and the following landfill gas control equipment: S-6 and S-7 Gas Turbines, S-23 and S-24 IC Engines, and A-15 Landfill Gas Flare. Waste Management has requested an Authority to Construct and Permit to Operate for a second Landfill Gas Flare (A-16) pursuant to Application # 19206. Waste Management has also requested a modification of the S-2 Altamont Landfill - pursuant to Application # 14814 - that would nearly double the design capacity of this landfill and that would allow waste disposal to begin in an adjacent canyon (Fill Area 2).

The theoretical peak landfill gas generation rate for Fill Area 1 is expected to be 8616 scfm of landfill gas at 50% methane in the year 2013. The projected landfill gas generation rate for 2008 is 7340 scfm. The current average collection rate is 3669 scfm of landfill gas. Thus, the gas collection system capture rate is about 50% of the projected gas generation rate. Assuming this capture efficiency remains constant, the theoretical maximum landfill gas collection rate for Fill Area 1 is 4307 scfm of landfill gas.

At the maximum permitted heat input rates for the turbines and engines, the turbines and engines can burn a combined total of 4384 scfm of landfill gas, but the average throughput rate to these energy recovery devices has been less than 3180 scfm during the last five years. For the existing permitted landfill gas control system, the remaining theoretical amount of collected landfill gas (643 scfm in 2008 and over 1100 scfm by 2013) will be controlled by flares with no energy recovery. The proposed Fill Area 2 landfill expansion has the potential to increase the landfill gas flaring rate by over 2000 scfm.

PROJECT DESCRIPTION

Waste Management and its partner, High Mountain Fuels, LLC, are requesting an Authority to Construct and Permit to Operate for a new liquefied natural gas (LNG) process (the S-210 LNG Plant) that will transform landfill gas into an LNG product suitable for alternative fuel vehicles. This proposed LNG Plant will reduce landfill gas flaring and increase the beneficial use of landfill gas collected from the S-2 Altamont Landfill. The S-210 LNG Plant will be located at the Altamont Landfill Facility, west of the truck scales, near the existing landfill gas fired IC engines.

In 2005, the District granted CryoEnergy International, Inc. (Plant # 16406) an Authority to Construct for similar LNG processes (S-1 and S-2 LNG Plants) at this same location. These LNG Plants were never installed, and the Authority to Construct these operations will expire on March 30, 2009.

The proposed S-210 LNG Plant will nominally process approximately 1500 MM BTU per day of landfill gas and has a maximum landfill gas processing capacity of 1950 MM BTU per day (2725 scfm at 50% methane with an HHV of 497 BTU/scf). The LNG Plant will include blowers, compressors, chillers, dryers, sulfur treatment systems, carbon adsorbers, liquefiers, and other equipment that will dewater the gas, remove sulfur and VOC contaminants, separate the methane (CH_4) and carbon dioxide (CO_2) components of the gas, and liquefy the product gas. The LNG product stream will contain at least 96% methane. The S-210 LNG Plant will have a design production rate of 13,300 gallons/day of LNG. The LNG will be stored in three 15,000 gallon capacity cryogenic tanks (S-211, S-212, and S-213). These tanks are pressurized and insulated and will operate at about -250 °F. LNG will be transferred to tank trucks for delivery to off-site vehicle fueling stations.

A waste gas stream from the dryer containing about 62% CO_2 and 16% CH_4 will be sent to the proposed new Landfill Gas Flare (A-16, see Application # 19206). This stream will be mixed with landfill gas to achieve the minimum flare combustion requirement of 30% CH_4. The LNG Process will also generate condensate that will be destroyed by injecting it into the A-16 Landfill Gas Flare. Various small waste gas streams, which are generated during LNG Plant start-up procedures, by plant upset events such as liquefier trips, and by standard maintenance events, will also be controlled by the A-16 Landfill Gas Flare. The only other routine emissions from the LNG Plant will be due to fugitive emissions leaking from compressors, pumps, valves, and flanges.

EMISSIONS

As illustrated below, the venting of waste gases from S-210 to A-16 will not result in any higher emission rates from A-16 than when A-16 is burning landfill gas alone. As long as S-210 is only processing landfill gas collected from Fill Area 1, the residual emissions resulting from controlling S-210 waste gases will be considered part of the grandfathered waste decomposition related emissions for Fill Area 1 of the S-2 Altamont Landfill. If S-210 or A-16 begin to control landfill gas collected from Fill Area 2, the emissions from these devices will be associated with a modified source (S-2), and Waste Management, on behalf of the partnership, will be responsible for providing offsets for the POC emission increases and secondary NO_x emission increases associated with controlling the additional landfill gas generated in Fill Area 2.

Residual Emission from the A-16 Flare

As discussed in the Engineering Evaluation for Application # 19206, the proposed new A-16 Landfill Gas Flare will be permitted to burn landfill gas alone, to burn landfill gas and condensate, or to burn landfill gas, condensate, and LNG Plant waste gases. The maximum heat input rate to A-16 is 132 MM BTU/hour, which is equal to about 4400 scfm of landfill gas or about 2200 scfm of CH_4. For Application # 19206, the maximum emissions from A-16 were based on the flare burning landfill gas at these maximum operating rates.

When the LNG Plant is operating, approximately 2100 scfm of landfill gas will be diverted to S-210, and about 1400 scfm of waste gases containing 16% CH_4 (or about 220 scfm of CH_4) will be sent to the A-16 Flare. The A-16 Flare requires a minimum methane concentration of 30% for proper operation. The 1400 scfm of waste gases will need to be blended with about 1000 scfm of landfill gas to achieve the minimum inlet concentration of 30% CH_4. This blended flare inlet gas stream will have a flow rate of about 2400 scfm and a heat input rate of about 43 MM BTU/hour, which is about one third of the total flare capacity. For this blended gas stream, the non-methane organic compound (NMOC) and toxic air contaminant (TAC) mass flow rates to the A-16 Flare will be no greater than the maximum inlet mass flow rates to A-16 that were determined per Application # 19206.

For the other LNG Plant waste gas streams, the maximum waste gas flow rate is expected to occur during LNG Plant start-ups, when up to 2725 scfm of waste gas with compositions equivalent to Altamont landfill gas (about 81 MM BTU/hour) will be delivered to A-16. During compressor maintenance or liquefier trips, the waste gas steams will have average flow rates of 800 scfm of CH_4 (about 48 MM BTU/hour) with negligible NMOC concentration levels. In each of these cases, the NMOC and TAC mass flow rates to A-16 will be no greater than the maximum flow rates determined in Application # 19206.

Thus, the proposed venting of S-210 LNG Plant waste gases to the A-16 Landfill Gas Flare will not result in any emission increases at A-16 above the levels allowed pursuant to Application # 19206.

Fugitive Emissions from S-210 LNG Plant

Other than the waste gas streams that are vented to A-16, the only sources of emissions at the proposed S-210 LNG Plant are fugitive leaks from flanges, valves, pumps, and compressors. Fugitive emissions were calculated using CAPCOA correlation equations and emission factors for the oil and gas industry. Component counts and process stream concentration data were supplied by SCS Engineers on behalf of Waste Management and High Mountain Fuels. The LNG Plant component list is summarized in Table 1 below. The NMOC contaminants are assumed to be 100% POC.

Table 1. S-210 LNG Plant Component Counts

	LFG and Processed Gas Streams	Mixed Refrigerant Streams	Total for S-210 LNG Plant
Flanges	476	126	602
Valves	901	121	1022
Pump Seals	7	4	11
Compressors	13	1	14

Since this facility will be subject to Regulation 8, Rule 18, the screening values of 500 ppmv for pumps and compressors and 100 ppmv for all other components were used in the CAPCOA correlation equations to obtain emission factors for non-leaking components. For leaking equipment, the maximum allowable percentages of leaking components (1% for pumps/compressors and 0.3% for other components from Regulation 8-18-306.2) were used to determine the maximum number of components (for the LNG Plant) that might be leaking per year. The number of leaking components for each stream type was distributed proportionally according to the total number of components for each stream type. The CAPCOA emission factor for leaking equipment was used for each component type. The total hydrocarbon (THC) and non-methane organic compound (NMOC) mass fractions for each type of stream were applied to these component specific leak rates to determine the hourly POC emissions per stream for each component type. The hourly fugitive emission rates for all stream types and all component types were summed to obtain maximum hourly fugitive POC emissions for leaking equipment and for non-leaking equipment. The leaking and non-leaking rates were summed to obtain the total hourly POC emission rate for the S-210 LNG Plant. Maximum daily and maximum annual emissions were determined by assuming the fugitive emissions occur 24 hours/day and 365 days/year.

Most of the fugitive POC emissions calculated above are due to the mixed refrigerant streams that do not contain toxic air contaminants. Only 0.3% of the total POC emissions is due to landfill gas streams or processed gas streams that may contain toxic air contaminants. For these gas streams, the TAC emissions were estimated by applying the mass percentage of the three major landfill gas TACs (acrylonitrile, benzene, and vinyl chloride) to the total hourly POC emission rate of 0.0012 pounds/hour. The TAC mass percentages are equal to the mass fraction of the TAC in typical Altamont landfill gas divided by the mass fraction of NMOC in typical Altamont landfill gas.

The total hydrocarbon, precursor organic compound, and toxic air contaminant emissions from the S-210 LNG Plant are summarized in Table 2 below. Detailed emission calculation spreadsheets are attached.

Table 2. Fugitive Component Leak Emissions from S-210 LNG Plant

	Risk Screen Trigger Levels	LFG and Processed Gas Streams		Mixed Refrigerant Streams		Total from S-210 LNG Plant	
		Lbs/day	Tons/Yr	Lbs/day	Tons/Yr	Lbs/day	Tons/Yr
THC		20.46	3.734	7.37	1.345	27.83	5.079
POC		0.03	0.005	7.37	1.345	7.40	1.350
	Lbs/Yr		Lbs/Yr		Lbs/Yr		Lbs/Yr
Acrylonitrile	0.64		0.005		0		0.005
Benzene	6.40		0.061		0		0.061
Vinyl Chloride	2.40		0.024		0		0.024

LNG Storage and Loading Operations

LNG will be stored in pressurized tanks and loaded into pressurized tanker trucks for delivery to off-site locations. The storage tanks (S-211, S-212, and S-213) are exempt from permitting requirements pursuant to 2-1-123.3.1, because these vessels will only be storing or loading liquefied gas. No emissions are expected from these storage or loading operations.

COMPLIANCE STATEMENT

CEQA Requirements (Regulation 2, Rule 1):

The County of Alameda has determined that the proposed LNG Plant is an “accessory use” to the landfill and is consistent with the issued Land Use Permit, which references the use of LNG for waste collection operations. Therefore, a new/modified Land Use Permit was not required, and CEQA review was not deemed necessary. A review of the Appendix H Environmental information form indicates that there is no possibility that this project will have any significant adverse environmental impacts associated with any media other than air quality. Although this project will result in some emissions to the atmosphere, the proposed LNG Plants will comply with all applicable District regulations and will satisfy all requirements of New Source Review. Specifically, emissions are less than BACT trigger levels and less than risk screen trigger levels. POC offsets will be supplied for the POC emissions from S-210. In accordance with Regulation 2-1-312.11, this project is categorically exempt from CEQA review.

Public Notification Requirements (Regulation 2, Rule 1):

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

New Source Review (Regulation 2, Rule 2):

As shown in Table 2, maximum emissions from the S-210 LNG Plant will be 7.4 pounds/day of POC. Since emissions will be less than 10 pounds/day of POC, Best Available Control Technology (BACT) is not required. Total emission increases for this application will be 1.350 tons/year of POC. Since this facility emits more than 35 tons/year of POC, offsets are required at a ratio of 1.15:1.0. A total of 1.552 tons/year of POC emission reduction credits are required. Waste Management, on behalf of the partnership, has requested to defer providing these credits pursuant to Regulation 2-2-421, because the cumulative increase is less than 15 tons/year of POC. Waste Management, on behalf of the partnership, has surrendered offset credits for Application # 14814. When this application is completed, offsets will be provided for any outstanding cumulative emission increases.

Since POC emission increases are less than 40 tons/year, this project is not a major modification. Therefore, the public notice requirements of Regulation 2-2-405 do not apply.

As discussed in Application 19206, this site is not a PSD facility. The small POC increases from S-210 will not impact this determination.

New Source Review for TAC (Risk Management Policy):

As shown in Table 2 above, the total emissions of acrylonitrile, benzene, and vinyl chloride are less than the risk screen trigger levels for these compounds. While landfill gas contains other constituents, the emissions of these other components generally do not exceed the risk screen trigger levels unless at least one of the significant TACs listed above have emissions above a trigger level. Since emissions of acrylonitrile, benzene, and vinyl chloride are expected to be far below the trigger levels, additional speciation of toxic emissions was not deemed necessary.

Major Facility Review (Regulation 2, Rule 6):

This project requires a minor modification of the Title V permit for Site # A2066. The S-210 LNG Plant and A-16 Landfill Gas Flare will be incorporated into the Title V permit pursuant to Application # 19207.

Applicable District Requirements (Regulation 8, Rule 18 "Equipment Leaks"):

In January 2004, the definition of "chemical plant" in Section 8-18-203 was amended such that the definition is now based on the NAICS code for the facility rather than the SIC code. Any facility with an NAICS code beginning with 325 is now considered to be a chemical plant. The appropriate NAICS code for the proposed operation is: 325120 Industrial Gas Manufacturing, which includes the manufacturing of liquefied industrial gases. Therefore, the proposed S-210 LNG Plant is defined as a chemical plant according to Section 8-18-203.

Since the S-210 LNG Plant will have more than 10 pumps and compressors and more than 100 valves that handle gases or liquids that contain more than 100 ppmv of organic compounds (including methane), the requirements of Regulation 8, Rule 18 apply to S-210. Sections 8-18-301-305 describe the leak thresholds and allowable repair schedules for various types of components. The leak thresholds are 500 ppmv for pumps, compressors, and pressure relief devices and 100 ppmv for all other types of components. Sections 8-18-401-403 describe the quarterly and annual inspection procedures, leak identification methods, and leak minimization requirements for this plant. Sections 8-18-501 and 8-18-601-602 describe the methods that shall be used to check for leaks. Sections 8-18-501-502 and 8-18-604 describe the record keeping and reporting requirements. Waste Management, on behalf of the partnership, has been informed of these requirements and is expected to comply with all inspection, identification, record keeping, and reporting requirements.

Applicable District Requirements (Regulation 8, Rule 34 "Solid Waste Disposal Sites"):

In addition to manufacturing LNG, the S-210 LNG Plant will act as a control method for collected landfill gas from the S-2 Altamont Landfill. Therefore, the landfill gas cleaning stage of the process will be subject to Regulation 8, Rule 34.

Regulation 8-34-301.2 limits the leaks from landfill gas collect and control equipment to 1000 ppmv as methane. Regulation 8-34-503 requires quarterly testing to demonstrate compliance with this requirement. Compliance with the Regulation 8, Rule 18 leak thresholds and inspection procedures will also demonstrate compliance with Regulation 8-34-301.2 and 8-34-503.

Regulation 8-34-301.4 requires that any control method other than an enclosed flare meet either an NMOC destruction efficiency of 98% by weight or an outlet concentration limit of 120 ppmv of NMOC as methane at 3% O_2. The S-210 LNG Plant will process a maximum of 1950 MM BTU/day of landfill gas (2725 scfm of landfill gas with an HHV of 497 BTU/scf). The maximum expected concentration of non-methane organic compounds in Altamont Landfill Gas is 600 ppmv as hexane. Therefore the maximum inlet flow rate is 524.3 pounds/day of NMOC. While the LNG Plant is operating at this maximum rate, the maximum waste gas flow rate to A-16 will be 1630 scfm with a maximum expected NMOC concentration of 0.2% by volume (194.6 pounds/day of NMOC to A-16). Thus, S-210 will remove 62.9% by weight of the inlet NMOCs. The A-16 Flare will reduce the waste gas NMOC by at least 98% by weight. The maximum residual emissions from S-210 after control by A-16 are 3.89 pounds/day. The overall NMOC removal rate achieved by S-210 and A-16 is 99.3% by weight. Therefore, the LNG Plant will comply with Regulation 8-34-301.4.

PERMIT CONDITIONS

The proposed permit conditions for the S-210 LNG Plant are listed below.

Condition # 24255
For S-210 LIQUEFIED NATURAL GAS PLANTS (LNG) PLANT

1. The S-210 Liquefied Natural Gas (LNG) Plant shall only process landfill gas collected from Fill Area 1 of the S-2 Altamont Landfill. (Basis: Offsets)

2. The landfill gas feed rate to S-210 shall not exceed the equivalent heat input rate 1950 MM BTU during any one day. (Basis: Cumulative Increase)

3. All waste gas streams from S-210 - which are generated during normal operations, during start-up procedures, during maintenance events, and during trips or other malfunctions - shall be recycled back to LNG Plant processing equipment, shall be recycled back to the gas collection and control system, or shall be vented to the A-16 Landfill Gas Flare for further control. Each waste gas stream vented to A-16 shall be burned with a sufficient amount of supplemental landfill gas for A-16 to maintain compliance with all applicable requirements. (Basis: Cumulative Increase and Regulation 8-34-301.4)

4. In order to demonstrate compliance with Part 2, the owner or operator of the S-210 LNG Plant shall comply with all of the following monitoring and record keeping requirements. All records shall be kept on site or shall be made available to the District staff upon request. All records shall be retained for at least 5 years from the date of entry. (Basis: Cumulative Increase)
    a. The S-210 LNG Plant shall be equipped with a continuous gas flow meter and recorder, which shall measure the inlet landfill gas flow rate to S-210 and shall meet the requirements of Regulation 8-34-508.
    b. The owner or operator of S-210 shall measure and record the methane concentration in the landfill gas delivered to S-210 on a monthly basis.
    c. On a monthly basis, the owner or operator of S-210 shall use the data collected pursuant to Parts 4a and 4b to calculate and record the maximum daily and total monthly heat input rate to the S-210 LNG Plant.
    d. The owner or operator of S-210 shall summarize the Part 4c monthly heat input records for each consecutive rolling 12 month period.

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

RECOMMENDATION

Issue an Authority to Construct subject to Condition # 24255 above for the following equipment:

S-210 Liquefied Natural Gas (LNG) Plant; treating 1950 MM BTU/day of landfill gas; 13,300 gallons/day of LNG (design production rate); abated by A-16 Landfill Gas Flare.

Issue an exemption letter for the following equipment:

S-211 LNG Storage Tank, T-1, pressurized, 15,000 gallon capacity; exempt per 2-1-123.3.1.
S-212 LNG Storage Tank, T-2, pressurized, 15,000 gallon capacity; exempt per 2-1-123.3.1.
S-213 LNG Storage Tank, T-3, pressurized, 15,000 gallon capacity; exempt per 2-1-123.3.1.

By: Carol S. Allen February 19, 2009
Senior Air Quality Engineer Date

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

PERMIT to OPERATE REPORT

Waste Management of Alameda, Inc.; PLANT #2066

APPLICATION #19045

BACKGROUND

On February 11, 2009, the District issued Waste Management of Alameda, Inc. an Authority to Construct for the S-210 Liquefied Natural Gas (LNG) Plant that would remove contaminants from landfill gas, separate carbon dioxide and nitrogen from the gas resulting in a concentrated (97%) methane stream, and compress and liquefy this methane stream to produce liquefied natural gas. The LNG is transported off-site to several of Waste Management's garbage truck fueling locations in California. All waste gas streams from the compression, purification, drying and separation processes would either be recycled back to the plant or vented to the A-16 Landfill Gas Flare, which was permitted earlier pursuant to Application # 19206. The maximum input rate for the S-210 LNG Plant is 1950 MM BTU/day of landfill gas, and the maximum output rate is 13,300 gallons/day of LNG.

Waste Management first began delivering landfill gas to the S-210 LNG Plant on July 22, 2009 but did not complete final commissioning of this plant until May 21, 2010. Initially, the plant experienced flow rate swings in the waste gas stream venting to A-16 and pressure swings at the LNG Plant inlet the impaired the operation of the plant. WM installed dampeners and bypass piping that eventually resolved the flow rate cycling and pressure swing issues. The bypass piping re-circulates landfill gas or waste gases back into other sections of the process and do not create any new emission points. The plant is currently operating at about half of full capacity. WM plans to slowly ramp up to full capacity over the next year or two and does not anticipate any issues with this ramp up.

Operation of the plant was observed by District engineering staff on June 7, 2010. No problems were identified during this visit.

COMPLIANCE STATEMENT

Applicable requirements for the S-210 LNG Plant are discussed in detail in the Engineering Evaluation for Application # 19045. This source has very low emissions, which are primarily due to fugitive leaks form piping and compressors. The source did not trigger BACT and was not subject to toxic NSR due to the low emission rates.

In accordance with Regulation 8-18-501-502, Waste Management has been conducting the required quarterly inspections of the compressors, pumps, valves, and flanges in

this plant. No leaks have been detected above the thresholds specified in Sections 301-305.

Major Facility Review (Regulation 2, Rule 6):

This project requires a minor modification of the Title V permit for Site # A2066. The S-210 LNG Plant and A-16 Landfill Gas Flare will be incorporated into the Title V permit pursuant to Application # 19207.

PERMIT CONDITIONS

The current permit conditions for the S-210 LNG Plant are listed below. No changes are necessary.

Condition # 24255
For S-210 LIQUEFIED NATURAL GAS PLANTS (LNG) PLANT

1. The S-210 Liquefied Natural Gas (LNG) Plant shall only process landfill gas collected from Fill Area 1 of the S-2 Altamont Landfill. (Basis: Offsets)

2. The landfill gas feed rate to S-210 shall not exceed the equivalent heat input rate 1950 MM BTU during any one day. (Basis: Cumulative Increase)

3. All waste gas streams from S-210 - which are generated during normal operations, during start-up procedures, during maintenance events, and during trips or other malfunctions - shall be recycled back to LNG Plant processing equipment, shall be recycled back to the gas collection and control system, or shall be vented to the A-16 Landfill Gas Flare for further control. Each waste gas stream vented to A-16 shall be burned with a sufficient amount of supplemental landfill gas for A-16 to maintain compliance with all applicable requirements. (Basis: Cumulative Increase and Regulation 8-34-301.4)

4. In order to demonstrate compliance with Part 2, the owner or operator of the S-210 LNG Plant shall comply with all of the following monitoring and record keeping requirements. All records shall be kept on site or shall be made available to the District staff upon request. All records shall be retained for at least 5 years from the date of entry. (Basis: Cumulative Increase)
    a. The S-210 LNG Plant shall be equipped with a continuous gas flow meter and recorder, which shall measure the inlet landfill gas flow rate to S-210 and shall meet the requirements of Regulation 8-34-508.
    b. The owner or operator of S-210 shall measure and record the methane concentration in the landfill gas delivered to S-210 on a monthly basis.
    c. On a monthly basis, the owner or operator of S-210 shall use the data collected pursuant to Parts 4a and 4b to calculate and record the maximum daily and total monthly heat input rate to the S-210 LNG Plant.

d. The owner or operator of S-210 shall summarize the Part 4c monthly heat input records for each consecutive rolling 12 month period.

RECOMMENDATION

Issue a Permit to Operate subject to Condition # 24255 above for the following equipment:

S-210 Liquefied Natural Gas (LNG) Plant; treating 1950 MM BTU/day of landfill gas; 13,300 gallons/day of LNG (design production rate); abated by A-16 Landfill Gas Flare.

