Bay Area Air Quality Management District

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Permit Evaluation
and
Statement of Basis
for
RENEWAL
of the
MAJOR FACILITY REVIEW PERMIT

for

Waste Management of Alameda County
Facility #A2066

Facility Address:
10840 Altamont Pass Road
Livermore, CA 94551

Mailing Address:
10840 Altamont Pass Road
Livermore, CA 94551

Application Engineer: Loi Chau
Site Engineer: Loi Chau

September 2019

Renewal Application: 28704
Revision Applications: 26432, 27293, 27339, 27662, 28273, 29133 & 29738

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TITLE V STATEMENT OF BASIS

Waste Management of Alameda County; Facility A2066

Renewal Application 28704 and

Revision Applications 26432, 27293, 27339, 27662, 28273, 29133 & 29738

A. 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.

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

This facility received its initial Title V permit on December 1, 2003 with the most recent permit renewal occurring on December 19, 2012 under Application #18233. The permit was revised on May 28, 2013 and May 12, 2014.

Application #28704 is for a renewal of the Title V permit for this site. Although the current permit expired on December 18, 2017, it continues in force until the District takes final action on the permit renewal. The proposed renewal permit 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
26432	Administrative	26431	Revision to Landfill Gas TAC Concentration Limit
27293	Administrative	27292	Revision to Landfill Gas TAC Concentration Limit
27339	Minor	27338	Revision to the volume of decomposable materials in Fill Area 1
		27839	Revised the number of alterations for the landfill gas collection system
		28264	Revised the source test requirements for back-up flare A-15
27662	Minor	27661	Replaced tipper engines S-217 and S-218 with S-224 and S-225
28273	Minor	28272	Revised minimum combustion chamber discharge temperatures for S-6 and S-7
29133	Minor	29119	Replaced tipper engine S-222 with S-228
29738	Minor	28291	Replaced storage tanks and Phase I vapor recovery system for non-retail gasoline dispensing facility S-99

Waste Management has submitted the following permit applications that are still undergoing District review: NSR Application #28197, NSR Application #28339, NSR Application #28727, and NSR Application 26437 and Title V Application #26438. NSR Application # 28197 is requesting a change of condition for the flares A-15 and A-16. NSR Application # 28339 is to change the limits of toxic air contaminants for S-1. NSR Application #28727 is requesting to change the permit conditions associated with Fill Area 2. All three applications require additional information to complete the evaluation. NSR Application #26437 and Title V Minor Revision #26438 for the CASP Composting Operations has been issued an Authority to Construct. Composting operations has begun at the facility, but the Permit to Operate has not been issued to the facility pending a source test for the operations. Following the completion of each application, the revisions 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.

B. 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.

For this site, the landfill operations have 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.

The S-2 Altamont Landfill includes 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, Fill Area 2 and the associated active landfill gas collection systems. 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. Waste acceptance at Fill Area 1 began in 1980. Fill Area 1 has a maximum design capacity of 58.9 million cubic yards (45.0 million m^3) and contain about 51.02 million tons (46.4 million Mg) of decomposable waste. Fill Area 1 is 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 the state plan under 40 CFR Part 62, Subpart F.

The commencement of Fill Area 2 has begun on March 25, 2019. Waste disposal has been moved to an adjacent canyon designated as Fill Area 2. The daily waste acceptance limit is currently at 11,150 tons/day with an annual waste acceptance limit of 1,610,000 tons/year. The landfill expansion has increased the design capacity for Altamont Landfill (Fill Areas 1 and 2 combined) to 124.4 million yd^3 and has increased the limit on the amount of decomposable materials that may be placed in the landfill up to 88.0 million tons. Fill Area 2 is subject to 40 CFR, Part 60, Subpart WWW and has changed 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 potential to emit (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.

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 permitted landfill gas control systems at this site includes the gas turbines (S-6 and S-7), and enclosed landfill gas flares (A-15 and A-16) 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, the landfill gas collection and control systems that were approved by the District pursuant to NSR Applications #26431, 27292, 27338, 27839, 28264, and 28272. The Engineering Evaluation Reports for these NSR applications are presented in Appendix B, C, D, E, G, and H.

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 # 27661 and 29119. The District Engineering Evaluation Reports for this equipment are presented in Appendix F and J. As indicated in Table II-D, the District has determined that these portable engines are exempt from Title V permitting requirements.

Waste Management operates a non-retail gasoline dispensing facility (S-99). The dispensing facility consisted of two above ground storage tanks (1 – 2,500 gallon gasoline tank and 1-500 gallon diesel tank). In NSR Application #28291, Waste Management requested to update the gasoline dispensing facility. The tanks were replaced with two 1,000 gallon tanks, one for gasoline and one for diesel. The Phase I vapor recovery device installed at the facility is replaced to comply with Standing Loss Control for new installations of aboveground tanks. There were no changes to the Phase II vapor recovery system. The Engineering Evaluation Report for the changes are presented in Appendix I.

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

C. 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:

- The District is updating the address and phone number for the Bay Area Air Quality Management District.
- The District is updating the name of the person issuing the permit to Jack P. Broadbent, Executive Officer/Air Pollution Control Officer.
- The District is changing the "BAAQMD Permit Division Contact" to "BAAQMD Engineering Division Contact" and changing the contact person to Loi Chau.

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 amended and approved dates for the BAAQMD and SIP Regulations 2 Rule 1, BAAQMD and SIP Regulation 2 Rule 2, BAAQMD and SIP Regulation 2 Rule 4, BAAQMD Regulation 2 Rule 5, and BAAQMD and SIP Regulation 2 Rule 6.
- The District is updating the basis for Standard Conditions I.F and I.G.

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., S-24).

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. 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 have 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 (May 2014) and the permit proposal date. The reasons for each of these equipment changes are explained above in Section B and summarized below.

Changes to Permit, Section II:

- In Table II-A, the District is updating the maximum capacity for S-2 Fill Area 1 to 51.02 million tons. The number of active wells at the facility is updated to 111 vertical wells, 2 horizontal collector, and 1 leachate collection riser.
- In Table II-A Permitted Sources, the District is removing S-23 and S-24 the permit. The sources have been decommissioned and removed from the facility.

- In Table II-A Permitted Sources, the District is updating the description of the equipment for the Phase I vapor recovery device and the size of the two aboveground storage tanks.
- In Table II-D Exempt Equipment List, the District is removing S-206, S-208, S-217, S-218, and S-222 from the list of exempt engines. The District is adding S-224, S-225, and S-228 to the list of exempt sources to replace sources S-217, S-218, and S-222, respectively.

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-30 Portable Green Waste Grinding Operation is an unpermitted significant source.

Changes to Permit, Section III:

- The District is updating the EPA website address for the SIP standards.
- For Table III, the District is amending the dates of adoption or approval of rule, correcting the "federal enforceability" status for these rules, and adding or deleting rules and standard to confirm to current practices. The rules that are amended, added or removed are listed below:
    - BAAMD Regulation 2, Rule 1 – Permits – General Requirements
    - SIP Regulation 2, Rule 1 – Permits – General Requirements
    - BAAQMD Regulation 2, Rule 5 – Permits – New Source Review of Toxic Air Contaminants
    - SIP Regulation 4 – Air Pollution Episode Plan
    - SIP Regulation 4, Table 1 – Air Pollution Episode Plan, Episode Stage Criteria
    - BAAQMD Regulation 5 – Open Burning
    - BAAQMD Regulation 6, Rule 1 – Particulate Matter – General Requirements
    - BAAQMD Regulation 6, Rule 6 – Particulate Matter – Prohibition of Trackout
    - BAAQMD Regulation 11, Rule 18 – Reduction of Risk from Air Toxic Emissions at Existing Facilities
    - BAAQMD Regulation 14, Rule 1 – Mobile Sources Emission Reduction Methods – Bay Area Commuter Benefits Program

- California Code of Regulation Title 17, Section 93115 – Airborne Toxic Control Measure for Stationary Compression Ignition Engines
- EPA Regulation 40 CFR Part 82, Subpart F – Protection of Stratospheric Ozone – Recycling and Emissions Reduction
- EPA Regulation 40 CFR 82.154 – Recycling and Emissions Reduction – Prohibitions
- EPA Regulation 40 CFR 82.156 – Recycling and Emissions Reduction – Required Practices
- EPA Regulation 40 CFR 82.161 – Recycling and Emissions Reduction – Technician Certification
- EPA Regulation 40 CFR 82.166 – Recycling and Emissions Reduction – Reporting and Record Keeping Requirements

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).

In 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 are effective as of March 25, 2019 when the owner or operation commenced construction on the modification. 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 were added to Tables IV-A, IV-B, and IV-D.

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.

As discussed in Section IX of the permit, a permit shield applies to S-43 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 permit shield is applied to 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.

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-F.

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. 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-I.

The NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR, Part 63, Subpart ZZZZ) applies to reciprocating IC engines (RICE) located at a facility that is a major source of HAP with the 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-H.

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-I.

NSPS and NESHAP Applicability for Portable IC Engines (S-31, S-221, S-224, S-225, and S-228)

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 either diesel fueled compression-ignition (CI) or a compressed natural gas (CNG) internal combustion (IC) engines. S-221, S-224, S-225 and S-228 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 engines 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, 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 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.

Regulation 6, Rule 1 – Particulate Matter, General Requirements:
Regulation 6, Rule 1 "General Requirements" applies to sources that have a potential to emit particulate matter. On August 1, 2018, the District revised the regulation to include the addition of Regulation 6-1-310.2, which limits the allowable total suspended particulate (TSP) concentrations based on exhaust rate, and Regulation 6-1-311.2, which changed the limits of allowable TSP emission limits based on process weight rates. These additions to Regulations 6, Rule 1 apply to sources that have the potential to emit more than 1,000 kg/yr (2,205 lb/yr). The additions to Regulation 6, Rule 1 are effective on July 1, 2020.

Regulation 6, Rule 1 Applicability for A-16, A-17, S-6, and S-7:
At this facility, the landfill gas flares (A-16 and A-17) and the gas turbines (S-6 and S-7) emit particulate matter from the use of landfill gas as a fuel. Regulation 6-1-114.2 provides a limited exemption for A-16 and A-17 since the abatement devices are gas-fuel fired control devices for gaseous emissions. Regulation 6-1-114.1 provides a limited exemption to S-6 and S-7 provides a limited exemption for gas-fuel fire indirect heat exchangers such as the gas turbines. Regulation 6-1-310.2 and 6-1-311.2 does not apply to A-16, A-17, S-6, and S-7.

Regulation 6, Rule 1 Applicability for S-30:
As discussed in Section C-II, S-30 is considered a significant source of PM10 that has a potential to emit 10 tons/year. S-30 is subject to Regulation 6-1-311.2 since the potential to emit exceeds the limit of 2,205 lb/year. The grinding operation has a maximum processing rate of 40 tons/hour or 80,000 lb/hour. The potential to emit from this source is 4 lb/year. According to Table 6-1-311.2, the TSP emission limit for a source that processes 80,000 lb/hour is 20.6 lb/hour. Regulation 6-1-311.2 is applicable to S-30 and the source is expected to comply with this regulation when it goes into effect on July 1, 2020.

Regulation 6, Rule 1 Applicability for S-193, S-199, S-200, and S-201:
The facility operates four stationary diesel engines (S-193, S-199, S-200, and S-201). The diesel engines are used to operate a fire pump or to provide power during emergency use. The addition of Regulation 6-1-310.2 applies to each source that has the potential to emit more than 2,205 lb/yr of total suspended solids. Each stationary diesel engine at this facility does not have the potential to emit more than 2,205 lb/year. Regulation 6-1-310.2 does not apply to S-193, S-199, S-200, and S-201.

Changes to Permit, Section IV:
- The District is updating the EPA's website address for the SIP standards.
- Throughout Section IV, the District is updating amendment dates for BAAQMD Regulation 6, Rule 1 as needed for each table. Throughout Section IV, the District is adding BAAQMD Regulation 6, Rule 6 as needed for each table. The new regulation was adopted on August 1, 2018.
- In Table IV-A, the District is adding 40 CFR Part 60, Subpart Cf for collection and control system.

- In Table IV-A, the District is removing the future date for 40 CFR Part 60, Subpart WWW and 40 CFR Part 63.1955(a)(1). The regulation became effective on March 25, 2019 when active disposal operations began in Fill Area 2.
- In Table IV-A, BAAQMD Condition #19235, the District is deleting Part 16 of the permit condition since the condition is related to sources S-23 and S-24, which were removed from the permit.
- In Table IV-D, the District is removing for S-23 and S-24 from the permit. The reference for subsequent tables has been adjusted accordingly.
- In Table IV-E, the District is adding Regulation 6-1-311.2 with a future effective date of July 1, 2020.
- In Table IV-F, the District is removing Condition # 16516 and replacing with BAAQMD Condition #25723 and #26179. California Air Resource Board Executive Orders G-70-52-AM, VR-301-G, VR-302-G, and VR-402-D are included based on the changes to the Phase I Vapor Recovery System for S-99 and the potential modifications to the Phase II Vapor Recovery System.

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.

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

- 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 # 18773, 19235, and 24373. 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 #16516 and 19237, because the sources have been shut down and removed from this site or the condition has been overridden by new conditions. The District is proposing to add Conditions # 25723 and 26179 for existing sources with updated equipment. 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.

Changes to Permit, Section VI:

- The District is deleting Condition #16516 and adding with Condition #25723 and #26179 for S-99.
- Condition # 18773, Parts 9: The District is lowering the minimum combustion temperature from 855 degrees Fahrenheit to 700 degrees Fahrenheit.
- Condition # 19235, Part 1: The District is updating the number of active vertical wells, horizontal trench collectors, and leachate collection system as reflected in the well installation and decommissioning letter. The number of alterations permitted to the landfill gas collection system is updated per NSR Application #27839 and updated based on the well installation and decommissioning letters provided by the facility. The list of wells with alternative operating parameters is updated.
- Condition #19235, Part 2: The District is removing S-23 and S-24 from the list of landfill gas processing equipment.
- Condition # 19235, Part 12, Subpart C: The District is revising the concentration limits for benzylchloride, ethyl benzene, ethylene dichloride, ethylidene dichloride, perchloroethylene, and vinyl chloride.
- Condition # 19235, Part 13: The District is changing the source test frequency for the flares. A-15. The A-15 flare is changed from an annual source test to a source test every 3 years. Conditions were included to require a source test during any consecutive 12-month period if the source is in non-compliance or if usage exceeds a limit of 240 hours.
- Condition # 19235, Parts 16: The District is deleting Part 16. The condition is related to S-23 and S-24, which have been removed from the site.
- Condition # 19235, Parts 17: The District is updating the mailing address for the District office.
- Condition # 19235, Part 18: The District is increasing the total cumulative amount for the Fill Area 1 to 51,020,000.

- Condition # 19237: The District is removing the condition from the Title V Permit. The conditions are associated with sources S-23 and S-24 which have been removed from the site.
- Condition # 24373: The District is updating the permit conditions to reflect the changes in the sources since the previous Title V update. Part 3(a)(iii) is deleted since the condition is related to S-23 and S-24 which were shut down and removed from the site. The District is updating the list of diesel engines located at the facility.
- Condition #25723: The District is adding the condition per NSR Application #28291. The conditions are related to the vapor recovery system installed at S-99.
- Condition #26179: The District is adding the condition per NSR Application #28291.

