

Bay Area Air Quality Management District

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**Permit Evaluation
and
Statement of Basis
for
MAJOR FACILITY REVIEW PERMIT**

**for
City of Mountain View (Shoreline)
Facility #A2740**

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Title V Statement of Basis

A. Background

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 Regulation 2, Rule 6, Major Facility Review because it is a designated facility as defined by BAAQMD Regulation 2-6-204. The Emission Guidelines for Municipal Solid Waste Landfills (40 CFR Part 60, Subpart Cc) require the owner or operator of a landfill that is subject to this part and that has a design capacity of greater than or equal to 2.5 million megagrams and 2.5 million cubic meters to obtain an operating permit pursuant to Part 70. As discussed in more detail below in Section C.IV. of this report, this facility is subject to these emission guidelines and meets the designated facility criteria listed in 40 CFR § 60.32c(c).

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, record keeping 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.

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 facility identifier is also considered to be the identifier for the permit.

B. Facility Description

The City of Mountain View's Shoreline complex (Facility # A2740) is located, east of Highway 101, on Shoreline Boulevard. Shoreline is a recreational and wildlife area constructed over approximately 600 acres of closed landfills. The individual landfills are referred to as the 544-Acre Landfill, which includes the golf course and sailing lake areas, the Crittenden Landfill, and the Vista Landfill. A small portion of the Vista Landfill was leased to Shoreline Amphitheatre (Plant #2561), which is owned and operated by Bill Graham Presents.

In accordance with 40 CFR § 60.32c(c), the landfill size thresholds (design capacity of at least 2.5 million m³ and at least 2.5 million Mg of waste) that trigger the Emission Guidelines for MSW Landfills and the Title V permitting requirements apply to all solid waste disposal sites located on contiguous property. Since the Vista Landfill, the 544-Acre Landfill, and the Crittenden Landfill are located on contiguous property, the combined size of these three landfills was used to determine Title V applicability for these landfills. The combined size of the three

contiguous landfills is 19.4 million yd³ (14.8 million m³) and 13.1 million tons (11.9 million Mg). Therefore, a Title V Permit is required for all three landfills. This MFR permit covers all equipment that is operated by the City of Mountain View. A separate MFR Permit for Facility # A2561 covers the equipment that is operated by Bill Graham Presents' Shoreline Amphitheatre.

The City of Mountain View (Shoreline) includes the following permitted operations: the Closed Landfills with Gas Collection Systems (S-1), three Landfill Gas Flares (A-3, A-4, and A-5), and a Diesel Engine for the Emergency Standby Generator (S-11). In addition, the City of Mountain View has been issued an Authority to Construct for two landfill gas fired Microturbines (S-12 and S-13).

At the S-1 Closed Landfills, the waste decomposition process generates landfill gas, which contains mainly methane, carbon dioxide, and small amounts of non-methane organic compounds (<1%) and sulfur compounds (<400 ppmv). Many of the non-methane organic compounds (NMOCs) found in landfill gas are precursor organic compounds (POC), and some NMOCs are hazardous air pollutants (HAP). Various local, state, and federal regulations require that landfill gas be collected and controlled to reduce POC and HAP emissions to the atmosphere. In order to meet these requirements, the landfill at this site is equipped with an active landfill gas collection system and a landfill gas control system.

Active landfill gas collection systems consist of perforated pipes that are buried in the refuse at numerous locations, solid pipes referred to as laterals and headers, and blowers. The perforated pipes are called horizontal collectors or vertical wells, depending on the orientation of the pipes within the refuse. The gas collection system at this site includes 7 horizontal collectors and 271 vertical wells. The solid pipes connect the horizontal collectors and vertical wells to the blowers. The blowers collect landfill gas by creating a vacuum in the buried refuse that draws landfill gas into the pipes. The blowers vent this collected landfill gas to the landfill gas control system.

The landfill gas control system at this site includes three Landfill Gas Flares (A-3, A-4, and A-5). These flares destroy most of the methane, organic compounds, sulfur compounds, and HAPs in the landfill gas, but also produce secondary combustion pollutants including: nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter (PM₁₀), formaldehyde, and hydrogen chloride. Upon start-up, the S-12 and S-13 Microturbines will become part of the landfill gas control system for this site. As with flares, microturbines will destroy organic, sulfur, and hazardous compounds in the landfill gas and will produce NO_x, CO, SO₂, PM₁₀, formaldehyde, and hydrogen chloride.

The S-11 Diesel Engine produces combustion emissions including NO_x, CO, POC, SO₂, PM₁₀, and HAPs.

C. Permit Content

The legal and factual basis for the permit follows. The permit sections are described in the order presented in the permit.

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. 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.

Condition I.J has been added to clarify that the capacity limits shown in Table II-A are enforceable limits.

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 Regulation 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 Regulation 2-6-222, per year or 400 pounds of a "hazardous air pollutant," as defined in BAAQMD Regulation 2-6-210, per year.

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 devices table but will have an "S" number. An abatement device that is also a source (such as a thermal oxidizer that burns fuel) will have an "A" number.

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

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

The equipment list has changed since the facility applied for a Title V permit on April 9, 2001. The S-11 Diesel Engine for Emergency Standby Generator and the S-12 and S-13 Microturbines

were not listed in the City of Mountain View's April 2001 application. These sources were issued a Permit to Operate and an Authority to Construct, respectively, after the City of Mountain View submitted the April 2001 application.