By: Carol S. Allen June 24, 2010
Senior Air Quality Engineer Date

APPENDIX J

REPORTS FOR STATIONARY DIESEL ENGINES

TITLE V APPLICATION # 16525

NSR APPLICATIONS # 16526

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

ENGINEERING EVALUATION
Waste Management of Alameda County; Plant # 2066
Application # 16526

BACKGROUND

To comply with the requirements of the CARB ATCM for Stationary Compression Ignition Engines, Waste Management of Alameda County is proposing to replace three existing diesel fired IC engines that power emergency standby generators with three new diesel fired IC engines. The engines being replaced are: S-190 (which powers an emergency generator at the waste water treatment plant), S-194 (which powers an emergency generator for the flare station), and S-195 (which powers an emergency generator at the maintenance shop). These three engines were initially permitted under Application # 6390 as loss of exemption sources that were not subject to NSR.

The proposed new engines are described below.

S-199 Diesel Engine for Emergency Standby Generator at Flare Station; Caterpillar, Model C6.6 or Perkins Model 1106D-E66TA, Model Year 2007, 230 bhp, 11.8 gallons/hour of diesel oil.

S-200 Diesel Engine for Emergency Standby Generator at WWTP; Caterpillar, Model C9, Model Year 2007, 420 bhp, 19.4 gallons/hour of diesel oil.

S-201 Diesel Engine for Emergency Standby Generator at Maintenance Shop; Caterpillar, Model C9, Model Year 2007, 420 bhp, 19.4 gallons/hour of diesel oil.

EMISSIONS SUMMARY

Proposed Engines

The emission rates for the above equipment are determined based on the maximum proposed operating rate of 50 hours/year for each engine and the CARB certified emission factors (EF_{CARBi}) for each engine. CARB Executive Order U-R-022-0098-1 applies to S-199, while CARB EO U-R-001-0304 applies to S-200 and S-201. The CARB certified emission factors, emission factor calculations, and BACT/TBACT standards are summarized in Tables 1a and 1b.

All emission factors (EF_i) are converted to grams/bhp-hour using the following equation:
EF_i grams/bhp-hour = (EF_{CARBi} grams/kW-hour) / (1000 Watts/kW) * (745.7 Watts/bhp)

In accordance with standard practice, maximum NO_x emissions are assumed to be 95% of the combined NO_x + HC certified emission factor, while maximum HC emission are assumed to be 5% of this combined factor. All HC is assumed to be POC.

Sulfur dioxide (SO_2) emissions (in pounds/hour) are calculated based on the CARB diesel oil sulfur content limit of 0.05% sulfur (S), the engine's maximum fuel consumption rate, and an assumed fuel density of 7.1 pounds/gallon. The District assumes that all sulfur in the fuel is converted to SO_2 during combustion with 64.06 pounds of SO_2 produced per 32.06 pounds S burned. The resulting SO_2 emission rate (pounds/hour) is then converted to the emission factor (EF_{SO2} grams/bhp-hour) using the maximum rated horsepower for the engine and the metric conversion factor of 453.6 grams/pound. The emission factor equation is as follows:

EF_{SO2} g/bhp-hour = (*f* gals diesel/hr) * (7.1 lbs diesel/gal diesel) * (0.0005 lbs S/lb diesel) *
(64.06 lbs SO_2/32.06 lbs S) / (*C* bhp) * (453.6 g SO_2/lb SO_2)
= *f* / *C* * 3.218 grams SO_2/bhp-hour

Table 1a. Emission Factors and Standards for S-199

Pollutant	CARB Certified g/kw-hr	CARB Certified g/bhp-hr (1)	CARB/EPA Tier Standards g/bhp-hr	Pollutant	Emissions After Control g/bhp-hr	BACT/TBACT Limits g/bhp-hr
HC+NOx	3.60	2.68	3.0	NOx (2)	2.550	6.90
				POC (2)	0.134	0.30
CO	1.80	1.34	2.6	CO	1.342	2.75
PM10	0.17	0.13	0.15	PM10	0.127	0.15
				SO2 (3)	0.165	0.17

(1) Conversion factor is 745.7 Watts/bhp.

(2) Determined assuming that NO_x + HC is 95% NO_x and 5% HC, and HC is 100% POC.

(3) Calculated based on a maximum fuel sulfur content of 0.05% S and a fuel density of 7.1 pounds/gallon for the maximum engine operating rates listed in the table above.

Table 1b. Emission Factors and Standards for S-200 and S-201

Pollutant	CARB Certified g/kw-hr	CARB Certified g/bhp-hr (1)	CARB/EPA Tier Standards g/bhp-hr	Pollutant	Emissions After Control g/bhp-hr	BACT/TBACT Limits g/bhp-hr

NOx + HC	3.70	2.76	3.0	NOx (2)	2.621	6.90
				POC (2)	0.138	0.30
CO	3.10	2.31	2.6	CO	2.312	2.75
PM10	0.15	0.11	0.15	PM10	0.112	0.15
				SO2 (3)	0.149	0.30

(1) Conversion factor is 745.7 Watts/bhp.

(2) Determined assuming that NO_x + HC is 95% NO_x and 5% HC, and HC is 100% POC.

(3) Calculated based on a maximum fuel sulfur content of 0.05% S and a fuel density of 7.1 pounds/gallon for the maximum engine operating rates listed in the table above.

Maximum permitted emissions are calculated using the g/bhp-hr emission rates cited in Tables 1a and 1b and the maximum permitted operating times for each engine. The maximum daily operating time that may occur for each engine is 24 hours/day. The maximum permitted annual operating time for non-emergency operation is 50 hours/year, which is the maximum time allowed pursuant to the CARB ATCM for stationary diesel engines. This maximum annual operating time limit is discussed in detail in the Statement of Compliance Section. A total annual operating time of 500 hours/year for both non-emergency and emergency operation is used to estimate the maximum potential to emit for each engine. This potential to emit information may be necessary at a later date, because this site is approaching PSD emission levels for several pollutants. Maximum permitted emissions from each engine are summarized in Tables 2a, 2b, and 2c.

Table 2a. Maximum Emission Rates from S-199

	Emission Factors (CARB Cert.) g/bhp-hour	Maximum Emissions pounds/day	Non-Emergency Emissions pounds/year	Non-Emergency Emissions tons/year	Potential Emissions (total for all usage) tons/year
NO_x	2.550	31.04	64.7	0.032	0.323
CO	1.342	16.33	34.0	0.017	0.170
POC	0.134	1.63	3.4	0.002	0.017
SO_2	0.165	2.01	4.2	0.002	0.021
PM_{10}	0.127	1.54	3.21	0.002	0.016
diesel PM, annual average grams/second:			4.6228E-05		

Table 2b. Maximum Emission Rates from S-200

	Emission Factors (CARB Cert.) g/bhp-hour	Maximum Emissions pounds/day	Non-Emergency Emissions pounds/year	Non-Emergency Emissions tons/year	Potential Emissions (total for all usage) tons/year
NO_x	2.621	58.25	121.4	0.061	0.607
CO	2.312	51.37	107.0	0.054	0.535
POC	0.138	3.07	6.39	0.003	0.032
SO_2	0.149	3.30	6.88	0.003	0.034
PM_{10}	0.112	2.49	5.18	0.003	0.026
diesel PM, annual average grams/second:			7.4485E-05		

Table 2c. Maximum Emission Rates from S-201

	Emission Factors (CARB Cert.) g/bhp-hour	Maximum Emissions pounds/day	Non-Emergency Emissions pounds/year	Non-Emergency Emissions tons/year	Potential Emissions (total for all usage) tons/year
NO_x	2.621	58.25	121.4	0.061	0.607
CO	2.312	51.37	107.0	0.054	0.535
POC	0.138	3.07	6.39	0.003	0.032
SO_2	0.149	3.30	6.88	0.003	0.034
PM_{10}	0.112	2.49	5.18	0.003	0.026
diesel PM, annual average grams/second:			7.4485E-05		

Since emergency operation rates are non-routine and unpredictable, only non-emergency emissions are counted toward the cumulative emission increase inventory and potentially subject to offset requirements. Cumulative emission increases for this application are the total non-emergency emissions from the three proposed engines. Likewise, the toxic air contaminant (TAC) emission increases for each engine are based on non-emergency operating rates. Since there are have been no applications within the last two years that have TAC emission increases, the total project emission increases are equal to total TAC emission increases for this application. The total cumulative emission increases for this application and the total TAC emission increases for this project are summarized in Table 3.

Table 3. Cumulative Emission Increases and TAC Emission Increases for Application #16526

Non-Emergency Emissions	S-199	S-200	S-201	Total
	tons/year	tons/year	tons/year	tons/year
NO_x	0.032	0.061	0.061	0.154
CO	0.017	0.054	0.054	0.124
POC	0.002	0.003	0.003	0.008
SO_2	0.002	0.003	0.003	0.009
PM_{10}	0.002	0.003	0.003	0.007
	pounds/year	pounds/year	pounds/year	pounds/year
diesel PM	3.21	5.18	5.18	13.57
	grams/second	grams/second	grams/second	grams/second
diesel PM	4.6228E-5	7.4485E-5	7.4485E-5	

Existing Engines

This application also includes the shut down of three existing engines (S-190, S-194, and S-195) that were initially permitted in 2002 due to loss of exemption status. These engines will be shut down and removed from the site within 90 days of the initial operation date of the new engines. These engine shut downs will generate contemporaneous on-site emission reduction credits.

Since Waste Management did not provide offsets for the emissions from these engines, emission reduction credits are calculated using actual operating rates and actual emission factors. Waste Management provided the actual operating rates for each engine during 2004, 2005, and 2006. The average of these 2004-2006 operating rates is the baseline operating rate for each of these engines. Waste Management also provide the vendor specified emission factors for these three Cummins engines. The baseline operating rates and vendor specified emission factors were used to determine the actual emission rate for each engine. This data is presented in Tables 4a, 4b, and 4c. Total contemporaneous on-site emission reductions due to the shut down of S-190, S-194, and S-195 are summarized in Table 5.

Table 4a. Actual (Baseline) Emissions From S-190

Rated Output = 380 bhp	Baseline Emission Factors g/bhp-hour	Hourly Emission Rate pounds/hour	Baseline Operating Time hours/year	Baseline (Actual) Emissions pounds/year	Baseline (Actual) Emissions tons/year
NO_x	9.300	7.79	18.33	142.8	0.071
CO	1.000	0.84	18.33	15.4	0.008

POC	0.480	0.40	18.33	7.4	0.004
SO_2	0.145	0.12	18.33	2.2	0.001
PM_{10}	0.500	0.42	18.33	7.7	0.004

Table 4b. Actual (Baseline) Emissions From S-194

Rated Output = 207 bhp	Baseline Emission Factors g/bhp-hour	Hourly Emission Rate pounds/hour	Baseline Operating Time hours/year	Baseline (Actual) Emissions pounds/year	Baseline (Actual) Emissions tons/year
NO_x	10.490	4.79	17.00	81.4	0.041
CO	1.270	0.58	17.00	9.9	0.005
POC	0.823	0.38	17.00	6.4	0.003
SO_2	0.155	0.07	17.00	1.2	0.001
PM_{10}	0.250	0.11	17.00	1.9	0.001

Table 4c. Actual (Baseline) Emissions From S-195

Rated Output = 207 bhp	Baseline Emission Factors g/bhp-hour	Hourly Emission Rate pounds/hour	Baseline Operating Time hours/year	Baseline (Actual) Emissions pounds/year	Baseline (Actual) Emissions tons/year
NO_x	10.490	4.79	34.00	162.8	0.081
CO	1.270	0.58	34.00	19.7	0.010
POC	0.823	0.38	34.00	12.8	0.006
SO_2	0.155	0.07	34.00	2.4	0.001
PM_{10}	0.250	0.11	34.00	3.9	0.002

Table 5. Contemporaneous On-Site Emission Reduction Credits

	S-190 tons/year	S-194 tons/year	S-195 tons/year	Total tons/year
NO_x	0.071	0.041	0.081	0.193
CO	0.008	0.005	0.010	0.022
POC	0.004	0.003	0.006	0.013
SO_2	0.001	0.001	0.001	0.003
PM_{10}	0.004	0.001	0.002	0.007

Net Emission Changes

The cumulative emission increases, on-site emission reduction credits, and the net emission changes for this application are summarized in Table 6.

Table 6. Net Emission Changes for Application # 16526

	Cumulative Emission Increases (S-199, S-200, and S-201) tons/year	Contemporaneous On-Site Emission Reductions (S-190, S-194, and S-195) tons/year	Net Emission Changes tons/year
NO_x	0.154	0.193	- 0.040
CO	0.124	0.022	0.102
POC	0.008	0.013	- 0.005
SO_2	0.009	0.003	0.006
PM_{10}	0.007	0.007	0.000

This application results in excess contemporaneous on-site emission reduction credits of 0.040 tons/year of NO_x and 0.005 tons/year of POC. These excess on-site credits will be applied toward the permitting of four tipper engine pursuant to Application # 16695.

This application results in net cumulative emission increases of 0.102 tons/year of CO and 0.006 tons/year of SO_2. There is no net change in PM_{10} emissions.

STATEMENT OF COMPLIANCE

CEQA

The S-199, S-200, and S-201 Diesel Engines were evaluated in accordance with the objective measurements and standard procedures described in District Permit Handbook Chapter 2.3 Internal Combustion Engines. The proposed engine is expected to comply with the standard BACT/TBACT requirements identified in the District's BACT/TBACT Workbook for compression ignition internal combustion engines that are greater than 175 bhp (Document # 96.1.2, Revision 5). This application does not involve any discretionary decisions. Therefore, the issuance of the Authority to Construct and Permit to Operate for these engines is considered ministerial. No further CEQA review is required.

Public Notice

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412. The closest K-12 school is Garfield Elementary School, which is located 2130 feet from the closest facility property boundary.

New Source Review (BACT)

Regulation 2, Rule 2, New Source Review (NSR), Section 301 requires Best Available Control Technology for any new or modified source that will emit 10 pounds per highest day or more of a pollutant. As shown in Tables 2a-c, maximum daily emissions of NO_x and CO from each proposed engine will exceed 10 pounds per day. Therefore, S-199, S-200, and S-201 must comply with BACT for NO_x and CO emissions.

The District's BACT/TBACT Workbook contains the BACT determination for compression ignition IC engines that are larger than 175 bhp (Document # 96.1.1, Revision 5, 1/11/02, attached below). Typically BACT for IC engines is the use of a spark ignition gas fired engine; however, compression ignition diesel fueled engines are allowed for emergency standby generators. Since the most stringent controls available (such as SCR for NO_x and oxidation catalysts for CO) are not expected to be cost effective for standby engines, standby engines must comply with the BACT(2) achieved in practice level of controls.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology (BACT) Guideline

Source Category

Source:	***IC Engine – Compression Ignition***	Revision:	***5***
		Document #:	***96.1.2***
Class:	***> or = 175 horsepower output rating***	Date:	***01/11/02***

Determination

POLLUTANT	BACT 1. Technologically Feasible/ Cost Effective 2. Achieved in Practice 3. TBACT	TYPICAL TECHNOLOGY
POC	1. *0.30 g/bhp-hr [62 ppmvd @ 15% O_2] [a,b]* 2. *1.5 g/bhp-hr [309 ppmvd @ 15% O_2] [b,c]*	1. *Catalytic Oxidation and CARB or EPA (or equivalent) low-total hydrocarbon emitting certified engine [a,b]* 2. *CARB or EPA (or equivalent) low-total hydrocarbon emitting certified engine [b,c]*

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

NOx	1. *1.5 g/bhp-hr [107 ppmvd @ 15% O_2] [a,b]* 2. *6.9 g/bhp-hr [490 ppmvd @ 15% O_2] [a,b,c]* *3. 6.9 g/bhp-hr [490 ppmvd @ 15 % O_2]*	1. *Selective Catalytic Reduction (SCR) + Timing Retard + Turbocharger w/ Intercooler [a,b]* 2. *Timing Retard $\leq 4^o$ + Turbocharger w/ Intercooler [a,b,c]* 3. *Timing Retard $\leq 4^o$ + Turbocharger w/ Intercooler*
SO_2	1. *n/d* 2. *fuel oil < 0.05% sulfur [a,b]*	1. *n/d* 2. *Fuel Selection [a,b]*
CO	1. *n/s* 2. 2.75 *g/bhp-hr [319 ppmvd @ 15% O2] [b,c]*	1. *Catalytic Oxidation [b]* 2. *CARB or EPA (or equivalent) low-CO emitting certified engine b,c*
PM_{10}	1. *n/d* 2. *If practical, gas-fueled engine or electric motor. If not, "California Diesel Fuel" (fuel oil w/ < 0.05% by weight sulfur and < 20% by volume aromatic hydrocarbons) [b]* 3. *0.1 grams/bhp-hr*	1. *Catalyst Guard Bed [a,b]* 2. *Fuel Selection [b,d]* 3. *CARB or EPA (or equivalent) low-particulate matter emitting certified engine, or particulate filter*
NPOC	1. *n/a* 2. *n/a*	1. *n/a* 2. *n/a*

References

a. CARB/CAPCOA Clearinghouse
b. BAAQMD NOTE: IC Engine BACT and TBACT is a low emitting, spark-ignited, gas-fueled engine with lean burn combustion or rich burn with non-selective catalytic reduction, or electric motor. A diesel engine will be permitted only if a gas-fueled engine, or electric motor, is not practical (e.g., a remote location without natural gas availability or electric power, or only a diesel engine will meet the portability and/or power/torque/rpm requirements of the application under review, or the engine is used exclusively for emergency use during involuntary loss of power).
c. Timing retard, etc. controls alone may be acceptable only in very limited situations for temporary sources.

BACT for NO_x: As shown in the BACT determination above, the BACT(2) emission limit is a standby engine that has a CARB certified emission factor of no more than 6.9 grams NOx/bhp-hour. From Tables 2a-c, the proposed engines have CARB certified emission factors for NO_x+HC of 2.68 grams/bhp-hour for S-199 and 2.76 grams/bhp-hr for S-200 and S-201. Therefore, the proposed engines will comply with BACT(2) for NO_x emissions.

BACT for CO: As shown in the BACT determination above, the BACT(2) emission limit is a standby engine that has a CARB certified emission factor of no more than 2.75 grams CO/bhp-hour. From Tables 2a-c, the proposed engines have a CARB certified emission factor for CO of 1.34 grams/bhp-hour for S-199 and 2.31 grams/bhp-hr for S-200 and S-201. Therefore, the proposed engines will comply with BACT(2) for CO emissions.

New Source Review (Offsets)

Regulation 2, Rule 2, New Source Review (NSR), Section 302 requires offsets for NO_x and POC emission increases, if the site emits more than 10 tons/year of these pollutants. Facilities that emit more than 35 tons/year of NO_x or POC do not qualify for the small facility bank and must provide these offsets at a ratio of 1.15 to 1.0. This offset ratio is applied to the sum of the emission increases from each new or modified source plus any pre-existing cumulative increases and minus any contemporaneous on-site emission reduction credits.

From the District's databank, total actual emissions from Site # A2066 during 2006 were determined to be: 107.0 tons/year of POC and 75.4 tons/year of NO_x. Since NO_x and POC emissions at this facility each exceed 35 tons/year, Waste Management is responsible for providing offsets for any net emission increases (cumulative emission increases – contemporaneous on-site reductions) of NO_x and POC. As shown in Table 6, contemporaneous on-site reductions of NO_x and POC exceed the cumulative emission increases for this application. Therefore, no additional NO_x or POC offsets are required.

Regulation 2, Rule 2, New Source Review (NSR), Section 303 requires offsets for PM_{10} and SO_2 emission increases, if the site is a major facility for that pollutant (i.e. if the site emits more than 100 tons/year of PM_{10} or SO_2). Offsets are required if the net emission increase (cumulative emission increases – contemporaneous on-site reductions) exceeds 1.0 tons/year. Offsets shall be provided at a ratio of 1.0 to 1.0.

From the District's databank, total actual emissions from Site # A2066 during 2006 were determined to be: 131.8 tons/year of PM and 13.6 tons/year of SO_2. This site is a major facility of PM_{10} emissions, but it is not a major facility of SO_2 emissions. Therefore, this site is only subject to offset requirements for PM_{10} emission increases.

However, the net difference between cumulative increases and on-site reductions is 0.000 tons/year of PM_{10}. Therefore, no additional PM_{10} offsets are required.

New Source Review (PSD)

CO has the largest emission rate for any of the criteria pollutants. During 2006, this site emitted 174.4 tons/year of CO. Since the current emissions from this site are less than 250 tons/year for each pollutant, this site is not currently identified as a PSD facility. Although this site is a major facility (it emits more than 100 tons/year of PM_{10}, POC, and CO), this application is not a major modification, because: PM_{10} emission increases are less than 15 tons/year, POC emission increases are less than 40 tons/year, and CO emission increases are less than 100 tons/year. Therefore, this application does not trigger any PSD modeling requirements.

New Source Review for Toxic Air Contaminants (Regulation 2, Rule 5)

As discussed in the emissions section, all PM_{10} emissions from diesel IC engines are considered to be Diesel PM, a toxic air contaminant. Pursuant to Regulation 2-5-111, the toxic NSR requirements do not apply to IC engine emissions arising from emergency operation or APCO required testing. Therefore, this rule only applies to reliability related testing of S-199, S-200, and S-201. There are no applications within the last two years that have toxic emission increases. Therefore, this application constitutes the project.

As of January 1, 2005, the CARB Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines limits non-emergency operating time (operation during emergencies is not limited) for new emergency standby engines to 50 hours per year unless the engine has a CARB certified emission factor of no more than 0.01 g/bhp-hr. Since the proposed engines have a CARB certified PM_{10} emission factors of more than 0.01 g/bhp-hr, these engines may not operate more than 50 hours/year each for non-emergency purposes.

At 50 hours/year of non-emergency operation, the total project emissions are 13.57 pounds/year of diesel PM, which exceeds the risk screen trigger level from Table 2-5-1 of 0.58 pounds/year. Therefore, a health risk screening analysis (HRSA) is required. The District used the ISCST3 air dispersion model to determine maximum ambient air concentrations resulting from each proposed engine and from the total project. The health risk was calculated in accordance with the MOP and the HRSA Guidelines. The attached HRSA report contains a detailed discussion of all modeling parameters and health risk calculation procedures.

The District determined that the maximum cancer risk due to this project would be 1.2 in a million. Maximum cancer risks due to each engine are: 0.5 in a million for S-199, 0.6 in a million for S-200, and 0.9 in a million for S-201. The chronic non-cancer hazard index for the project is less than 0.001. The HRSA results are summarized in Table 7.

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

Table 7 Summary Source and Project Risks For Application # 16256

(1)	Cancer Risk, Chances in a Million		Chronic Non-Cancer Hazard Index	
(2)	Resident	Worker	Resident	Worker
S-199	0.54	0.45	0.0003	0.0003
	Cancer Risk, Chances in a Million		Chronic Non-Cancer Hazard Index	
	Resident	Worker	Resident	Worker
S-200	0.55	0.45	0.0003	0.0003
	Cancer Risk, Chances in a Million		Chronic Non-Cancer Hazard Index	
	Resident	Worker	Resident	Worker
S-201	0.88	0.73	0.0005	0.0005
	Cancer Risk, Chances in a Million		Chronic Non-Cancer Hazard Index	
	Resident	Worker	Resident	Worker
Project	1.2	1.0	0.0007	0.0007

(1) An acute hazard index was not determined because Diesel PM does not have an acute health effects value (no acute inhalation REL).

(2) Health risks for students were not determined, because this facility is located more than 1000 feet from the nearest school.