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
Landfill Gas Flares (A-15 and A-16), Gas Turbines (S-6 and S-7), Stationary Diesel Engines (S-193, S-199, S-200, and S-201), Portable Diesel Engines (S-31, S-224, S-225, S-228), and Portable CNG Engine (S-221)	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 Standby Diesel Engine [(2)]: 0.003 tons/year of SO_2
Potential to Emit for Portable Diesel Engines [(2)]: 0.010 tons/year of SO_2
Potential to Emit for Portable CNG Engine [(3)]: 0.012 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-224, S-225, and S-228 is 21,900 hours/year.
(3) For the CNG engine, the maximum potential SO_2 emissions were determined based on the AP-42 factor and scaled to the PG&E limit of 1.0 gr/100 scf (2.94E-03 lbs/MMBtu). The maximum operating time limit for S-221 is 7,300 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 6-1-311.1 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) and Gas Turbines (S-6 and S-7)	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), and Stationary Diesel Engines (S-193, S-199, S-200, and S-201)	BAAQMD 6-1-310.1 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 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 6-1-311.1 and SIP 6-311 for S-30 Portable Green Waste Grinding Operation: BAAQMD Regulation 6-1-311.1 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 6-1-311.1 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 6-1-310.1 and SIP 6-310 for Landfill Gas Combustion Devices: BAAQMD Regulation 6-1-310.1 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. Turbine and flare grain loading rates are 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 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 6-1-310.1 and SIP 6-310 for Standby Diesel Engines: BAAQMD Regulation 6-1-310.1 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 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-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.

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:

- Throughout Section VII, the District is updated Regulation 6, Rule 1 and added Regulation 6, Rule 6 as needed for each table.
- Table VII-D is removed since the table references the internal combustion engines S-23 and S-24. The two engines are removed from the facility. All subsequent tables are adjusted to reflect the change in reference.
- In Table VII-A, the District is removing the Future Effective Date for regulations applicable to Fill Area 2. The requirements became effective on March 25, 2019 when active disposal operations began in Fill Area 2.
- In Table VII-A, the District is changing the monitoring requirements for A-15 for NOx and CO based on usage during a 12-month period or non-compliance.
- In Table VII-A, the District is changing the TAC limits for benzene, ethyl benzene, ethylene dichloride, ethylidene dichloride, perchloroethylene, and vinyl chloride.
- In Table VII-A, the District is changing the volume of decomposable waste for Fill Area 1.
- In Table VII-B, the District is changing the minimum combustion temperature for S-6 and S-7.
- In Table VII-E, the District is adding a monitoring and source test requirement per Regulation 6-1-311.2 and Regulation 6-1-504 with a future effective date of July 1, 2020.
- In Table VII-F, the District updated the requirements from the California Air Resources Board with Executive Order EVR-301-G, EVR-302-G, and VR-402-D. Condition #16516 has been removed and replaced with Condition #25723 and #26179.
- In Table VII-H, the District is removing the future effective date for S-193.

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 District is not proposing any changes to this section.

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 not proposing any changes to this section.

X. Revision History

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

Changes to Permit, Section X:

- The District is adding Title V Administrative Amendment Application #26432.
- The District is adding Title V Administrative Amendment Application #27293.
- The District is adding Title V Minor Revision Application #27339.
- The District is adding Title V Minor Revision Application #27662.
- The District is adding Title V Minor Revision Application #28273.
- The District is adding Title V Renewal Application #28704.
- The District is adding Title V Minor Revision Application #29133.
- The District is adding Title V Minor Revision Application #29738.

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 not proposing any changes to this section.

D. ALTERNATIVE OPERATING SCENARIOS

No alternate operating scenarios have been requested for this facility.

E. COMPLIANCE STATUS

The responsible official for Waste Management of Alameda County submitted a signed Certification Statement form dated January 25, 2019. On this form, the responsible official certified that the following four statements are true:

Based on information and belief formed after reasonable inquiry, the sources identified in the Applicable Requirements and Compliance Summary form that are in compliance will continue to comply with the applicable requirements;

Based on information and belief formed after reasonable inquiry, the sources identified in the Applicable Requirements and Compliance Summary form will comply with future-effective applicable requirements, on a timely basis;

Based on information and belief formed after reasonable inquiry, information on application forms, all accompanying reports, and other required certifications is true, accurate, and complete;

All fees required by Regulation 3, including Schedule P have been paid.

F. DIFFERENCES BETWEEN THE APPLICATION AND THE PROPOSED PERMIT

The Title V permit application for renewal was submitted on December 18, 2017. The administrative amendment issued on May 12, 2014 under Application #24727 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 except the following:

- Application #24726 for two portable CNG engines (S-207 and S-208) were addressed in the Title V Minor Revision issued on May 12, 2014.
- Application #26437 for the covered aerated static pile composting operating is currently issued under an Authority to Construct. The application will be incorporated into the Title V permit upon issuance of the Permit to Operate.
  Application #28197 for a change of permit condition for Fill Area 2 of S-2 is pending District review.
- Application #28339 for a change of condition for TAC limits at S-2 is pending District review.

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

- Application #29119 for the replacement of a tipper engine (S-228).

The second application submitted by Waste Management following the submittal of this renewal application is not included in this permit since it is pending District Review:

- Application #28727 for a change of condition for Fill Area 2 at S-2 is pending District review. The change of condition will address the POC offsets for Fill Area 2 and will revise the offset limits presented in Condition #19235, Part 17(a)(v).

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.

H:\Engineering\TitleV Permit Appls\1 All T5 Application Files Here\A2066\Renew – 18233\3.0 Proposed Docs\ A2066-18233_renewal_SOB_10-9-12.doc

APPENDIX A

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 B

NSR PERMIT EVALUATION FOR APPLICATION #26431

Engineering Evaluation
for
Landfill Gas TAC Concentration Limit Increase
at S-2 Altamont Landfill and S-6, S-7, S-23, S-24, A-15, and A-16

Waste Management of Alameda County; PLANT # 2066

APPLICATION # 26431

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 (Fill Area 1 is currently accepting waste and Fill Area 2 is scheduled to begin accepting waste in 2015), landfill gas control equipment (2 landfill gas fired turbines, 2 landfill gas fired IC engines, 2 enclosed flares, and a liquefied natural gas plant), 4 prime portable IC engines that power waste tippers (3 diesel fired and 1 CNG fired), 3 diesel oil fired engines for emergency standby generators, 1 diesel oil fired engine for a fire pump, a non-retail gasoline dispensing facility, waste water storage and processing equipment, and green waste storage and processing equipment.

On 11/18/09, the District approved an expansion and modification of the Altamont Landfill (S-2) under Application # 14814. Under this application, the District established TAC concentration limits for the landfill gas collected from Altamont Landfill to limit TAC emission rates for the modified landfill and all of the associated landfill gas combustion or processing equipment (A-15 and A-16 Landfill Gas Flares, S-6 and S-7 LFG-Fired Turbines, S-23 and S-24 LFG-Fired IC Engines, and S-210 Liquefied Natural Gas Plant). Pursuant to Application # 23687, the District authorized an increase in the landfill gas concentration limit for ethylene dichloride from 200 ppb to 700 ppb. This request resulted in increases in ethylene dichloride emissions for the landfill and all of the landfill gas combustion and processing equipment (S-2, S-6, S-7, S-23, S-24, S-210, A-15 and A-16).

For this current application, Waste Management is proposing a similar request: WM has requested to increase the benzene emission limit from 3400 ppbv to 10,000 ppbv because a recent landfill gas characterization analysis found 6710 ppbv of benzene in the landfill gas. This application will result in increases in benzene emissions for S-2, S-6, S-7, S-23, S-24, S-210, A-15 and A-16 and will trigger a health risk screening analysis. Since the District has previously determined the fugitive emissions from S-210 are negligible compared to the fugitive emissions from S-2, the emission increases at S-210 will not be included in this risk screen. This risk screen will need to include a related project (Application # 24726). This application involved the replacement of 2 diesel-fired portable waste tipper engines with two CNG-fired waste tipper engines and increases in usage rates for each type of portable prime engine. Since these engines

are needed for the waste disposal process, this application is related to the original landfill expansion project and any subsequent applications involving landfill emission increases. Waste Management has installed one of the CNG engines and shut down one of the diesel engines. The second CNG for diesel engine replacement will be completed in the next couple months. For the purposes of the risk assessment, the District will assume that the replacements are complete.

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 emission calculation procedures and assumptions for the S-2 Altamont Landfill and the landfill gas combustion equipment are discussed in detail in the Engineering Evaluation for Application # 14814. The emission calculation procedures for the S-210 Liquefied Natural Gas Plant are discussed in detail in the Engineering Evaluation for Application # 19045.

Project Emission Changes:

For this application, Waste Management is not proposing to modify any waste acceptance rates, decomposable material disposal rates, POC, NPOC, or TRS concentration limits, or PM_{10} emission limits at S-2. Waste Management is not proposing any changes to throughput limits or criteria pollutant emission rates at landfill gas combustion devices. Therefore, this project will not result in any changes to any of the criteria pollutant emission limits for S-2, S-6, S-7, S-23, S-24, S-210, A-15, or A-16.

Waste Management has requested to increase the LFG concentration limit for benzene from 3400 ppb to 10,000 ppb. The benzene emission changes for each affected source are presented below. This project will result in an increase of 2527.7 pounds/year of benzene emissions, which exceeds the Table 2-5-1 risk screen trigger level of 3.8 pounds/year. Detailed emission calculation spreadsheets are attached.

Table 1. Proposed Benzene Emission Changes

	At 3400 ppbv	At 10,000 ppbv	Risk Screen Trigger Level
	Pounds/Year	Pounds/Year	Pounds/Year
S-2	1166.3	3430.3	
A-15	17.2	50.5	
A-16	32.0	94.0	
S-6	11.6	34.1	
S-7	11.6	34.1	
S-23	31.8	93.5	
S-24	31.8	93.5	
Total	1302.3	3830.0	3.8

STATEMENT OF COMPLIANCE
Regulation 2, Rule 1:

This application is for a change of permit conditions at the S-2 Altamont Landfill that does not involve any physical alterations or criteria pollutant emission changes, but that will involve an increase in the previously estimated maximum emission rate of benzene – a toxic air contaminant (TAC). Benzene is present in landfill gas due to the waste decomposition process. The previous emission rate was estimated based on site-specific landfill gas analyses, but recent testing has found that a higher benzene emission estimate is necessary. This application will modify the estimate of maximum permitted emissions resulting from the Fill Area 2 Expansion of the Altamont Landfill that was previously evaluated under Applications # 14814 and #23687.

As discussed in the Application # 14814 Engineering Evaluation, the Fill Area 2 Landfill Expansion was 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 was

settled in 2005. District staff reviewed the certified final EIR and settlement agreement requirements and determined that the proposed operations and equipment described in the application are expected to comply with all applicable District requirements. The District has evaluated the health impacts resulting from the proposed increase in benzene emissions and has determined that the modified landfill will continue to comply with all applicable requirements including the toxic new source review requirements of Regulation 2, Rule 5. 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. In addition, the Engineering Evaluation for this permit condition change 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 (NSR):

Since this application does not result in any emission increases of criteria pollutants, this project will not require NOx or POC offsets and does not trigger a new BACT review for any criteria pollutants.

Regulation 2, Rule 2 (PSD):

The maximum permitted emission levels for this facility (including the new HAP emission levels that will result from the proposed permit condition change) are summarized below.

Table 2. Summary of Maximum Permitted Site-Wide Emission Rates

Tons/Year	PM10	POC	NOx	SO2	CO	HAPs	
Site-Wide	426.187	154.237	180.442	92.064	225.000	144.972	
Non-Fugitive	38.530	41.381	180.442	92.064	225.000	29.942	
Non-Biogenic							

Landfills are not one of the 28 source categories that are subject to the 100 ton/year PSD threshold and for which fugitive emissions must be included when determining the applicability of PSD requirements. Therefore, this site is subject to the 250 ton/year PSD threshold for regulated air pollutants and fugitive emissions may be excluded from the PSD applicability determination. As shown in Table 2, each non-fugitive regulated air pollutant emission rate is less than the 250 tons/year PSD threshold for regulated air pollutants.

New Source Review for Toxic Air Contaminants:

As shown in Table 1, this application will result in a 2527.7 pound/year increase in the maximum permitted benzene emission rate for the landfill and landfill gas combustion and processing equipment. Since this project emission increase exceeds the risk screen trigger level of 3.8 pounds/year an updated HRSA is required for this application.

As discussed in the HRSA report for this application, a project must include all post-1987 emission increases for a modified source plus any related applications. For simplicity, the District will evaluate the maximum permitted emission levels from the landfill in order to assure compliance with AB-2588 Air Toxic Hot Spot requirements as well as toxics NSR. Since the Application # 24726 portable CNG-fired engine project was previously determined to be related the landfill expansion project, the tipper engine emissions will also be included in this updated HRSA. The District will evaluate the the proposed tipper engine configuration (2 CNG-fired engines and 2 abated diesel-fired engines at the new maximum usage rates for each engine).

Health impacts for this project, which includes proposed maximum permitted emissions from the S-2 Altamont Landfill, S-6 and S-7 Gas Turbines, S-23 and S-24 IC Engines, A-15 and A-16 Landfill Gas Flares, and S-217, S-218, S-221, and S-222 Portable Waste Tipper Engines, are summarized below. The modeling procedures and calculation assumptions are discussed in detail in the attached HRSA report.

Table 3. Health Impacts for Proposed TAC Emissions from the Landfill and Landfill Gas Combustion Devises Plus the Future Tipper Engine Operating Scenario

	Cancer Risk per Million			***Chronic Hazard Index***	***Acute Hazard Index***
	PMI	***Resident***	***Worker***	***PMI***	***PMI***
S-2 Altamont Landfill (Fill Area 1 and Fill Area 2)	***15.61***	***7.082***	***1.813***	***0.114***	***0.843***
A-15 and A-16 LFG Flares	***0.05***	***0.015***	***0.006***	***0.009***	***0.040***
S-6 and S-7 LFG Turbines	***0.01***	***0.003***	***0.002***	***0.001***	***0.009***
S-23 and S-24 LFG Engines	***1.21***	***0.143***	***0.140***	***0.021***	***0.206***
S-217 and S-218 Diesel Engines	***0.43***	***0.297***	***0.060***	***0.000***	***NA***
S-221 and S-222 CNG Engines	***0.09***	***0.043***	***0.013***	***0.002***	***0.048***
Total Project	***15.67***	***7.221***	***1.820***	***0.115***	***0.848***

**** PMI is the point of maximum impact. In this case, the PMI is on the facility property boundary located south east of Fill Area 2. There are no known receptors at this location. The cancer risk was refined by determining the risk for specific receptor types.***

At the point of maximum impact, total project impacts are: a cancer risk of 15.7 in a million, a chronic hazard index of 0.12, and an acute hazard index of 0.85. Since the point of maximum impact is in an area that does not have any known receptors, the District refined this risk assessment by determining the cancer risk for all known residential areas. All other possible receptor locations including fence-line receptors where there are no known receptors, were treated as possible worker receptors. Under these assumptions, the maximum cancer risk for all possible worker receptors was 1.82 in a million, and the cancer risk for all residential areas was 7.22 in a million. In accordance with Regulation 2-5-302, project risk levels of less than

10.0 in a million cancer risk and less than 1.0 hazard index are acceptable, provided that District TBACT requirements are satisfied.