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 a significant source pursuant to the definition in BAAQMD Regulation 2-6-239. This facility does not have any significant sources that do not have District Permits to Operate.

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 and Regulations
- SIP Rules (if any) are listed following the corresponding District regulations. SIP rules are District regulations 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 portions of the SIP rule are 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)
- 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 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.

Complex Applicability Determinations

Landfills and landfill gas combustion equipment are subject to BAAQMD Regulation 8, Rule 34. This regulation requires landfills that have more than 1 million tons of refuse in place to collect and control the landfill gas that is generated by waste decomposition and specifies numerous operating, monitoring, and reporting requirements for subject operations. Regulation 8, Rule 34 has required that the City of Mountain View landfills be controlled by an active landfill gas collection system and a landfill gas control system since 1987.

Landfills and landfill gas combustion equipment may also be subject to either the federal New Source Performance Standards (NSPS) for Municipal Solid Waste (MSW) Landfills or the Emission Guidelines (EG) for MSW Landfills. The federal NSPS for MSW Landfills (40 CFR Part 60, Subpart WWW) applies to landfills that have had a design capacity modification after May 30, 1991. The EG for MSW Landfills (40 CFR Part 60, Subpart Cc) applies to landfills that have had no design capacity modification since May 30, 1991 but that have accepted waste since November 8, 1987. In accordance with the definition of MSW Landfill in 40 CFR 60.751, the landfill includes the entire disposal facility in a contiguous area. As discussed in Section B, the 544-Acre Landfill and the Crittenden Landfill (which are both controlled by the City of Mountain View) are contiguous to the Vista Landfill (part of which is controlled by the City of Mountain View and part of which is controlled by Shoreline Amphitheatre). Therefore, the EG applicability criteria pertain to the entire Shoreline Disposal Facility (544 Acre, Crittenden, and Vista Landfills). The Shoreline Disposal Facility has had no design capacity modifications since May 30, 1991, but waste was accepted after November 8, 1987. Therefore the EG is applicable to this entire disposal facility.

The BAAQMD implemented the EG by amending Regulation 8, Rule 34 on October 6, 1999. Initially, Bay Area landfills were subject to the Federal Plan for MSW Landfills (40 CFR Part 62, Subpart GGG) until EPA incorporated the October 1999 amendments to Regulation 8, Rule 34 into the California State Plan for MSW Landfills (40 CFR § 62.1115). On September 20, 2001, EPA amended the California State Plan to include the BAAQMD's October 1999 amendments and amended the Federal Plan to remove Bay Area landfills from the Federal Plan, effective November 19, 2001. Therefore, BAAQMD Regulation 8, Rule 34, as amended on October 1999, is federally enforceable. In addition, the October 1999 amendments were adopted into the SIP, effective August 30, 2002.

In accordance with the EG, BAAQMD Regulation 8, Rule 34 requires large landfills (with a design capacity greater than or equal to 2.5 million Mg and greater than or equal to 2.5 million m³) to be equipped with landfill gas collection and control systems. The EG (40 CFR § 60.32c(c)) requires the owner or operator of a landfill meeting these design capacity criteria to obtain a Title V operating permit pursuant to 40 CFR, Part 70. The design capacity of the Shoreline Disposal Facility exceeds these design capacity applicability criteria. Accordingly, both the City of Mountain View (Facility # A2740) and Shoreline Amphitheatre (Facility # A2561) were required to submit applications for Title V permits by April 6, 2001. This permit includes all equipment operated by the City of Mountain View. Equipment operated by Shoreline Amphitheatre is covered in a separate permit for Facility #A2561.

Subject landfills and the associated collection and control systems were required to meet numerous operating, monitoring, and reporting requirements pursuant to Regulation 8, Rule 34 and the EG for MSW Landfills. These requirements are specified in detail in Section IV of the permit. Landfill operations and landfill gas combustion devices are also subject to numerous other BAAQMD regulations and permit conditions. Regulation 6 is not listed as a source-specific applicable requirement for the landfill (S-1), because the landfill is closed and will produce no particulate emissions due to waste deposition, cover material application, or refuse related vehicle traffic. All applicable requirements are described in Section IV of the permit.

The diesel engine is not subject to any federal requirements, but it is subject to several BAAQMD regulations and permit conditions. All applicable requirements are described in Section IV of the permit.

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.

The BAAQMD Compliance and Enforcement Division has conducted a review of compliance for the period of August 1, 2001 to July 31, 2002 and found no records of compliance problems at this facility. The compliance report is contained in Appendix A of this permit evaluation and statement of basis.

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.

While the District has authority to revise the existing permits, and is doing so here concomitantly with the Title V process, it also has authority to supplement the terms of existing permits through the Title V process itself. When necessary to meet Title V requirements, additional monitoring, record keeping, 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; all “underline” language will be retained.

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 will be revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

The District has reviewed and, where appropriate, revised or added new annual and daily throughput limits on sources to ensure compliance with District rules addressing preconstruction review, Regulation 2-1-301. For grandfathered sources (sources that existed prior to the District’s requirement for permits, which in this case are the landfill and the diesel engine), limits are being added to the existing permits pursuant to the authority in Regulation 2-1-403, which provides the District with authority to “impose any permit condition [it] deems reasonably necessary to insure compliance with federal or California law or District regulations.” Creating throughput limits for grandfathered sources is not required by either Part 70 or the District’s MFR rules. However, issuance of the Title V permit is an opportunity for the District to exercise authority under Regulation 2-1-403 by adding conditions to the District operating permit through a parallel process, that is, by revising the P/O concurrently with the Title V permit issuance. The District believes the addition of these throughput limits is authorized under Regulation 2-6-409.2.2, as these limits will help “assure compliance” with the District preconstruction review program.