TBACT:
Pursuant to Regulation 2-5-301, TBACT is required for a new or modified source if the source risk is greater than 1.0 in a million or a hazard index is greater than 0.2. Although the total project risk is greater than 1.0 in a million, the source risk from each proposed engine will not exceed 1.0 in a million and will not exceed a hazard index of 0.2. Therefore, none of these proposed engines are required to meet TBACT.

Project Risks:
Pursuant to Regulation 2-5-302, projects are limited to a maximum cancer risk of 10.0 in a million and maximum hazard index of 1.0. As shown in Table 7, this project complies with these limits. Note that an acute hazard index cannot be determined for this project because Diesel PM does not have an acute inhalation REL.

Applicable District Rules

Regulation 6:
Regulation 6 Particulate Matter and Visible Emissions requires that any emission point have no visible emissions (6-305). Since the displacement of each proposed engine is less than 1500 cubic inches, S-199, S-200, and S-201 are subject to Regulation 6-303 instead of Regulation 6-301 and 6-302. Regulation 6-303 limits particulate emissions to no greater than Ringelmann 2.0 and limits particulate emissions to no greater than 40% Opacity for 3 minutes in any hour. Properly operated standby engines are expected to comply with these visible emissions, Ringelmann, and opacity limits.

Regulation 6-310 limits the particulate emission rate in the exhaust to 0.15 grains/dscf. The proposed engines will comply with this limit, because each engine will emit a maximum of 0.03 grains/dscf. The maximum grain loading emission rate from each engine was calculated using the equation below. The heat content and flue gas factors are standard EPA assumptions for diesel oil.

GL grains / sdcf = [(P bhp)*(PM10 grams/bhp-hr)/(453.6 grams/pound)*(7000 grains/pound)] /
[(F gallons/hour)*(0.137 MM BTU/gallon)*(9190 sdcf/MM BTU)] = P*PM10/F*0.01226

S-199: 230 * 0.127 / 11.8 * 0.01226 = 0.030 grains/sdcf
S-200: 420 * 0.112 / 19.4 * 0.01226 = 0.030 grains/sdcf
S-199: 420 * 0.112 / 19.4 * 0.01226 = 0.030 grains/sdcf

Regulation 8, Rule 2:
Regulation 8, Rule 2 Miscellaneous Operations applies to diesel oil fired IC engines. Regulation 8-2-301 limits total carbon emissions to either 15 pounds/day or to an exhaust stack concentration of 300 ppmv. For the types of organic compounds expected in diesel exhaust, the total carbon emission rate will be no more than the total POC emission rate. From Tables 2a-c, POC emissions are 1.63 pounds/day from S-199 and 3.30 pounds/day from S-200 and S-201. Since these POC emission rates are less than 15 pounds/day, each engine will comply with Regulation 8-2-301.

Regulation 9, Rule 1:
Regulation 9, Rule 1 Sulfur Dioxide applies to diesel oil fired IC engines. Regulation 9-1-302 limits the SO_2 concentration in an exhaust point to 300 ppmv. For diesel oil with 0.05% S, the maximum SO_2 concentration in the exhaust (at 0% excess oxygen) is 34 ppmvd. Therefore, the proposed engines will comply with 9-1-302.

Regulation 9, Rule 8:
Regulation 9, Rule 8 Nitrogen Oxides and Carbon Monoxide From Stationary Internal Combustion Engines applies to compression ignition engines and standby engines. Per Regulation 9-8-110, standby compression ignition engines are exempt from Sections 304 and 305. Since these engines are not used for essential public services, the only applicable limits are from Section 330.2 and 330.3. Until 1/1/2012, Section 330.2 limits the operating time for reliability related activities to 100 hours/year. After 1/1/2012, Section 330.3 limits this operating time to 50 hours/year. Since the engines will be limited to 50 hours/year per the ATCM and permit conditions, these engines will comply with Regulation 9-8-330. The engines will be equipped with a non-resettable totalizing meter that measures operating hours, and the permit holder will keep the records required by Regulation 9-8-530.

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

State Requirements

CARB's Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (CCR § 93115) applies to diesel fueled emergency standby engines that are larger than 50 bhp. The proposed engines (S-199, S-200, and S-201) will comply with CCR § 93115.5(a) by using CARB diesel fuel. Waste Management will comply with CCR § 93115.6(a)(2-3) by operating the engine only in response to an actual power outage or for reliability related testing that does not exceed 50 hours per year. The proposed engines will also comply with these sections by having CARB certified emissions of less than 0.15 g/bhp-hr of PM_{10} and by meeting the standards that are specific to the engine size and model year for other pollutants. For 2007 model year engines with output ratings between 175-750 bhp, the applicable standards are Tier 3 limits of 3.0 g/bhp-hr for NMHC+NO_x and 2.6 g/bhp-hr for CO. As shown in Tables 1a-b, the proposed engines will comply with these Tier 3 Standards.

Federal Requirements

The federal NSPS for Stationary Compression Ignition IC Engines (40 CFR, Part 60, Subpart IIII) applies to certain engines of model year 2006 and later. The proposed engines are model year 2007 engines, are standby emergency engines, are not fire pump engines, and have displacements of 6.6 and 8.8 liters (1.1 liters/cylinder). Per CFR § 60.4200, these engines are subject to this NSPS. Standby engines with capacities of 50-3000 bhp must meet the applicable Tier standard (in this case Tier 3) for off-road engines pursuant to CFR § 60.4202 and § 60.4205. Section 60.4207 requires subject engines to use diesel fuel that meets 40 CFR 80.510(a) and 40 CFR 80.510(b) as of 10/1/2010. CARB certified diesel fuel is expected to meet these requirements. The engines will be equipped with a non-resettable hour meter that satisfies the requirements of 40 CFR 60.4209. Waste Management will comply with 40 CFR 60.4211 by installing, operating, and maintaining these engines in accordance with the manufacturer's specifications. For these engines, additional performance testing is not required.

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

PERMIT CONDITIONS

The following standard template permit conditions are required in order to demonstrate compliance with BACT, the CARB ATCM, and other applicable limits. The basis for each limit is identified in brackets following the part number. The CARB citations in these bases reference an older version of the ATCM. These citations need to be updated for consistency with the recently approved changes to the CARB ATCM. These changes will be made unilaterally for all of the engine template conditions at a later date.

Condition # 22850

1. The owner/operator shall not exceed 50 hours per year per engine for reliability-related testing. [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3)]

2. The owner/operator shall operate each emergency standby engine only for the following purposes: to mitigate emergency conditions, for emission testing to demonstrate compliance with a District, State or Federal emission limit, or for reliability-related activities (maintenance and other testing, but excluding emission testing). Operating while mitigating emergency conditions or while emission testing to show compliance with District, State or Federal emission limits is not limited. [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3)]

3. The owner/operator shall operate each emergency standby engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated and properly maintained. [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection(e)(4)(G)(1)]

4. Records: The owner/operator shall maintain the following monthly records in a District-approved log for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit). Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.
    a. Hours of operation for reliability-related activities (maintenance and testing).
    b. Hours of operation for emission testing to show compliance with emission limits.
    c. Hours of operation (emergency).
    d. For each emergency, the nature of the emergency condition.

e. Fuel usage for each engine(s).
[Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(4)(I), (or, Regulation 2-6-501)]

5. At School and Near-School Operation: If the emergency standby engine is located on school grounds or within 500 feet of any school grounds, the following requirements shall apply:
The owner/operator shall not operate each stationary emergency standby diesel-fueled engine for non-emergency use, including maintenance and testing, during the following periods:
   a. Whenever there is a school sponsored activity (if the engine is located on school grounds)
   b. Between 7:30 a.m. and 3:30 p.m. on days when school is in session. "School" or "School Grounds" means any public or private school used for the purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in a private home(s). "School" or "School Grounds" includes any building or structure, playground, athletic field, or other areas of school property but does not include unimproved school property.

   [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(1)] or (e)(2)(B)(2)]

RECOMMENDATION

Issue an Authority to Construct for the following equipment subject to Template Condition # 22850:

S-199 Diesel Engine for Emergency Standby Generator at Flare Station; Caterpillar, Model C6.6 or Perkins Model 1106D-E66TA, Model Year 2007, 230 bhp, 11.8 gallons/hour of diesel oil.

S-200 Diesel Engine for Emergency Standby Generator at WWTP; Caterpillar, Model C9, Model Year 2007, 420 bhp, 19.4 gallons/hour of diesel oil.

S-201 Diesel Engine for Emergency Standby Generator at Maintenance Shop; Caterpillar, Model C9, Model Year 2007, 420 bhp, 19.4 gallons/hour of diesel oil.

Archive the permits for the following equipment:

S-190 Diesel Engine (for emergency standby generator at WWTP)
S-194 Diesel Engine (for emergency standby generator at Flare Station)

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

S-195 Diesel Engine (for emergency standby generator at Maintenance Shop)

By: Carol S. Allen
Senior Air Quality Engineer

Date

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

PERMIT TO OPERATE REPORT
Waste Management of Alameda County; Plant # 2066
Application # 16526

BACKGROUND

On October 30, 2007, the District issued Waste Management an Authority to Construct for three diesel fired Emergency Standby Generators (S-199, S-200, and S-201) pursuant to Application # 16526. These engines are replacing three existing engines (S-190, S-194, and S-195) due to CARB ATCM requirements.

On November 8, 2007, Waste Management informed the District that S-199, S-200, and S-201 would begin operating on November 14, 2007.

STATEMENT OF COMPLIANCE

The three new engines are expected to comply with all applicable requirements based on the design of the equipment. An initial compliance demonstration source test is not required.

PERMIT CONDITIONS

The proposed engines are subject to template Condition # 22850. These conditions have not been modified since the Authority to Construct was issued and remain applicable to S-199, S-200, and S-201.

RECOMMENDATION

Issue a Permit to Operate for the following equipment subject to Template Condition # 22850:

S-199 Emergency Standby Diesel Generator at Flare Station; Caterpillar, Model C6.6 or Perkins Model 1106D-E66TA, Model Year 2007, 230 bhp, 11.8 gallons/hour of diesel oil.

S-200 Emergency Standby Diesel Generator at WWTP; Caterpillar, Model C9, Model Year 2007, 420 bhp, 19.4 gallons/hour of diesel oil.

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

S-201 Emergency Standby Diesel Generator at Maintenance Shop; Caterpillar, Model C9, Model Year 2007, 420 bhp, 19.4 gallons/hour of diesel oil.

By: Carol S. Allen
Senior Air Quality Engineer

Date

APPENDIX K

REPORTS FOR PORTABLE DIESEL ENGINES

TITLE V APPLICATION # 16696

NSR APPLICATIONS # 16695, 17305, 20158, & 21312

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

Engineering Evaluation

for

Old Portable Diesel Engines for Waste Tippers

Waste Management of Alameda County; PLANT # 2066

APPLICATION # 16695

I. BACKGROUND

Waste Management of Alameda County operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). Waste Management submitted this application at the District's request in order to permit four portable diesel engines for waste tippers. Waste Management has been operating four waste tippers at this facility since it began accepting waste in 1980. Each waste tipper is equipped with a portable diesel engine that powers the hydraulic lift. These portable engines have a size range of 100-150 bhp and have been replaced several times since 1980.

Initially, these portable engines were exempt from District permit requirements pursuant to Regulation 2-1-113.2.8, because the engines were less than 250 bhp. On May 17, 2000, the District amended Regulation 2, Rule 1. Regulation 2-1-113.2.8 was deleted and replaced by Regulation 2-1-114.2.1, which reduced the output rating for an exempt engine from 250 bhp to 50 bhp. Regulation 2-1-114.2.3.1 exempted portable diesel engines that operated for no more than 200 hours/year, but Waste Management's waste tipper engines did not meet this operating time restriction. Consequently, the four portable waste tipper engines lost their exemption from permitting requirements on May 17, 2000.

This application will permit the four old portable diesel engines as loss of exemption sources. The specific make, model, and size for each of the initial engines is not known for certain. The information listed below is a best guess. The engines covered by Application # 16695 are:

S-202 Old Portable Diesel Engine for Waste Tipper; Perkins, 5700, 105 bhp, 6.0 gallons/hour of diesel oil.
S-203 Old Portable Diesel Engine for Waste Tipper; Perkins, 3054E, 140 bhp, 7.2 gallons/hour of diesel oil.
S-204 Old Portable Diesel Engine for Waste Tipper; Perkins, 5700, 105 bhp, 6.0 gallons/hour of diesel oil.
S-205 Old Portable Diesel Engine for Waste Tipper; Perkins, 2307, 137 bhp, 6.5 gallons/hour of diesel oil.

Each of these engines has now been replaced with a new engine after diesel PM was declared to be a toxic air contaminant in 2001. The most recent replacements of these old engines will be permitted pursuant to Application # 17305.

II. EMISSIONS

Since S-202, S-203, S-204, and S-205 are loss of exemption engines, the emissions from this equipment is not included in the plant cumulative increase. The emissions from these engines are estimated below based on AP-42 emission factors and an assumed operating rate of 8 hours/day for 320 days/year.

Estimated Emissions for Loss of Exemption Waste Tipper Engines

			Emission Factor (lbs-bhp-hr)					Emissions (tons/year)				
S-#	bhp	hrs/yr	NOx	CO	POC	PM10	SO2	NOx	CO	POC	PM10	SO2
S-202	105	2560	3.10E-2	6.68E-3	2.51E-3	2.20E-3	2.05E-3	4.166	0.898	0.338	0.296	0.276
S-203	140	2560	3.10E-2	6.68E-3	2.51E-3	2.20E-3	2.05E-3	5.555	1.197	0.451	0.394	0.367
S-204	105	2560	3.10E-2	6.68E-3	2.51E-3	2.20E-3	2.05E-3	4.166	0.898	0.338	0.296	0.276
S-205	137	2560	3.10E-2	6.68E-3	2.51E-3	2.20E-3	2.05E-3	5.436	1.171	0.441	0.386	0.359

Detailed emission calculations for the replacement engines are presented in Application # 17305.

III. STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

This application was submitted to obtain permits for engines that lost their exemption from permitting requirements. Therefore, this application is categorically exempt from CEQA review pursuant to Regulation 2-1-312.4, and no further CEQA review is required.

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

NSR Applicability:

As discussed above, each of these old portable diesel engines lost the exemption from permitting requirements on May 17, 2000 when the District reduced the size for IC engine exemption from 250 bhp down to 50 bhp. Therefore, these engines are not subject to new source review (Regulation 2-2 or 2-5).

These engines were subject to District Regulation 6, Rule 1; Regulation 8, Rule 2; and Regulation 9, Rule 1. These engines were also subject to the portable engine ATCM. Since these engines have all now been shut down, compliance with these regulations will not be

discussed in this report. See Application # 17305 for a detailed discussion of applicable requirements.

IV. Permit Conditions

Since these devices have been shut down, the District is not proposing any permit conditions. See Application # 17305 for the applicable conditions for the replacement engines.

V. RECOMMENDATION

Approve a Permit to Operate for the following loss of exemption sources:

S-202 Old Portable Diesel Engine for Waste Tipper; Perkins, 5700, 105 bhp, 6.0 gallons/hour of diesel oil.

S-203 Old Portable Diesel Engine for Waste Tipper; Perkins, 3054E, 140 bhp, 7.2 gallons/hour of diesel oil.

S-204 Old Portable Diesel Engine for Waste Tipper; Perkins, 5700, 105 bhp, 6.0 gallons/hour of diesel oil.

S-205 Old Portable Diesel Engine for Waste Tipper; Perkins, 2307, 137 bhp, 6.5 gallons/hour of diesel oil.

DO NOT PREPARE A PERMIT TO OPERATE LETTER.

This equipment will be archived pursuant to Application # 17305.

By: Carol S. Allen Date
Senior Air Quality Engineer

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

ENGINEERING EVALUATION

for

Waste Tipper Engine Replacements (S-206, S-207, S-208, and S-209)

Waste Management of Alameda County; PLANT # 2066

APPLICATION # 17305

I. BACKGROUND

Waste Management of Alameda County operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). This site includes an active MSW landfill, landfill gas collection and control equipment, landfill gas energy recovery equipment, green waste processing operations, waste water treatment operations, and numerous stationary and portable diesel engines that provide primary or emergency power to auxiliary equipment and buildings.

Waste Management submitted this application in order to obtain permits to operate for four portable diesel engines that power hydraulic lifts on waste tippers. Waste Management has been operating four waste tippers at this site since 1980 when waste disposal began in Fill Area 1. The portable waste tippers are positioned at the upper edge of the active face and move around the fill area as the active face is moved. Waste Management typically has two waste tippers per location with only one pair of tippers operating during any one day. Each waste tipper is equipped with a small portable diesel-fueled IC engine (typical size is 100-140 bhp). These portable waste tipper engines are replaced about every 5-7 years. Prior to May 17, 2000, these small waste tipper engines were exempt from permit requirements, because the engines were smaller than 250 bhp. The May 2000 permit exemption amendment subjected all engines larger than 50 bhp to District permit requirements.

Under Application # 16695, the District issued Loss of Exemption permits to the four portable waste tipper engines (S-202, S-203, S-204, and S-205) that Waste Management had been operating at this site prior to the May 2000 permit exemption amendment. The District later cancelled the permits for these engines when the District determined that all of these engines had been replaced after the May 2000 permit exemption change. Waste Management replaced all of the waste tipper engines in 2006 and 2007, but did not obtain an Authority to Construct for any of these engine replacements. Waste Management submitted Application # 17305 in January 2008, after being notified by the District that the four engine replacements required new permits and subjected these engines to new source review.

The initial risk screening analysis for these engines indicated that the source risk for just one engine could exceed 10 in a million cancer risk for worker receptors in some of the possible engine locations. Also two of the four engines did not comply with TBACT for diesel PM.

Severe restrictions on operating hours and operating locations would need to be imposed in order for the District to approve the permits for these engines.

Waste Management subsequently installed CARB verified level 3 diesel particulate filters on all four tipper engines and requested that the District conduct a new risk screening analysis for the engines at the new abated diesel PM emission rates. In addition, the District has now proposed to approve Application # 14814 for the Fill Area 2 expansion project. The waste tipper engines are integrally related to the landfill disposal operations. Therefore, these projects are related, and the District must consider the operation of waste tippers in Fill Area 2 along with the Fill Area 2 expansion project impacts.

II. EMISSIONS

The maximum hourly emission rates from the four portable diesel engines (which are equipped with diesel particulate filters) are based on CARB certified emission factors and maximum engine capacities. The engines capacities are described in Table 1. The emission factors are described in Tables 2 and 3. Maximum hourly emission rates are presented in Table 4.

Table 1. Descriptions and Rated Capacities of the Waste Tipper Engines

Source Number	Source Description	Rated Capacity Bhp	Electrical Output kW	Maximum Fuel Use * gallons / hour	Maximum Fire Rate MM BTU / hour
S-206	Portable Diesel Engine for Tipper # 83	127.0	94.7	7.08	0.971
S-207	Portable Diesel Engine for Tipper # 93	137.4	102.5	6.44	0.882
S-208	Portable Diesel Engine for Tipper # 70	127.0	94.7	7.08	0.971
S-209	Portable Diesel Engine for Tipper # 71	137.4	102.5	6.44	0.882

* Calculated based on fuel usage rate (lbs/hour at peak hp) reported in CARB EO for each engine.

Table 2. CARB Certified Emission Factors (grams/kW-hour)

Source Number	NOx + HC	CO	PM10	PM10 Control	Abated PM10
S-206	3.7	1.3	0.17	85%	0.026
S-207	5.9	0.5	0.22	85%	0.033
S-208	3.7	1.3	0.17	85%	0.026
S-209	5.9	0.5	0.22	85%	0.033

Table 3. Databank Emission Factors (grams/bhp-hour)

Source Number	NOx	CO	POC	Abated PM10	SO2
S-206	2.621	0.969	0.138	0.019	0.179
S-207	4.180	0.373	0.220	0.025	0.151

S-208	2.621	0.969	0.138	0.019	0.179
S-209	4.180	0.373	0.220	0.025	0.151

Table 4. Maximum Hourly Emissions (Pounds/Hour)

Source Number	NOx	CO	POC	PM10	SO2
S-206	0.734	0.271	0.039	0.005324	0.050
S-207	1.266	0.113	0.067	0.007454	0.046
S-208	0.734	0.271	0.039	0.005324	0.050
S-209	1.266	0.113	0.067	0.007454	0.046

Proposed maximum daily emissions are based on the Table 4 hourly emission rates and the maximum possible operating time of 24 hours/day. Proposed maximum daily emissions are presented in Table 5a.

Table 5a. Proposed Maximum Daily Emissions (Pounds/Day)

Source Number	Hours/Day	NOx	CO	POC	PM10	SO2
S-206	24	17.61	6.51	0.93	0.13	1.21
S-207	24	30.39	2.71	1.60	0.18	1.10
S-208	24	17.61	6.51	0.93	0.13	1.21
S-209	24	30.39	2.71	1.60	0.18	1.10

At the proposed maximum operating rate of 24 hours/day, BACT is triggered for each engine, because NOx emissions from each engine are greater than 10 pounds/day. As discussed in Section C, S-206 and S-208 comply with BACT for NOx emissions, but S-207 and S-209 do not meet the BACT standards. The S-207 and S-209 Portable Diesel Engines can only be permitted if these engines are each limited to 7.5 hours/day of operation. The revised maximum daily emissions at this operating limitation are shown in Table 5b.

Table 5b. Revised Daily Emissions to Prevent Triggering BACT (Pounds/Day)

Source Number	Hours/Day	NOx	CO	POC	PM10	SO2
S-207	7.5	9.50	0.85	0.50	0.06	0.34
S-209	7.5	9.50	0.85	0.50	0.06	0.34

Waste Management initially requested to operate each portable engine for 20 hours/day, 7 days/week, and 52 weeks/year, or a total of 7280 hours/year per engine. The total requested

operating time was 29,120 hours/year for the four engines combined. Even after installation of the diesel particulate filters, the project cancer risk for both operating scenarios (engines located in Fill Area 1 and engines located in Fill Area 2) exceeded 10 in a million for this requested operating rate. Based on the HRSA for this project, the total operating time for all four engines must be limited to 12,000 hours/year to achieve compliance with the Regulation 2-5-302 project risk limits.

In addition, to this combined annual operating rate limit for the 4 engines, the S-207 engine is limited to operating 7.5 hour/day to prevent triggering BACT, which equates to a maximum annual operating rate of 2730 hours/year. The S-209 engine must be limited to 80 hours/year of operating time to qualify as a low-use engine pursuant to CARB's ATCM for portable diesel engines. S-209 cannot comply with the CARB ATCM requirements in any other way. Although S-207 and S-209 have higher hourly NOx, POC, and PM10 emission rates than S-206 and S-208, S-206 and S-208 have higher hourly CO and SO2 emission rates than S-207 and S-209. The District evaluated several potential operating scenarios for these engines and determined the total annual emissions for each scenario. The District compared the emissions for each operating scenario to determine the highest total emission rate for each pollutant. These maximum annual emission rates for the various operating scenarios are presented in Table 6.

Table 6. Maximum Annual Emissions and Cumulative Emission Increases (Tons/Year)

Source Number	NOx	CO	POC	PM10	SO2
Total	5.151	1.629	0.271	0.035	0.302

Diesel PM is a toxic air contaminant. All PM10 emissions from diesel fired IC engines are considered to be diesel PM. Highest PM10 emissions will occur when the operating rates at S-207 and S-209 are maximized: 2730 hours/year for S-207, 80 hours/year for S-209, and 4595 hours/year each for S-206 and S-208 (12,000 hours/year total). For this operating scenario, the maximum permitted diesel PM emission rate will be 69.87 pounds/year (0.035 tons/year of PM10) for the four engines combined.