In accordance with Regulation 2-5-301, TBACT is required for any source that results in a cancer risk greater than 1.0 in a million or a chronic HI greater than 0.2. None of the sources exceed the chronic HI trigger for TBACT. The S-2 Altamont Landfill is the only source that results in a source risk that is greater than 1.0 in a million. Therefore, S-2 is subject to TBACT. The S-2 Altamont Landfill is equipped with landfill gas collection and control systems that are subject to and complying with CARB's landfill methane control measure. This CARB rule includes an integrated surface leak standard in addition to the NSPS equivalent instantaneous surface leak limit. For an active MSW landfill, compliance with the CARB landfill gas collection and control requirements and both the integrated and instantaneous landfill surface leak limits satisfies the requirement to use TBACT at an active MSW landfill.

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 Title V permit for this facility was last revised on May 12, 2014. Since this application will result in permit condition modifications, a revision of the Title V permit will be required. Waste Management has submitted Application # 26432 to request an administrative amendment of the Title V permit to incorporate any permit condition changes approved pursuant to Application # 26431.

Applicable Regulations:

The S-2 Altamont Landfill and associated landfill gas combustion devices are subject to many District prohibitory regulations including: Regulation 6, Regulation 8, Rules 2, 34, and 40, and Regulation 9, Rules 1, 2, 8, and 9. In addition the landfill is subject to CARB's landfill methane control measure, federal EG/NSPS requirements, and NESHAP requirements. The landfill gas combustion devices are also subject to NSPS and NESHAP requirements. The specific applicable requirements are identified in detail in the proposed Title V renewal permit for this site. The proposed change to the benzene emission limit at S-2 will not change any of these applicable requirements and will not result in non-compliance with any other applicable limits.

Permit Condition Revisions

The District is proposing to revise Condition # 19235, Part 12, as shown below in strike through and underline formatting. No other condition changes are proposed.

Condition # 19235

FOR: S-2 ALTAMONT LANDFILL - WASTE DECOMPOSITION PROCESS, EQUIPPED WITH LANDFILL GAS COLLECTION SYSTEM, AND ABATED BY A-15 LANDFILL GAS FLARE AND A-16 LANDFILL GAS FLARE;
S-43 ALTAMONT LANDFILL - WASTE AND COVER MATERIAL DUMPING; AND
S-44 ALTAMONT LANDFILL - EXCAVATING, BULLDOZING, AND COMPACTING ACTIVITIES:

[No changes to Parts 1-11]

*12. Prior to initiation of gas collection from Fill Area 2, 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 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 submittal of a source test report 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	300	70
Benzene	10,000	3,430
Benzylchloride	500	278
Carbon Tetrachloride	100	68
Chloroform	100	52
1,4 Dichlorobenzene	2,600	1,678
Ethyl Benzene	30,000	13,987
Ethylene Dichloride	700	304
Ethylidene Dichloride	1,400	608
Isopropyl Alcohol	200,000	54,782
Methyl Alcohol	600,000	84,427
Methylene Chloride	12,000	4,476
Methyl Ethyl Ketone	200,000	63,331
Perchloroethylene	7,300	5,316
1,1,2,2 Tetrachloroethane	400	295
Toluene	200,000	80,925
Trichloroethylene	1,600	923
Vinyl Chloride	1,100	302
Xylenes	90,000	41,960

[No changes to Parts 13-23]

RECOMMENDATION

Issue a Change of Conditions for the equipment listed below subject to Condition # 19235.

S-2 Altamont Landfill equipped with Landfill Gas Collection System and abated by A-15 and A-16 Landfill Gas Flares

By: Carol S. Allen Date
Supervising Air Quality Engineer

APPENDIX C

NSR PERMIT EVALUATION FOR APPLIATION #27292

Engineering Evaluation
for
Landfill Gas TAC Concentration Limit Revisions
at S-2 Altamont Landfill and S-6, S-7, S-23, S-24, S-210, A-15, and A-16

Waste Management of Alameda County; PLANT # 2066

APPLICATION # 27292

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 (Fill Area 1 is currently accepting waste and Fill Area 2 is scheduled to begin accepting waste in 2016), landfill gas control equipment (2 landfill gas fired turbines, 2 landfill gas fired IC engines, 2 enclosed flares, and a liquefied natural gas plant), 4 portable prime engines that power waste tippers (2 diesel fired and 2 CNG fired), 3 diesel oil fired engines for emergency standby generators, 1 diesel oil fired engine for a fire pump, a non-retail gasoline dispensing facility, waste water storage and processing equipment, and green waste storage and processing equipment.

A landfill gas characterization analysis conducted in March 2015 found an ethylene dichloride concentration of 715 ppbv, which exceeds the current 700 ppbv limit in Condition # 19235, Part 12(c). Retesting found an average of 587 ppbv of ethylene dichloride. This site was not issued a violation notice, but Waste Management is requesting to increase the ethylene dichloride limit to 2500 ppbv to prevent possible future violations. Waste Management identified a number of compounds that have limits that could be reduced to compensate for this requested increase.

The District proposed the TAC concentration limit changes in Table 1, and Waste Management has accepted these proposed TAC limit revisions. These TAC limit revisions ensure that the landfill and associated landfill gas combustion devices will have no increases in toxicity weighted emissions. As a result, this permit condition change does not constitute a modification of the landfill waste decomposition source.

Table 1. Proposed TAC Concentration Limit Revisions

LFG TAC Concentration Limits	Current ppbv	Proposed ppbv
Increases		
Ethylene Dichloride	700	2500
Decreases		
Ethyl Benzene	30000	23000
Ethylidene Dichloride	1400	1000
Perchloroethylene	7300	6000
Vinyl Chloride	1100	1000

EMISSIONS

The emission calculation procedures and assumptions for the S-2 Altamont Landfill and the landfill gas combustion equipment are discussed in detail in the Engineering Evaluations for Applications # 14814 and # 26431.

Project Emission Changes:

For this application, Waste Management is not proposing to modify any waste acceptance rates, decomposable material disposal rates, POC, NPOC, or TRS concentration limits, or PM_{10} emission limits at S-2. Waste Management is not proposing any changes to throughput limits or criteria pollutant emission rates at landfill gas combustion devices. Therefore, this project will not result in any changes to any of the criteria pollutant emission limits for S-2, S-6, S-7, S-23, S-24, S-210, A-15, or A-16.

Waste Management has requested to increase the LFG concentration limit for ethylene dichloride and has agreed to reduce the concentration limits for ethyl benzene, ethylidene dichloride, perchloroethylene, and vinyl chloride such that this request will not result in any increases in toxicity weighted emissions. The toxicity weighted emissions for these compounds are summarized below. Detailed emission calculation spreadsheets are attached.

Table 2. Toxicity Weighted Emission Factor Changes

Current	Concentration in Landfill Gas ppbv	Toxicity Weighted Emission Factors		
		Acute HI lbs/scf	Chronic HI lbs/scf	Cancer Risk lbs/scf
Ethylene Dichloride	700	0.000E+00	4.478E-10	1.290E-08
Ethyl Benzene	30,000	0.000E+00	4.117E-09	7.164E-08
Ethylidene Dichloride	1,400	0.000E+00	0.000E+00	2.042E-09
Perchloroethylene	7,300	1.565E-10	8.943E-08	6.573E-08
Vinyl Chloride	1,100	9.875E-13	0.000E+00	4.799E-08
Total for Current Limits		1.575E-10	9.399E-08	2.003E-07
Proposed				
Ethylene Dichloride	2,500	0.000E+00	1.599E-09	4.606E-08
Ethyl Benzene	23,000	0.000E+00	3.157E-09	5.493E-08
Ethylidene Dichloride	1,000	0.000E+00	0.000E+00	1.458E-09
Perchloroethylene	6,000	1.286E-10	7.350E-08	5.402E-08
Vinyl Chloride	1,000	8.977E-13	0.000E+00	4.363E-08
Total for Proposed Limits		1.295E-10	7.826E-08	2.001E-07
Net Change		-2.8E-11	-1.6E-08	-2.1E-10

STATEMENT OF COMPLIANCE

Regulation 2, Rule 1:

This application is for a change of permit conditions at the S-2 Altamont Landfill that does not involve any physical alterations, increases of criteria pollutant emissions, or increases in toxicity weighted emissions. There is no possibility that the proposed permit condition changes could result in any significant adverse impacts on the environmental. Therefore, this proposed change of permit conditions is categorically exempt from CEQA review pursuant to Regulation 2-1-312.1.

In addition, the County of Alameda certified a final revised EIR for the Fill Area 2 Landfill Expansion Project in January 2000. The proposed permit condition changes are related to this Fill Area 2 landfill expansion project and conform to the emission levels evaluated under this EIR, because this project results in no increases in toxicity weighted emissions and no changes to any other limits. Therefore, 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 (NSR):

Since this application does not result in any emission increases of criteria pollutants, this project is not subject to Regulation 2, Rule 2. It does not trigger a new BACT review for any criteria pollutants, and does not impact any previous offset assessments for the landfill. It is not subject to PSD.

Regulation 2, Rule 5(Toxic NSR):

Since this project will not result in any increases in toxicity weighted emissions, this project is not subject to New Source Review for Toxic Air Contaminants or to any risk screening requirements of Regulation 2, Rule 5.

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 renewed on December 19, 2012. Administrative amendments were incorporated on May 28, 2013 and May 12, 2014. Waste Management has submitted Application # 27293 to request a revision of the Title V permit to incorporate any permit condition changes approved pursuant to this application (# 27292).

Applicable Regulations:

The S-2 Altamont Landfill and associated landfill gas combustion devices are subject to many District prohibitory regulations including: Regulation 6, Regulation 8, Rules 2, 34, and 40, and Regulation 9, Rules 1, 2, 8, and 9. In addition the landfill is subject to CARB's landfill methane control measure, federal EG/NSPS requirements, and NESHAP requirements. The landfill gas combustion devices are also subject to NSPS and NESHAP requirements. The specific applicable requirements are identified in detail in the Title V permit for this site.

The proposed permit condition changes for this application will not impact the applicability of any of these rules or regulations, nor the facility's compliance status with any of these requirements. None of these regulations have any specific limitations on individual toxic air contaminants.

Permit Condition Revisions

The District is proposing to revise Condition # 19235, Part 12, as shown below in strike through and underline formatting. No other condition changes are proposed.

Condition # 19235

FOR: S-2 ALTAMONT LANDFILL - WASTE DECOMPOSITION PROCESS, EQUIPPED WITH LANDFILL GAS COLLECTION SYSTEM, AND ABATED BY A-15 LANDFILL GAS FLARE AND A-16 LANDFILL GAS FLARE;
S-43 ALTAMONT LANDFILL - WASTE AND COVER MATERIAL DUMPING; AND
S-44 ALTAMONT LANDFILL - EXCAVATING, BULLDOZING, AND COMPACTING ACTIVITIES:

[No changes to Parts 1-11]

*12. Prior to initiation of gas collection from Fill Area 2, 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 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 submittal of a source test report 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	300	70
Benzene	3,400	1,166
Benzylchloride	500	278
Carbon Tetrachloride	100	68
Chloroform	100	52
1,4 Dichlorobenzene	2,600	1,678
Ethyl Benzene	23,000	10,723
Ethylene Dichloride	2,500	1,086
Ethylidene Dichloride	1,000	435
Isopropyl Alcohol	200,000	54,782
Methyl Alcohol	600,000	84,427
Methylene Chloride	12,000	4,476
Methyl Ethyl Ketone	200,000	63,331
Perchloroethylene	6,000	4,370
1,1,2,2 Tetrachloroethane	400	295
Toluene	200,000	80,925
Trichloroethylene	1,600	923
Vinyl Chloride	1,000	274
Xylenes	90,000	41,960

[No changes to Parts 13-23]

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

RECOMMENDATION

Issue a Change of Conditions for the equipment listed below subject to Condition # 19235.

S-2 Altamont Landfill equipped with Landfill Gas Collection System and abated by A-15 and A-16 Landfill Gas Flares

By: Carol S. Allen Date
Supervising Air Quality Engineer

APPENDIX D

NSR PERMIT EVALUATION FOR APPLIATION #27338

Engineering Evaluation
for
Alteration of Existing Fill Area 1 of the
S-2 Altamont Landfill – Waste Decomposition Process

Waste Management of Alameda County; PLANT # 2066

APPLICATION # 27338

BACKGROUND

Project Summary

Waste Management requested an alteration and permit condition revisions for the S-2 Altamont Landfill that would increase the current cumulative limit on the amount of decomposable materials that may be placed in Fill Area 1 of this landfill, but that would not increase the limit on decomposable materials that may be placed in Fill Areas 1 and 2 combined. In essence, Waste Management is proposing to increase the capacity of the existing landfill by borrowing capacity from the permitted but not yet constructed area of the future landfill.

As indicated in Condition # 19235, Part 18d, the current cumulative tonnage limit for Fill Area 1 is an estimated limited that was put in place when the Title V permit for this site was first issued. However, the current landfill (S-2 Fill Area 1) remains a grandfathered source. There are a number of variables that may impact this limit without triggering a modification of Fill Area 1. Waste Management indicated that increased compaction density and higher than expected waste settling rates have resulted in more air space available for waste filling than previous estimates. These changes are within the scope of the approved waste disposal practices for Fill Area 1 and do not constitute a change in the method of operation, because Waste Management is not proposing to increase daily or annual waste acceptance limits and is not proposing any height or footprint increases for Fill Area 1.

Landfill History

The Altamont Landfill was initially permitted in 1981. At that time, the District was not calculating or limiting organic or TAC emissions for landfills, and the initial permit for this landfill had no throughput or design capacity limits. During the initial Title V permitting process for this site, the District issued design capacity and daily waste acceptance rate limits that were based on the approved solid waste facility permit for the landfill. This solid waste permit identifies the landfill capacity in terms of the amount of air space (cubic yards) that may be filled. However, the POC and TAC emissions are much more closely correlated to the amount (cumulative tons) of decomposable materials that are placed in the landfill. In 2002, the District used the air space limit

and density data provided by the applicant to establish a maximum cumulative waste disposal amount of 47.1 million tons for Fill Area 1.

Since decomposable cover materials will also contribute to landfill gas generation, POC emissions, and TAC emissions, the District has recently started revising these cumulative tonnage limits to be limits on all decomposable materials placed in the landfill and not just limits on waste placed in the landfill. Waste Management estimated that Fill Area 1 would have an additional 650,000 tons/year of decomposable cover materials, which results in a total of 47.75 million tons of decomposable materials as the current limit for Fill Area 1.

Fill Area 2 Landfill Expansion Project

In 2009, the District reviewed and approved a modification of the S-2 Altamont Landfill that allowed Waste Management to begin construction on a new waste disposal unit that would be located adjacent to the current waste disposal unit (Fill Area 1). The new waste disposal unit is designated as Fill Area 2. Under Application # 14814, the District calculated the baseline emissions for Fill Area 1, and the maximum projected emissions for Fill Areas 1 and 2 combined. The limit changes approved under Application #14814 are summarized in Table 1. The organic emission increases resulting from the Fill Area 2 expansion are summarized in Table 2.