The applicability of preconstruction review (Regulation 2-1-301) depends on whether there is a “modified source” as defined in District Regulation 2-1-234. Whether there is a modified source depends in part on whether there has been an “increase” in “emission level.” Regulation 2-1-234 defines what will be considered an emission level increase, and takes a somewhat different approach depending on whether a source has previously been permitted by the District. Sources that were modified or constructed since the District began issuing new source review permits generally will have permits that contain throughput limits, and these limits are reflected in the Title V permit. These limits have previously undergone District review, and are considered to be the legally binding “emission level” for purposes of Regulations 2-1-234.1 and 2-1-234.2. In contrast, for “grandfathered” sources that have not had preconstruction review, an “increase” in “emission level” is addressed in Regulation 2-1-234.3. A grandfathered source is not subject to preconstruction review unless its emission level increases above the highest of: 1) the design capacity of the source, 2) the capacity listed in a permit to operate, or 3) highest capacity demonstrated prior to March 2000. However, if the throughput capacity of a grandfathered

source is limited by upstream or downstream equipment (i.e., is “bottlenecked”), then the relaxing of that limitation (“debottlenecking”) is considered a modification.

In proposing throughput limits for grandfathered sources, the District has described the limits differently based on the factual support in the record. The limit may be a reporting threshold, in which case if the limit is exceeded and not reported, a permit violation has occurred. It may be a firm throughput limit, so that a violation occurs whenever the limit is exceeded. Or, it may be a Regulation 2-1-234.3 modification threshold, in which case exceedence of the limit triggers a requirement to obtain an Authority to Construct. Where the information in the record is indicative of a Regulation 2-1-234.3 threshold, but not definitive in that regard, the limit is structured as a reporting threshold, and as presumptively an emissions limit and a modification threshold. When the information in the record is definitive, the limit is structured as a firm throughput limit and a modification threshold. It would be redundant for a limit to function as both a reporting threshold and a throughput limit, and so the latter precludes the former.

As noted above for presumptive limits, exceedence of the limit is not per se a violation of the permit. *Failure to report an exceedence is a permit violation.* If an exceedence occurs, the facility has an opportunity to demonstrate that the throughput limit does not reflect the appropriate limit for purposes of Regulation 2-1-234.3. If the facility can demonstrate this, no enforcement action would follow, and the permit would be revised at the next opportunity. It also follows that compliance with these limits is not a “safe harbor” for the facility. If evidence clearly shows that a grandfathered source has undergone a “modification” as defined in Regulation 2-1-234.3, the District would consider that a preconstruction review-triggering event, regardless of compliance with the throughput limit in the Title V permit. There is no Title V “permit shield” associated with throughput limits for grandfathered sources.

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 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 that limits a source to the operations 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 pursuant to Regulation 2, Rule 2.
- TRMP: This term is used for a condition imposed by the APCO to ensure compliance with limits that arise from the District’s Toxic Risk Management Policy.

Parameter monitoring has been added for each abatement device. Additional monitoring has been added, where appropriate, to assure compliance with the applicable requirements.

The reasons for the changes to each condition are discussed below.

Condition # 16065 for: S-1, Landfill and Gas Collection System; A-3, Landfill Gas Flare; A-4, Landfill Gas Flare; and A-5, Landfill Gas Flare

The following parts were deleted from the original conditions for the flares.

- Part 1: This part was combined with the conditions for the landfill (see revised and renumbered Part 2 below).
- Part 2: Since Regulation 8-34-507 adequately describes the temperature monitor and recorder that is required for continuous temperature monitoring at the flares, these requirements do not need to be repeated in a permit condition. This part was deleted because it is not necessary.
- Part 4: This part describes the total hydrocarbon destruction efficiency limit for the flares, which was replaced with the Regulation 8-34-301.3 NMOC emission limits. This part was deleted because it is obsolete.
- Part 5: Since Regulations 8-34-508 and 8-34-501.10 adequately describe the gas flow meter and recorder that is required for continuous monitoring of gas flow to the control systems, these requirements do not need to be repeated in a permit condition. This part was deleted because it is not necessary.
- Part 8: The 8 ppmv limit for total chlorinated hydrocarbons in a flare stack should have been deleted when the District issued a limit of 48,000 ppb (48 ppmv) of vinyl chloride in a flare stack (see revised Part 11 below). This part is being deleted to correct this error.
- Part 10: Much of the record keeping requirements stated in Part 10 are also stated in Regulation 8-34-501 and are not necessary. Records that are necessary are described in the revised Part 15 below.

The following parts apply to both the landfill and the flares and have been either added or revised pursuant to Regulations 2-1-403 or 2-6-409.2.2.