To simplify the HRSA for this project, the District initially used the worst-case stack parameters for any engine and applied them to all four engines. The highest hourly emission rate from any single engine is: 7.454E-3 pounds/hour from S-207 or S-209. This hourly emission rate was multiplied by the proposed maximum annual operating time of 12,000 hours/year to determine a worst-case annual diesel PM emission rate of 89.45 pounds/year. This emission rate was divided evenly among the four engines, which resulted in 22.36 pounds/year of diesel PM per engine (3.2165E-4 g/s per engine). The District hoped to have a single annual operating time limit of 12,000 hours for the four engines combined, in which case this 89.45 pounds/year operating scenario would have been possible. However, the District later determined that S-207 and S-209 must have lower individual annual operating time limits than S-206 and S-208 due to BACT and CARB ATCM limitations. Thus, this 89.45 pound/year operating scenario is no longer possible.

The HRSA was revised based on the following operating rates: 4595 hrs/yr for S-206, 2730 hrs/yr for S-207, 4595 hrs/yr for S-208, and 80 hrs/year for S-209. Actual stack parameters for each engine were used in this revised HRSA. Also, the Fill Area 1 engine locations were refined based on additional information provided by the applicant.

III. STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

The diesel fired IC engines in this application were evaluated in accordance with the objective measurements and standard procedures described in District Permit Handbook Chapter 2.3.3 Portable Diesel Engines. The engines are expected to comply with the standard BACT/TBACT requirements identified in the District's BACT/TBACT Workbook for compression ignition prime IC engines that are larger than 50 bhp (Document # 96.1.4, Revision 6). This application does not involve any discretionary decisions. Therefore, the issuance of an Authority to Construct and Permit to Operate for these engines is considered ministerial pursuant to Regulation 2-1-311. No further CEQA review is required.

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

Regulation 2, Rule 2:

As shown in Table 5a, NOx emissions from each engine will exceed 10 pounds/day at the proposed operating rate of 24 hours/day. Therefore, BACT is triggered for NOx. The standard BACT determinations for prime (non-agricultural) compression ignition engines (> 50 bhp) are presented in Document # 96.1.4, Revision 6, last revised April 13, 2009. For NOx, BACT(2) is compliance with the current CARB/EPA tier standard for the engine and BACT(1) is 85% of this tier standard. BACT(1) is achieved by selective catalytic reduction, which is not feasible to install on these small portable prime engines. Therefore, the engines will be allowed satisfy BACT by complying with BACT(2). The current CARB/EPA tier standards for engines with output ratings of 100-175 bhp (effective for model years 2007-2011) is 3.0 g/bhp-hr for NMHC+NOx, 3.7 g/bhp-hr for CO, and 0.22 g/bhp-hr for PM10. For NOx alone, the BACT standard is 95% of the NMHC+NOx tier standard, which is 3.515 g/bhp-hr of NOx. From Table 3, S-206 and S-208 comply with this BACT limitation by having certified NOx emissions of 2.62 g/bhp-hour. However, S-207 and S-209 have certified NOx emission factors of 4.18 g/bhp-hr and do not comply with BACT for NOx emissions. S-207 and S-209 may only be permitted if the operation of each engine is limited to such an extent that BACT is not triggered. At the proposed emission rate of 4.18 g/bhp-hr, S-207 and S-208 will each trigger BACT after 7.9 hours/day of operation. If S-207 and S-209 are each limited to operating 7.5 hours/day, the maximum NOx emissions from each engines would be 9.50 pounds/day, and these engines would not trigger BACT (see Table 5b).

This facility is subject to the Regulation 2-2-302 offset requirements for NOx and POC emission increases, because NOx and POC emissions from this site each exceed 35 tons/year. From Table 6, this application results in 5.151 tons/year of NOx and 0.271 tons/year of POC from the four new engines. Since the sources that these new engines replaced were last operated more than three years ago, the replaced engines have no qualifying actual emission reductions (in other words, the baseline emission rate is 0). Thus the total emission rates that are listed in Table 6 are also the cumulative emission increases for this application.

All NOx and POC emission increases must be offset at a ratio of 1.15:1.0. The total emission reduction credits required for this application are: (5.151*1.15) = 5.924 tons/year of NOx and (0.271*1.15) = 0.312 tons/year of POC. Waste Management has requested to use POC credits to offset the NOx emission increases. The total amount of POC credits required for Application # 17305 is 6.236 tons/year of POC. Application #19045 for the S-210 LNG Plant resulted in 1.350 tons/year of POC increases and requires 1.552 tons/year of POC emission reduction credits. The total amount of POC credits required for these two applications is 7.788 tons/year. Waste Management has surrendered Banking Certificates #995 for 12.087 tons/year of POC credits and #1002 for 8.816 tons/year of POC credits. Total credits surrendered are: 20.903 tons/year of POC. The remaining POC credits (20.903-7.788 = 13.115 tons/year of POC credits) will be held by the District for other unfinished applications at this site (#20158, #14814, #16731, and #15503).

Regulation 2-2-303 offset requirements for PM_{10} and SO_2 emission increases only apply if the site is determined to be a major facility of either PM_{10} or SO_2. From Regulation 2-1-204.1, fugitive emissions are only included for the source categories specified in 40 CFR 70.2. Since landfills are not one of these specified categories, the fugitive landfill emissions are excluded from the major facility determination. Total site-wide non-fugitive emissions (including these four new engines) are: 40.83 tons/year of PM10 and 92.96 tons/year of SO2 (see attached July 2009 summary of permitted emission levels for Site # A2066). Since these non-fugitive site-wide permitted emission rates do not exceed 100 tons/year, this site is not a major facility of PM_{10} or SO_2, and offsets are not required for these pollutants.

This site is not a PSD facility, because the total site-wide potential to emit for each pollutant is less than 250 tons/year of non-fugitive emissions. A summary of site-wide permitted emission levels is attached. Pursuant to Application #18819, the District has proposed to approve a site-wide CO cap to ensure that the total CO PTE cannot exceed 250 tons/year. Since this site is not a PSD facility, the PSD requirements do not apply.

New Source Review for Toxic Air Contaminants:

The District is in the process of permitting a major expansion of the Altamont Landfill (S-2) that would allow waste disposal to begin in an adjacent canyon designated as Fill Area 2. This Fill Area 2 Expansion Project (see Application # 14814) is related to this tipper engine replacement project, because the waste tippers are an integral part of the waste disposal process. As discussed in the HRSA for this application, the District has evaluated multiple possible tipper engine

locations for the current operating scenario (tipper engines only operating in Fill Area 1) and the proposed operating scenario (Fill Area 2 emission increases plus tipper engines operating in Fill Area 2), to determine the worst case MEI for this combined project.

As discussed in the emissions section above, the HRSA was initially conducted for a maximum expected diesel PM emission rate of 89.45 pounds/year from four engines or an average of 22.36 pounds per year of diesel PM per engine, but a revised HRSA was prepared for the operating hour limits proposed in this report. This revised HRSA used the actual stack parameters for each engine (rather than the worst case parameters that were used in the previous HRSA) and refined Fill Area 1 operating locations for the engines. The health impacts were determined using the ISCST3 air dispersion model with rural dispersion coefficients and complex terrain. SCREEN3 meteorological data was used, because there are no appropriate met data sites for this facility. The health impacts for the two project scenarios, based on the operating time limits proposed in the permit conditions, are summarized below. The attached HRSA reports contain detailed discussions of the emissions data and modeling procedures for all related sources in this project.

Table 7a. Health Impacts for Existing Scenario (Portable Diesel Engines and LFG Flares)

	Residential Receptors		***Worker Receptors***	
Current Scenario (in Fill Area 1)	***Cancer Risk Per Million***	***Chronic Hazard Index***	***Cancer Risk Per Million***	***Chronic Hazard Index***
A-15 Landfill Gas Flare	***0.02***	***0.0054***	***0.01***	***0.0048***
A-16 Landfill Gas Flare	***0.07***	***0.0248***	***0.13***	***0.0559***
S-206 or S-208 Tipper Engine	***1.11***	***0.0007***	***0.56***	***0.0004***
S-207 Tipper Engine	***0.69***	***0.0004***	***0.81***	***0.0006***
S-209 Tipper Engine	***0.02***	***0.0000***	***0.04***	***0.0328***
S-215 Gen. Engine at Scale House	***0.43***	***0.0003***	***0.98***	***0.0007***
Total Project	*1.95*	*0.028*	*1.37*	*0.056*

Table 7b. Health Impacts for Proposed Scenario (New Diesel Engines, Flares, and Fill Area 2)

	Residential Receptors		***Worker Receptors***	
Proposed Scenario (in Fill Area 2)	***Cancer Risk Per Million***	***Chronic Hazard Index***	***Cancer Risk Per Million***	***Chronic Hazard Index***
Landfill Expansion Project: S-2 (Total Impacts from FA 1&2)	***9.71***	***0.1397***	***3.75***	***0.0632***
Max. Due to Landfill Gas Flares: A-15 or A-16	***0.06***	***0.0207***	***0.13***	***0.0559***
Max. Due to 2007 Model Year Tipper Engines: S-206 or S-208	***0.76***	***0.0004***	***0.39***	***0.0003***
Max. Due to Pre-2007 Model Year Tipper Engines: S-207 or S-	***0.46***	***0.0003***	***0.38***	***0.0003***

209				
Scale House Portable Generator Engine: S-215	***0.43***	***0.0003***	***0.98***	***0.0007***
Total Project	*9.86*	*0.140*	*4.25*	*0.063*

As shown in Table 7a, the highest individual source risks for these tipper engines will occur when the tipper engines are operating within Fill Area 1. For S-206 and S-208, the highest health impacts for the MEI are 1.1 in a million cancer risk and 0.001 chronic hazard index. Since the cancer risk for S-206 or S-208 could exceed the 1.0 in a million TBACT threshold, S-206 and S-208 must be equipped with TBACT. For S-207 and S-209, the highest health impacts for the MEI are 0.81 in a million cancer risk and 0.033 chronic hazard index. Since these impacts are less than the TBACT thresholds of 1.0 in a million cancer risk and 0.2 chronic HI, S-207 and S-209 are not required to meet TBACT.

All of these engines are now equipped with verified level-3 diesel PM filters that are certified to achieve at least 85% control of diesel PM emissions. From the District's BACT/TBACT Guidelines, Document # 96.1.4 (last revised April 13, 2009), TBACT for diesel PM is compliance with a PM_{10} emission limit of 0.01 g/bhp-hour or equivalent technology. The footnote indicates that equivalent technology may be demonstrated by one of the methods listed in California Health and Safety Code Section 93115.13(f). After control by the diesel PM filter, S-206 and S-208 will emit 0.019 g/bhp-hour. However, these engines meet H&S Code Section 93115.13(f)(1-2), because the engines have certified emission rates of less than 0.15 g/bhp-hr prior to control and the filter is a level-3 verified technology that is certified to achieve at least 85% control of diesel PM. Therefore, these engines (equipped with the Huss filters) comply with District TBACT requirements for prime compression ignition engines. Although S-207 and S-209 are not required to meet TBACT (and cannot meet TBACT because the pre-control certified emission rate is greater than 0.15 g/bhp-hr), these engines are required to use the Huss filters in order to avoid triggering TBACT.

As shown in Table 7b, project risks are highest when the engines are operating in Fill Area 2 in conjunction with the Fill Area 2 expansion project. The total project cancer risk is primarily due to the emission increases at the landfill that result from the Fill Area 2 Expansion Project (Application #14814). The addition of these four diesel-fired waste tipper engines only increased the total project cancer risk by 0.15 in a million. The highest project risks for all project emission increases will be: 9.9 in a million cancer risk and 0.14 chronic hazard index. Since diesel PM has no acute health effects values, the acute risk was not re-evaluated. From Application #14181, the acute hazard index for the Fill Area 2 expansion project is 0.9. These total project health impacts are less than the project risk limits in Regulation 2-5-302 (<10 in a million cancer risk, <1.0 chronic HI, and <1.0 acute HI), and this project complies with the District's toxic NSR requirements.

Regulation 2, Rule 6:

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act (40 CFR, Part 70) and BAAQMD Regulation 2, Rule 6, Major Facility Review (MFR), because it is a major facility for NO_x and CO emissions and also because it is a designated facility (since it is subject to the control requirements of the Emission Guidelines for MSW Landfills). Therefore, this facility is required to have an MFR permit pursuant to Regulations 2-6-301 and 2-6-304.

The MFR Permit for this facility was initially issued on December 1, 2003 and was last revised on October 9, 2008. This application to add 4 new sources to this facility will require a minor revision of the Title V permit. This Title V permit revision will be handled pursuant to Application # 16696.

Regulation 6, Rule 1:

The four diesel-fired tipper engines are subject to Regulation 6, Rule 1. Regulation 6-1-301 limits the visible emissions from each of these sources to Ringelmann 1.0. No visible particulate emissions are expected from properly operating diesel engines equipped with particulate filters.

Regulation 6-1-310 limits the exhaust point emission rate to 0.15 grains/dscf. After installation of the particulate filters, S-206 and S-208 will emit 0.0042 grains/sdcf at 0% O2 and S-207 and S-209 will emit 0.0064 grains/sdcf at 0% O2. These engines comply with Regulation 6-1-310 by a margin of at least 23:1. Since there is a high margin of compliance with this grain loading limit and the particulate emission rate has been certified by CARB, it is not necessary to conduct any addition compliance demonstration monitoring for this limit.

Regulation 8, Rule 2:

This rule applies to diesel oil fired IC engines. Regulation 8-2-301 limits total carbon emissions to either 15 pounds/day or to an exhaust stack concentration of 300 ppmv. From Tables 5a and 5b, maximum emissions are 0.93 pounds/day of POC from S-206 and S-208 and 0.50 pounds/day of POC from S-207 and S-209. Therefore, these engines will comply with Regulation 8-2-301 by emitting less than 15 pounds/day of total carbon. Additional monitoring to verify compliance with this certified emission rate is not necessary.

Regulation 9, Rule 1:

The portable diesel engines are subject to Regulation 9, Rule 1. Regulation 9-1-302 limits the sulfur dioxide concentration in an exhaust point to 300 ppmv. At the CARB diesel fuel sulfur content limit of 0.05% sulfur by weight and the theoretical F-factor of 9190 sdcf of flue gas (0% O_2) per MM BTU of diesel oil, the maximum possible concentration in the exhaust gas is 34 ppmv of SO_2. Since this maximum possible concentration is far less than the 300 ppmv SO_2 concentration limit, additional compliance demonstration monitoring is not necessary.

Regulation 9-1-304 limits the sulfur content of liquid fuels to 0.5% by weight. Since the engines will use only CARB diesel oil containing less than 0.05% sulfur by weight, these engine will comply with this limit. Records of the source of fuel used in these engines will verify compliance with this limit.

Regulation 9, Rule 8:

Regulation 9, Rule 8 now applies to diesel fueled internal combustion engines; however, these engines are exempt from limits and monitoring requirements until January 1, 2012 pursuant to exemptions in Regulation 9-8-110.1 and 110.3. As of January 1, 2012, the portable diesel engines (S-206, S-207, S-208, and S-209) will be subject to Regulation 9-8-304, unless the engine is operated less than 100 hours/year (9-8-111.3) or the operator opts for the Regulation 9-8-305 delayed compliance provision and complies with the Regulation 9-8-402 notification requirements.

For 51-175 hp engines, Regulation 9-8-304 limits the exhaust gas concentrations (corrected to 15% O_2, dry basis) to: 180 ppmv of NOx and 440 ppmv of CO. Based on CARB certified emission factors and the diesel fuel F-factor, S-206 and S-208 will emit (corrected to 15% O_2): 195 ppmv of NOx and 119 ppmv of CO and S-207 and S-209 will emit: 371 ppmv of NOx and 54 ppmv of CO. None of these engines will comply with the Regulation 9-8-304 NOx limit.

Since S-209 engine will be limited to operating 80 hours/year to comply with the ATCM, this engine will be exempt from the above NOx and CO emission limits per 9-8-111.3.

Since the S-206, S-207, and S-208 engines are newer than 1996, the Regulation 9-8-305 delayed compliance provision is an option. By January 1, 2016, these engines must comply with either the current BACT standards for engines of this size or the following limits: 22 ppmv of NOx and 310 ppmv of CO (corrected to 15% O_2). The S-206 and S-208 engines meet current BACT standards for NOx and are expected to comply with the delayed compliance provision requirements in Regulations 9-8-305 and 9-8-402. The S-207 engine does not meet current NOx BACT standards and will need to be retrofitted, replaced, or limited to 100 hours/year of operation prior to 1/1/2012.

The operator will be notified of these future compliance requirements and will be required by permit conditions to submit the necessary compliance plan notifications.

State Requirements:

CARB's Airborne Toxic Control Measure (ATCM) for Diesel PM from Portable Engines (CCR Title 17, Section 93116) applies to portable diesel fueled engines that are rated at 50 bhp or more. The operator of these engines (S-206, S-207, S-208, and S-209) will comply with §93116.3(a) by using only CARB certified diesel fuel in these engines. Since none of these engines were permitted prior to January 1, 2006 and the application to permit these engines was submitted more than six months after the effective date (1/1/07) of the most recent tier standard

change for these engines, these portable diesel engines cannot be considered in-use engines and must meet the requirements of §93116.3(b)(2) instead of §93116.3(b)(1).

As discussed in Section C, the CARB ATCM for portable diesel engines has additional limitations for these non in-use engines that were not permitted or registered as of January 1, 2006 (§93116.3(b)(2)). Such engines may only be permitted now if:

a) the engines comply with the most stringent federal or California emission standards that are currently in effect for non-road engines (§93116.3(b)(2)(A)), or
b) the engine is used exclusively for emergencies or qualifies as a low-use engine (§93116.3(b)(2)(B)) and meets the §93116.3(b)(3) requirements, or
c) the engine qualifies for one of three special exemption cases (§93116.3(b)(5-7)).

For the engines in this application, the most stringent standards currently in effect are the Tier 3 standards for engines with capacities ranging from 100 bhp to 175 bhp. The applicable Tier 3 standards are: 3.0 g/bhp-hour for NOx+NMHC, 3.7 g/bhp-hour for CO, and 0.22 g/bhp-hour for PM10. From the emission factors cited in Table 3, all four proposed engines (equipped with diesel particulate filters) will comply with the current Tier 3 CO and PM10 standards. S-206 and S-208 are also complying with the current Tier 3 NOx+NMHC standard. Thus, S-206 and S-208 satisfy the criteria described under paragraph (a) above and may be permitted at full capacity unless subject to other District limitations.

However, S-207 and S-209 do not comply with the Tier 3 NOx+NMHC standard. Waste Management reported that the S-207 engine began operating on March 1, 2006 and the S-209 engine began operating on April 1, 2007. In accordance with §93116.3(b)(5), the District may permit S-207 (until 12/31/09), because S-207 was operating between 3/1/04 and 10/1/06 and S-207 met the tier standards in effect when the engine was installed (the Tier 2 NOx+NMHC standard was 4.9 g/bhp-hr and S-207 is certified to emit 4.4 g/bhp-hr of NOx+NMHC). However, S-207 must be limited to 7.5 hours/day of operation to prevent triggering BACT.

Since the S-209 engine was installed after 10/1/06, it does not qualify for the §93116.3(b)(5) or (b)(6) exemptions from §93116.3(b)(2). Waste Management did not submit the application for this engine until 1/28/08, which is more than six months after the new Tier 3 standard became effective on 1/1/07. Thus, S-209 does not qualify for the §93116.3(b)(7) exemption from §93116.3(b)(2) either. Since S-209 does not meet the most stringent tier standard, it may only be permitted if it is an emergency or low-use engine that satisfies the requirements of §93116.3(b)(2)(B). Since Waste Management has installed verified technologies that achieve at least 85% reduction in diesel PM, S-209 has met the requirements of §93116.3(b)(3). The District will limit operation of S-209 to 80 hours/year to ensure that it qualifies for low-use. S-209 must also be limited to 7.5 hours/day to prevent triggering BACT.

In addition to these engine specific requirements, the entire fleet of portable engines at Plant # 2066 must comply with the future fleet emission limits in §93116.3(b). For engines < 175, the fleet average emission limit must be: 0.3 g/bhp-hr by 2013, 0.18 g/bhp-hour by 2017, and 0.04 g/bhp-hour by 2020. Each of these engines, when equipped with particulate filters, emits less

PM10 than the 2020 limit above. Therefore these engines will need no additional retrofits to meet these future fleet standards.

Effective 1/1/2012, any low-use engines must be equipped with non-resettable hour meters, the operator must begin keeping annual operating hour records for these low-use engines. By 3/1/2011, the operator must report to CARB all items identified in §93116.4(e), including an inventory of all engines in the operator's fleet (ID, permit status, size, fuel type, and certified emission factors), the compliance status or intention for each engine (low-use, emergency-use, tier 4 replacement date, etc.), and the fleet weighted average PM10 emission rate for the 2010 calendar year.

Federal Requirements:

The engines in this application are not considered to be "stationary" engines by federal definitions, because they meet the requirements of nonroad engines, as defined in 40 CFR 1068.30:

Nonroad engine means:

(1) Except as discussed in paragraph (2) of this definition, a nonroad engine is an internal combustion engine that meets any of the following criteria:
  (i) It is (or will be) used in or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers).
  (ii) It is (or will be) used in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers).
  (iii) By itself or in or on a piece of equipment, it is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.

(2) An internal combustion engine is not a nonroad engine if it meets any of the following criteria:
  (i) The engine is used to propel a motor vehicle, an aircraft, or equipment used solely for competition.
  (ii) The engine is regulated under 40 CFR part 60, (or otherwise regulated by a federal New Source Performance Standard promulgated under section 111 of the Clean Air Act (42 U.S.C. 7411)).
  (iii) The engine otherwise included in paragraph (1)(iii) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least two years) and that operates at that single location approximately three months (or more) each year. See §1068.31 for provisions that apply if the engine is removed from the location.

Although these engines reside at this facility for more than 12 months, they do not reside at a single on-site location (as defined above) for more than 12 consecutive months.

Since the portable diesel engines in this application are nonroad engines and not stationary engines, the NSPS requirements for stationary compression ignition engines (40 CFR, Part 60, Subpart IIII) and the NESHAP requirements for stationary reciprocating internal combustion engines (40 CFR, Part 63, Subpart ZZZZ) do not apply to these engines.

The engines are subject to 40 CFR Part 89 Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines pursuant to Section 89.102 (75-130 kW and manufactured after January 1, 1997). Per Table 1 of Section 89.112, the S-206 and S-208 engines (Model Year 2007, 127 bhp) are subject to Tier 3 emission standards, which limit emissions to: NOx+NMHC = 4.0 g/kW-hr (3.0 g/bhp-hr), CO = 5.0 g/kw-hr (3.7 g/bhp-hr), and PM = 0.3 g/kW-hr (0.22 g/bhp-hr). S-207 and S-209 (Model Years 2003-2006, 137.4 bhp) are subject to Tier 2 emission standards, which limit emissions to: NOx+NMHC = 6.6 g/kW-hr (4.9 g/bhp-hr), CO = 5.0 g/kw-hr (3.7 g/bhp-hr), and PM = 0.3 g/kW-hr (0.22 g/bhp-hr).