Table 1. Projected LFG Generation Rates Pursuant to Application # 14814

	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

Table 2. Organic Emission Increases Resulting from Application # 14814

Waste Decomposition Emission Changes *	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

* Since Waste Management did not include any changes or additions to control equipment for Fill Area 2, the emission increase shown here represent only the changes in fugitive emissions from the landfill surface. Waste Management will be charged emission increases for any control devices associated with Fill Area 2 in separate future applications.

The District allowed Waste Management to provide offsets for the new Fill Area 2 in an incremental fashion, as identified in Permit Condition # 19235, Part 17. Waste Management provided the first offset increment (11.114 tons/year of POC ERCs) in 2009.

Table 3. Permit Condition # 19235, Part 17 Limits Effective Upon Start-Up of Fill Area 2

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
1/2/15	4.349	77.436	51.557	1,610,000	600
1/2/17	4.167	81.059	54.777	1,610,000	600
1/2/19	4.003	84.540	57.997	1,610,000	600
1/2/21	3.846	87.884	61.217	1,610,000	600
1/2/23	3.695	91.098	64.437	1,610,000	600
1/2/25	3.551	94.185	67.657	1,610,000	600
1/2/27	3.411	97.152	70.877	1,610,000	600
1/2/29	3.278	100.002	74.097	1,610,000	600
1/2/31	3.149	102.740	77.317	1,610,000	600
1/2/33	3.026	105.371	80.537	1,610,000	600
1/2/35	2.907	107.899	83.757	1,610,000	600
1/2/37	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.

For the Fill Area 2 expansion project, the District approved total emission increases of 47.516 tons/year of POC and 0.970 tons/year of NPOC above the Fill Area 1 emissions with 9.664 tons/year of POC increases authorized upon start-up of Fill Area 2. The remaining 37.852 tons/year of POC emission increase would be authorized after Waste Management provided the required offsets (43.530 tons/year of ERCs are still owed to the District).

Current Project

Waste Management requested permit condition revisions for the S-2 Altamont Landfill that would increase the cumulative amount of decomposable materials that could be placed in Fill Area 1 up to 51.05 million tons (50.4 million tons of decomposable waste and 0.65 million tons of decomposable cover materials). Compaction densities in Fill Area 1 are higher than previously anticipated. Thus, Fill Area 1 has more remaining air space available for waste disposal, without any landfill waste footprint or height changes, than was previously anticipated in 2009. In addition, recent waste and decomposable cover placement rates have been slower than projected in 2009. As result of these two factors, the existing grandfathered Fill Area 1 portion of the landfill has a lower landfill gas generation rate per ton of waste in place than was predicted by LANDGEM in 2009.

Based on Waste Management's new projections of the remaining fill rates for Fill Area 1, the revised maximum projected landfill gas generation rate for Fill Area 1 is: 8625 scfm (annual average in year 2019) at 51.05 million tons per year of decomposable materials in Fill Area 1.

This proposed landfill gas generation rate slightly exceeds the annual average landfill gas generation rate approved for Fill Area 1 pursuant to Application # 14814 (8618 scfm). To ensure that this proposed permit condition change does not result in any increases in landfill gas generation rate for Fil Area 1, the District is proposing to limit the total decomposable materials amount to 51.02 million tons. At this limit, the peak landfill gas generation rate for Fill Area 1 will be: 8617.5 scfm in 2019 and will not exceed the current permitted gas generation rate for Fill Area 1.

Emissions for Fill Area 1

Under Application # 14814, the baseline POC emission rate for Fill Area 1 was 63.990 tons/year of POC (see Table 2). It was determined using a 3-year average of the NMOC concentration measured for landfill gas collected at the turbines, engines, and flares. The 3-year average NMOC concentration (corrected to 50% methane) was 548 ppmv of NMOC (expressed as C6). Using this average NMOC data in LANDGEM, the District estimated a maximum PTE for Fill Area 1 of 67.900 tons/year of fugitive POC.

However, the measured NMOC concentrations for the landfill during the baseline period (2005-2007) were highly variable with concentrations ranging from 174-1494 ppmv of NMOC as C6.[1] If PTE calculations were based on the highest measured NMOC concentration during the 2005-2007 time period, the PTE for Fill Area 1 would have been 185.115 tons/year of fugitive POC.

Currently, the 3-year average NMOC concentration for landfill gas from the turbines, engines, and A-16 flare, is 1353 ppmv of NMOC as C6, with NMOC concentrations ranging from 650-1700 ppmv of NMOC as C6. At the proposed fill rates and fill limit for Fill Area 1, this portion of the landfill could have a PTE of 210.625 tons/year of POC based on the highest recently measured NMOC concentrations for Fill Area 1.

Although this data demonstrates that the District previously underestimated the PTE for Fill Area 1, Fill Area 1 has not undergone any change in the method of operation that would constitute a modification of Fill Area 1. Therefore, the current proposed increase in the cumulative decomposable material placement limit for Fill Area 1 is being treated as an alteration and does not result in any increases to the cumulative emission increase inventory for this site.

Statement of Compliance

District New Source Review

This application is for an alteration of the cumulative material acceptance limits for the grandfathered portion of the landfill, Fill Area 1. This permit revision does not change any daily or annual waste acceptance limits, landfill height limit, or landfill footprint limits, and it does not result in any increase in the landfill gas generation rate. Therefore, this change is not a modification of the existing landfill and does not trigger new source review.

The NMOC concentrations in the landfill gas and the proportionally related fugitive POC emissions from Fill Area 1 are higher than previously expected, but the currently observed NMOC concentrations are within the range of NMOC concentrations that have been observed at this landfill in the past. Also, Waste Management cannot directly control the NMOC concentration in the landfill gas. There have been no changes in waste acceptance practice that would cause such a change in the NMOC concentrations.

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

[1] Prior to 2009, the highest measured NMOC concentration was 1913 ppmv of NMOC as C6 (corrected to 50% methane) from a September 30, 2002 source test on Flare A-13.

Specific applicable requirements are identified in the Title V permit for this site. The S-2 Altamont Landfill is expected to comply with all applicable provisions of these regulations.

Federal NSPS and NESHAP Regulations

Since this project does not involve either a horizontal or vertical expansion of Fill Area 1, this permit change does not impact trigger the federal New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills (40 CFR, Part 60, Subpart WWW) or change any applicable requirements for Fill Area 1. Currently, Fill Area 1 of 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). Waste Management has been complying with the EG provisions for Fill Area 1.

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.

Title V Permit Requirements

The proposed permit change will require a minor revision of the Title V Permit for Site # A2066. The Title V permit revision will be handled in a separate action under Application # 27339.

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 continued disposal of decomposable materials in Fill Area 1 but will not change any daily or annual waste acceptance rates.

Related Permit Condition Revisions

Although this Fill Area 1 alteration does not result in any cumulative emission increases, the higher Fill Area 1 emission rate assessment above will impact the final permitted emission levels for the landfill after the Fill Area 2 expansion project commences (see limits in Table 3 and Condition # 19235, Part 17). Waste Management is collecting additional NMOC data to better characterize the Fill Area 1 baseline emissions and the appropriate permit limits for Fill Areas 1 and 2 combined.

Waste Management will be submitting a separate application to request changes to the Fill Area 2 limits prior to start-up of the Fill Area 2 expansion project.

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 1-17 or 19-23

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 124,400,000 cubic yards. (Basis: Regulation 2-1-301)
    d. The total cumulative amount of all decomposable materials placed in Fill Area 1 of the landfill shall not exceed 51,020,000 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)

RECOMMENDATION

The District recommends that a Change of Conditions be issued for the following equipment:

S-2 Altamont Landfill: Fill Area 1 Alteration

By: Carol S. Allen Date
Supervising Air Quality Engineer

APPENDIX E

NSR PERMIT EVALUATION FOR APPLICATION #27839

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

Waste Management of Alameda County; PLANT # 2066
APPLICATION # 27839

BACKGROUND

Waste Management of Alameda County, Inc. (WMAC) owns and operates the Altamont Landfill and Resource Recovery Facility at 10840 Altamont Pass Road, 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 12, 2014 Major Facility Review Permit Condition # 19235, Part 1a, the landfill gas collection system for the S-2 Altamont Landfill consists of 130 vertical wells, 1 horizontal trench collector, and 1 leachate collection riser as of May 19, 2011. As described in the District's May 12, 2014 Major Facility Review Permit Condition # 19235, Part 1b(i), the authorized collection system alterations (pursuant to Application # 23198) were:

- 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.

The remaining gas collection system alterations requested below pursuant to this Application #27839:

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

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

WMAC has requested that the gas collection system alterations stated 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 5, 2016.

COLLECTION SYSTEM DESCRIPTION

As of March 14, 2016, the landfill gas collection system for the S-2 Altamont Landfill consisted of the following collection system components: 127 active vertical wells (VW), 2 horizontal LFG

trench collectors (HC), and 1 leachate collection and removal system (LCRS) clean-out riser. Condition # 19235, Part 1a reflects this current list of collection system components. Specific component identification numbers are listed in Table 1. Startup dates of newly constructed vertical collection wells are listed in Table 2.

Table 1. Landfill Gas Collection System Components Operating as of 3/14/2016

Vertical Landfill Gas Extraction Wells							Other
VW-#	VW-#	VW-#	VW-#	VW-#	VW-#	VW-#	Components
3	510	571	633	662	684	704	2HC
53	516	578	634	664	685	705	LCRS
54	517	579	635	665	686	706	
56	518	580	639	666	687	708	
59	522	589	643	667	688	709	
71	524	590	644	668	689	710	
87	529	591	645	669	690	711	
471	533	602	646	671	691		
472	534	603	647	672	692		
473	535	605	648	673	693		
477	539	609	649	674	694		
483	540	611	650	675	695		
486	541	612	651	676	696		
487	545	613	652	677	697		
488	551	618	653	678	698		
490	553	624	654	679	699		
491	554	629	657	680	700		
503	566	630	658	681	701		
506	568	631	660	682	702		
508	570	632	661	683	703		

Table 2. Landfill Gas Collection System Newly Constructed Wells Startup List

VW-#	Startup Date	VW-#	Startup Date	VW-#	Startup Date	VW-#	Startup Date	VW-#	Startup Date
666	1/9/2015	676	1/9/2015	686	1/9/2015	696	11/30/2015	706	11/30/2015
667	1/9/2015	677	1/9/2015	687	1/9/2015	697	11/30/2015	707	11/30/2015
668	1/9/2015	678	1/9/2015	688	1/9/2015	698	11/30/2015	708	11/30/2015
669	1/9/2015	679	1/9/2015	689	11/30/2015	699	11/30/2015	709	11/30/2015
670	1/9/2015	680	1/9/2015	690	11/30/2015	700	11/30/2015	710	11/30/2015
671	1/9/2015	681	1/9/2015	691	11/30/2015	701	11/30/2015	711	11/30/2015
672	1/9/2015	682	1/9/2015	692	11/30/2015	702	11/30/2015		

VW-#	Startup Date	VW-#	Startup Date	VW-#	Startup Date	VW-#	Startup Date	VW-#	Startup Date
673	1/9/2015	683	1/9/2015	693	11/30/2015	703	11/30/2015		
674	1/9/2015	684	1/9/2015	694	11/30/2015	704	11/30/2015		
675	1/9/2015	685	1/9/2015	695	11/30/2015	705	11/30/2015		

EMISSIONS

Landfill gases are produced when bacteria break down organic waste. Landfill gas includes methane (~45% to 60%), carbon dioxide (~40%) and small amounts of nitrogen, oxygen, ammonia, sulfides, hydrogen and various other gases. To prevent landfill surface leaks in excess of the District's Regulation 8-34-303 leak limit (500 ppmv, expressed as methane above background), landfill gas collection system well alterations are intended to ensure that the landfill gas collection system will continue to adequately control the landfill gas from a site, and to maintain or improve the overall capture efficiency of the gas collection system. The potential emission impacts of the proposed collection system alterations 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 (measured during 02/2015 source tests), the annual average landfill gas collection rate for 1/31/14 to 2/1/15 was 3668 scfm at an average of 54.5% methane (3996 scfm at 50% methane). The landfill currently has 129 gas collection components, and the average gas collection rate per component is 31 scfm.

Using EPA's 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 7203 scfm for 2014. The actual collection rate for 2014 is about 55% of the projected landfill gas generation rate for 2014. This 55% 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.

Impacts of Collection System Alterations on Control Device Capacity:

Fill Area 1 is expected to reach maximum capacity in 2019, and the maximum expected landfill gas generation rate was determined to be 8269 scfm using the LandGEM model. Currently, Waste Management vents their collected landfill gas to a variety of on-site landfill gas control devices:

two turbines (S-6 and S-7), two IC engines (S-23 and S-24), two enclosed flares (A-15 and A-16), and an LNG Plant (S-210). 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 3996 scfm at 50% methane. The landfill gas collection system alterations are expected to increase this gas capture rate by about 929 scfm, resulting in a projected gas capture rate of about 4925 scfm by 2018. 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.

STATEMENT OF COMPLIANCE
Regulation 2, Rule 1 (CEQA and Public Notice Requirements):

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 # 27339.

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.

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, 2016. Well and collector locations are as described in detail in Permit Application #23198.
        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.

- 127 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 #~~23198~~27839. All collection system alterations shall comply with subparts 1b(i-vii) below.

i. The authorized collection system alterations are:

- 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
- 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 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 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 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 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, #503, #513, #515, #519, #523, #524, #526, #547, #548, #554, #557, #559, #564, #565, #566, #568, #569, #570, #571, #574, #577, #579, #592, #599, #601, #603, #605, #609, #611, #612, #633, #639, and #646.
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.

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: Davis Zhu Date
Air Quality Engineer

APPENDIX F

NSR PERMIT EVALUATION FOR APPLICATION #27661

Engineering Evaluation Report
Application # 27661

Waste Management of Alameda County, Plant #2066
10840 Altamont Pass Rd, Livermore, CA 94551

BACKGROUND

Waste Management of Alameda County is proposing to install two portable diesel-fired IC engines powering a truck tipper at the landfill active face. The IC engines are located at 10840 Altamont Pass Rd, Livermore, CA.

S-224 Portable Landfill Truck Tipper Powered By a Diesel-Fired IC Engine; **Caterpillar, Model C4.4.ACERT, 124 bhp, 6.49 gallons/hr diesel fuel**

S-225 Portable Landfill Truck Tipper Powered By a Diesel-Fired IC Engine; **Caterpillar, Model C4.4.ACERT, 124 bhp, 6.49 gallons/hr diesel fuel**

The purpose of the tipper is to speed the cycle times for incoming waste trailers. Typical unloading takes five to ten minutes of truck engine power take off use at high rpms to drive trailer hydraulics to push out a load of trash. The proposed portable equipment accomplishes unloading in less than five minutes with no truck engine idling.

The applicant is proposing to replace diesel-fired IC engines powering truck tippers #73 and #91 (sources S-217 and S-218) with the diesel-fired IC engines powering truck tippers in this application (sources S-224 and S-225). The proposed tippers which are Tier 4 final engines will replace the existing tippers which are Tier 3 engines. S-217 and S-218 are equipped with particulate filters listed as abatement devices A-207 and A-209 which will also be removed from service.