- Part 1: Waste acceptance limits were added to define the capacity of the landfill, which is a grandfathered source. Since this landfill is closed, no daily waste acceptance is permitted. The total cumulative waste disposal limit and the design capacity limit pertain to regulation of VOC emissions from decomposing waste in the landfill. These limits were determined from a February 1998 letter from the City of Mountain View that describes the capacities of the entire Shoreline Disposal Facility (including Vista, Crittenden, and the 544 Acre Landfills). All limits in this part are proposed as firm throughput limits and modification thresholds, so that any change to these rates constitutes a modification of the landfill source as defined in Regulation 2-1-234.4 and is subject to the Authority to Construct requirements of Regulation 2-1-301.

- Part 2: This part identifies the landfill gas control devices that must be used to control the collected landfill gas. The microturbines (S-12 and S-13), which have been issued an Authority to Construct, were added to the description of approved control devices. Also, text was added to prohibit the intentional venting of raw untreated landfill gas.
- Part 3: This part clarifies the BAAQMD Regulation 8-34-301.1 requirement to operate the landfill gas collection system continuously by identifying specific actions that are prohibited. These actions prevent the collection system from being in continuous operation, as defined in BAAQMD Regulation 8-34-219. Minor revisions were made to the text of this part to improve readability.
- Part 4: This part identifies the landfill gas collection system components that are subject to BAAQMD Regulation 8-34-305 and that are required to be monitored monthly pursuant to BAAQMD Regulation 8-34-505. This part also identifies changes to the collection system that are subject to the Authority to Construct requirements of BAAQMD Regulation 2-1-301. Minor revisions were made to the text of this part to improve enforceability.
- Part 5a-b: The BAAQMD Regulation 8-34-305 wellhead limits were intended as guidelines for the most common types of collection system configurations. These guidelines indicate when there is a problem with the collection system, such as the presence of a subsurface fire or a damaged well. However, many landfill sites have at least a few wells with unique characteristics or unusual design issues that result in wellhead temperature, nitrogen, or oxygen levels that cannot conform to the guideline limits in Regulation 8-34-305. For example, perimeter wells (which are designed to prevent offsite migration of landfill gas) often have difficulty meeting the Regulation 8-34-305 limits, due to the shallowness of these wells and the poor gas quality present in the wells. Yet the high oxygen, nitrogen, and temperature levels are the normal operating state for these wells and not an indication of a problem with a particular well. In order to accommodate the many collection system designs that may arise, Regulation 8-34-305 allows the APCO to establish alternative wellhead limits on a case by case basis.

For this landfill site, the public has access to the golf course and park areas that have been constructed over much of the surface of the landfills. The landfill gas collection system at this site has many shallow wells and unusual collection system features that were designed to ensure public safety. Consequently, this site has many wellheads that cannot conform to the Regulation 8-34-305 guideline limits. The wells listed in Parts 5a and 5b include mainly shallow wells that have historically exhibited temperatures and/or oxygen contents that are higher than the Regulation 8-34-305 limits. The operator has investigated each of these wells and determined that the wells are not damaged and are functioning properly. Therefore, the APCO has determined that alternative wellhead limits are appropriate for these wells. This part identifies all the wells that are subject to alternative limits, states the alternative limits, and describes the monitoring required to demonstrate compliance with the alternative wellhead operating requirements.

- Part 5c: Another unusual gas collection system design feature at this site is the extensive use of concrete vaults surrounding the wellheads and monitoring ports. The vaults were constructed around the wellheads to prevent public access and tampering and to protect public health. These vaults are often located at or near the surface of the landfill and tend to collect and retain any landfill gas that leaks from a component to the inside of the vault or that migrates into the vault from other landfill areas. During inspections, it is often difficult to discern the source of the leak (component leak versus surface leak), which determines the applicable standard (Regulation 8-34-301.2 versus 8-34-303). In 1999, the District's Enforcement Division adopted a Policy describing a "Monitoring Protocol for Vaults", to further explain inspection procedures and the applicable requirements for various monitoring result patterns that have been encountered at these vaults. The Permit Holder and the District have been follow this Monitoring Protocol for Vaults since 1999. In their Collection and Control System Design Plan, the Permit Holder cited this monitoring protocol and requested to have the protocol added to their permit conditions to ensure consistency in the future. The 1999 Monitoring Protocol for Vaults is described in Part 5c.
- Part 6: This part was renumbered.
- Part 7: The minimum temperature limit was changed to a minimum temperature averaged over any three-hour period for consistency with the federal Emission Guidelines for MSW Landfills. This part incorporates the EG procedure for establishing a minimum temperature limit based on source test results. The District's TRMP requirement to maintain a minimum temperature of 1400 °F to ensure adequate destruction of toxic compounds was retained. These temperature limits also demonstrate on-going compliance with the NMOC destruction efficiency limits in Regulation 8-34-301.3. Therefore, the basis was corrected.
- Part 8: The gas flow rate limit identifies the combined capacity of the landfill gas flares and is used in conjunction with to NO_x and CO concentration limits to ensure that emissions do not exceed the daily and annual emission rates approved in the original permit applications for these flares (Application # 32626 for A-3 and Application # 1635 for A-4 and A-5). There are no hourly emission limits that apply to these flares. The new source review BACT trigger of 10 pounds of pollutant per highest day is the shortest time frame over which an emission rate is applicable. An averaging time of one day was added to the current cubic feet per minute flow rate limit to reflect that the implied emission limits (determined from gas flow rate and concentration limits) are daily emission limits. The gas flow rate limit of 4200 cfm, averaged over any calendar day, is the same as a gas flow rate limit of 6,048,000 cubic feet per day.
- Part 9: The NO_x emission rates in the permit applications for these flares are implied limits. For the MFR permit, explicit NO_x limits are necessary to show that the flare is operating properly and that the allowable emission rates have not been exceeded. These emission limits are derived below based on the maximum emission rate that was reported in the permit applications (0.13 pounds of NO_x per million BTU for A-3 and 0.06 pounds of NO_x per million BTU for A-4 and A-5). The landfill gas is

assumed to contain 55% methane with a heating value of 557 BTU/ft³ at 60 °F. (Definitions of the terms used below are contained in the glossary.)