Section 89.113 limits opacity to: 20% during acceleration mode, 15% during lugging mode, and 50% during the peaks of either of the above modes.

The engine families for S-206 and S-208 (7PKXL04.4NJ1), S-207 (4PKXL04.4RK1), and S-209 (6PKXL04.4RK1) have been certified to comply with these emission and opacity standards.

IV. Permit Conditions

The District is proposing Condition #24421 for S-206, S-207, S-208, and S-209 to ensure compliance with District and State requirements.

Condition # 24421

FOR: S-206 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 83,
S-207 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 93,
S-208 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 70, AND
S-209 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 71

1. The owner/operator of the portable diesel-fueled waste tipper engines (S-206, S-207, S-208, and S-209) has been issued permits for portable sources (also known as nonroad engines by federal definitions) that are subject to Regulation 2-1-220 and the CARB ATCM for diesel PM from portable engines. Based on these portable source and nonroad engine determinations, these engines are not subject to the CARB ATCM for stationary compression ignition engines, the federal NSPS requirements for stationary compression ignition engines (40 CFR Part 60, Subpart IIII), or the federal NESHAP requirements for stationary reciprocating internal combustion engines (40 CFR, Part 63, Subpart ZZZZ). To retain these portable source and nonroad engine determinations, the owner/operator shall not operate any of these engines in one on-site location for more than 12 consecutive months. Any backup or standby engine that replaces one of these engines at the same on-site location and is intended to perform the same function will be counted toward this time limitation. The owner/operator shall not move equipment and then return it to the same location in an attempt to circumvent the portable equipment time requirement. (Basis: Regulations 2-1-220.1-3, 2-1-220.10, CCR §93116.2(a)(28), and 40 CFR 1068.30)

2. The owner/operator shall use CARB diesel fuel exclusively to fire these engines. (Basis: Cumulative Increase, Offsets, BACT, TBACT, Regulation 2-5-302, and CCR §93116.3(a))

3. The total combined operating time for S-206, S-207, S-208, and S-209 shall not exceed 12,000 hours during any consecutive 12-month period. (Basis: Regulation 2-5-302, Cumulative Increase, and Offsets)

4. To qualify as a "low-use" engine, the operating time for the S-209 engine shall not exceed 80 hours in any calendar year. (Basis: CCR §93116.3(b)(2)(B))

5. To prevent triggering BACT for NOx emissions from S-207 and S-209, the operating time for S-207 and S-209 shall not exceed 7.5 hours per engine during any calendar day. (Basis: Cumulative Increase)

6. Effective January 1, 2012, the owner/operator shall equip each engine (S-206, S-207, S-208, and S-209) with a non-resettable totalizing meter that measures hours of operation for each engine. (Basis: Cumulative Increase, Offsets, Regulation 9-8-530, and CCR §93116.4(c)(2)(A))

7. To demonstrate compliance with Parts 1-5, the owner/operator shall maintain the following records in a District approved log and shall make these records available to District staff upon request. All records shall be retained for at least five years from the date of entry. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable District or state regulations. (Basis: Cumulative Increase, Offsets, Regulations 2-1-220 and 2-5-302, and CCR §93116.2(a)(28) and §93116.3(b)(2)(B), and 40 CFR 1068.30)
   a. Each time an engine is moved to a new on-site location, the owner/operator shall record the initial operation date for that engine in the new location and the total consecutive operating time (in months) for that engine in its previous on-site location. The owner/operator shall describe each on-site operating location in supporting records using maps, descriptions, coordinates of the location boundaries, or other unique identifiers.
   b. For S-207 and S-209, the owner/operator shall record the hours of operation per engine for each operating day.
   c. For S-206, S-207, S-208, and S-209, the owner/operator shall record the hours of operation per calendar month for each engine.
   d. For S-209, the owner/operator shall record the total operating time per calendar year.
   e. For S-206, S-207, S-208, and S-209, the owner/operator shall record the total operating time for all four engines for each consecutive rolling 12-month period.

f. The owner/operator shall maintain records of purchase orders, vendor certifications, or other relevant documentation to demonstrate that the fuel used in these engines complies with Part 2.

8. Since these engines will not meet the NOx standards of Regulation 9-8-304.1 that become effective on January 1, 2012, the owner/operator shall not operate S-206, S-207, S-208, or S-209 after January 1, 2012, unless the owner/operator complies with one of the following requirements: 8a or 8b or 8c, below, for each engine. (Basis: Regulations 9-8-111.3, 9-8-304, 9-9-305, 9-8-401, 9-8-402, 9-8-501, 9-8-502, 9-8-503, and 9-8-530)

a. By no later than January 1, 2012, the owner/operator shall achieve compliance with Regulation 9, Rule 8 by satisfying the requirements of the low-usage exemption in Regulation 9-8-111.3, by installing the non-resettable totalizing meter required by Regulation 9-8-530, and by maintaining the records required by Regulation 9-8-502.1. If the owner/operator wishes to use this compliance option for S-206, S-207, or S-208, the owner/operator shall submit a permit application, by no later than January 1, 2011, to request a Change of Conditions to limit the operating time for one or more of these engines to less than 100 hours per year per engine. Since Part 4 above limits the operation of S-209 to less than 100 hours per year, and Parts 6 and 7 require the necessary meter and records, the owner/operator does not need to submit a permit application for S-209.

b. By no later than January 1, 2012, the owner/operator shall achieve compliance with Regulation 9, Rule 8 by modifying an engine or installing new control equipment on an engine such that the engine will meet the NOx and CO emission limits in Regulation 9-8-304.1. If the owner/operator wishes to use this compliance option for any of these engines, the owner/operator shall submit a permit application, by no later than January 1, 2011, to request an Authority to Construct for the necessary engine modifications or control equipment. The owner/operator shall also conduct the compliance demonstration test required by Regulation 9-8-501 by no later than March 31, 2012, conduct the monitoring required by Regulation 9-8-503 in all subsequent quarters, and maintain the records required by Regulation 9-8-502.3.

c. By no later than January 1, 2012, the owner/operator shall achieve compliance with Regulation 9, Rule 8 by satisfying all requirements for the delayed compliance option including reporting the information required by Regulation 9-8-402 and maintaining the records required by Regulation 9-8-502.4. If the owner/operator wishes to use this delayed compliance option for any of these engines, the owner/operator shall stop operating the engine by no later than January 1, 2016, unless the owner/operator also: (1) submits a permit application to retrofit the engine by no later than January 1, 2015, (2) achieves compliance with the Regulation 9-8-305 emission limits by no later than January 1, 2016, (3) conducts the compliance demonstration test required by Regulation 9-8-501 by no later than March 31, 2016, (4) conducts the monitoring required by Regulation 9-8-503 in all subsequent quarters, and (5) maintains the records required by Regulation 9-8-502.3 by no later than January 1, 2016.

V. RECOMMENDATION

Issue a Permit to Operate for the following sources subject to Condition # 24421:

S-206 Portable Diesel Engine for Tipper # 83: Model Year 2007, Perkins, Model 2900/2200, 127 bhp, 7.08 gallons/hour of CARB diesel oil; equipped with A-206, HUSS FS-MK Series Diesel Particulate Filter (verified level-3+ control).

S-207 Portable Diesel Engine for Tipper # 93: Model Year 2004, Perkins, Model 2307/2200, 137.4 bhp, 6.44 gallons/hour of CARB diesel oil; equipped with A-207, HUSS FS-MK Series Diesel Particulate Filter (verified level-3+ control).

S-208 Portable Diesel Engine for Tipper # 70: Model Year 2007, Perkins, Model 2900/2200, 127 bhp, 7.08 gallons/hour of CARB diesel oil; equipped with A-208, HUSS FS-MK Series Diesel Particulate Filter (verified level-3+ control).

S-209 Portable Diesel Engine for Tipper # 71: Model Year 2006, Perkins, Model 2307/2200, 137.4 bhp, 6.44 gallons/hour of CARB diesel oil; equipped with A-209, HUSS FS-MK Series Diesel Particulate Filter (verified level-3+ control).

By: Carol S. Allen Date
Principal Air Quality Engineer

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

ENGINEERING EVALUATION

for
Two Diesel Engines (S-214 and S-215)

Waste Management of Alameda County; PLANT # 2066

APPLICATION # 20158

I. BACKGROUND

Waste Management of Alameda County operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). This site includes an active MSW landfill, landfill gas collection and control equipment, landfill gas energy recovery equipment, green waste processing operations, waste water treatment operations, and numerous portable and stationary diesel engines that provide primary or emergency power to auxiliary equipment and buildings. Waste Management submitted this application in order to obtain permits to operate for two diesel engines that were installed at this site without permits.

The S-214 Portable Diesel Engine (60 bhp) provides power to a portable air compressor that is used in support of landfill operations throughput the site on an occasional basis. This engine was first operated at this site in January 2000 and has been operating no more than 100 hours/year. Since this engine is smaller than 250 bhp and was installed prior to May 17, 2000, it qualifies for "loss of exemption" from District permit requirements, and is not subject to new source review.

The S-215 Diesel Engine (116 bhp) provides power to a portable emergency generator located at the scale house. This engine was first operated at this site on February 2, 2006 and operates no more than 50 hours/year. Although this engine is smaller than 250 bhp and has been operated less than 200 hours/year, it does not qualify for "loss of exemption", because it was installed after September 1, 2001 (when the District changed the exemption criteria for portable equipment from less 200 hours/year of operation to a residency time of less than 72 hours on-site). Consequently, the S-215 Diesel Engine for a Standby Emergency Generator is subject to new source review. Although this engine is capable of being carried or moved from one location to another, it does not meet the new Health and Safety Code Section 93116.2(a)(28) definition of "portable", because the engine has been at one on-site location for more than 12 consecutive months. Therefore, S-215 must be considered stationary for the purposes of CARB ATCMs and federal NSPS and NESHAP standards.

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

EMISSIONS

The maximum capacities for these engines are described in Table 1.

Table 1. Descriptions and Rated Capacities of the Diesel Engines

Source Number	Source Description	Rated Capacity Bhp	Electrical Output kW	Maximum Fuel Use gallons / hour	Maximum Fire Rate MM BTU / hour
S-214	Portable Diesel Engine for Air Compressor	60.0	44.7	5.00	0.685
S-215	Diesel Engine for Emergency Generator at Scale House	116.0	86.5	5.90	0.808

The S-214 Portable Diesel Engine is a 1998 Model Year Tier 1 engine, and the S-215 Diesel Engine for Emergency Generator is a Model Year 2000 Tier 1 engine, but there are no certified emission standards available for either engine. The NO_x emission factors are based on the Tier 1 NO_x standard for these engine sizes. CO, POC, and PM_{10} emissions are estimated based on AP-42 emission factors. SO_2 emissions are based on the use of CARB certified diesel fuel with a maximum sulfur content of 0.05% by weight. Although the current CARB diesel fuel sulfur content limit is 15 ppmw, these engines may have used fuel purchased by this site prior to 1/1/2006. This older CARB diesel fuel had a maximum sulfur content limit of 500 ppmw (or 0.05% by weight). Emission factors are summarized in Table 2. Maximum hourly, daily, and annual emission rates are listed in Tables 3-5.

Table 2. Databank Emission Factors (grams/bhp-hour)

Source Number	NO_x	CO	POC	PM_{10}	SO_2
S-214	6.900	3.030	0.930	0.998	0.268
S-215	6.900	3.030	0.930	0.998	0.164

Table 3. Maximum Hourly Emissions (Pounds/Hour)

Source Number	NO_x	CO	POC	PM_{10}	SO_2
S-214	0.913	0.401	0.123	0.132	0.035
S-215	1.765	0.775	0.238	0.255	0.042

Table 4. Proposed Maximum Daily Emissions (Pounds/Day)

Source Number	Hours/Day	NO_x	CO	POC	PM_{10}	SO_2

S-214	24	21.91	9.62	2.95	3.17	0.85
S-215	24	42.35	18.60	5.71	6.12	1.00

Table 5. Proposed Maximum Annual Emissions (Tons/Year)

Source Number	Hours/Year	NO_x	CO	POC	PM_{10}	SO_2
S-214	200	0.091	0.040	0.012	0.013	0.004
S-215	25 *	0.022	0.010	0.003	0.003	0.001

* The operating time for S-215 must be limited to 25 hours/year to prevent triggering TBACT.

II. STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

The diesel fired IC engines in this application were evaluated in accordance with the objective measurements and standard procedures described in District Permit Handbook Chapters 2.3.1 Stationary Diesel Engines and 2.3.3 Portable Diesel Engines. The S-214 engine is not subject to NSR and will comply with currently applicable District and state requirements. The operating limitations for S-214 that will become effective in the future have been included the proposed permit conditions for this source. The engineering evaluation for S-214 does not involve any discretionary decisions. Therefore, the issuance of a Permit to Operate for this engine is considered ministerial pursuant to Regulation 2-1-311. The S-214 Portable Diesel Engine is also categorically exempt from CEQA review pursuant to Regulation 2-1-312.4 for loss of exemption sources. The S-215 engine is subject to NSR, but will not comply with BACT requirements or the CARB ATCM for Stationary Compression Ignition Engines. Therefore, the District is proposing to deny the Permit to Operate for S-215. This denial does not involve any discretionary decisions. No further CEQA review is required.

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

Regulation 2, Rule 2:

Since the S-214 Portable Diesel Engine qualifies for loss of exemption, S-214 is not subject to this new source review regulation.

As shown in Table 4, NO_x and CO emissions from S-215 will exceed each 10 pounds/day. Operating time at S-215 would need to be limited to 5.6 hours/day to prevent triggering BACT. However, the operator cannot comply with any daily operating time limits for this engine, because S-215 is providing emergency power and may be required to operate for 24 hours/day during an emergency. Therefore, BACT is required for both NO_x and CO emissions from S-215.

The standard BACT determinations for stationary compression ignition emergency standby engines (> 50 bhp) are presented in Document # 96.1.3, Revision 6, last revised April 13, 2009. For NO_x, the BACT(2) emission limit is the current CARB/EPA tier standard limit for the applicable engine horsepower rating. For CO, the BACT(2) limit is the more stringent of: (a) this current tier standard limit or (b) 2.75 g/bhp-hr of CO. If the engine does not meet these current tier standards, BACT may constitute an alternative tier standard if the application was submitted within six months of the effective date of the tier standard change. In this case, the applicable BACT limit is the more stringent of: (a) the previous tier standard limit or (b) the tier standard that was in effect at the time of installation. The applicant must also use an acceptable method to demonstrate that the engine will comply with these BACT emission limits. The typical compliance demonstration method is to use an engine that has CARB certified emission limits, where these certified limits do not exceed the BACT emission limits. Other acceptable compliance demonstration methods include the use of verified control technology on certified engines and District approved source tests.

The current CARB/EPA tier standards for engines with output ratings of 100-175 bhp (Tier 3, effective for model years 2007-2011) are: 3.0 g/bhp-hr for NMHC+NO_x and 3.7 g/bhp-hr for CO. Since Application # 20158 was submitted more than six months after the 1/1/07 effective date of these Tier 3 standards, the S-215 engine does not qualify to use the alternative Tier 2 limits that were in effect when S-215 was installed. For NO_x alone, the BACT limit is 95% of the applicable NMHC+NO_x tier standard, which is 2.85 g/bhp-hr of NO_x. Since the applicable CO tier standard is more than 2.75 g/bhp-hr, the BACT limit is 2.75 g/bhp-hr for CO.

The S-215 Diesel Engine has no CARB certified emission factors. From Table 2, the expected emissions from S-215 (6.90 g/bhp-hr of NO_x and 3.03 g/bhp-hr of CO) exceed the BACT limits (2.85 g/bhp-hr of NO_x and 2.75 g/bhp-hr of CO). The applicant has not been using any verified control technology on S-215 and did not submit any source test data for this engine. Since the applicant has not provided an acceptable compliance demonstration method for the BACT limits that apply to S-215, and since the expected NO_x and CO emissions from S-215, which were determined using standard District emission factors, show that S-215 cannot meet these BACT limits, the District concludes that S-215 does not comply with the Regulation 2-2-301 BACT requirements. Consequently, the District is proposing to deny the Permit to Operate for S-215, pursuant to Regulation 2-2-310.

This facility is subject to the Regulation 2-2-302 offset requirements for NO_x and POC emission increases, because NO_x and POC emissions from this site each exceed 35 tons/year. Since the District is proposing to deny the Permit to Operate for S-215 and the S-214 loss of exemption engine is not subject to new source review, this application will not result in any emission increases that are subject to these offset requirements.

New Source Review for Toxic Air Contaminants:

The District is in the process of permitting a major expansion of the Altamont Landfill (S-2) that would allow waste disposal to begin in an adjacent canyon designated as Fill Area 2. This Fill Area 2 Expansion Project (see Application # 14814) is related to this current engine application and to the waste tipper engine replacement project (Application # 17305), because the applications were submitted within the last two years and the proposed emergency engine will provide power to the scale house, which is a necessary part of the waste disposal operations.

The District conducted an HRSA for these combined projects, and the detailed HRSA report is contained in Application # 17305. The health impacts were determined using the ISCST3 air dispersion model with rural dispersion coefficients and complex terrain. SCREEN3 meteorological data was used, because there are no appropriate met data sites for this facility. As discussed in this HRSA, the District evaluated the potential operation of S-215 in conjunction with these other related projects.

As discussed in the emissions section, S-215 has no certified PM_{10} emission factors and the diesel PM emission rate is expected to exceed the TBACT limit of 0.15 g/bhp-hr. To prevent triggering TBACT, the source risk due to S-215 cannot exceed the TBACT thresholds of 1.0 in a million cancer risk or 0.2 chronic HI. These criteria will be satisfied, if the operating time for S-215 is limited to 25 hours/year. The source risks for S-215 (when limited to operating 25 hours/year) are presented in Table 6 below.

Table 6. Source Risks for S-215 Operating at 25 hours/year

	Residential Receptors		***Worker Receptors***	
	Cancer Risk Per Million	***Chronic Hazard Index***	***Cancer Risk Per Million***	***Chronic Hazard Index***
S-215 Gen. Engine at Scale House	***0.43***	***0.0003***	***0.98***	***0.0007***

The HRSA also determined that the S-215 engine had no impact on the maximum project emissions for either operating scenario (when waste is disposed in Fill Area 1 or when waste disposal is shifted to Fill Area 2). Thus, maximum project health impacts (both with and without S-215) are the same as the impacts presented in Tables 7a and 7b of the Engineering Evaluation for Application # 17305.

Regulation 2, Rule 6:

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act (40 CFR, Part 70) and BAAQMD Regulation 2, Rule 6, Major Facility Review (MFR), because it is a major facility for NO_x and CO emissions and also because it is a designated facility (since it is subject to the control requirements of the Emission Guidelines for MSW Landfills). Therefore, this facility is required to have an MFR permit pursuant to Regulations 2-6-301 and 2-6-304.

The MFR Permit for this facility was initially issued on December 1, 2003 and was last revised on October 9, 2008. This application to add a new source to this facility will require a minor revision of the Title V permit. This Title V permit revision will be handled pursuant to Application # 16696.

Regulation 6, Rule 1:

Diesel-fired engines are subject to Regulation 6, Rule 1. Regulation 6-1-301 limits the visible emissions from each of these sources to Ringelmann 1.0. No visible particulate emissions are expected from properly operating diesel engines.

Regulation 6-1-310 limits the exhaust point emission rate to 0.15 grains/dscf. For S-214, the expected grain loading rate is 0.147 gr/sdcf at 0% O_2. Although the compliance margin for this source is low, testing to demonstrate compliance with this limit is not justifiable for such a small intermittently operated source. In addition, state and District requirements will ensure that this engine is replaced or retrofitted to reduce PM emissions by no later than 1/1/2020.

Regulation 8, Rule 2:

This rule applies to diesel oil fired IC engines. Regulation 8-2-301 limits total carbon emissions to either 15 pounds/day or to an exhaust stack concentration of 300 ppmv. From Table 3, maximum emissions from S-214 are 2.95 pounds/day. Therefore, S-214 will comply with Regulation 8-2-301 by emitting less than 15 pounds/day of total carbon. Additional monitoring to verify compliance with this low emission rate is not warranted.

Regulation 9, Rule 1:

Diesel engines are subject to Regulation 9, Rule 1. Regulation 9-1-302 limits the sulfur dioxide concentration in an exhaust point to 300 ppmv. At the CARB diesel fuel sulfur content limit of 0.05% sulfur by weight and the theoretical F-factor of 9190 sdcf of flue gas (0% O_2) per MM BTU of diesel oil, the maximum possible concentration in the exhaust gas is 34 ppmv of SO_2. Since this maximum possible concentration is far less than the 300 ppmv SO_2 concentration limit, additional compliance demonstration monitoring is not necessary.

Regulation 9-1-304 limits the sulfur content of liquid fuels to 0.5% by weight. Since the engines will use only CARB diesel oil containing less than 0.05% sulfur by weight, these engines will comply with this limit. Records of the source of fuel used in these engines will verify compliance with this limit.

Regulation 9, Rule 8:

Regulation 9, Rule 8 now applies to diesel fueled internal combustion engines; however, small engines are exempt from limits and monitoring requirements until January 1, 2012 pursuant to exemptions in Regulation 9-8-110.1 and 110.3. As of January 1, 2012, diesel engines will be subject to Regulation 9-8-304, unless the engine is operated less than 100 hours/year (9-8-111.3) or the operator opts for the Regulation 9-8-305 delayed compliance provision and complies with the Regulation 9-8-402 notification requirements.

For 51-175 hp engines, Regulation 9-8-304 limits the exhaust gas concentrations (corrected to 15% O_2, dry basis) to: 180 ppmv of NO_x and 440 ppmv of CO. S-214 is expected to emit 344 ppmv of NO_x and 248 ppmv of CO at 15% O_2 and will not comply with the Regulation 9-8-304 NO_x limit. The operator of S-214 could comply with Regulation 9, Rule 8 by retrofitting or replacing S-214 prior to 1/1/2012, by limiting operation of S-214 to 100 hours/year and installing a totalizing hour meter by 1/1/2012 (Regulations 9-8-111.3 and 9-8-530), or by choosing the delayed compliance provision in Regulation 9-8-305 and satisfying the requirements of Regulations 9-8-402 and 9-8-502.4. The CARB ATCM will only allow this engine to operate after 12/31/2009, if the engine operating time is limited to 80 hours/year, and S-214 is deemed a low-use engine. In this case, S-214 is expected to comply with the Regulation 9-8-111.3 exemption from the Regulation 9-8-304 NO_x and CO emission limits.

State Requirements:

CARB's Airborne Toxic Control Measure (ATCM) for Diesel PM from Portable Engines (CCR Title 17, Section 93116) applies to portable diesel fueled engines that are rated at 50 bhp or more. As discussed in the background section, S-214 is portable but S-215 is not.

The operator of S-214 will comply with §93116.3(a) by using only CARB certified diesel fuel in this engine. Since S-214 was not permitted prior to January 1, 2006 and the application to permit this engine was submitted more than six months after the effective date of the most recent tier standard change for this engine (1/1/2008), S-214 cannot be considered an in-use engine and must meet the requirements of §93116.3(b)(2) instead of §93116.3(b)(1).

The CARB ATCM for portable diesel engines has additional limitations for non in-use engines that were not permitted or registered as of January 1, 2006 (§93116.3(b)(2)). Such engines may only be permitted now if:

d) the engines comply with the most stringent federal or California emission standards that are currently in effect for non-road engines (§93116.3(b)(2)(A)), or
e) the engine is used exclusively for emergencies or qualifies as a low-use engine (§93116.3(b)(2)(B)) and meets the §93116.3(b)(3) requirements, or
f) the engine qualifies for one of three special exemption cases (§93116.3(b)(5-7)).