EMISSIONS

Sources S-217 and S-218 are subject to condition #24578 which lists the following item:

3. While S-206 and S-208 are operating, 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. Upon shutdown of S-206 and S-208, the total combined operating time for S-217 and S-218 shall not exceed 14,600 hours during any consecutive 12-month period. (Basis: Regulation 2-5-302, Cumulative Increase, and Offsets)

Sources S-206 and S-208 have been shutdown. Therefore, sources S-217 and S-218 are currently subject to a total combined operating time of 14,600 hours during any

consecutive 12-month period. The applicant has requested that this combined operating limit be retained for proposed sources S-224 and S-225.

These diesel-fired IC engines (S-224 and S-225) each have a rating of 124 bhp. The diesel has a sulfur content of 15 ppm by weight. The emission rates for this engine (while burning diesel) and equivalent outlet emission concentrations for S-224 and S-225 are presented in Table 1. Maximum daily and maximum annual emissions from S-224 and S-225 are presented in Table 2.

Table 1
Emission Rates from each of S-224 and S-225

Pollutant	EF g/bhp-hr	Emissions lbs/hr	Emissions hours/day	Emissions pounds/day	ppmv @ 15% O2	grains/dscf @ 0% O2
HC (POC)	0.0075	0.0020	24	0.05	1.7	--
NOx	0.2237	0.061	24	1.5	17.3	--
CO	0.0149	0.0041	24	0.1	1.9	--
PM10	0.0075	0.0020	24	0.05	--	0.0017
SO2	0.0051	0.0014	24	0.03	0.3	--

Table 2
Maximum Annual Emissions from S-224 and S-225 combined
(while burning diesel)

Pollutant	EF g/bhp-hr	hours/year	Emissions tons/year
HC (POC)	0.0075	14,600	0.0149
NOx	0.2237	14,600	0.4464
CO	0.0149	14,600	0.0298
PM10	0.0075	14,600	0.0149
SO2	0.0051	14,600	0.0101

STATEMENT OF COMPLIANCE

Regulation 1: General Provisions and Definitions

All sources are subject to Regulation 1, Section 301, which prohibits discharge of air contaminants resulting in public nuisance. The proposed diesel-fired IC engines have low emissions and are not expected to be a source of public nuisance.

Regulation 2, Rule 1: California Environmental Quality Act (CEQA) Requirements

District Regulation 2, Rule 1, Section 310 specifies that all proposed new and modified sources subject to District permit requirements must be reviewed in accordance with the California Environmental Quality Act (CEQA) requirements, except for ministerial projects or projects exempt from CEQA under Section 2-1-

312. The engineering review for this project requires only the application of standard permit conditions and standard emission factors in accordance with Permit Handbook Chapter 2.3.1, Combustion Equipment – Internal Combustion Engines, Stationary Diesel Engines. Therefore, this application is considered to be ministerial and is exempt from CEQA review.

Regulation 2, Rule 1: School Public Notice Requirements

The public notification requirements of Regulation 2-1-412 apply to modifications which result in any increase in toxic air contaminant or hazardous air contaminant emissions at facilities within 1,000 feet of the boundary of a K-12 school. The applicant has reported that there are no K-12 schools within a 1,000 foot radius of this facility. The District's database found that there are no K-12 schools within half a mile of the facility. Therefore, the public notice requirements in Regulation 2-1-412 do not apply.

Regulation 2, Rule 2: Best Available Control Technology (BACT) Requirements

Regulation 2, Rule 2, Section 301 states that BACT requirements are triggered if maximum potential emissions from a new or modified source will be 10 pounds/day or more of NO_X, CO, POC, NPOC, PM_{10}, or SO_2. As shown in Table 2, the emissions will not exceed 10 pounds/day for any pollutant. Therefore, BACT is not required.

Regulation 2, Rule 2: Offsets

The applicant has proposed to replace sources S-217 and S-218 with the engines S-224 and S-225 in this application. The potential to emit for sources S-217 and S-218 were taken from application #21312. As sources S-217 and S-218 have a horsepower rating (127 hp) and are Tier 3 engines, there will not be an increase in emissions in this application due to the replacement of sources S-217 and S-218 with new sources S-224 and S-225.

The cumulative emission increases for this site and this application are summarized below.

Table 3
Cumulative Emission Increase Inventory

Pollutant	***Current Balance tons/year***	***Application Increases tons/year***	***S-217 and S-218 Shutdown tons/year***	***New Balance tons/year***	***Offsets Required tons/year***
POC	***58.773***	0.0149	***0.282***	58.5059	***NA***
NOx	***70.871***	0.4464	***5.358***	65.9594	***NA***
CO	***197.479***	0.0298	***1.982***	195.5268	***NA***

Pollutant	***Current Balance tons/year***	***Application Increases tons/year***	***S-217 and S-218 Shutdown tons/year***	***New Balance tons/year***	***Offsets Required tons/year***
PM10	***17.691***	0.0149	***0.038***	17.6679	***NA***
SO2	***66.623***	0.0101	***0.012***	66.6211	***NA***

NOx and POC Offset Requirement

The offset requirements for precursor organic compounds (POC) and nitrogen oxides (NOx) are found in Regulation 2, Rule 2, Section 302. Under Section 2-2-302, POC and NOx emission offsets are required for new or modified sources at a facility which emits or will be permitted to emit 10 tons per year or more on a pollutant specific basis. If the facility emits or will be permitted to emit less than 35 tons of POC or NOx per year, the emission offsets may be provided by the District's Small Facility Banking Account. If the facility will be permitted to emit more than 35 tons/year of POC or NOx, the site is responsible for providing the required offsets at a ratio of 1.15 to 1.0.

The increase in NOx and POC emissions from the new diesel-fired IC engines S-224 and S-225 are fully mitigated by the shutdown of diesel-fired IC engines S-217 and S-218. Therefore, NOx or POC offsets are not required.

SO_2 and PM_{10} Offset Requirement

Offsets are not required for SO_2 and PM_{10} increase because this facility is not a major facility for SO_2 or PM_{10}.

Regulation 2, Rule 5: Health Risk Assessment Requirements:

The District's regulation concerning toxic air contaminant emissions is codified in Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants. All toxic air contaminants (TAC) emissions from new and modified sources are subject to risk assessment review, if emissions of any individual TAC from the project exceed the acute or chronic emission thresholds specified in Table 2-5-1 of Regulation 2, Rule 5.

Operation of the diesel engines, S-224 and S-225, will result in emissions of diesel particulate matter (PM), a toxic air contaminant. From Table 2-5-1, diesel PM does not have an acute trigger level, but it does have a chronic trigger level of 0.34 pounds/year. Based on the proposed operating rate of 8,760 hours/year, S-224 and S-225 will emit 35.7 pounds/year of diesel PM, which exceeds the chronic trigger level. Therefore, this project requires a health risk screening analysis.

The risk screen was conducted using the AERMOD air dispersion model with MAKEMET screening data for "grasslands" terrain. Health risks were calculated using the District's standard assumptions for resident, worker, and infant, children, and adolescent receptors and current OEHHA health effects values. Detailed explanations

of the modeling procedures and health risk calculation assumptions are provided in the attached HRSA report for this application. The health risks for these sources and for the total project are summarized below.

Following the completion of the health risk assessment for sources S-224 and S-225, it has been determined there are three potentially related applications processed within the last two years: #27338, #27292, and #26431. None of these applications resulted in an increase in criteria pollutant emissions. However, application #26431 had an increase in toxic air contaminants. Therefore, as a worst case scenario, the risk from application #26431 will be added to the risk calculated in this application to determine if the project health risks are within acceptable levels for approval of the application.

Table 5
Summary of Source and Project Health Risks

Receptor	S-224 and S-225 Cancer Risk	Application #26431 Cancer Risk	Total Cancer Risk
Resident	2.0 in a million	7.221 in a million	9.221 in a million
Worker	1.0 in a million	1.820 in a million	2.820 in a million

S-224 and S-225 Chronic Hazard Index	Application #26431 Chronic Hazard Index	Total Chronic Hazard Index
0.0007	0.115	0.1157

S-224 and S-225 Acute Hazard Index	Application #26431 Acute Hazard Index	Total Acute Hazard Index
N/A	0.848	0.848

Since the maximum cancer risk will exceed 1 in a million, Regulation 2-5-301 does require that S-224 and S-225 be equipped with TBACT. TBACT for this class and category source is the CARB ATCM standard at the applicable horsepower rating. The latest available Tier for the engine at this horsepower rating is Tier 4 final. The proposed engines are certified as Tier 4 final engines. Therefore, the engines meet the requirements of TBACT.

Since the project risk limit does not exceed 10 in a million cancer risk or 1.0 hazard index, these engines will satisfy the Regulation 2-5-302 project risk limits.

Major Facility Review, Regulation 2, Rule 6

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 any regulated air pollutant. 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 WWW. As a designated facility, this facility was required to obtain a Title V Federal Operating Permit.

The facility has been issued a Title V permit. The Title V federal permitting requirements of 40 CFR Part 70 have been codified and are enforced through District Regulation 2, Rule 6. This regulation applies to major facilities, Phase II acid rain facilities, subject solid waste incinerator facilities, and other designated facilities. Therefore, this facility is subject to Regulation 2, Rule 6.

Regulation 6, Rule 1: Particulate Matter – General Requirements
Like all combustion sources, these diesel-fired IC engines are subject to Regulation 6, Rule 1. Since the engine displacement is less than 1500 cubic inches, Section 6-1-303 applies instead of 6-1-301. Section 6-1-303 limits visible emissions to not exceed Ringelmann 2.0 for periods aggregating more than 3 minutes in any hour or equivalent opacity. Section 6-1-305 prohibits public nuisance caused by fallout of visible particulate emissions. Properly operating diesel-fired IC engines are not expected to produce visible emissions or fallout in violation of these sections.

Section 6-1-310 limits particulate emissions to 0.15 grains/dscf of exhaust gas volume. The particulate emission rate from this IC engine is 0.0075 grams per bhp-hour, which result in an outlet grain loading of 0.0017 grains per dscf at 0% O_2. This emission rate is less than the limit in Section 6-1-310, so compliance with this section is ensured.

Regulation 8, Rule 1: Organic Compounds – General Provisions
All internal combustion engines are exempt from Regulation 8 per Section 8-1-110.2, therefore none of the rules in Regulation 8 apply to these engines.

Regulation 9, Rule 1: Inorganic Gaseous Pollutants – Sulfur Dioxide
The diesel-fired IC engines are subject to Regulation 9, Rule 1. The engines burn diesel fuel and are subject to Section 9-1-304, which prohibits burning of fuel containing more than 0.5% sulfur by weight. The facility is expected to comply with this requirement since only CARB-certified diesel fuel is allowed for use in California with a maximum sulfur content of 0.0015% by weight.

Regulation 9-1-302 limits the SO_2 concentration in any exhaust stack to 300 ppmv at the as found oxygen concentration. These engines are expected to emit less than 1 ppmv of SO_2 due to combustion of low sulfur CARB diesel oil.

Regulation 9, Rule 8: Inorganic Gaseous Pollutants – Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines
Regulation 9, Rule 8 applies to stationary internal combustion engines with a rated output greater than 50 bhp. Each engine has a rated capacity of 124 bhp and is subject to this rule.

The definition of Stationary Internal Combustion Engine in Reg 9-8-204 is as follows**:** Any spark or compression ignited internal combustion engine that is operated, or intended to be operated, at a specific site for more than one year or is attached to a foundation at that site.

By Exemption 9-8-112, the requirements of this rule do not apply to an internal combustion engine registered as portable. However, the PERP regulations indicate that associated engines determined to qualify as part of a stationary source permitted by a District are not eligible for PERP registration. Engines that remain at a single stationary source for more than 12 months (even if the engine moves around within the site) have been generally considered by many districts to be part of that stationary source and are therefore not eligible for PERP registration.

The Tipper engine is a non-road engine that may remain onsite for more than 12 months and is portable – it is not attached to a foundation. This engine meets the Federal requirements of 40 CFR Part 89 Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines. Federal regulations prohibit Districts from adopting more stringent emission standards for nonroad engines. Since the engines in this project are portable nonroad engines, District staff now expects that the Regulation 9, Rule 8, emission standards should not apply to portable engines, even if the portable engine remains at a single facility for more than 12 months.

By Title 40 §1074.10 Scope of preemption. (a) States and localities are preempted from adopting or enforcing standards or other requirements relating to the control of emissions from new engines smaller than 175 horsepower that are primarily used in farm or construction equipment or vehicles, as defined in this part. For equipment that is used in applications in addition to farming or construction activities, if the equipment is primarily used as farm and/or construction equipment or vehicles (as defined in this part), it is considered farm or construction equipment or vehicles. (b) For nonroad engines or vehicles other than those described in paragraph (a) of this section and § 1074.12, States and localities are preempted from enforcing any standards or other requirements relating to control of emissions from nonroad engines or vehicles except as provided in subpart B of this part. (Subpart B—Procedures for Authorization, § 1074.101 Procedures for California nonroad authorization requests.)

It appears that the monitoring and recordkeeping requirements in 9-8-501 – 503 will not apply if the District is preempted from imposing the Regulation 9-8-301 or 302 emission standards on the on-site portable engine. Regulation 9-8-503 states, “Any person who must comply with Section 9-8-301, 302, … shall use a portable analyzer … to verify compliance …” Thus, it appears that 9-8-503 will not apply to the engine, if the District finds Sections 301 and 302 do not apply. Likewise, Sections 9-8-501 and 9-8-502 appear to be applicable to engines only if an engine is subject to a 9-8-300 emission limit.

Therefore, the diesel-fired IC engines will comply with the requirements of this rule.

Federal Requirements

The engines in this application are not considered to be a "stationary" engine by federal definitions, because they meet the requirements of nonroad engine, 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 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. Therefore, these engines meet the federal definition of nonroad.

NSPS

Since the portable engines in this application are nonroad engines and are not a stationary engine, the NSPS requirements for stationary compression-ignited 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 (greater than or equal to 75 kW but less than 130 kW and manufactured after January 1, 1997). Per Table 1 of Section 89.112, the engines Model Year 2007, 124 bhp (92.5 kW) is subject to Tier 3 emission standards, which limit emissions to PM = 0.30 g/kW-hr (0.22 g/bhp-hr), NMHC+NOx = 4.0 g/kW-hr (2.98 g/bhp-hr), and CO = 5.0 g/kw-hr (3.73 g/bhp-hr).

The engine family for S-224 and S-225 have been certified to comply with these emission standards under CARB Executive Order U-R-022-0198-1. The NMHC, CO, NOx, and PM exhaust emission certification values, in g/kW-hr, for this Engine Family FPKXL04.4MT1 are NMHC = 0.01, CO = 0.02, NOx = 0.30 and PM = 0.01.

Airborne Toxic Control Measure for Portable Compression Ignition Engines, Section 93116, Title 17, CA Code of Regulations

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 S-224 and S-225 will comply with §93116.3(a) by using only CARB certified diesel fuel in these engines. New engines are subject to the requirements of §93116.3(a) by using only CARB certified diesel fuel in these engines.

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 less than 175 hp, 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. For engines greater than 175 to 749 hp, the fleet average emission limit must be: 0.15 g/bhp-hr by 2013, 0.08 g/bhp-hour by 2017, and 0.02 g/bhp-hour by 2020. Compliance with these limits will be assessed throughput the state-wide reporting requirements.

Permit Conditions

The proposed engines will be subject to the following items in Condition # 26225, which is listed below.