$$\begin{aligned} & (557 \text{ BTU/ft}^3 \text{ LFG}) / (10^6 \text{ BTU/MM BTU}) / (5.1506 \text{ ft}^3 \text{ flue gas, dry, 0\% O}_2/\text{ft}^3 \text{ LFG}) / \\ & (3.521 \text{ ft}^3 \text{ flue gas, 15\% O}_2/1.0 \text{ ft}^3 \text{ flue gas, 0\% O}_2) / (46.01 \text{ pounds NO}_x/\text{lbmol}) * \\ & (379.5 \text{ ft}^3 \text{ NO}_x/\text{lbmol NO}_x) * (10^6 \text{ ppmv NO}_x / \text{ft}^3 \text{ NO}_x/\text{ft}^3 \text{ flue gas}) \\ & = 253 \text{ ppmv NO}_x \text{ at 15\% O}_2, \text{ dry per lb NO}_x/\text{MM BTU} \end{aligned}$$

$$(0.13 * 253) = 33 \text{ ppmv of NO}_x \text{ at 15\% O}_2, \text{ dry for A-3}$$

$$(0.06 * 253) = 15 \text{ ppmv of NO}_x \text{ at 15\% O}_2, \text{ dry for A-4 and A-5}$$

Part 10: The CO emission rates in the permit applications for these flares are implied limits. For the MFR permit, explicit CO limits are necessary in order to verify that the flares are operating properly and that the allowable emission rates have not been exceeded. The emission limits are derived below based on the maximum emission rate that was reported in the permit applications (0.05 pounds of CO per million BTU for A-3 and 0.2 pounds of CO per million BTU for A-4 and A-5). The landfill gas is assumed to contain 55% methane with a heating value of 557 BTU/ft³ at 60 °F (547 BTU/scf). (Definitions of the terms used below are contained in the glossary.)

$$\begin{aligned} & (557 \text{ BTU/ft}^3 \text{ LFG}) / (10^6 \text{ BTU/MM BTU}) / (5.1506 \text{ ft}^3 \text{ flue gas, dry, 0\% O}_2/\text{ft}^3 \text{ LFG}) / \\ & (3.521 \text{ ft}^3 \text{ flue gas, 15\% O}_2/1.0 \text{ ft}^3 \text{ flue gas, 0\% O}_2) / (28.01 \text{ pounds CO/lbmol}) * \\ & (379.5 \text{ ft}^3 \text{ CO/lbmol CO}) * (10^6 \text{ ppmv CO} / \text{ft}^3 \text{ CO}/\text{ft}^3 \text{ flue gas}) \\ & = 416 \text{ ppmv CO at 15\% O}_2, \text{ dry per lb CO/MM BTU} \end{aligned}$$

$$(0.05 * 416) = 21 \text{ ppmv of CO at 15\% O}_2, \text{ dry for A-3}$$

$$(0.20 * 416) = 83 \text{ ppmv of CO at 15\% O}_2, \text{ dry for A-4 and A-5}$$

Part 11: The vinyl chloride stack gas concentration limit for the flares was restated in units of ppmv and an asterisk was added to indicate that this limit is not federally enforceable.

Part 12: Landfill gas combustion equipment is subject to the BAAQMD Regulation 9-1-302 limit of no more than 300 ppmv of SO₂ in the exhaust (dry basis). Under theoretical combustion conditions, 300 ppmv of SO₂ in the exhaust is equal to 1319 ppmv of H₂S in low quality landfill gas (45% methane). This part explains that a landfill gas H₂S limit of 1300 ppmv will be used as a surrogate for demonstrating compliance with the Regulation 9-1-302 sulfur dioxide limit. Although the sulfur content of landfill gas can vary, District analyses of Bay Area landfill gas have shown no instances where the H₂S concentration has exceeded 400 ppmv. Therefore, quarterly monitoring of the sulfur content in the landfill gas is appropriate for demonstrating compliance with the landfill gas H₂S limit.

Worst Case SO₂ Concentration in Landfill Gas Flare Exhaust:

$$\begin{aligned} & (1300 \text{ ft}^3 \text{ H}_2\text{S}/10^6 \text{ ft}^3 \text{ LFG}) / (4.396 \text{ ft}^3 \text{ flue gas at 0\% O}_2/\text{ft}^3 \text{ LFG}) * (1 \text{ ft}^3 \text{ SO}_2/1 \text{ ft}^3 \text{ H}_2\text{S}) \\ & = 2.96 \text{ E-4 ft}^3 \text{ SO}_2/\text{ft}^3 \text{ flue gas at 0\% O}_2 \text{ dry} = 296 \text{ ppmv of SO}_2 \text{ at 0\% O}_2, \text{ dry} \end{aligned}$$