For S-214, the most stringent standards currently in effect are the Tier 3 standards for engines with capacities ranging from 50 bhp to 75 bhp. The applicable Tier 3 standards are: 3.5 g/bhp-hour for NMHC+NO_x, 3.7 g/bhp-hour for CO, and 0.22 g/bhp-hour for PM_{10}. From Table 2, the emissions from S-214 do not meet these requirements and these emission rates are not certified. Thus, S-214 does not meet paragraph (a) above.

Since Waste Management requested to operate S-214 for more than 80 hours/year (greater than the low-use limit), S-214 does not currently meet paragraph (b) above. However, the actual operating rate for S-214 was reported to be 100 hrs/year for 2008, and it may be possible for this engine to comply with the low-use engine provisions in the future.

Since the S-214 engine was operating between 3/1/04 and 10/1/06, this engine may be permitted pursuant to the exemptions in §93116.3(b)(5-6). However, any engine that is not certified to meet a Tier 1 or higher emission standard cannot be operated after December 31, 2009, unless it is re-designated as a low-use or emergency-use engine. Although S-214 is supposed to be meeting Tier 1 standards, it is not a "certified" engine. Effective 1/1/2010, S-214 must either comply with the low-use provisions (limited to 80 hours/year, equipped with a totalizing hour meter, and retrofitted or replaced to meet Tier 4 or equivalent standards by 1/1/2020) or be permanently shut down.

In addition to these engine specific requirements, the entire fleet of portable engines at Plant # 2066 must comply with the future fleet emission limits in §93116.3(c). For engines < 175, the fleet average emission limit must be: 0.3 g/bhp-hr by 2013, 0.18 g/bhp-hour by 2017, and 0.04 g/bhp-hour by 2020. Low-use engines are exempt from these fleet average limits.

By 3/1/2011, the operator must report to CARB all items identified in §93116.4(e), including an inventory of all engines in the operator's fleet (ID, permit status, size, fuel type, and certified emission factors), the compliance status or intention for each engine (low-use, emergency-use, tier 4 replacement date, etc.), and the fleet weighted average PM_{10} emission rate for the 2010 calendar year.

The S-215 Diesel Engine for an emergency standby generator is subject to the CARB ATCM for Stationary Compression Ignition Engines. It is deemed a "new" engine, because it was installed after 1/1/2005. S-215 will comply with §93115.5(a) by using only CARB certified diesel fuel in this engine. Section §93115.6(a)(3) requires new emergency standby engines to meet the following criteria: diesel PM $\leq$ 0.15 g/bhp-hr, engine certified to meet the Tier standard in effect on the day of acquisition or submittal (which in this case is the date of permit application submittal: 3/5/2009), and maintenance and testing operating time $\leq$ 50 hours/year. The S-215 engine does not meet the 0.15 g/bhp-hr diesel PM limit and does not comply with the Tier 3 standards that became effective for this engine size on 1/1/2008 (S-215 does not even comply with the Tier 2 standards that were in effect when the engine was first installed at this site in 2006). Thus, S-215 does not comply with the applicable ATCM, and the District must deny the permit for this engine pursuant to Regulation 2-1-304 for failure to comply with state requirements.

Federal Requirements:

Portable engines are not considered to be "stationary" engines by federal definitions, because they meet the requirements of nonroad engines, as defined in 40 CFR 1068.30 (see below). The S-214 engines satisfies this nonroad engine definition. However, the S-215 Diesel Engine for a portable emergency generator is not a "nonroad" engine because it has been located at the scale house for more than 12 consecutive months.

Nonroad engine means:

(1) Except as discussed in paragraph (2) of this definition, a nonroad engine is an internal combustion engine that meets any of the following criteria:
  (i) It is (or will be) used in or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers).
  (ii) It is (or will be) used in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers).
  (iii) By itself or in or on a piece of equipment, it is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.

(2) An internal combustion engine is not a nonroad engine if it meets any of the following criteria:
  (i) The engine is used to propel a motor vehicle, an aircraft, or equipment used solely for competition.
  (ii) The engine is regulated under 40 CFR part 60, (or otherwise regulated by a federal New Source Performance Standard promulgated under section 111 of the Clean Air Act (42 U.S.C. 7411)).
  (iii) The engine otherwise included in paragraph (1)(iii) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least two years) and that operates at that single location approximately three months (or more) each year. See §1068.31 for provisions that apply if the engine is removed from the location.

Since S-214 is a nonroad engine, the NSPS requirements for stationary compression ignition engines (40 CFR, Part 60, Subpart IIII) and the NESHAP requirements for stationary reciprocating internal combustion engines (40 CFR, Part 63, Subpart ZZZZ) do not apply to S-214. However these federal requirements are potentially applicable to S-215.

The S-214 Portable Diesel Engine is subject to 40 CFR Part 89 Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines pursuant to Section 89.102 (37-75 kW and manufactured after January 1, 1998). Per Table 1 of Section 89.112, the S-214 engine (Model Year 1998, 60 bhp) is subject to the Tier 1 emission standard, which limits NO_x emissions to: 9.2 g/kW-hr (6.9 g/bhp-hr). S-214 complies with this standard.

The NSPS for Stationary Compression Ignition Internal Combustion Engines (40 CFR, Part 60, Subpart IIII) applies to stationary compression ignition engines that commenced construction after July 11, 2005 and that are non-fire pump engines manufactured after April 11, 2006. Although S-215 was installed after 7/1/05, the engine was manufactured prior to 4/11/06. Therefore, Subpart IIII does not apply to this engine.

The NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR, Part 63, Subpart ZZZZ) applies to existing and new engines at major and area sources. In accordance with the definitions in subpart ZZZZ, S-215 is an existing reciprocating internal combustion engine (RICE), because it is smaller than 500 bhp and was installed before 6/12/06. In accordance with 40 CFR Part 63.6590(3), S-215 does not have to meet any requirements under subpart ZZZZ (initial notification is not necessary), because S-215 is an existing RICE that is also a compression ignition engine.

III. Permit Conditions

The District is proposing Condition #24425 for S-214 to ensure compliance with District and State requirements.

Condition # 24425
FOR: S-214 PORTABLE DIESEL ENGINE FOR AIR COMPRESSOR

1. The owner/operator of the S-214 Portable Diesel Engine has been issued a permit for a portable source that is subject to Regulation 2-1-220 and the CARB ATCM for diesel PM from portable engines. Based on this portable source determination, this engine is not subject to the CARB ATCM for stationary compression ignition engines. To retain this portable source determination, the engine's total residency time at any single on-site operating location shall not exceed 12 consecutive months. The operating time for any backup or standby engine that replaces this engine at the same on-site operating location and is intended to perform the same function will be counted toward this residency time limitation. The owner/operator shall not move equipment and then return it to the same location in an attempt to circumvent this portable equipment residency time limitation. (Basis: Regulations 2-1-220.1-3, 2-1-220.10, and CCR Section 93116.2(a)(28))

2. The owner/operator shall use CARB diesel fuel exclusively to fire this engine. (Basis: CCR Section 93116.3(a))

3. The S-214 engine shall not be operated after December 31, 2009, unless the owner/operator complies with all of the requirements below. (Basis: CCR Sections 93116.3(b)(5-6), 93116.3(b)(2)(B), 93116.3(b)(3), 93116.4(c)(1), and 93116.4(c)(2)(A) and Regulations 9-8-111.3, 9-8-502.1, and 9-8-530)

a. By no later than January 1, 2010, the owner/operator shall meet the low-use engine requirements of CCR Section 93116.3(b)(2)(B) by limiting the operating time for S-214 to no more than 80 hours in a calendar year.
b. By no later than January 1, 2012, the owner/operator shall equip S-214 with a non-resettable totalizing meter that measures hours of operation at this engine and shall maintain the records required by Regulation 9-8-502.1 and CCR Section 93116.4(c)(1).
c. S-214 shall not be operated after December 31, 2019, unless the owner/operator retrofits this engine such that it meets the emission limits in CCR Section 93116.3(b)(3). The owner/operator shall apply for and receive an Authority to Construct before modifying this engine or installing control equipment on this engine.

4. To demonstrate compliance with Parts 1-3, the owner/operator shall maintain the following records in a District approved log and shall make these records available to District staff upon request. All records shall be retained for at least five years from the date of entry. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable District or state regulations. (Basis: Regulations 2-1-220, 9-8-111.3, and 9-8-502.1; CCR Sections 93116.2(a)(28), 93116.3(b)(2)(B), 93116.3(b)(3), 93116.3(b)(5-6), and 93116.4(c)(1))
   a. Each time this engine is moved to a new on-site location, the owner/operator shall record: (1) the date that the engine was moved to the new operating location, (2) the date that the engine was returned to the storage facility, and (3) the total consecutive residency time for the engine in that specific on-site operating location. If this engine is moved back to the same operating location, the consecutive residency time shall include all the time that the engine resided at the storage facility plus the total time that the engine resided at the specific operating location. The owner/operator shall describe each on-site operating location in supporting records using coordinates, maps, descriptions, or other unique identifiers.
   b. The owner/operator shall record the hours of operation for each operating day.
   c. The owner/operator shall summarize the total hours of operation for each calendar month, for each calendar year, and for each consecutive rolling 12-month period.
   d. The owner/operator shall maintain records of purchase orders, vendor certifications, or other relevant documentation to demonstrate that the fuel used in this engine complies with Part 2.

Statement of Basis: Site A2066, Waste Management of Alameda County
Renewal Application # 18233 10840 Altamont Pass Road, Livermore, CA 94550
Revision Applications # 14816, 16525, 16696, 17220, 18820, 19046, 19207, & 20252

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

RECOMMENDATION
Deny the Permit to Operate for the following source, in accordance with Regulation 2-1-304 for failure to comply with the state ATCM for Stationary Compression Ignition Engines and in accordance with Regulation 2-2-310 for failure to use BACT.

S-215 Diesel Engine for an Emergency Standby Generator at the Scale House; Model Year 2000, Caterpillar, XQ75, 116 bhp, 5.9 gallons/hour of CARB diesel oil.

Issue a Permit to Operate for the following loss of exemption source, subject to Condition # 24425:

S-214 Portable Diesel Engine for Air Compressor: Model Year 1998, Duetz AG, Model FAM1011F, 60 bhp, 5.0 gallons/hour of CARB diesel oil.

By: Carol S. Allen Date
Principal Air Quality Engineer

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

ENGINEERING EVALUATION

for

Waste Tipper Engine Replacements and Operating Time Increases

Waste Management of Alameda County; PLANT # 2066

APPLICATION # 21312

I. BACKGROUND

Waste Management of Alameda County operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). This site includes an active MSW landfill, landfill gas collection and control equipment, landfill gas energy recovery equipment, green waste processing operations, waste water treatment operations, and numerous diesel engines that provide primary power to portable equipment and emergency power to other operations.

On August 10, 2009, the District issued Waste Management Permits to Operate for four portable diesel-fired engines (S-206, S-207, S-208, and S-209) that power the hydraulic lifts on four waste tippers (see Application # 17305). The District imposed daily operating restrictions on the S-207 and S-209 portable waste tipper engines, because these engines did not meet the current BACT requirement for NOx (in other words, the certified NOx emission rates for these engines were greater than the Tier 3 NOx emission limit of 2.85 g/bhp-hour). The District also imposed an 80 hour/year annual operating rate restriction on S-209, because this engine did not comply with portable ATCM requirements for new engines. The District limited the total operating time for all four engines to 12,000 hours/year to assure compliance with the project risk limit of 10 in a million cancer risk (Regulation 2-5-302.1). Waste Management is appealing these permitting decisions.

Meanwhile, Waste Management submitted this application to obtain an Authority to Construct and Permit to Operate for two new portable diesel-fired waste tipper engines (S-217 and S-218) that will replace the two older non-BACT engines (S-207 and S-209). Waste Management is proposing to remove the diesel PM filters (A-207 and A-209) that were installed on S-207 and S-209 and is planning to re-install these filters on the new engines (S-217 and S-218).

Waste Management has also requested that the total operating time for the four waste tipper engines combined (S-206, S-208, S-217, and S-218) be increased to 29,200 hours/year (20 hours/day per engine for 365 days/year). Increasing this operating time limit will require refinement of the health risk screening analysis (HRSA) procedures for the Altamont Landfill site compared to the procedures that were used for the Application #17305 HRSA.

In a letter dated November 17, 2009, Waste Management requested that the District use Lawrence Livermore Laboratories' Site 300 meteorological station data instead of the default SCREEN3 meteorological data that was used for the Application # 17305 HRSA. This request included a comparison of the Site 300 data to data collected from a weather station located at the Altamont Landfill facility to demonstrate the applicability of Site 300 data to the Altamont Landfill site. Mr. James Cordova of the District's Meteorology Section has reviewed this data comparison and has approved the use of the Site 300 data for HRSAs at the Altamont Landfill site on an interim basis until Waste Management can obtain at least one year of QA/QC certified data from an on-site District approved meteorological station. In accordance with this approval, the HRSA for Application #21312 will be conducted using LLL Site 300 met-data.

On January 6, 2010, the District's Board of Director's approved amendments to Regulation 2, Rule 5. The HRSA for Application #21312 will use the new health effects values and the new HRSA calculation procedures (i.e. the age sensitivity factors) that were approved with this January 6, 2010 amendments.

II. EMISSIONS

Criteria Pollutants:

The maximum hourly emission rates from the proposed S-217 and S-218 portable diesel engines (equipped with A-207 and A-209 diesel PM filters) are the same as the currently permitted emission rates from the existing S-206 and S-208 engines for all pollutants except sulfur dioxide (SO_2). Since S-206 and S-208 began operating prior to full implementation of CARB's new ultra-low sulfur limit (sulfur $\leq$ 15 ppmw, or 0.0015% S by weight) for diesel oil, these engines were initially permitted to burn diesel oil with a sulfur content of up to 0.05% by weight. Since all four engines are now using only ultra-low sulfur CARB Diesel Oil, the SO_2 emission limits for S-206 and S-208 have been adjusted downward to reflect this regulatory change. The engines capacities are described in Table 1. The emission factors are described in Tables 2 and 3. Maximum hourly emission rates are presented in Table 4.

Table 1. Descriptions and Rated Capacities of the Waste Tipper Engines

Source Number	Source Description	Rated Capacity Bhp	Electrical Output kW	Maximum Fuel Use gallons / hour	Maximum Fire Rate MM BTU / hour
S-206	Portable Diesel Engine for Tipper # 83	127.0	94.7	7.08	0.971
S-208	Portable Diesel Engine for Tipper # 70	127.0	94.7	7.08	0.971
S-217	Portable Diesel Engine for Tipper # 71	127.0	94.7	7.08	0.971
S-218	Portable Diesel Engine for Tipper # 93	127.0	94.7	7.08	0.971

Table 2. CARB Certified Emission Factors (grams/kW-hour)

Source Number	NOx + HC	CO	PM10	PM10 Control	Abated PM10
S-206	3.7	1.3	0.17	85%	0.026
S-208	3.7	1.3	0.17	85%	0.026
S-217	3.7	1.3	0.17	85%	0.026
S-218	3.7	1.3	0.17	85%	0.026

Table 3. Databank Emission Factors (grams/bhp-hour)

Source Number	NOx	CO	POC	Abated PM10	SO2
S-206	2.621	0.969	0.138	0.019	0.005
S-208	2.621	0.969	0.138	0.019	0.005
S-217	2.621	0.969	0.138	0.019	0.005
S-218	2.621	0.969	0.138	0.019	0.005

Table 4. Maximum Hourly Emissions (Pounds/Hour)

Source Number	NOx	CO	POC	PM10	SO2
S-206	0.7339	0.2714	0.0386	0.0053	0.0015
S-208	0.7339	0.2714	0.0386	0.0053	0.0015
S-217	0.7339	0.2714	0.0386	0.0053	0.0015
S-218	0.7339	0.2714	0.0386	0.0053	0.0015

Proposed maximum daily emissions for each engine are based on the Table 4 hourly emission rates and the maximum possible operating time of 24 hours/day. Proposed maximum daily emissions are presented in Table 5.

Table 5. Proposed Maximum Daily Emissions (Pounds/Day)

Source Number	Hours/Day	NOx	CO	POC	PM10	SO2
S-206	24	17.61	6.51	0.93	0.13	0.04
S-208	24	17.61	6.51	0.93	0.13	0.04
S-217	24	17.61	6.51	0.93	0.13	0.04
S-218	24	17.61	6.51	0.93	0.13	0.04

At the proposed maximum operating rate of 24 hours/day, BACT is triggered for each engine, because nitrogen oxide (NOx) emissions from each engine are greater than 10 pounds/day. BACT requirements for these portable engines are discussed in Section C.

Waste Management has requested that each tipper engine be permitted to operate for an annual average of 20 hours/day for 365 days/year, or 7300 hours/year per engine and 29,200 hours/year for all four waste tipper engines combined. Maximum annual emissions based on this proposed operating scenario are summarized in Table 6.

Table 6. Maximum Annual Emissions (Tons/Year)

Source Number	NOx	CO	POC	PM10	SO2
S-206	2.679	0.991	0.141	0.019	0.0055
S-208	2.679	0.991	0.141	0.019	0.0055
S-217	2.679	0.991	0.141	0.019	0.0055
S-218	2.679	0.991	0.141	0.019	0.0055
Total	10.715	3.963	0.564	0.078	0.022

Cumulative Emission Increases and Corrections for Application # 17305:

Previously, the S-206, S-208, S-207, and S-209 Portable Tipper Engines were permitted to operate for a maximum of 12,000 hours/year with annual emissions based on the highest hourly emission rate for any of the four engines. The resulting annual emissions were also equal to the cumulative emission increases for this application. These increases and the emission reduction credits (ERCs) required for Application # 17305 are summarized in Table 7.

Table 7. Cumulative Emission Increase Inventory for Application # 17305 (Tons/Year)

	NOx	CO	POC	PM10	SO2
Initial Cumulative Emission Increases	5.151	1.629	0.271	0.035	0.302
Offset Ratio	1.15		1.15		
Initial ERCs Required	5.924		0.312		

Since S-207 and S-209 are being removed from this site, the cumulative emission increases for Application # 17305 need to be adjusted to reflect these source shut-downs. The cumulative emission increase for Application # 17305 will be corrected based on the hourly emission rates approved for S-206 and S-208 pursuant to Application # 17305 with S-206 and S-208 operating for the full 12,000 hours/year of allowable operating time (6000 hours/year per engine). The corrected Cumulative Emission Increases for Application #17305 are summarized in Table 8.

Table 8. Corrected Cumulative Emission Increases for Application # 17305 (Tons/Year)

	NOx	CO	POC	PM10	SO2
S-206	2.202	0.814	0.116	0.016	0.151
S-208	2.202	0.814	0.116	0.016	0.151
New Total	4.403	1.629	0.232	0.032	0.302
Offset Ratio	1.15		1.15		
New ERCs Required	5.063		0.267		

Offsets continue to be required for the revised NOx and POC emission increases identified in Table 8. Since S-207 and S-209 had higher NOx and POC emission rates than the other engines, shutting these engines down will reduce the permitted NOx and POC emission rates for Application #17305. This difference is identified in Table 9. The emission reduction credits that are equal to this emission rate difference should be credited back to Waste Management due to the source shut downs, but the additional credits required because of the 1.15:1.0 offset ratio are retained by the District:
(1.15 credits required - 1.0 emission reductions = 0.15 credits retained by District)

Table 9. Summary of Offset and ERC Changes for Application # 17305 (Tons/Year)

	NOx	CO	POC	PM10	SO2
Initial Permitted Emissions	5.151	1.629	0.271	0.035	0.302
New Permitted Emissions	4.403	1.629	0.232	0.032	0.302
Reductions in Permitted Emissions	0.748	0.000	0.039	0.003	0.000
Initial ERCs Required	5.924		0.312		
New ERCs Required	5.063		0.267		
Difference in ERCs Required	0.861		0.045		
ERCs Due to WM *	0.748		0.039		
ERCs Retained by District NSR Program	0.113		0.006		

* Since WM originally supplied POC credits to offset NOx emission increases, the NOx ERC credits due to WM should be converted back to POC credits and added to the POC credit amount due. The total POC credits that will be credited back to WM are 0.787 tons/year of POC credits.

The cumulative emission increases for Application # 21312 include the total emission increases for the new engines (S-217 and S-218) plus the emission increases at S-206 and S-208 resulting from increasing the annual average operating time from 6000 hours/year per engine to 7300 hours/year per engine. The cumulative emission increases for Application # 21312 are presented in Table 10.

Table 10. Cumulative Emission Increases for Application # 21312 (Tons/Year)

	NOx	CO	POC	PM10	SO2
S-206	0.477	0.177	0.025	0.003	0.000
S-208	0.477	0.177	0.025	0.003	0.000
S-217	2.679	0.991	0.141	0.019	0.006
S-218	2.679	0.991	0.141	0.019	0.006
Total Cumulative Emission Increases	6.312	2.336	0.332	0.044	0.011
Offset Ratio	1.15		1.15		
Total ERCs Required	7.259		0.382		
WM ERCs from Shut Down of S-207 and S-209	0.748		0.039		
Additional ERCs Due to District from WM	6.511		0.343		

After the corrections to Application # 17305 resulting from the shut-down of S-207 and S-209, Waste Management owes the District an additional 6.511 tons/year of NOx ERCs and 0.343 tons/year of POC ERCs, or a total of 6.854 tons/year of POC emission reduction credits, if POC credits are substituted for NOx credits.

Toxic Air Contaminants:

For IC engines, diesel PM is a surrogate for all of the toxic air contaminants present in the engine's exhaust. All PM_{10} emissions from diesel fired IC engines are considered to be diesel PM. Since S-206 and S-208 were permitted after 1/1/1987, all of the diesel PM emissions from these modified engines will be included in this project along with all of the diesel PM emissions from the proposed new engines (S-217 and S-218). Total proposed diesel PM emissions are presented in Table 11.

Table 11. Toxic Air Contaminant Emissions for Application # 21312

	bhp	hours / year	Diesel PM g/bhp-hour	Diesel PM lbs/year	Diesel PM g/s

S-206	127.0	7300	0.019015	38.87	5.59E-4
S-208	127.0	7300	0.019015	38.87	5.59E-4
S-217	127.0	7300	0.019015	38.87	5.59E-4
S-218	127.0	7300	0.019015	38.87	5.59E-4
Total Project Emissions		29,200		155.5	2.236E-3

III. STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

The diesel fired IC engines in this application were evaluated in accordance with the objective measurements and standard procedures described in District Permit Handbook Chapter 2.3.3 Portable Diesel Engines. The engines are expected to comply with the standard BACT/TBACT requirements identified in the District's BACT/TBACT Workbook for compression ignition prime IC engines that are larger than 50 bhp (Document # 96.1.4, Revision 6). This application does not involve any discretionary decisions. Therefore, the issuance of an Authority to Construct and Permit to Operate for these engines is considered ministerial pursuant to Regulation 2-1-311. No further CEQA review is required.