Condition # 26225

1. The owner/operator of the portable diesel-fueled waste tipper engine has been issued a permit for a portable source (also known as a nonroad engine by federal definitions) that is subject to Regulation 2-1-220. Based on this portable source and nonroad engine determination, this engine is not subject to the federal NSPS requirements for stationary compression ignited 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 this portable source and nonroad engine determination, the owner/operator shall not operate this engine in any one on-site location for more than 12 consecutive months. Any backup or standby engine that replaces this engine 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, and 40 CFR 1068.30)

2. The owner/operator shall use CARB diesel fuel exclusively to fire this engine. (Basis: CCR §93116.3(a))

3. The total combined operating time for S-224 and S-225 shall not exceed 14,600 hours during any consecutive 12-month period. (Basis: Regulation 2-5-302, Cumulative Increase, and Offsets)

4. The owner/operator shall equip this engine with a non-resettable totalizing meter that measures hours of operation. (Basis: Regulation 2-1-301)

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, Regulation 2-1-220 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. The owner/operator shall record the engine's hours of operation per day.
c. The owner/operator shall record the engine's total operating time for each consecutive rolling 12-month period.

Recommendation

I recommend issuance of an Authority to Construct permit for the following equipment subject to Condition #26225:

S-224 Portable Landfill Truck Tipper Powered By a Diesel-Fired IC Engine; **Caterpillar, Model C4.4.ACERT, 124 bhp, 6.49 gallons/hr diesel fuel**

S-225 Portable Landfill Truck Tipper Powered By a Diesel-Fired IC Engine; **Caterpillar, Model C4.4.ACERT, 124 bhp, 6.49 gallons/hr diesel fuel**

Stanley Tom, P.E.
Air Quality Engineer

Date

APPENDIX G

NSR PERMIT EVALUATION FOR APPLICATION #28264

Engineering Evaluation
for
Change of Conditions for A-15 Enclosed Flare abating S-2 Altamont Landfill
Waste Management of Alameda County; PLANT # 2066
APPLICATION # 28264

BACKGROUND

Waste Management of Alameda County, Inc. (WMAC) owns and operates the Altamont Landfill and Resource Recovery Facility at 10840 Altamont Pass Road, Livermore, CA (Site # A2066). This facility includes an active S-2 Altamont Landfill, landfill gas collection and control equipment, landfill gas energy recovery equipment, green waste processing operations, waste water treatment operations, and numerous diesel engines. Currently, Waste Management vents their collected landfill gas to a variety of on-site landfill gas control devices: two turbines (S-6 and S-7), two IC engines (S-23 and S-24), two enclosed flares (A-15 and A-16), and a LNG Plant (S-210).

As described in the District's May 12, 2014 Major Facility Review Permit Condition # 19235, Part 13, sources test needs to be conducted annually on the A-15 Enclosed 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 in 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 annual source test 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 2-5-301, 8-34-301.3 and 8-34-412)

WMAC requests that the source test be conducted once every 5 years instead of annually for A-15 Enclosed Flare. WMAC stated that the A-15 Enclosed Flare is a backup control device for use in event of extended power outages. WAMC submits A-15 annual operating hours for the years 2013 through partial year 2016. The A-15 Enclosed Flare operated 30 hours in 2013, 46 hours in 2014, 10 hours in 2015, and 16 hours from January 1 to September 12, 2016.

COMPLIANCE DETERMINATION

The landfill gas control system equipment for S-2 Landfill are listed in Table 1.

Table 1. Summary of Landfill Gas Control System equipment

Device #	Description	Make/Source(s) Controlled	Make Model/Operating Parameters	Capacity, Limit or Efficiency
S-6	Gas Turbine, fired on landfill gas exclusively	Solar Centaur/S-2	T-4500	3330 kW, 57.4 E6 BTU/hour 1333 scfm of landfill gas at 500 BTU/scf
S-7	Gas Turbine, fired on landfill gas exclusively	Solar Centaur/S-2	T-4500	3330 kW, 57.4 E6 BTU/hour 1333 scfm of landfill gas at 500 BTU/scf
S-23	Internal Combustion Engine, fired on landfill gas, LNG, and LNG Plant waste gas	Duetz/S-2	TBG 620 V16	1877 bhp, 17.5 E6 BTU/hour 583 scfm of landfill gas at 500 BTU/scf
S-24	Internal Combustion Engine, fired on landfill gas, LNG, and LNG Plant waste gas	Duetz/S-2	TBG 620 V16	1877 bhp and 17.5 E6 BTU/hour 583 scfm of landfill gas at 500 BTU/scf
S-210	Liquefied Natural Gas Plant	custom designed/S-2		1950 E6 BTU/day of LFG input 2150 scfm of landfill gas at 995 BTU/scf
A-15	Landfill Gas Flare, LFG Specialties, EF945I12, 71 E6 BTU/hour, burning LFG, LNG Plant Waste Gas, condensate, and propane.	S-2	Minimum Combustion Zone Temperature of 1481 °F.	2367 scfm of landfill gas at 500 BTU/scf ≥ 98% destruction of NMOC or < 30 ppmv of NMOC, as CH_4, at 3% O_2, dry

Device #	Description	Make/Source(s) Controlled	Make Model/Operating Parameters	Capacity, Limit or Efficiency
A-16	Landfill Gas Flare, Shaw LFG Specialties, EF1255l12 132 E6 BTU/hour, burning LFG, LNG Plant Waste Gas, 5 gpm of condensate, and propane.	S-2	Minimum Combustion Zone Temperature of 1509 °F.	4400 scfm of landfill gas at 500 BTU/scf ≥ 98% destruction of NMOC or < 30 ppmv of NMOC, as CH_4, at 3% O_2, dry

As indicated in the A-16 Enclosed Flare ATC Application #19206, when the S-210 LNG plant is not operating, the A-16 flare will be available to control collected landfill gas that exceeds the capture of the energy recovery devices (S-6, S-7, S-23, and S-24). 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.

Using the reported landfill gas collection rates for each control device (measured during 02/2015 source tests), the annual average landfill gas collection rate for 1/31/14 to 2/1/15 was 3668 scfm at an average of 54.5% methane (3996 scfm at 50% methane). Using EPA's 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 7203 scfm for 2014. The actual collection rate for 2014 is about 55% of the projected landfill gas generation rate for 2014. This 55% gas capture rate falls below the target gas capture rate of 75%.

Fill Area 1 is expected to reach maximum capacity in 2019, and the maximum expected landfill gas generation rate was determined to be 8269 scfm using the LandGEM model. The energy recovery devices can handle up to 5982 scfm of landfill gas, the A-16 Flare can handle an additional 4400 scfm of landfill gas. The A-15 Flare can handle additional 2367 scfm of landfill gas. The capacity of the landfill gas control equipment from S-6, S-7, S-23, S-24, S-210 and A-16 is 10,382 scfm of gas. Not including A-15 Flare, the landfill gas control equipment has sufficient capacity to handle all of the gas that could potentially be collected from Fill Area 1. Thus, the A-15 Flare is capable of being a back-up control equipment. As shown in WMAC submitted Appendix A, A-15 Flare has been operating <1% of total annual time for the past 3 years.

STATEMENT OF COMPLIANCE
Regulation 2, Rule 1 (CEQA and Public Notice Requirements):

This application is for a change of permit conditions for A-15 Enclose Flare abating the S-2 Landfill. The proposed change of permit conditions does not result in any emission increases. Therefore, this application is categorically exempt from CEQA review pursuant to Regulation 2-1-312.2. 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.

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 separately.

Regulation 8, Rule 34:

Landfill gas flares are required to meet the requirements of Regulation 8, Rule 34. Regulation 8-34-301.3 requires the use of 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 A-15 Landfill Gas Flare is expected to comply with these requirements.

The A-15 Landfill Gas Flare is subject to Regulation 8-34-412 for Compliance Demonstration Test requirements.

> "8-34-412 Compliance Demonstration Test: Except as provided in Sections 8-34-119 or 120, any operator of equipment that is subject to Sections 8-34-301.3 or 301.4, shall conduct a Compliance Demonstration Test in accordance with the requirements of 40 CFR 60.8 and 60.752(b)(2)(iii)(B) using the test methods identified in 40 CFR 60.754(d). The initial Compliance Demonstration Test shall be conducted within 120 days of initial startup of the gas collection system or by October 1, 2002, whichever is later. Any operator that is subject to this requirement and that is required to have a Major Facility Review Permit, shall conduct annual Compliance Demonstration Tests."

This section requires annual source testing of the gas control system for Title V facilities. The A-16 flare, which is the main flare for this site, will be tested annually. This does not explicitly require annual testing of every device. Therefore, source testing frequency for the A-15 back up flare may be reduced to less than an annual basis.

State Requirements:

The A-15 Landfill Gas Flare is subject to the AB32 Landfill Methane Rule, Title 17 California Code of Regulations (CCR), Chapter 10, Article 4, Sub article 6, §95462 through §95476.

Since the A-15 Flare has remained in compliance in the last 3 consecutive annual source tests,

the WMAC may conduct the source test on A-15 Flare every three years as specified in §95464(b)(4)(A) of the Rule,

> (4) *Source Test Requirements:* The owner or operator must conduct an annual source test for any gas control device(s) subject to the requirements of sections 95464(b)(2)(A) or 95464(b)(3)(A) using the test methods identified in 95471(f). An initial source test must be conducted within 180 days of initial startup of the gas collection and control system. Each succeeding complete annual source test must be conducted no later than 45 days after the anniversary date of the initial source test.
>
> (A) If a gas control device remains in compliance after three consecutive source tests the owner or operator may conduct the source test every three years. If a subsequent source test shows the gas collection and control system is out of compliance the source testing frequency will return to annual.

This section specifies source testing requirements for any device subject to this rule's control requirements. Per subpart 95464(b)(4)(A), testing frequency cannot be less than once every three years.

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

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.

Permit Condition Revisions

The District is proposing to revise Condition # 19235, Part 13, as shown below in strike through and underline formatting. The proposed revisions to Part 13 identify the condition changes that are being authorized pursuant to this application. 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:**
>
> 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 every three years on the A-15 and annually on the A-16 Landfill Gas Flare. The 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 in 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 annual source test 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. If A-15 operates more than 240 hours during any consecutive 12-month period, or if testing at A-15 demonstrates non-compliance with any applicable limit, the owner/operator shall ensure that A-15 is tested within 12 months of either event. Testing frequency may revert back to once every three years after demonstrating that A-15 operating time is less than 240 hours per 12-month period and demonstrating compliance with CCR section 95464(b)(4)(A). 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 2-5-301, 8-34-301.3 and 8-34-412)

RECOMMENDATION

Issue a Change of Conditions for Condition # 19235, Part 13 for the A-15 Landfill Gas Flare described below.

A-15 Landfill Gas Flare abating S-2 Altamont Landfill

- the Permit Holder shall ensure that a District approved source test is conducted every three years on the A-15 Landfill Gas Flare.

By: _____ _____
Davis Zhu Date
Air Quality Engineer

APPENDIX H

NSR PERMIT EVALUATION FOR APPLICATION #28272

Engineering Evaluation
for
Change of Conditions for S-6, S-7 Gas Turbines
Waste Management of Alameda County; PLANT # 2066
APPLICATION # 28272

BACKGROUND

Waste Management of Alameda County, Inc. (WMAC) owns and operates the Altamont Landfill and Resource Recovery Facility at 10840 Altamont Pass Road, Livermore, CA (Site # A2066). This facility includes an active S-2 Altamont Landfill, landfill gas collection and control equipment, landfill gas energy recovery equipment, green waste processing operations, waste water treatment operations, and numerous diesel engines. Currently, Waste Management vents their collected landfill gas to a variety of on-site landfill gas control devices: two 3 MW gas turbines (S-6 and S-7) equipped with Fogging Systems (A-6 and A-7), two IC engines (S-23 and S-24), two enclosed flares (A-15 and A-16), and a LNG Plant (S-210).

WMAC submitted this application to request a Change of Conditions at the S-6 and S-7 Gas turbines. These turbines control landfill gas emissions from the S-2 Altamont landfill and are required to meet the NMOC emission limits cited in Regulation 8-34-301.4 (either 98% NMOC destruction efficiency or a maximum outlet concentration of 120 ppmv of NMOC, expressed as methane, at 3% O_2 dry). In Order to demonstrate on-going compliance with this NMOC requirement, Regulation 8-34-509 requires that the facility monitor one or more key emission control system operating parameter s on a frequency approved by the APCO. For these turbines, the key operating parameter is combustion chamber discharge temperature, and WMAC is monitoring this temperature on a continuous basis. The combustion chamber temperature limit and monitoring requirements are described in Condition # 18773, Part 9:

> Condition # 18773
> FOR: S-6 GAS TURBINE WITH A-6 FOGGING SYSTEM AND
> FOR: S-7 GAS TURBINE WITH A-7 FOGGING SYSTEM
>
> 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)

During the February 2016 source test the turbines were tested by stepping down the operating temperature by 25 °F increments, from an initial operating temperature of 855 °F to 830 °F, 805 °F, 780 °F, 755 °F, 730 °F, to 705 °F, as outlined in the Alternative Compliance Option approval letter from the District's Enforcement Division. Table 1 and 2 summarize the source test emissions operating at 705 °F. During the reduced temperature operating conditions the turbines were operated at ~25% of the rated kilowatt output. The NMOC emission rates measured during this source test are around 4% of the limits, the NOx emission rates measured are around 50% of the limits, and the CO emission rates measured are around 30% of the limits.

Table 1. ALRRF Turbine S-6 emissions at 705 °F Operating Condition

Emission Parameter	Average Test Result	Permit Limit	Status
NOx, lbs/MMBtu	0.0838	0.1567	In Compliance
NOx, ppm @ 15% O_2	21.2	42	In Compliance
NOx, lbs/MW-hr	2.23	<2.34	In Compliance
CO, lbs/MMBtu	0.059	0.2229	In Compliance
NMOC (ppmvd@3% O_2 as CH_4)	<4.69	120	In Compliance
CH_4 destruction efficiency	>99.94	>99	In Compliance
TRS in Landfill Gas, ppmvd	92	150	In Compliance
SO_2, ppmvd	1.7	300	In Compliance

Table 2. ALRRF Turbine S-7 emissions at 705 °F Operating Condition

Emission Parameter	Average Test Result	Permit Limit	Status
NOx, lbs/MMBtu	0.0722	0.1567	In Compliance
NOx, ppm @ 15% O_2	18.3	42	In Compliance
NOx, lbs/MW-hr	1.88	<2.34	In Compliance
CO, lbs/MMBtu	0.0670	0.2229	In Compliance
NMOC (ppmvd@3% O_2 as CH_4)	2.02	120	In Compliance
CH_4 destruction efficiency	>99.95	>99	In Compliance
TRS in Landfill Gas, ppmvd	107.7	150	In Compliance
SO_2, ppmvd	2.3	300	In Compliance

WMAC proposed that the minimum combustion chamber discharge temperature (CCDT) be changed from 855 °F to 700 °F. WAMAC stated, the primary reason for this permit request is to gain flexibility of continued operation of one turbine (either S-6 or S-7) at a reduced power load during any off-site power outages that causes interruption in the ability to transfer electricity produced onsite back to the power grid. The turbines will also be able to maintain a steady operating state at a reduced power load allowing for extended and/or continuous turbine operation during the event while maintaining on-site power

supply to the LNG plant and/or the A-16 Flare. In Permit Application # 9326, the minimum CCDTs of S-6 and S-7 were authorized to change from 1120 ^{o}F to 855 ^{o}F. WMAC will continue to maintain continuous monitoring of the combustion chamber discharge temperature to show compliance with proposed minimum temperature limit.