Typical SO₂ Concentration in Landfill Gas Flare Exhaust:

$$\begin{aligned} & (400 \text{ ft}^3 \text{ H}_2\text{S}/10^6 \text{ ft}^3 \text{ LFG}) / (4.396 \text{ ft}^3 \text{ flue gas at 0\% O}_2/\text{ft}^3 \text{ LFG}) * (1 \text{ ft}^3 \text{ SO}_2/1 \text{ ft}^3 \text{ H}_2\text{S}) \\ & = 0.91 \text{ E-4 ft}^3 \text{ SO}_2/\text{ft}^3 \text{ flue gas at 0\% O}_2 \text{ dry} = 91 \text{ ppmv of SO}_2 \text{ at 0\% O}_2, \text{ dry} \end{aligned}$$

- Part 13: The annual source test required by Regulation 8-34-412 is described in more detail in Part 13. In addition, annual source at the flare exhaust for NO_x, CO, and vinyl chloride was added to demonstrate compliance with the concentration limits for these pollutants.
- Part 14: An annual landfill gas characterization test was added to measure the amounts of specific toxic air contaminants that may be emitted from the site. This test is also required by Regulation 8-34-412.
- Part 15: Record keeping requirements were added to ensure compliance with applicable regulations and permit limits. This part replaces the previous record keeping requirements for the flares from Part 10 of the original flare conditions.
- Part 16: The MSW Landfill NESHAP (40 CFR, Part 63, Subpart AAAA) that was adopted by EPA on 1/16/03 requires landfill operators to submit semi-annual reports instead of the annual report required by Regulation 8-34-411. The effective date for this new reporting frequency is January 16, 2004. This permit condition was added in order to establish the semi-annual reporting frequency and to synchronize the reporting periods and submittal dates for this report with the semi-annual MFR monitoring reports that will be required by Section I.F. of the MFR Permit.

Condition # 19210 for: S-11, Diesel Engine for Emergency Standby Generator

- Part 1: This part incorrectly states that the diesel engine has no operating time limit on reliability related activities. However, Regulation 9-8-330.2 limits operating time for reliability related activities at engine to 100 hours per year. This error was corrected.
- Part 5: The record keeping requirements in part 5 were reworded to improve clarity. A requirement to maintain records of the vendor-certified sulfur content for all fuels burned in S-11 was added to demonstrate compliance with the Regulation 9-1-304 fuel sulfur content limit (0.5% sulfur by weight).

Condition # 20297 for: S-12, Microturbine and S-13, Microturbine

Part 1: NO_x and CO emission rate limits for S-12 and S-13 were stated in Parts 2 and 3. Concentration limits were provided as an alternative means for demonstrating compliance with the emission limits. However, concentration limits should be used in conjunction with throughput limits. Therefore, landfill gas throughput limits were added in this part to clearly identify the capacity of these sources and to ensure that the NO_x and CO emission limits will not be exceeded. Landfill gas flow rate monitoring requirements were added to this part to ensure compliance with the throughput limits.

Parts 2-4 These parts were renumbered.

Parts 5, 7, and 8 These parts were renumbered, and the bases were corrected.

Part 6. This part was renumbered, and the basis was corrected. A requirement to determine the heat input rate during the source test was added to Part 6a to verify assumptions used to calculate maximum landfill gas flow rate and maximum NO_x, CO, and NMOC emission rates for S-12 and S-13.

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 tables below contain only the limits for which there is no monitoring or inadequate 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 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) the 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) 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. When 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.

NO_x Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
A-3 Landfill Gas Flare	BAAQMD Condition # 16065, Part 9a	≤ 33 ppmv of NO _x , corrected to 15% O ₂ , dry	Annual Source Test
A-4 Landfill Gas Flare	BAAQMD Condition # 16065, Part 9b	≤ 15 ppmv of NO _x , corrected to 15% O ₂ , dry	Annual Source Test
A-5 Landfill Gas Flare	BAAQMD Condition # 16065, Part 9c	≤ 15 ppmv of NO _x , corrected to 15% O ₂ , dry	Annual Source Test

NO_x Discussion:

The District has imposed an annual source test requirement for NO_x limits at landfill gas fired flares in other Title V permits. Annual source testing is a standard monitoring method for engines that are used for control of landfill gas. Flares control a comparable quantity of landfill gas and have much lower emissions. Therefore annual source testing is adequate.

CO Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
A-3 Landfill Gas Flare	BAAQMD Condition # 16065, Part 10a	≤ 21 ppmv of CO, corrected to 15% O ₂ , dry	Annual Source Test
A-4 Landfill Gas Flare	BAAQMD Condition # 16065, Part 10b	≤ 83 ppmv of CO, corrected to 15% O ₂ , dry	Annual Source Test
A-5 Landfill Gas Flare	BAAQMD Condition # 16065, Part 10c	≤ 83 ppmv of CO, corrected to 15% O ₂ , dry	Annual Source Test

CO Discussion:

The District has imposed an annual source test requirement for CO limits at landfill gas fired flares in other Title V permits. Annual source testing is a standard monitoring method for engines that are used for control of landfill gas. Flares control a comparable quantity of landfill gas and have much lower emissions. Therefore annual source testing is adequate.