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

Regulation 2, Rule 2:

As shown in Table 5, NOx emissions from each engine will exceed 10 pounds/day at the proposed operating rate of 24 hours/day. Therefore, BACT is triggered for NOx for each engine. The standard BACT determinations for prime (non-agricultural) compression ignition engines (> 50 bhp) are presented in Document # 96.1.4, Revision 6, last revised April 13, 2009. For NOx, BACT(2) is compliance with the current CARB/EPA tier standard for the engine and BACT(1) is 85% of this tier standard. BACT(1) is achieved by selective catalytic reduction, which is not feasible to install on small portable prime engines. Therefore, the engines will be allowed satisfy BACT by complying with BACT(2). A new BACT determination that specifically applies to portable engines is under development. This BACT criteria, the engine must comply with the currently applicable tier standard, will be reflected in the new BACT determination.

The current CARB/EPA tier standards for engines with output ratings of 100-175 bhp (effective for model years 2007-2011) is 3.0 g/bhp-hr for NMHC+NOx, 3.7 g/bhp-hr for CO, and 0.22 g/bhp-hr for PM10. For NOx alone, the BACT standard is 95% of the NMHC+NOx tier standard, which is 2.85 g/bhp-hr of NOx. From Table 3, S-206, S-208, S-217 and S-218 comply with this BACT limitation by having certified NOx emission rate of 2.62 g/bhp-hour.

This facility is subject to the Regulation 2-2-302 offset requirements for NOx and POC emission increases, because NOx and POC emissions from this site each exceed 10 tons/year. Since NOx and POC emissions also exceed 35 tons/year each, this facility is responsible for providing the

required emission reduction credits to offset NOx and POC emission increases. As shown in Table 10, total emission increases for this application are: 6.312 tons/year of NOx and 0.332 tons/year of POC. All NOx and POC emission increases must be offset at a ratio of 1.15:1.0. The total emission reduction credits required for this application are: 7.259 tons/year of NOx and 0.382 tons/year of POC. Waste Management has requested to use POC credits to offset the NOx emission increases. For Application #21312, the total amount of emission reduction credits required is: 7.641 tons/year of POC.

As discussed in Section B, the shut-down of S-207 and S-209 will generate a total of 0.787 tons/year of POC ERCs. This amount will be credited toward Application #21312. The remaining amount of ERCs due is 6.854 tons/year of POC ERCs. Waste Management has 2.000 tons/year of POC ERCs left over from Banking Certificate #995 and has surrendered Banking Certificate #1003, which has 6.153 tons/year of POC ERCs. These credits are sufficient to cover the offsets required for Application #21312. After offsetting this application's emission increases, Waste Management will have 1.299 tons/year of POC credits remaining on Banking Certificate #1003. Waste Management expects to use these credits for Application # 16731 or Application # 15503.

Regulation 2-2-303 offset requirements for PM_{10} and SO_2 emission increases only apply if the site is determined to be a major facility of either PM_{10} or SO_2. From Regulation 2-1-204.1, fugitive emissions are only included for the source categories specified in 40 CFR 70.2. Since landfills are not one of these specified categories, the fugitive landfill emissions are excluded from the major facility determination. Total site-wide non-fugitive emissions (including these four new engines) are: 38.53 tons/year of PM10 and 92.06 tons/year of SO2 (see attached February 2010 summary of permitted emission levels for Site # A2066). Since these non-fugitive site-wide permitted emission rates do not exceed 100 tons/year, this site is not a major facility of PM_{10} or SO_2, and offsets are not required for these pollutants.

This site is not a PSD facility, because the total site-wide potential to emit for each pollutant is less than 250 tons/year of non-fugitive emissions. A summary of site-wide permitted emission levels is attached. Pursuant to Application #18819, the District has approved a site-wide CO cap to ensure that the total CO PTE cannot exceed 250 tons/year. Since this site is not a PSD facility, PSD requirements do not apply.

New Source Review for Toxic Air Contaminants:

In addition to the diesel PM emissions from S-206, S-208, S-217, and S-218, this project includes the Application #14814 Fill Area 2 Landfill Expansion project, because the waste tipper engines are an integral part of the waste disposal process and Application #14814 was approved less than two years ago. For this project, the District considered both the current scenario with the waste tipper engines operating in Fill Area 1 and the future scenario with the waste tipper engines operating in Fill Area 2.

The HRSA that was conducted in 2009 for Application #17305 has been updated to reflect the replacement of S-207 and S-209 with S-217 and S-218 and the increase in the total engine operating times to 29,200 hours/year. As discussed in Section A, the new HRSA for this project will use LLL Site 300 met-data in the air dispersion modeling program. In addition, the health impact calculations for residents will now include age sensitivity factors, as required by the January 6, 2010 amendments to Regulation 2, Rule 5.

The health impacts for the two project scenarios are presented in Tables 12a and 12b below. The attached HRSA report contains detailed discussions of the emissions data, input factor calculations, and modeling procedures for all related sources in this project.

Table 12a. Health Impacts for the Current Scenario with Engines in Fill Area 1

	Cancer Risk Per Million		***Chronic Hazard Index***
Current Scenario (Fill Area 1)	***Resident***	***Worker***	***MEI***
A-15 Landfill Gas Flare	***0.001***	***<0.001***	***0.001***
A-16 Landfill Gas Flare	***0.012***	***0.005***	***0.008***
Any Single Tipper Engine in FA1: (S-206, S-208, S-217, or S-218)	***0.21***	***0.06***	***<0.001***
All Tipper Engines Combined in FA1: (29,200 hrs/yr of operation)	***0.50***	***0.19***	***<0.001***
Total Project in Fill Area 1	*0.50*	*0.19*	*0.008*

Table 12b. Health Impacts for Future Scenario with Engines in Fill Area 2

	Cancer Risk Per Million		***Chronic Hazard Index***
Future Scenario (Fill Area 2)	***Resident***	***Worker***	***MEI***
S-2 Altamont Landfill: Fill Area 1 Increases + Fill Area 2 Emissions	***4.26***	***0.85***	***0.098***
Landfill Gas Flares: A-15 and A-16	***0.01***	***0.005***	***0.008***
Any Single Tipper Engine in FA2: (S-206, S-208, S-217, or S-218)	***0.26***	***0.10***	***<0.001***
All Tipper Engines Combined in FA2: (29,200 hrs/yr of operation)	***0.74***	***0.19***	***<0.001***
Total Project in Fill Area 2	*4.40*	*0.89*	*0.099*

The highest individual source risk for any single tipper engine (after abatement by the diesel PM filter) is a cancer risk of 0.26 in a million, and it will occur at a residential receptor when the engine is operating within Fill Area 2. Without the diesel PM filter, diesel PM emissions would

be 259.1 pounds/year per engine and the cancer risk would be 1.76 in a million for any single engine. Since this unabated source risk exceeds the TBACT threshold of 1 in a million cancer risk, Regulation 2-5-301, each tipper engine would be subject to TBACT if the diesel PM filter were not installed. Thus, diesel PM filters are required for S-206, S-206, S-217, and S-218 due to TBACT.

The S-206 and S-208 engines are equipped with verified level-3 diesel PM filters that are certified to achieve at least 85% control of diesel PM emissions. These same filters will be installed on S-217 and S-218 prior to initial operation. From the District's BACT/TBACT Guidelines, Document # 96.1.4 (last revised April 13, 2009), TBACT for diesel PM is compliance with a PM_{10} emission limit of 0.01 g/bhp-hour or equivalent technology. The footnote indicates that equivalent technology may be demonstrated by one of the methods listed in California Health and Safety Code Section 93115.13(f). After control by the diesel PM filter, each engine will emit 0.019 g/bhp-hour. However, these engines meet the intent H&S Code Section 93115.13(f)(1-2), because the engines have certified emission rates of less than 0.15 g/bhp-hr prior to control and the filter is a level-3 verified technology that is certified to achieve at least 85% control of diesel PM. Therefore, these engines (equipped with the Huss filters) comply with District TBACT requirements for prime compression ignition engines.

The source risk for the S-2 Altamont Landfill is also greater than the TBACT threshold of 1 in a million cancer risk. The engineering evaluation for Application #14814 contains a detailed discussion of the TBACT requirements for this landfill.

As shown in Table 12b, project risks are highest when the engines are operating in Fill Area 2 in conjunction with the Fill Area 2 expansion project. The total project cancer risk is primarily due to the emission increases at the landfill that result from the Fill Area 2 Expansion Project (Application #14814). The four diesel-fired waste tipper engines that are the subject of Application #21312 only increased the total project cancer risk by 0.14 in a million. The acute risk for this project was not evaluated, because diesel PM has no acute health effects values and the engines in this application would not contribute anything to acute health impacts. The highest project risks are: 4.4 in a million cancer risk and 0.1 chronic hazard index. Since the project risks are less than the Regulation 2-5-302 limits (<10 in a million cancer risk and <1.0 chronic HI), this project complies with the District's toxic NSR requirements.

Regulation 2, Rule 6:

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act (40 CFR, Part 70) and BAAQMD Regulation 2, Rule 6, Major Facility Review (MFR), because it is a major facility for NO_x and CO emissions and also because it is a designated facility (since it is subject to the control requirements of the Emission Guidelines for MSW Landfills). Therefore, this facility is required to have an MFR permit pursuant to Regulations 2-6-301 and 2-6-304.

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

The MFR Permit for this facility was initially issued on December 1, 2003 and was last revised on October 9, 2008. This application to add 2 new sources and to modify 2 existing sources will require a minor revision of the Title V permit. This Title V permit revision will be handled pursuant to Application # 16696.

Regulation 6, Rule 1:

The four diesel-fired tipper engines are subject to Regulation 6, Rule 1. Regulation 6-1-301 limits the visible emissions from each of these sources to Ringelmann 1.0. No visible particulate emissions are expected from properly operating diesel engines equipped with particulate filters.

Regulation 6-1-310 limits the exhaust point emission rate to 0.15 grains/dscf. After installation of the particulate filters, the engines will emit 0.0042 grains/sdcf at 0% O_2. These engines comply with Regulation 6-1-310 by a margin of at least 35:1. Since there is a high margin of compliance with this grain loading limit and the particulate emission rate has been certified by CARB, it is not necessary to conduct any addition compliance demonstration monitoring for this limit.

Regulation 8, Rule 2:

This rule applies to diesel oil fired IC engines. Regulation 8-2-301 limits total carbon emissions to either 15 pounds/day or to an exhaust stack concentration of 300 ppmv. From Table 5, maximum emissions are 0.93 pounds/day of POC from each engine. The total carbon emission rate will be lower than the POC emission rate. Therefore, these engines will comply with Regulation 8-2-301 by emitting less than 15 pounds/day of total carbon. The compliance margin for this limit is more than 16:1. Since the POC emission rate that demonstrates compliance is based on a CARB certification and the compliance margin is high, additional monitoring to verify compliance with the Regulation 8-2-301 limit is not necessary.

Regulation 9, Rule 1:

The portable diesel engines are subject to Regulation 9, Rule 1. Regulation 9-1-302 limits the sulfur dioxide concentration in an exhaust point to 300 ppmv. At the current CARB diesel fuel sulfur content limit of 15 ppm sulfur by weight and the theoretical F-factor of 9190 sdcf of flue gas (0% O_2) per MM BTU of diesel oil, the maximum possible concentration in the exhaust gas is 1.0 ppmv of SO_2. Since this maximum possible concentration is far less than the 300 ppmv SO_2 concentration limit, additional compliance demonstration monitoring is not necessary.

Regulation 9-1-304 limits the sulfur content of liquid fuels to 0.5% by weight. The waste tipper engines will comply with this limit by using only CARB certified diesel oil, which now contains no more than 0.0015% sulfur by weight. Since diesel fuel manufacturers are not allowed to sell non-compliant diesel fuel in the state of California, the compliance margin with this limit is now over 300:1, and the total SO_2 emissions from the engines are very low (0.022 tons/year), additional record keeping measures to demonstrate compliance with the 9-1-304 fuel oil sulfur content limit are not justifiable. Therefore, the requirement to maintain records of the certified

sulfur content of the diesel fuel used in these engines will be removed from the permit conditions.

Regulation 9, Rule 8:

Regulation 9, Rule 8 now applies to diesel fueled internal combustion engines; however, these engines are exempt from limits and monitoring requirements until January 1, 2012 pursuant to exemptions in Regulation 9-8-110.1 and 110.3. As of January 1, 2012, the portable diesel engines (S-206, S-208, S-217, and S-218) will be subject to Regulation 9-8-304, unless the operator opts for the Regulation 9-8-305 delayed compliance provision and complies with the Regulation 9-8-402 notification requirements.

For 51-175 hp engines, Regulation 9-8-304 limits the exhaust gas concentrations (corrected to 15% O_2, dry basis) to: 180 ppmv of NOx and 440 ppmv of CO (effective 1/1/2012). Based on CARB certified emission factors and the diesel fuel F-factor, S-206, S-208, S-217, and S-218 will each emit (corrected to 15% O_2): 195 ppmv of NOx and 119 ppmv of CO. Although the theoretical NOx exhaust concentration exceeds the future limit, it is less than 10% higher than the limit, and it may be possible for these engines to meet the future 9-8-304 NOx limit under real operating conditions. These future limits will be identified in the Title V permit when it is revised to incorporate these engines.

State Requirements:

CARB's Airborne Toxic Control Measure (ATCM) for Diesel PM from Portable Engines (CCR Title 17, Section 93116) applies to portable diesel fueled engines that are rated at 50 bhp or more. This regulation was amended on 1/28/2010. The operator of these engines (S-206, S-208, S-217, and S-218) will comply with §93116.3(a) by using only CARB certified diesel fuel in these engines. These engines will comply with §93116.3(b)(1)(A) by being certified to meet a federal or California standard for newly manufactured engines. For engines with capacities ranging from 100 bhp to 175 bhp, the most stringent standards currently in effect are the Tier 3 standards. The applicable Tier 3 standards are: 3.0 g/bhp-hour for NOx+NMHC, 3.7 g/bhp-hour for CO, and 0.22 g/bhp-hour for PM10. From the emission factors cited in Table 3, all four engines will comply with these Tier 3 standards.

In addition to these engine specific requirements, the entire fleet of portable engines at Plant # 2066 must comply with the future fleet emission limits in §93116.3(c). For engines < 175, the fleet average emission limit must be: 0.3 g/bhp-hr by 2013, 0.18 g/bhp-hour by 2017, and 0.04 g/bhp-hour by 2020. Each of these engines, when equipped with particulate filters, emits less PM10 than the 2020 limit above. Therefore these engines will need no additional retrofits to meet these future fleet standards.

Federal Requirements:

The engines in this application are not considered to be "stationary" engines by federal definitions, because they meet the requirements of nonroad engines, as defined in 40 CFR 1068.30:

Nonroad engine means:

(1) Except as discussed in paragraph (2) of this definition, a nonroad engine is an internal combustion engine that meets any of the following criteria:
  (i) It is (or will be) used in or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers).
  (ii) It is (or will be) used in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers).
  (iii) By itself or in or on a piece of equipment, it is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.

(2) An internal combustion engine is not a nonroad engine if it meets any of the following criteria:
  (i) The engine is used to propel a motor vehicle, an aircraft, or equipment used solely for competition.
  (ii) The engine is regulated under 40 CFR part 60, (or otherwise regulated by a federal New Source Performance Standard promulgated under section 111 of the Clean Air Act (42 U.S.C. 7411)).
  (iii) The engine otherwise included in paragraph (1)(iii) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least two years) and that operates at that single location approximately three months (or more) each year. See §1068.31 for provisions that apply if the engine is removed from the location.

Although these engines reside at this facility for more than 12 months, they do not reside at a single on-site location (as defined above) for more than 12 consecutive months.

Since the portable diesel engines in this application are nonroad engines and not stationary engines, the NSPS requirements for stationary compression ignition engines (40 CFR, Part 60, Subpart IIII) and the NESHAP requirements for stationary reciprocating internal combustion engines (40 CFR, Part 63, Subpart ZZZZ) do not apply to these engines.

The engines are subject to 40 CFR Part 89 Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines pursuant to Section 89.102 (75-130 kW and manufactured after January 1, 1997). Per Table 1 of Section 89.112, the engines (Model Year 2007, 127 bhp) are subject to Tier 3 emission standards, which limit emissions to: NOx+NMHC = 4.0 g/kW-hr (3.0 g/bhp-hr), CO = 5.0 g/kw-hr (3.7 g/bhp-hr), and PM = 0.3 g/kW-hr (0.22 g/bhp-hr). Section 89.113 limits opacity to: 20% during acceleration mode, 15% during lugging mode, and 50% during the peaks of either of the above modes. The engine families for S-206, S-208, S-217, and S-218 (7PKXL04.4NJ1) have been certified to comply with these emission and opacity standards.

IV. **Permit Conditions**

On February 23, 2010, the District and Waste Management entered into a settlement agreement concerning the operation of the four existing waste tipper engines (S-206, S-208, S-207, and S-209) and the applicable permit conditions (Condition #24421). This settlement agreement identifies specific requirements and procedures that supercede specific parts and subparts of Condition #24421. These settlement agreement requirements remain in effect until the District adopts new conditions for the S-206 and S-208 waste tipper engines and until Waste Management permanently shuts down the non-compliant S-207 and S-209 tipper engines.

The District is now proposing new conditions for the existing S-206 and S-208 waste tipper engines that will replace the specific operating time limitations and monitoring and record keeping requirements contained in the February 23, 2010 settlement agreement (as applicable to S-206 and S-208). The proposed conditions (Condition # 24578) will also include limitations for two proposed new engines (S-217 and S-218). For S-217 and S-218, the Condition #24578 requirements will become effective upon start-up of these engines.

The District's proposed revisions to the original Condition #24421 are shown below, in strike out and underline format, followed by a clean version of the new Condition # 24578.

Condition # ~~24421~~24578

FOR: S-206 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 83,
~~S-207 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 93,~~
S-208 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 70, ~~AND~~
~~S-209 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 71~~
S-217 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 71, AND
S-218 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 93

1. The owner/operator of the portable diesel-fueled waste tipper engines (S-206, ~~S-207,~~ S-208, ~~and S-209~~ S-217, and S-218) has been issued permits for portable sources (also known as nonroad engines by federal definitions) that are subject to Regulation 2-1-220 and the CARB ATCM for diesel PM from portable engines. Based on these portable source and nonroad engine determinations, these engines are not subject to the CARB ATCM for stationary compression ignition engines, the federal NSPS requirements for stationary compression ignition engines (40 CFR Part 60, Subpart IIII), or the federal NESHAP requirements for stationary reciprocating internal combustion engines (40 CFR, Part 63, Subpart ZZZZ). To retain these portable source and nonroad engine determinations, the owner/operator shall not operate any of these engines in one on-site location for more than 12 consecutive months. Any backup or standby engine that replaces one of these engines at the same on-site location and is intended to perform the same function will be counted toward this time limitation. The owner/operator shall not move equipment and then return it to the same location in an attempt to circumvent the portable equipment time requirement. (Basis: Regulations 2-1-220.1-3, 2-1-220.10, CCR §93116.2(a)(28), and 40 CFR 1068.30)

2. The owner/operator shall use CARB diesel fuel exclusively to fire these engines. (Basis: Cumulative Increase, Offsets, BACT, TBACT, Regulation 2-5-302, and CCR §93116.3(a))

3. The total combined operating time for S-206, ~~S-207,~~ S-208, S-217, and ~~S-209~~ S-218 shall not exceed ~~12,000~~ 29,200 hours during any consecutive 12-month period. (Basis: Regulation 2-5-302, Cumulative Increase, and Offsets)

~~4. To qualify as a "low-use" engine, the operating time for the S-209 engine shall not exceed 80 hours in any calendar year. (Basis: CCR §93116.3(b)(2)(B))~~

~~5. To prevent triggering BACT for NOx emissions from S-207 and S-209, the operating time for S-207 and S-209 shall not exceed 7.5 hours per engine during any calendar day. (Basis: Cumulative Increase)~~

~~6~~4. ~~Effective January 1, 2012, t~~The owner/operator shall equip each engine (S-206, ~~S-207,~~ S-208, S-217, and ~~S-209~~ S-218) with a non-resettable totalizing meter that measures hours of operation for each engine. For S-206 and S-208, this meter shall be installed by no

later than April 1, 2010. For S-217 and S-218, this meter shall be installed prior to initial operation of these engines. (Basis: Cumulative Increase~~,~~ and Offsets~~, Regulation 9-8-530, and CCR §93116.4(c)(2)(A)~~)

~~7~~5. To demonstrate compliance with Parts 1-~~5~~3, the owner/operator shall maintain the following records in a District approved log and shall make these records available to District staff upon request. All records shall be retained for at least five years from the date of entry. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable District or state regulations. (Basis: Cumulative Increase, Offsets, Regulations 2-1-220 and 2-5-302, ~~and~~ CCR §93116.2(a)(28)~~ and §93116.3(b)(2)(B)~~, and 40 CFR 1068.30)

a. ~~Each time an engine is moved to a new on-site location, the owner/operator shall record the initial operation date for that engine in the new location and the total consecutive operating time (in months) for that engine in its previous on-site location. The owner/operator shall describe each on-site operating location in supporting records using maps, descriptions, coordinates of the location boundaries, or other unique identifiers.~~The owner/operator shall maintain annual records of engine operating locations, waste placement locations, operating procedures, or other documentation that demonstrates to the APCO's satisfaction that the waste tipper engines have satisfied the portability criteria of Part 1.

~~b. For S-207 and S-209, the owner/operator shall record the hours of operation per engine for each operating day.~~

~~c~~b. For S-206, ~~S-207,~~ S-208, S-217, and ~~S-209~~ S-218, the owner/operator shall record the hours of operation per calendar month for each engine.

~~d. For S-209, the owner/operator shall record the total operating time per calendar year.~~

~~e~~c. ~~For S-206, S-207, S-208, and S-209, t~~The owner/operator shall record the total operating time for all four waste tipper engines for each consecutive rolling 12-month period.