EMISSIONS

The S-6 and S-7 Gas Turbines are expected to comply with all NMOC, NOx, and CO emission limits at the proposed minimum combustion chamber discharge temperature. WMAC is not requesting any emission limit or throughput limit modifications for this s application. Therefore, this application will not result in any emission increase.

STATEMENT OF COMPLIANCE
Regulation 2, Rule 1 (CEQA and Public Notice Requirements):

This application is for a change of permit conditions at the turbines, which does not involve any emission increases or physical changes to the turbines. There is no possibility that this project will have any adverse environmental impacts. Therefore, this application is categorically exempt from CEQA review pursuant to Regulation 2-1-312.2. 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.

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 separately.
Regulation 8, Rule 34:

The S-6 and S-7 Gas Turbines are subject to Regulation 8, Rule 34 “Solid Waste Disposal Sites”. Regulation 8-34-301.4 limits the organic emissions from landfill gas combustion operations (other than flares) and requires S-6 and S-7 to either achieve a destruction efficiency of 98% by weight for NMOC or to emit no more than 120 ppmv of NMOC (as methane at 3% O_2, dry basis). From the February 2016source test, these turbines are each emitting <4% of the NMOC limit.

Regulation 9, Rule 9:

The S-6 and S-7 gas Turbines are subject to Regulation 9, Rule 9 "Nitrogen Oxides from Stationary Gas Turbines". Regulation 9-9-301.1 limits NOx emissions from S-6 and S-7 to 42 ppmv of NOx, expressed as NO_2, at 15% oxygen, dry basis. From the February 2016 source test, the emissions from S-6 are 21.2 ppmv of NOx at 15% O_2 and from S-7 are 18.3 ppmv of NOx at 15% O_2. Therefore, the turbines are complying with Regulation 9-9-301.1.

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). S-6 and S-7's 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.

NSPS for Stationary Gas Turbines. The S-6 and S-7 Gas Turbines are subject to 40CFR Part 60 Subpart GG (Standards of Performance for Stationary Gas Turbines) because the turbines were built after Octoerber3, 1977 (and before 2/18/2005), and have rated inputs greater than 10 MMBtu/hr (LHV). All applicable requirements are described in the existing MFR permit. Subpart GG limits turbine NOx emissions to 150 ppmv of NOx at 15% O_2 (assuming no efficiency adjustments). The February 2016 source test demonstrates that the S-6 and S-7 turbines meeting this limit as well as the more stringent Regulation 9-9-301.1 limit of 42 ppmv. Subpart GG also limits the fuel sulfur content to 0.8% by weight. Permit Condition 18773, Part 10 limits the sulfur content in landfill gas of 150 ppmv of TRS (expressed as H_2S, dry basis). The February 2016 source test demonstrates the sulfur content in landfill gas < 110 ppmv, meeting these limits.

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.

NESHAPs for Stationary Combustion Turbines: The NESHAPs for Stationary Combustion Turbines (40 CFR, Part 63, Subpart YYYY) applies to turbines located at major sources of Hazardous Air Pollutants (HAPs). Site-wide HAP emissions were found to be more than 25 tons/year for all HAPs combined. Therefore, this site is a major source of HAP emissions. However, the subpart YYYY formaldehyde emission limit only applies to turbines new or reconstructed after 1/14/2003. S-6 and S-7 were constructed before 2003, therefore, Subpart YYYY does not apply to these turbines.

Permit Condition Revisions

Section I-V:
No changes are proposed to these sections.

Section VI:
Proposed permit condition revisions (see Part 9) are shown below in strikeout and underline format.

Condition # 18773
FOR: S-6 GAS TURBINE WITH A-6 FOGGING SYSTEM AND
FOR: S-7 GAS TURBINE WITH A-7 FOGGING SYSTEM

1. Nitrogen oxide (NO_x) emissions from each Gas Turbine (S-6 and S-7) shall not exceed 0.1567 pounds of NO_x (calculated as NO_2) per MM BTU.
(Basis: Cumulative Increase and Regulation 2-1-301)

2. Carbon monoxide (CO) emissions from each Gas Turbine (S-6 and S-7) shall not exceed 0.2229 pounds of CO per MM BTU.
(Basis: Cumulative Increase and Regulation 2-1-301)

3. Deleted

4. Each Gas Turbine is equipped with a Fogging System (A-6 or A-7). The A-6 and A-7 Fogging Systems are not required for compliance and may be operated or not operated at the discretion of the Permit Holder. (Basis: Regulation 2-1-301)

5. A District-approved logbook shall be maintained on the number of days each Gas Turbine is operated and the days when each Fogging System is operated.
(Basis: Regulation 2-1-301, 8-34-113, 8-34-301.1, and 8-34-501.2)

6. In the event of a Gas Turbine shutdown, all landfill gas normally fired by the non-operating Gas Turbine(s) shall be diverted to one or more of the other approved landfill gas control devices for this facility unless the requirements of Regulation 8-34-113 are being followed. Raw landfill gas shall not be vented to the atmosphere, except for unavoidable landfill gas emissions that occur during control 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 leaks that do not exceed the limits specified in 8-34-301.2.
(Basis: Regulations 8-34-113, 8-34-301 and 8-34-301.1)

7. The time between the Gas Turbine shut-down and the start-up of the alternative control device(s) shall be included in calculating the shutdown exemption under Regulation 8-34-113. (Basis: Regulations 8-34-113 and 8-34-501.2)

8. The heat input to each Gas Turbine (S-6 and S-7) shall not exceed 1378 MM BTU during any day. 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 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)

9. The combustion chamber discharge temperature for each Gas Turbine shall be maintained between 700 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)

10. The concentration of total reduced sulfur (TRS) compounds in the landfill gas fuel for S-6 and S-7 shall not exceed 150 ppmv of TRS, expressed as H_2S. In order to demonstrate compliance with this part and 40 CFR 60.333(b), 60.334(h)(4), and the custom fuel sulfur monitoring schedule approved by EPA on July 6, 1994, the Permit Holder shall

measure and record the sulfur content of the landfill gas on a monthly basis in accordance with 40 CFR 60.335(d) and during the annual performance test in accordance with 40 CFR 60.335(b)(10). This fuel sulfur data shall also be used as a surrogate for demonstrating compliance with the sulfur dioxide emission limits in Regulation 9-1-302 and 40 CFR 60.333(a).
(Basis: BACT, Regulation 9-1-302 and 40 CFR 60.333(a-b) and 60.334(h)(4))

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.

    Each annual source test shall be conducted 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)

Section VII:
The proposed temperature revision is reflected in Table VII-B. No Monitoring changed are proposed. The combustion chamber discharge temperature will be monitored continuously, which is a standard monitoring method for temperature limits.

Table VII – B
Applicable Limits and Compliance Monitoring Requirements
S-6 GAS TURBINE WITH A-6 FOGGING SYSTEM AND
S-7 GAS TURBINE WITH A-7 FOGGING SYSTEM

Type of Permit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Combus-tion Chamber Discharge Temper-ature (CCDT)	BAAQMD Condition # 18773, Part 9	Y		700°F $\leq$ CCDT $\leq$ 1220 °F averaged over any 3-hour period	BAAQMD 8-34-501.11 and 509 and BAAQMD Condition # 18773, Part 9	C	Temperature Sensor and Recorder

Section VIII-IX:
No changes are proposed to these sections.

Sections X:

The proposed revision will be described in the revision history section as shown below.

x. revision history

Title V Permit Issuance (Application # 25828): **December 1, 2003**

Significant Revision (Application # 8324): **February 5, 2004**

- Modify Permit Condition # 19237, Parts 4, 9, 10, and 11 to revise monitoring procedures for the internal combustion engines (S-23 and S-24).
- Revise Tables IV-D, VII-D, and VIII to reflect revisions to Condition # 19237.
- Make minor corrections to requirements in Tables III, IV-A, IV-B, IV-D, and IV-E.

Minor Revision (Application # 9326): **December 21, 2004**

- Revise minimum combustion chamber discharge temperature in Permit Condition # 18773, Part 9 and in Table VII-B.

Minor Revision (Application # 28272): **[insert approval date]**

- Revise minimum combustion chamber discharge temperature in Permit Condition # 18773, Part 9 and in Table VII-B.

Sections XI-XII:

No changes are proposed to these sections.

RECOMMENDATION

Issue a Change of Conditions for the following equipment:

S-6 Gas Turbine with A-6 Fogging System
S-7 Gas Turbine with A-7 Fogging System

By: _____ _____
Davis Zhu Date
Air Quality Engineer

APPENDIX I

NSR PERMIT EVALUATION FOR APPLICATION #28291

EVALUATION REPORT

Waste Management of Alameda County
10840 Altamont Pass
Livermore, CA 94551
Plant# 2066 S#99
Application #28291

BACKGROUND

Waste Management of Alameda County has submitted this application to replace existing aboveground storage tanks (AST), install Phase I Morrison Brothers EVR per VR-402 and comply with Standing Loss Control (SLC) for new installation of aboveground tank requirements per VR-302 for the following device:

S-99 Non-Retail Gasoline Dispensing Facility

Current Configuration	Post Construction
1 – 2,500 gallon gasoline AST	1 – 1,000 gallon gasoline AST
1 – 500 gallon diesel AST	1 – 1,000 gallon diesel AST
Phase I Two Point (Non-EVR)	Phase I Morrison Brothers EVR (VR-402) and SLC for new installation (VR-302)
Phase II Balance (Non-EVR)	No change
1 triple product gasoline nozzle	1 single product gasoline nozzle
1 diesel nozzle	No change

EMISSION CALCULATIONS

There is no emission increase in permitted emissions with this project.

NEW SOURCE REVIEW

NSR requirements of Regulation 2, Rule 2 and Rule 5 are not applicable since this project is an alteration.

STATEMENT OF COMPLIANCE

California Environmental Quality Act (CEQA), Regulation 2-1-311: This project is considered to be ministerial under Regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard

permit conditions and standard emission factors in accordance with Permit Handbook Chapter 3.2 and therefore is not discretionary as defined by CEQA.

Public Notification, Regulation 2-1-412: This project is not subject to the public notification requirements since this is not a new or modified source.

Gasoline Dispensing Facilities, Regulation 8-7-301 and 302: The owner/operator is expected to comply with Phase I and Phase II requirements of BAAQMD Regulation 8, Rule 7.

California Air Resources Board (CARB) Vapor Recovery Certification, VR-302 and VR-402: The owner/operator is expected to comply with Standing Loss Control (SLC) for new installation of aboveground tank requirements per VR-302 and Phase I Morrison Brothers EVR requirements per VR-402.

CONDITIONS

Start-up Conditions for S-99

The owner/operator shall conduct the following performance tests at least ten (10) days, but no more than thirty (30) days after start-up. For the purpose of compliance with this Condition, all tests shall be conducted after back-filling, paving, and installation of all required Phase I and Phase II components:

a. Static Pressure Performance Test using CARB Test Procedure TP-201.3B in accordance with E.O. VR-402. If the tank size is 500 gallons or less, the test shall be performed on an empty tank.

Operating Conditions for S-99

20813

For: S-99 Non-Retail Gasoline Dispensing Facility G # 7123

1. This facility's annual gasoline throughput shall not exceed 30,000 gallons in any consecutive 12-month period. (Basis: Offsets)
2. In order to demonstrate compliance with Part 1, the Permit Holder shall maintain monthly records of the gasoline throughput at S-99/G7123 in a District approved log. This log shall be retained for at least five years from date of entry. This log shall be kept on site and made readily available to the District staff upon request.

25723

1. The Morrison Brothers EVR Phase I Vapor Recovery system including all associated plumbing and components, shall be operated and maintained in accordance with the most recent version of California Air Resources Board (CARB)Executive Order VR-402. Section 41954(f) of the California Health and Safety Code prohibits the sale offering for sale, or installation of any vapor control system unless the system has been certified by the state board.
2. The Morrison Brothers EVR Phase I Vapor Recovery System shall only be installed on tanks meeting the Standing Loss Control requirements of CARB Executive Orders VR-301 or VR-302.
3. The owner or operator shall conduct and pass a Static Pressure Performance Test (CARB Test Procedure TP 201.1B) at least once in each 12-month period. Measured leak rates of each component shall not exceed the levels specified in VR-402.

The owner/operator shall:

1. Notify Source Test by email (gdfnotice@baaqmd.gov) or Fax (510-758-3087), at least 48 hours prior to any required testing.
2. Submit test results in a District-approved format within thirty (30) days of testing.
   a. For start-up tests results, cover sheet shall include the facility number (Facility ID) and application number of the Authority to construct permit.
   b. For annual test results, cover sheet shall include the facility number (Facility ID) and identified as 'Annual' in lieu of the application number.
   c. Test results shall be emailed (gdfresults@baaqmd.gov) or mailed to the District's main office.

26179

The owner/operator of the facility shall maintain the following records. Records shall be maintained on site and made available for inspection for a period of 24 months from the date the record is made.

1. Monthly totals of throughput (sales) of gasoline (all grades) and other fuels pumped and summarized on an annual basis for each type of fuel (excluding diesel).
2. All scheduled testing and maintenance activities, including:
   a. the date of maintenance, inspection, failure and, if applicable, ISD alarm history;
   b. the date and time of maintenance call;
   c. the maintenance performed;
   d. Certified Technician ID number or name of individual conducting maintenance and their phone number.
3. Weekly, quarterly and annual inspection sheets.

RECOMMENDATION

I recommend that an Authority to Construct be issued to alter the following device:

S-99 Non-Retail Gasoline Dispensing Facility

By: Lorna O. Santiago, Air Quality Permit Technician Date: 10/11/2016

APPENDIX J

NSR PERMIT EVALUATION FOR APPLICATION #29119

ENGINEERING EVALUATION
Waste Management of Alameda County
10840 Altamont Pass Road, Livermore, CA 94551
Plant: 2066
Application: 29119

BACKGROUND

Waste Management of Alameda County (Waste Management) has applied to obtain an Authority to Construct for the following equipment:

S-228 Portable Prime Diesel Engine, Replacement Engine for Tipper #70
2017 Caterpillar Model: C4.4
124 bhp, 6.49 gallon/hr

The portable diesel engine will replace the portable CNG engine:

S-222 Portable CNG-Fired Engine, Engine for Tipper #70

The truck tipper will be located at 10840 Altamont Pass Road, Livermore, CA 94551. The tipper is used to quickly unload the contents from a truck trailer. Waste Management is proposing to replace the CNG engine in an existing tipper with a diesel engine. S-228 meets the Environmental Protection Agency and California Air Resource Board (EPA/CARB) Tier 4 off-road standards.