SO₂ Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-11 Diesel Engine for Emergency Standby Generator	BAAQMD 9-1-301	Property Line Ground Level SO ₂ Limits: ≤ 0.5 ppm for 3 minutes and ≤ 0.25 ppm for 60 min. and ≤ 0.05 ppm for 24 hours	None
S-12 and S-13 Microturbines	BAAQMD 9-1-301	Property Line Ground Level SO ₂ Limits: ≤ 0.5 ppm for 3 minutes and ≤ 0.25 ppm for 60 min. and ≤ 0.05 ppm for 24 hours	None
A-3, A-4, and A-5 Landfill Gas Flares	BAAQMD 9-1-301	Property Line Ground Level SO ₂ Limits: ≤ 0.5 ppm for 3 minutes and ≤ 0.25 ppm for 60 min. and ≤ 0.05 ppm for 24 hours	None
S-12 and S-13 Microturbines	BAAQMD 9-1-302	Gas Stream SO ₂ Limit: ≤ 300 ppm (dry)	Quarterly Sulfur Analysis of Landfill Gas

SO₂ Sources

# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
A-3, A-4, and A-5 Landfill Gas Flares	BAAQMD 9-1-302	Gas Stream SO ₂ Limit: ≤ 300 ppm (dry)	Quarterly Sulfur Analysis of Landfill Gas
S-11 Diesel Engine for Emergency Standby Generator	BAAQMD 9-1-304	Fuel Sulfur Content Limit: ≤ 0.5% sulfur by weight	Records
S-1 Landfill and Gas Collection System	BAAQMD Condition # 16065, Part 12	Landfill Gas Sulfur Content Limit: ≤ 1300 ppmv of TRS as H ₂ S	Quarterly Sulfur Analysis of Landfill Gas

SO₂ Discussion:

Maximum potential sulfur dioxide (SO₂) emissions are calculated below for all sources followed by a discussion of each applicable limit related to sulfur dioxide emissions. Definitions of the terms used below are contained in the glossary.

Potential to Emit Calculations for S-11 Diesel Engine for Standby Emergency Generator:

Maximum potential SO₂ emissions are based on the maximum fuel sulfur content of 0.5% sulfur by weight from BAAQMD Regulation 9-1-302.

$$(10.6 \text{ gallons fuel/hour}) * (7.1 \text{ pounds fuel/gallon fuel}) * (0.005 \text{ pounds sulfur/pound fuel}) / (32.06 \text{ pounds sulfur/lbmol sulfur}) * (1 \text{ lbmol SO}_2/\text{lbmol sulfur}) * (64.06 \text{ pounds SO}_2/\text{lbmol SO}_2) * (24 \text{ hours/day}) * (365 \text{ days/year}) / (2000 \text{ pounds SO}_2/\text{ton SO}_2) = 3.29 \text{ tons SO}_2/\text{year}$$

Standby generators typically operate less than 500 hours/year. In addition, this engine is expected to use diesel fuel that meets the more stringent CARB fuel sulfur content limit of 0.05% by weight. Therefore, emissions from this engine are not expected to exceed 0.02 tons of SO₂ per year.

Potential to Emit Calculations for the Microturbines (S-12 and S-13):

$$(76,200 \text{ ft}^3/\text{day}) * (365 \text{ days/year}) * (1300 \text{ ft}^3 \text{ H}_2\text{S}/10^6 \text{ ft}^3 \text{ LFG}) / (379.5 \text{ ft}^3 \text{ H}_2\text{S}/\text{lbmol H}_2\text{S}) * (1 \text{ lbmol SO}_2/1 \text{ lbmol H}_2\text{S}) * (64.06 \text{ pounds SO}_2/\text{lbmol SO}_2) / (2000 \text{ pounds SO}_2/\text{ton SO}_2) = 3.05 \text{ tons SO}_2/\text{year each or } 6.10 \text{ tons SO}_2/\text{year (total for both microturbines)}$$

Since Bay Area landfill gas has been found to contain no more than 400 ppmv of TRS (expressed as H₂S), total sulfur dioxide emissions from the two microturbines are not expected to exceed 0.94 tons of SO₂ per year.

Potential to Emit Calculations for the Flares (A-3, A-4, and A-5):

$$(4200 \text{ ft}^3/\text{min}) * (60 \text{ min/hour}) * (24 \text{ hours/day}) * (365 \text{ days/year}) * (1300 \text{ ft}^3 \text{ H}_2\text{S}/10^6 \text{ ft}^3 \text{ LFG}) / (379.5 \text{ ft}^3 \text{ H}_2\text{S}/\text{lbmol H}_2\text{S}) * (1 \text{ lbmol SO}_2/1 \text{ lbmol H}_2\text{S}) * (64.06 \text{ pounds SO}_2/\text{lbmol SO}_2) / (2000 \text{ pounds SO}_2/\text{ton SO}_2) = 242.21 \text{ tons SO}_2/\text{year (total for all three flares)}$$

Since Bay Area landfill gas been found to contain no more than 400 ppmv of TRS (expressed as H₂S), sulfur dioxide emissions are not expected to exceed 74.53 tons of SO₂ per year.

BAAQMD Regulation 9-1-301: As discussed below for BAAQMD Regulations 9-1-302 and 9-1-304, this facility will be subject to federally enforceable limits, which will ensure compliance with the Regulation 9-1-302 gas stream emission limit of 300 ppmv of SO₂ in the exhaust from the flares and microturbines and with the Regulation 9-1-304 fuel sulfur content limit of 0.5% sulfur by weight. Sources complying with the Regulation 9-1-302 or 9-1-304 limits are not expected to result in an excess of the ground level concentration limits listed in Regulation 9-1-301. Monitoring for ground level SO₂ concentrations in addition to the proposed landfill gas monitoring and record keeping requirements would not be appropriate.