~~f. The owner/operator shall maintain records of purchase orders, vendor certifications, or other relevant documentation to demonstrate that the fuel used in these engines complies with Part 2.~~

~~8~~6. ~~Since these engines will not meet the NOx standards of Regulation 9-8-304.1 that become effective on January 1, 2012, the owner/operator shall not operate S-206, S-207, S-208, or S-209 after January 1, 2012, unless the owner/operator complies with one of the following requirements: 8a or 8b or 8c, below, for each engine.~~ The waste tipper engines are subject to Regulation 9, Rule 8 as pf January 1, 2012. The owner/operator shall take all steps necessary to ensure that these waste tipper engines either meet the NOx and CO emission limits in Regulation 9-8-304.1 by the January 1, 2012 effective date or satisfy the delayed compliance criteria in Regulation 9-8-305. (Basis: Regulations 9-8-110.1 and 9-8-110.3~~9-8-111.3, 9-8-304, 9-9-305, 9-8-401, 9-8-402, 9-8-501, 9-8-502, 9-8-503, and 9-8-530~~)

~~a. By no later than January 1, 2012, the owner/operator shall achieve compliance with Regulation 9, Rule 8 by satisfying the requirements of the low-usage exemption in Regulation 9-8-111.3, by installing the non-resettable totalizing meter required by Regulation 9-8-530, and by maintaining the records required by Regulation 9-8-502.1. If the owner/operator wishes to use this compliance option for S-206, S-207, or S-208, the owner/operator shall submit a permit application, by no later than January 1, 2011, to request a Change of Conditions to limit the operating time for one or more of these engines to less than 100 hours per year per engine. Since Part 4 above limits the operation of S-209 to less than 100 hours per year, and Parts 6 and 7 require the necessary meter and records, the owner/operator does not need to submit a permit application for S-209.~~

~~b. By no later than January 1, 2012, the owner/operator shall achieve compliance with Regulation 9, Rule 8 by modifying an engine or installing new control equipment on an engine such that the engine will meet the NOx and CO emission limits in Regulation 9-8-304.1. If the owner/operator wishes to use this compliance option for any of these engines, the owner/operator shall submit a permit application, by no later than January 1, 2011, to request an Authority to Construct for the necessary engine modifications or control equipment. The owner/operator shall also conduct the compliance demonstration test required by Regulation 9-8-501 by no later than March 31, 2012, conduct the monitoring required by Regulation 9-8-503 in all subsequent quarters, and maintain the records required by Regulation 9-8-502.3.~~

~~c. By no later than January 1, 2012, the owner/operator shall achieve compliance with Regulation 9, Rule 8 by satisfying all requirements for the delayed compliance option including reporting the information required by Regulation 9-8-402 and maintaining the records required by Regulation 9-8-502.4. If the owner/operator wishes to use this delayed compliance option for any of these engines, the owner/operator shall stop operating the engine by no later than January 1, 2016, unless the owner/operator also: (1) submits a permit application to retrofit the engine by no later than January 1, 2015, (2) achieves compliance with the Regulation 9-8-305 emission limits by no later than January 1, 2016, (3) conducts the compliance demonstration test required by Regulation 9-8-501 by no later than March 31, 2016, (4) conducts the monitoring required by Regulation 9-8-503 in all subsequent quarters, and (5) maintains the records required by Regulation 9-8-502.3 by no later than January 1, 2016.~~

Condition # 24578

FOR: S-206 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 83,
S-208 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 70,
S-217 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 71, AND
S-218 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 93,

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

1. The owner/operator of the portable diesel-fueled waste tipper engines (S-206, S-208, S-217, and S-218) has been issued permits for portable sources (also known as nonroad engines by federal definitions) that are subject to Regulation 2-1-220 and the CARB ATCM for diesel PM from portable engines. Based on these portable source and nonroad engine determinations, these engines are not subject to the CARB ATCM for stationary compression ignition engines, the federal NSPS requirements for stationary compression ignition engines (40 CFR Part 60, Subpart IIII), or the federal NESHAP requirements for stationary reciprocating internal combustion engines (40 CFR, Part 63, Subpart ZZZZ). To retain these portable source and nonroad engine determinations, the owner/operator shall not operate any of these engines in one on-site location for more than 12 consecutive months. Any backup or standby engine that replaces one of these engines at the same on-site location and is intended to perform the same function will be counted toward this time limitation. The owner/operator shall not move equipment and then return it to the same location in an attempt to circumvent the portable equipment time requirement. (Basis: Regulations 2-1-220.1-3, 2-1-220.10, CCR §93116.2(a)(28), and 40 CFR 1068.30)

2. The owner/operator shall use CARB diesel fuel exclusively to fire these engines. (Basis: Cumulative Increase, Offsets, BACT, TBACT, Regulation 2-5-302, and CCR §93116.3(a))

3. The total combined operating time for S-206, S-208, S-217, and S-218 shall not exceed 29,200 hours during any consecutive 12-month period. (Basis: Regulation 2-5-302, Cumulative Increase, and Offsets)

4. The owner/operator shall equip each engine (S-206, S-208, S-217, and S-218) with a non-resettable totalizing meter that measures hours of operation for each engine. For S-206 and S-208, this meter shall be installed by no later than April 1, 2010. For S-217 and S-218, this meter shall be installed prior to initial operation of these engines. (Basis: Cumulative Increase and Offsets)

5. To demonstrate compliance with Parts 1-3, the owner/operator shall maintain the following records in a District approved log and shall make these records available to District staff upon request. All records shall be retained for at least five years from the date of entry. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable District or state regulations. (Basis: Cumulative Increase, Offsets, Regulations 2-1-220 and 2-5-302, CCR §93116.2(a)(28), and 40 CFR 1068.30)
   a. The owner/operator shall maintain annual records of engine operating locations, waste placement locations, operating procedures, or other documentation that demonstrates to the APCO's satisfaction that the waste tipper engines have satisfied the portability criteria in Part 1.
   b. For S-206, S-208, S-217, and S-218, the owner/operator shall record the hours of operation per calendar month for each engine.

c. The owner/operator shall record the total operating time for all four waste tipper engines for each consecutive rolling 12-month period.

6. The waste tipper engines are subject to Regulation 9, Rule 8 as of January 1, 2012. The owner/operator shall take all steps necessary to ensure that these waste tipper engines either meet the NOx and CO emission limits in Regulation 9-8-304.1 by the January 1, 2012 effective date or satisfy the delayed compliance criteria in Regulation 9-8-305. (Basis: Regulations 9-8-110.1 and 9-8-110.3)

V. RECOMMENDATION

Issue a Change of Conditions for the following sources subject to Condition # 24578:

S-206 Portable Diesel Engine for Tipper # 83: Model Year 2007, Perkins, Model 2900/2200, 127 bhp, 7.08 gallons/hour of CARB diesel oil; equipped with A-206, HUSS FS-MK Series Diesel Particulate Filter (verified level-3+ control).

S-208 Portable Diesel Engine for Tipper # 70: Model Year 2007, Perkins, Model 2900/2200, 127 bhp, 7.08 gallons/hour of CARB diesel oil; equipped with A-208, HUSS FS-MK Series Diesel Particulate Filter (verified level-3+ control).

Issue an Authority to Construct for the following sources subject to Condition # 24578:

S-217 Portable Diesel Engine for Tipper # 71: Model Year 2007, Perkins, Model 2900/2200, 127 bhp, 7.08 gallons/hour of CARB diesel oil; equipped with A-207, HUSS FS-MK Series Diesel Particulate Filter (verified level-3+ control).

S-218 Portable Diesel Engine for Tipper # 93: Model Year 2007, Perkins, Model 2900/2200, 127 bhp, 7.08 gallons/hour of CARB diesel oil; equipped with A-209, HUSS FS-MK Series Diesel Particulate Filter (verified level-3+ control).

By: Carol S. Allen Date
Principal Air Quality Engineer

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

Permit to Operate Report

for

Waste Tipper Engine Replacements

Waste Management of Alameda County; PLANT # 2066

APPLICATION # 21312

I. BACKGROUND

Waste Management of Alameda County operates the Altamont Landfill and Resource Recovery Facility in Livermore, CA (Site # A2066). This site includes an active MSW landfill, landfill gas collection and control equipment, landfill gas energy recovery equipment, green waste processing operations, waste water treatment operations, and numerous diesel engines that provide primary power to portable equipment and emergency power to other operations.

This application concerns four portable diesel-fired IC engines (S-206, S-208, S-207, and S-209) that provide power to hydraulic lifts on Altamont's portable waste tippers. Each engine is equipped with an oxidizing diesel particulate filter (A-206, A-208, A-207, and A-209, respectively) that removes 85% of the diesel PM.

In accordance with a Compliance and Enforcement Agreement, Waste Management agreed to accelerate the replacement of the two older engines (S-207 and S-209) with two new BACT compliant engines. On March 23, 2010, the District issued an Authority to Construct for the two new engines (S-217 and S-218) pursuant to Application #21312. Waste Management planned to remove the diesel PM filters (A-207 and A-209) from the older engines and re-install them on the new engines. Thus, S-217 will be abated by A-207, S-218 will be abated by A-209, and S-207 and S-209 will be shut down.

In a related matter, the District agreed to use Lawrence Livermore Laboratories Site 300 meteorological data – on a temporary basis - for any health risk screening analysis (HRSA) at this site, until Waste Management installs their own on-site meteorological station at a District approved location, and until Waste Management is able to gather sufficient quality assured meteorological data from this on-site met-station for District modeling purposes. In accordance with this agreement, the District conducted a revised HRSA for the four engines and determined that the engines would comply with District project risk limits at a combined operating time limit of 29,200 hours/year. On March 23, 2010, the District approved permit condition changes for S-206, S-208, S-217, and S-218 based on this revised HRSA.

On August 31, 2010, Waste Management notified the District that the two new engines S-217 abated by A-207 and S-218 abated by A-209 were ready to begin operating. Initial operation dates were scheduled to be: 9/7/10 for S-218 and 9/21/10 for S-217.

II. EMISSIONS

Emissions from the four portable diesel fired IC engines were discussed in detail in the Engineering Evaluation for Application # 21312. The engines and diesel PM filters have been certified by CARB to meet the specified weighted emission rates and control efficiencies identified in that report. No source testing was required.

III. STATEMENT OF COMPLIANCE

Compliance with each applicable regulation was discussed in detail in the Engineering Evaluation for Application # 21312. The following information is provided as an update to this initial compliance determination.

Regulation 2, Rule 2:

This facility was required to supply offsets pursuant to Regulation 2-2-302 for NOx and POC emission increases, because NOx and POC emissions from this site each exceeded 35 tons/year. The total cumulative emission increases for this application were: 6.312 tons/year of NOx and 0.332 tons/year of POC. Waste Management qualified for 0.748 tons/year of NOx on-site credits and 0.039 tons/year of POC on-site credits due to the permanent shut down of S-207 and S-209. The remaining net emission increases were 5.564 tons/year of NOx and 0.293 tons/year of POC. At the offset ratio of 1.15 to 1.0, the amount of emission reduction credits required were 6.399 tons/year of NOx and 0.337 tons/year of POC. Waste Management requested to use POC credits to offset the NOx emission increases and supplied 2.0 tons/year of POC credits from banking certificate #995 and 6.153 tons/year of POC credits from banking certificate #1003. The excess credits (1.417 tons/year of POC) will be returned to Waste Management as banking certificate # 1220.

IV. Permit Conditions

The District approved Condition #24578 for these diesel engines on March 23, 2010. These conditions replaced Condition #24421 and the conditions in the settlement agreement upon start-up of the new engines (S-217 and S-218) and shut down of S-207 and S-209.

The District is proposing additional changes to Condition #24578 to clarify that the operation of the HUSS diesel particulate filter is required by TBACT whenever one of these engines is operating and to clarify that this diesel particulate filter must be periodically regenerated and cleaned to maintain proper operation. Since the engine is equipped with automatic controls that

prevent operation when regeneration is necessary and the filter is automatically regenerated when necessary (on approximately a daily basis), the District is only requiring records for major maintenance events. The District's proposed revisions to Condition #24578 are shown below, in strike out and underline format.

Condition # 24578

FOR: S-206 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 83, EQUIPPED WITH A-206 DIESEL PARTICULATE FILTER; S-208 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 70, EQUIPPED WITH A-208 DIESEL PARTICULATE FILTER; S-217 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 71, EQUIPPED WITH A-207 DIESEL PARTICULATE FILTER; AND S-218 PORTABLE DIESEL ENGINE FOR WASTE TIPPER # 93, EQUIPPED WITH A-209 DIESEL PARTICULATE FILTER.

1. The owner/operator of the portable diesel-fueled waste tipper engines (S-206, S-208, S-217, and S-218) has been issued permits for portable sources (also known as nonroad engines by federal definitions) that are subject to Regulation 2-1-220 and the CARB ATCM for diesel PM from portable engines. Based on these portable source and nonroad engine determinations, these engines are not subject to the CARB ATCM for stationary compression ignition engines, the federal NSPS requirements for stationary compression ignition engines (40 CFR Part 60, Subpart IIII), or the federal NESHAP requirements for stationary reciprocating internal combustion engines (40 CFR, Part 63, Subpart ZZZZ). To retain these portable source and nonroad engine determinations, the owner/operator shall not operate any of these engines in one on-site location for more than 12 consecutive months. Any backup or standby engine that replaces one of these engines at the same on-site location and is intended to perform the same function will be counted toward this time limitation. The owner/operator shall not move equipment and then return it to the same location in an attempt to circumvent the portable equipment time requirement. (Basis: Regulations 2-1-220.1-3, 2-1-220.10, CCR §93116.2(a)(28), and 40 CFR 1068.30)

2. The owner/operator shall use CARB diesel fuel exclusively to fire these engines. (Basis: Cumulative Increase, Offsets, BACT, TBACT, Regulation 2-5-302, and CCR §93116.3(a))

3. The total combined operating time for S-206, S-208, S-217, and S-218 shall not exceed 29,200 hours during any consecutive 12-month period. (Basis: Regulation 2-5-302, Cumulative Increase, and Offsets)

4. The owner/operator shall equip each engine (S-206, S-208, S-217, and S-218) with a non-resettable totalizing meter that measures hours of operation for each engine. For S-206 and S-208, this meter shall be installed by no later than April 1, 2010. For S-217 and S-

218, this meter shall be installed prior to initial operation of these engines. (Basis: Cumulative Increase and Offsets)

5. Each engine shall be equipped with a diesel particulate filter, and this filter shall be operated during any time that an engine is operating. The owner/operator shall clean, regenerate, and maintain the diesel particulate filter in accordance with the manufacturer's recommended procedures. (Basis: Regulations 2-5-301 and 2-5-302)

6. To demonstrate compliance with Parts 1-5, the owner/operator shall maintain the following records in a District approved log and shall make these records available to District staff upon request. All records shall be retained for at least five years from the date of entry. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable District or state regulations. (Basis: Cumulative Increase, Offsets, Regulations 2-1-220 and 2-5-302, CCR §93116.2(a)(28), and 40 CFR 1068.30)
   a. The owner/operator shall maintain annual records of engine operating locations, waste placement locations, operating procedures, or other documentation that demonstrates to the APCO's satisfaction that the waste tipper engines have satisfied the portability criteria in Part 1.
   b. For S-206, S-208, S-217, and S-218, the owner/operator shall record the hours of operation per calendar month for each engine.
   c. The owner/operator shall record the total operating time for all four waste tipper engines for each consecutive rolling 12-month period.
   d. For each diesel particulate filter, the owner/operator shall keep records of all major maintenance events that involve sending the unit offsite for cleaning and/or repair.

7. The waste tipper engines are subject to Regulation 9, Rule 8 as of January 1, 2012. The owner/operator shall take all steps necessary to ensure that these waste tipper engines either meet the NOx and CO emission limits in Regulation 9-8-304.1 by the January 1, 2012 effective date or satisfy the delayed compliance criteria in Regulation 9-8-305. (Basis: Regulations 9-8-110.1 and 9-8-110.3)

V. RECOMMENDATION

Issue a Permit to Operate for the following sources subject to revised Condition # 24578:

S-217 Portable Diesel Engine for Tipper # 71: Model Year 2007, Perkins, Model 2900/2200, 127 bhp, 7.08 gallons/hour of CARB diesel oil; equipped with A-207, HUSS FS-MK Series Diesel Particulate Filter (verified level-3+ control).

S-218 Portable Diesel Engine for Tipper # 93: Model Year 2007, Perkins, Model 2900/2200, 127 bhp, 7.08 gallons/hour of CARB diesel oil; equipped with A-209, HUSS FS-MK Series Diesel Particulate Filter (verified level-3+ control).

By: Carol S. Allen Date
Principal Air Quality Engineer

Renewal and Revisions of the Title V Permit for Waste Management of Alameda County, Site # A2066

ENGINEERING EVALUATION

Waste Management of Alameda, Inc.; PLANT # 2066

APPLICATION # 15684

VI. BACKGROUND

Waste Management of Alameda, Inc. operates the Altamont Landfill and Resource Recovery Facility (Plant # 2066) in Livermore, CA. This facility includes an active landfill (S-2 with 40 million tons of refuse in place), two 3 MW Gas Turbines (S-6 and S-7, landfill gas fired) equipped with Fogging Systems (A-6 and A-7), two 1877 bhp IC Engines (S-23 and S-24, landfill gas fired), one 71 MM BTU/hour Landfill Gas Flare (A-15), wastewater treatment operations (permitted: S-19, S-140, and S-141; exempt: S-12, S-20, S-28, S-130, A-130, and S-180), a non-retail gasoline dispensing facility (S-99), and nine diesel engines providing portable or standby power (S-190, S-191, S-192, S-193, S-194, and S-195, S-196, S-197, and S-198).

As of December 1, 2006, Waste Management discontinued the operation of the two diesel fired water pump engines (S-191 and S-192) and replaced these water pump engines with electrically powered pumps. Waste Management has requested to bank the emission reduction credits generated by the permanent shut down of these two diesel engines.

VII. Determination of Emission Reduction Credits

Waste Management requested total emission reduction credits (ERC) of: 1.180 tons/year of NO_x, 0.254 tons/year of CO, 0.094 tons/year of POC, 0.084 tons/year of PM_{10}, and 0.078 tons/year of SO_2 due to the shut down of S-191 and S-192. Since no engine certification data was available, Waste Management based all emission calculations on AP-42 emission factors. The maximum rated brake horsepower was 63 bhp for each engine. Waste Management provided a monthly summary of the operating hours for each engine during 2004 through 2006. The annual average operating times were 509 hours/year for S-191 and 699 hours/year for S-192.

The District determined emission factors (grams/bhp-hour) for actual emission reductions based on AP-42 factors (pounds/MM BTU) for NO_x, CO, POC, and PM_{10} from Table 3.3-1 and the CARB fuel oil limit of 0.05% sulfur by weight for SO_2. The equivalent actual emission factors and actual emission rates are summarized in Table 1.

Table 1. Actual Emission Reductions from S-191 and S-192

	Actual Emission Factor g/bhp-hr	S-191 bhp	S-191 hrs/year	S-191 lbs/year	S-192 bhp	S-192 hrs/year	S-192 lbs/year	Actual Emission Reductions tons/year
NO_x	14.355	63	509	1015	63	699	1394	1.204
CO	3.092	63	509	219	63	699	300	0.259
POC	1.172	63	509	83	63	699	114	0.098
PM_{10}	1.009	63	509	71	63	699	98	0.085
SO_2	0.084	63	509	6	63	699	8	0.007

In accordance with Regulation 2-2-605.5, the baseline emission factors listed in Table 1 should be adjusted downward to comply with the most stringent RACT, BARCT, or other applicable District limit that has been adopted or that is contained in the Clean Air Plan. Due to this requirement, PM_{10}, NO_x, and POC emission reductions must be BARCT adjusted downward. Emission factor adjustments are not necessary for CO or SO_2 emission factors. The reasons and bases for emission factor adjustments are discussed in detail below for each pollutant. The adjusted emission factors and resulting emission reductions that are eligible for banking are summarized in Table 2. Detailed calculations are attached.

In the case of diesel engines, CARB's ATCM for Stationary Compression Ignition Engines contains the most stringent BARCT requirements for PM_{10} emissions from diesel fired engines. From Table 4 of this ATCM, in-use stationary prime diesel fueled compression ignition engines must either be retrofitted or replaced in order to reduce baseline PM_{10} emission levels by 85% or to meet an emission limit of 0.01 g PM_{10}/bhp-hour. This BARCT emission limit (0.01 g/bhp-hr of PM_{10}) is lower than the actual emission factor (1.009 g/bhp-hr of PM_{10}). Therefore, PM_{10} emission reductions must be BARCT adjusted.

Based on the number of engines at this site and the age of these engines (1995 model year), Waste Management was required to comply with the CARB ATCM for stationary compression ignition engines by January 1, 2007. If Waste Management complied with this requirement by retrofitting the engine, the ATCM would have limited the HC, NO_x, and CO emission increases to no more than 10% above the baseline levels (15.79 g/bhp-hr of NO_x, 3.40 g/bhp-hr of CO, and 1.29 g/bhp-hr of POC). However, if Waste Management complied with the ATCM by replacing these engines, the replacement engines would be subject to the EPA tier standards for new engines. In this case, replacements for 63 bhp engines that were available prior to January 1, 2007 would have been required to meet the Tier 2 standards of 5.6 g/bhp-hour of NO_x+NMHC and 3.7 g/bhp-hour of CO. Assuming 95% of the NO_x+NMHC is NO_x and all NMHC is POC, the individual emission factors are: 5.32 g/bhp-hr of NO_x and 0.28 g/bhp-hr of POC. Comparing the two compliance options (retrofit versus replacement), the lowest BARCT or RACT limits are: 5.32 g/bhp-hr of NO_x, 3.40 g/bhp-hr of CO, and 0.28 g/bhp-hr of POC.

For NO_x and POC emissions, the lowest BARCT limits (5.32 g/bhp-hr of NO_x and 0.28 g/bhp-hr of POC) are less than the actual expected emission rates (14.4 g/bhp-hr of NO_x and 1.2 g/bhp-hr of POC). Therefore, NO_x and POC emission reductions must be BARCT adjusted.

For CO, the actual emission factor (3.092 g/bhp-hr) is less than the lowest BARCT limit (3.40 g/bhp-hr). Therefore, CO emission reductions will not be BARCT adjusted.

For SO_2, the expected emissions are based on the current CARB fuel oil sulfur limit. Replacement engines would not have been subject to any lower fuel oil sulfur standards. Therefore, SO_2 emissions will not be BARCT adjusted.

Table 2. Emission Reductions from S-191 and S-192 that are Eligible for Banking

Pollutants	Basis for BARCT Adjustments or Emission Factors	Adjusted Emission Factors grams/bhp-hour	S-191 Adjusted Emissions pounds/year	S-192 Adjusted Emissions pounds/year	Eligible Emission Reductions tons/year
NO_x	Tier 2 Standard	5.320	376.10	516.49	0.446
CO	AP-42 Factor	3.092	218.61	300.22	0.310
POC	Tier 2 Standard	0.280	19.79	27.18	0.023
PM_{10}	CARB ATCM Limit	0.010	0.71	0.97	0.001
SO_2	CARB Fuel S. Limit	0.084	5.96	8.19	0.007

VIII. STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

This application is categorically exempt from CEQA review pursuant to Regulation 2-1-312.10, because only involves depositing emission reductions in the bank.

Regulation 2, Rule 4:

The proposed emission reduction credits listed in Table 2 have been BARCT adjusted and were generated due to the shut down of two permitted sources (S-191 and S-192 Diesel Engines). Since these engines were replaced with electric motors, the emissions from S-191 and S-192 will not be shifted to other sources. Therefore, the emission reductions from these engines are bankable pursuant to Regulation 2-4-302. These emission reductions are permanent; the District permits for these sources have been cancelled and the equipment has been removed from the facility.

Regulation 2-4-303 contains various limitations on deposits. Since there is not a moratorium in effect, Section 303.1 does not apply. Section 303.2 is not applicable, because the facility is not replacing the diesel engines with other engines. The site is now using electric motors to power the water pumps. Section 303.3 does not apply, because the engines were permitted sources. Section 303.4 does not apply, because the engines do not remain operable.

Section 2-4-303.5 is applicable, because this facility has the following unreimbursed offsets: 25.013 tons/year of NO_x and 9.644 tons/year of POC. These offsets must be reimbursed before any NO_x or POC credits may be granted. The emission reductions listed in Table 2 will be applied to the unreimbursed offset balances (banking number 157) at Plant # 2066 for NOx and POC, as shown below.

	Current Offset Balance for Bank #157 at Plant #2066	Emission Reductions at Plant # 2066	New Unreimbursed Offset Balance for Plant #2066
NO_x	25.013	- 0.446	24.567
POC	9.644	- 0.023	9.621

Since the District did not provide any offsets for CO, PM_{10}, or SO_2 emissions, there are no applicable limitations on deposits for these pollutants.

IX. RECOMMENDATION

Apply a credit to the District's Small Facility Banking Account (Banking # 157) from Plant # 2066 for the following amounts:
NO_x: 0.446 tons/year
POC: 0.023 tons/year

Issue a Banking Certificate to Waste Management for the following emission reduction credits:
CO: 0.310 tons/year
PM_{10}: 0.001 tons/year
SO_2: 0.007 tons/year

The permits and associated conditions for the S-191 and S-192 Diesel Engines have been archived.

By: Carol S. Allen Date
Senior Air Quality Engineer