EMISSION CALCULATIONS

Criteria Pollutants

Pollutant	Emission Factor (g/hp-hr)	Abated Emissions		
		Annual (lb/yr)	Annual (TPY)	Maximum Daily (lb/day)
NO_x	0.224	446.0	0.223	1.47
NMHC	0.007	14.9	0.007	0.05
CO	0.015	29.7	0.015	0.10
$PM_{2.5}$ = PM_{10} (diesel particulate)	0.007	14.9	0.007	0.05
SO_2	0.005	9.8	0.005	0.03

Basis:

- 124 hp Max Rated Output – 6.49 gallons/hr Max Fuel Use Rate; 0.89 MMBTU/hr Max Combustion Capacity
- The NO_x, NMHC, CO, and PM_{10} emission factors are from the manufacturer's performance data
- The SO_2 emission factor is based on 15 ppm sulfur in ULSD fuel derived from EPA AP-42, Table 3.4-1.
- Annual emissions are based on the annual limit of 7,300 hr/yr of operation
- Max daily emissions are based on 24 hr/day since no daily limits are imposed on operations

Toxic Pollutants

The only Toxic Air Contaminant listed on Table 2-5-1 emitted from S-38 is diesel particulate which has a chronic trigger level of 0.26 lb/yr. It is assumed that all of the PM_{10} is diesel particulate. We also assume that all of the PM_{10} is $PM_{2.5}$. Based on the above calculations the annual diesel particulate emissions are 19.94 lb/year. As such, this application requires a Toxics Risk Screening Analysis. Regulation 2-5 requires that the cumulative impacts from all related projects permitted within the last three years be included in the risk screening analysis. The table below tabulates the project associated with this permit application along with related projects permitted within the last three years.

Application No.	Source No.	A/C Issuance Date	P/O Issuance Date	Max. Rated Output (bhp)	PM10 EF (g/bhp-hr)	Annual Operating Hours (hrs/yr)	Diesel Exhaust Particulate Emissions (lb/yr)	TAC Trigger Level (lb/yr)
29119	228	None	None	124	0.0075	7,300	14.87	0.26
27661	224	3/10/16	12/15/16	124	0.0075	7,300	14.90	0.26
27661	225	3/10/16	12/15/16	124	0.0075	7,300	14.90	0.26

Cumulative Increase

Waste Management is replacing source S-222 with source S-228. Emission reduction credits from the shutdown of S-222 are based on the average annual usage for the last three years. The annual average hours of operations was determined to be 641.7 hours/year. Emission factors for S-222 were retrieved from Application #24726. The table below summarizes the cummlative increase in criteria pollutants that will result from the shutdown of S-222 and operation of S-228:

Onsite Emissions Reduction Credit for S-222

Pollutant	Hours of Operation	Emission Factor (g/bhp-hr)	Emission Reduction (TPY)
NOx	641.7	1.206	0.124
POC	641.7	0.101	0.010
CO	641.7	0.700	0.072
PM_{10}	641.7	0.066	0.007
$PM_{2.5}$	641.7	0.066	0.007
SO_2	641.7	0.010	0.001

Project Cumulative Emissions Increase

Pollutant	Emissions Increase from Operation of S-228 (TPY)		Emissions Reduction from Shutdown of S-222 (TPY)		Project Cumulative Emissions Increase (TPY)
NOx	0.223	-	0.124	=	0.099
POC	0.007	-	0.010	=	-0.003
CO	0.015	-	0.072	=	-0.057
PM_{10}	0.007	-	0.007	=	0.000
$PM_{2.5}$	0.007	-	0.007	=	0.000
SO_2	0.005	-	0.001	=	0.004

Waste Management will provide offsets for the remaining NOx emissions, which will result in no emissions inceases for the project. The plant cumulative emissions increase is summarized below.

Plant Cumulative Emissions Increase, Post 4/5/91

Pollutant	Permitted Emissions, Post 4/5/91 (TPY)		Project Cumulative Emissions Increase (TPY)		Plant Cumulative Emissions Increase (TPY)
NO_x	0.000	+	0.000	=	0.000
POC*	37.850	+	-0.003	=	37.847
CO	197.509	+	-0.057	=	196.707
PM_{10}	32.826	+	0.000	=	32.756
$PM_{2.5}$	0.000	+	0.000	=	0.007
SO_2	66.633	+	0.004	=	66.626

*37.850 tpy of POC will be offset by Application #14814, which is an application in progress.

STATEMENT OF COMPLIANCE:

Regulation 2 - Permits, Rule 1 – General Requirements

Ministerial Projects (Section 2-1-311)

An application that is classified as ministerial is exempt from the CEQA requirement of *Section 2-1-310 Applicability of CEQA.* Section 2.3.3 of the District's Permit Handbook, which sets forth evaluation guidelines for Portable Diesel Engines, was used to evaluate this engine.

As such, this application is classified as ministerial and this engine is exempt from CEQA review with respect to air quality.

Public Notice, Schools (Section 2-1-412)

A new of modified source located within 1,000 feet of the outer boundary of a K-12 school site which results in an increase of emissions from toxic air contaminants are subject to the public notice requirement. The outer boundary of the nearest K-12 school, Altamont Creek Elementary School, is over 1,000 feet from the facility boundary. Therefore, this engine is not subject to the public notification requirements of this regulation.

Regulation 2 - Permits, Rule 2 – New Source Review

Best Available Control Technology Requirement (Section 2-2-301)

Any new source is required to use Best Available Control Technology (BACT) to control emissions of any District BACT pollutants [precursor organic compounds (POC), non-precursor organic compounds (NPOC), oxides of nitrogen (NO_x), sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and/or carbon monoxide (CO)] that have the potential to emit 10 or more pounds on any day. Based on the emission calculations, the engine emits less than 10 lb/day for each BACT pollutant. This engine is not subject to this regulation.

Offset Requirements, POC and NO_x (Section 2-2-302)

The facility has the potential to emit more than 35 tons per year of NO_x and POC and will need to provide offsets for this engine. S-228 results in an emission increase of POC and NO_x are 0.007 and 0.223 tons per year, respectively. Emission reduction credit from the shutdown of S-222 provided 0.010 ton/year of POC and 0.124 tons/year of NOX of offsets that is applied to S-228. An additional 0.099 tons/year of NOx emissions will need to be offset. Waste Management possesses Emission Reduction Credit Certificate #1644 for 0.047 tpy of POC and 2.122 tpy of NOx. 0.099 TPY of NOx emissions will be offset at a 1:15 to 1 ratio using Certificate #1644.

Offset Requirement, $PM_{2.5}$, PM_{10} and Sulfur Dioxide (2-2-303)

Since the potential to emit $PM_{2.5}$, PM_{10} or Sulfur Dioxide at the facility where this engine operates are each below 100 tons per year, this engine is not subject to the offset requirements of *Regulation 2-2-303*.

Regulation 2- Permits, Rule 5 New Source Review of Toxic Air Contaminants

General (2-5-100)

Diesel particulate emissions from the planned operation of S-228 is calculated to be 19.94 lb/year which exceeds the trigger level of 0.26 lb/year. Therefore, this project is subject to the requirements of this regulation and a health risk screening analysis (HRSA) was performed for this project. Since two other diesel engines (S-224 and S-225) was permitted at this facility within the last three years (Applications # 27661), emissions from these sources were included in this HRA. The health risk screening analysis determined the maximum project cancer risk of operation the diesel engine would be 5.9 in a million. The maximum project chronic hazard index is estimated at 0.0016. In accordance with Regulation 2, Rule 5, this source complies with the risk requirements.

Regulation 2- Permits, Rule 6 Major Facility Review

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations (CFR) and BAAQMD Regulations

2, Rule 6, Major Facility Review because it is designated major facility as defined by BAAQMD Regulation 2-6-204. In addition to being a designation facility, the maximum permitted CO emission rate for this site exceeds 100 tons per year of CO. Therefore, a Title V permit is required pursuant to Regulation 2-6-301 as well as Regulation 2-6-304.

The initial MFR Permit for this facility was issued on December 1, 2003 with the most recent revision occurring on December 19, 2012. The proposed permit conditions will require a minor revision of the MFR permit and will be discussed in the Statement of Basis for the minor revision under the Title V Application #29133.

Regulation 6 - Particulate Matter, Rule 1 - General Requirements

Ringelmann No. 2 Limitation (Section 6-1-303)

Since S-228 has a displacement of 268.5 in^3 it is subject to *Regulation 6-1-303.* The engine is expected to meet this requirement with regular maintenance and inspection.

Visible Particles (Section 6-1-305)

Since S-228 will emit a very small amount of PM_{10} it is not expected to produce visible emissions or fallout in violation of this regulation and will be assumed to be in compliance with *Regulation 6-1-305* pending a regular inspection.

Particulate Weight Limitation (Section 6-1-310)

A person shall not emit from any source particulate matter in excess of 0.15 grains/dscf of exhaust gas volume. The emission rate from S-228 is 0.01 grams/bhp-hr, which results in an outlet grain loading of 0.0018 grains/dscf at 0% O_2. The emission rate is less than the limit 0.15 grains/dscf and is in compliance with *Regulation 6-1-310*.

Regulation 9 – Inorganic Gaseous Pollutants, Rule 1 Sulfur Dioxide

S-228 is subject to the following sections of Regulation 9, Rule 1 and will comply with all sections by burning Ultra Low Sulfur Diesel with a sulfur content of 15 ppm, which results in less than 1pmv of $S0_2$ in the exhaust gas.

Limitations on Ground Level Concentrations (Section 9-1-301)

Sulfur Dioxide emissions shall not result in ground level concentrations in excess of 0.5 ppm continuously for 3 consecutive minutes or 0.25 ppm averaged over 60 consecutive minutes or 0.05 ppm averaged over 24 hours.

General Emission Limitation (Section 9-1-302)

A gas stream containing Sulfur Dioxide shall not contain sulfur dioxide in excess of 300 ppm (dry).

Fuel Burning (Liquid and Solid Fuels) (Section 9-1-304)

The sulfur content of liquid fuel burned shall not exceed 0.5% by weight.

Regulation 9 – Inorganic Gaseous Pollutants, Rule 8 NOx and CO from Stationary Internal Combustion Engines

Although the proposed engine will meet the definition of a stationary engine as defined by Regulation 9-8-204 since it will remain at a specific facility for more than 1 year, this engine also meets the federal definition of a nonroad engine as defined in 40 CFR 89 Control Emissions from New or In-Use Nonroad Compression Ignition Engine. Federal regulations prohibit Districts from adopting more stringent emission standards for non-road engines.

Since S-228 is a portable non-road engine, District staff expects that Regulation 9, Rule 8 emissions standards should not apply to portable engines, even if these portable engines remain at a single facility for more than 12 months.

Federal Requirements

New Source Performance Standards (NSPS)

The engine in this application are not considered to be "stationary" engines by federal definitions because they meet the requirement of a nonroad engine as defined by 40 CFR 1068.30. Although the engine remains at this facility for more than 12 months, they do not reside at a single on-site location for more than 12 consecutive months. Since the portable diesel engine in this application is a nonroad engines and not a stationary 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 this engine.

This engine is subject to 40 CFR 89 Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines pursuant to Section 89.102. Per Table 1 of Section 89.112, S-228 meets the limits for engines greater than 100 HP and less than 175 HP, as shown in the table below:

Pollutant	Manufacturer's Performance Data (g/bhp-hr)	40CFR89.112 Emission Limits (g/bhp-hr)
PM	0.007	0.2
NMHC + NO_x	0.231	3.0
CO	0.015	3.7

The emissions standards for this engine are certified by CARB Executive Order U-R-022-0208 under engine family HPKXL04.4MT1.

State Regulations

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 S-228 will comply with §93116.3(a) by using only CARB certified diesel fuel in these engines. New engines are subject to the requirements of §93116.3(a) by using only CARB certified diesel fuel in these engines.

In addition to the 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 less than 175 hp, 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. For engines greater than 175 to 749 hp, the fleet average emission limit must be: 0.15 g/bhp-hr by 2013, 0.08 g/bhp-hour by 2017, and 0.02

g/bhp-hour by 2020. Compliance with these limits will be assessed throughput the state-wide reporting requirements.

CONDITIONS

Since S-221 shares the same permit condition as S-222, Condition #25448 will be archived and replaced by Condition #26733. The usage limits for S-221 will be reduced in half to account for the shutdown of S-222. Condition #26734 are recommended for S-228.

COND# ~~25448~~ 26733 ----------

For: S-221 Portable CNG-Fired Engine for Waste Tipper # 83,
~~and~~
~~S-222 Portable CNG-Fired Engine for Waste Tipper # 70~~

1. The owner/operator of the portable CNG-fired waste tipper engine~~s (S-221 and S-222)~~ has been issued a permit~~s~~ for a portable source~~s~~ (also known as nonroad engines by federal definitions) that are subject to Regulation 2- 1-220. Based on ~~these~~ this portable source and nonroad engine determinations, ~~these~~ the engine~~s are~~ is not subject to the federal NSPS requirements for stationary spark-ignition engines (40 CFR Part 60, Subpart JJJJ), or the federal NESHAP requirements for stationary reciprocating internal combustion engines (40 CFR, Part 63, Subpart ZZZZ). To retain the~~se~~ portable source and nonroad engine determinations, the owner/operator shall not operate ~~any of these~~ the engine~~s~~ in one on-site location for more than 12 consecutive months. Any backup or standby engine that replaces ~~one of these~~ this engine~~s~~ 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, and 40 CFR Part 1068.30)

2. The owner/operator shall use either compressed natural gas or liquefied natural gas supplied from S-210 to fire ~~these~~ this engine~~s~~. (Basis: Cumulative Increase and Offsets)

3. The total ~~combined~~ operating time ~~for S-221 and S-222~~ shall not exceed ~~14,600~~ 7,300 hours during any consecutive 12-month period. (Basis: Cumulative Increase and Offsets)

4. The owner/operator shall equip ~~each~~ the engine ~~(S-221 and S-222)~~ with a non-resettable totalizing meter that measures hours of operation for ~~each~~ the engine. This meter shall be installed prior to initial operation of the~~se~~ engine~~s~~. (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, Regulation 2-1-220 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-221 and S-222, t~~The owner/operator shall record the hours of operation per calendar month ~~for each~~ the engine.
   c. The owner/operator shall record the total operating time for the~~se two~~ waste tipper engine~~s~~ for each consecutive rolling 12- month period.

COND# 26734 ----------

For: S-228 Portable Diesel Engine for Waste Tipper # 70,

1. The owner/operator of the portable diesel-fueled waste tipper engine has been issued a permit for a portable source (also known as a nonroad engine by federal definitions) that is subject to Regulation 2-1-220. Based on this portable source and nonroad engine determination, this engine is not subject to the federal NSPS requirements for stationary compression ignited 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 this portable source and nonroad engine determination, the owner/operator shall not operate this engine in any one on-site location for more than 12 consecutive months. Any backup or standby engine that replaces this engine 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, and 40 CFR 1068.30)

2. The owner/operator shall use CARB diesel fuel exclusively to fire this engine.
   (Basis: CCR §93116.3(a))

3. The total combined operating time shall not exceed 7,300 hours during any consecutive 12- month period.
   (Basis: Regulation 2-5-302, Cumulative Increase, and Offsets)

4. The owner/operator shall equip this engine with a non-resettable totalizing meter that measures hours of operation.
   (Basis: Regulation 2-1-301)

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, Regulation 2-1-220 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. The owner/operator shall record the engine's hours of operation per day.
   c. The owner/operator shall record the engine's total operating time for each consecutive rolling 12-month period.

RECOMMENDATIONS:

I recommend that an Authority to Construct be issued for the following:

S-228 Portable Diesel Engine, Replacement Engine for Tipper #70
2017 Caterpillar Model: C4.4
124 bhp, 6.49 MMBtu/hr

(i) Loi Chau, Air Quality Engineer Date