BAAQMD Regulation 9-1-302: This facility will be subject to a federally enforceable limit of 1300 ppmv of TRS in the landfill gas (BAAQMD Condition # 16065, Part 12). This limit will ensure compliance with the BAAQMD Regulation 9-1-302 emission limit of 300 ppmv of SO₂ in the engine exhaust, because the air required for combustion dilutes the concentration of sulfur dioxide in the exhaust compared to the concentration of sulfur in the landfill gas. Staff has proposed permit conditions that require the landfill gas to be monitored for TRS content (measured as H₂S using a draeger tube on a quarterly basis) to ensure compliance with the landfill gas concentration limit of 1300 ppmv of TRS. District analyses have not found any Bay Area landfill gas containing more than 400 ppmv of TRS, which is less than a third of the allowable emission rate. Since the margin of compliance is high, quarterly monitoring is appropriate for demonstrating compliance with this limit.

BAAQMD Regulation 9-1-304: In accordance with BAAQMD Condition # 19210, Part 5d, this facility is required to maintain records of vendor-certified sulfur content for all fuels burned in the S-11 Diesel Engine for Emergency Standby Generator. The use of vendor certification is a standard method of monitoring for compliance with a liquid fuel sulfur content limit.

BAAQMD Condition # 16065, Part 12: In accordance with BAAQMD Condition # 16065, Part 12, this facility will be required to monitor for TRS content (measured as H₂S) in the landfill gas on a quarterly basis using a draeger tube. The use of a draeger tube is a standard method of monitoring for TRS content in landfill gas.

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-12 and S-13 Microturbines	BAAQMD 6-301	Ringelmann 1.0	None
A-3, A-4, and A-5 Landfill Gas Flares	BAAQMD 6-301	Ringelmann 1.0	None
S-11 Diesel Engine for Emergency Standby Generator	BAAQMD 6-303	Ringelmann 2.0	None

PM Sources

# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-11 Diesel Engine for Emergency Standby Generator	BAAQMD 6-310	0.15 gr/dscf	None
S-12 and S-13 Microturbines	BAAQMD 6-310	0.15 gr/dscf	None
A-3, A-4, and A-5 Landfill Gas Flares	BAAQMD 6-310	0.15 gr/dscf	None

PM Discussion:

Potential to Emit Calculations for S-11 Diesel Engine for Standby Emergency Generator:

The maximum potential PM₁₀ emissions from S-11 are based on an AP-42 emission factor: 0.0022 pounds/bhp-hour and continuous operation.

$$(0.0022 \text{ pounds PM}_{10}/\text{bhp-hour}) * (207 \text{ bhp}) * (24 \text{ hours/day}) * (365 \text{ days/year}) / (2000 \text{ pounds/ton}) = 1.99 \text{ tons/year of PM}_{10}$$

Since standby generators typically operate less than 500 hours/year, actual emissions are expected to be less than 0.12 tons/year of PM₁₀.

Potential to Emit Calculations for Microturbines (S-12 and S-13):

The maximum potential PM₁₀ emissions from the microturbines are based on the vendor specified emission rate of 0.027 pounds per MM BTU, the maximum heat input rate of 1.27 MM BTU/hour per microturbine, and continuous operation.

$$(2 \text{ turbines}) * (1.27 \text{ MM BTU/hour/turbine}) * (0.027 \text{ pounds PM}_{10}/\text{MM BTU}) * (24 \text{ hours/day}) * (365 \text{ days/year}) / (2000 \text{ pounds/ton}) = 0.30 \text{ tons PM}_{10}/\text{year (total for S-12 and S-13)}$$

Potential to Emit Calculations for Flares (A-3, A-4, and A-5):

The maximum potential PM₁₀ emissions from the flares are based on an AP-42 emission factor: 17 pounds/MM dscf methane (CH₄), a maximum landfill gas methane content of 55%, the maximum permitted landfill gas flow rate to the flares (4200 cfm), and continuous operation.

$$(4200 \text{ ft}^3 \text{ LFG/min}) * (0.55 \text{ ft}^3 \text{ CH}_4/\text{ft}^3 \text{ LFG}) * (17 \text{ pounds PM}_{10}/10^6 \text{ ft}^3 \text{ CH}_4) * (60 \text{ min/hour}) * (24 \text{ hours/day}) * (365 \text{ days/year}) / (2000 \text{ pounds/ton}) = 10.32 \text{ tons PM}_{10}/\text{year (total for all flares)}$$

BAAQMD Regulation 6-301 for Flares and Microturbines: Visible particulate emissions are normally not associated with combustion of gaseous fuels, such as natural gas or landfill gas. Since violations of Ringelmann 1.0 limit are not expected, periodic monitoring for the Ringelmann limit would not be appropriate for the flares or microturbines.

BAAQMD Regulation 6-303 for S-11 Diesel Engine: This small diesel fired engine is used to provide power during a power failure. It is operated only a few hours per month for reliability

testing and has historically been operated fewer than 500 hours/year. Operation is infrequent and mainly unpredictable. Such engines generally are able to meet a Ringelmann No. 2 limit. Since the likelihood of non-compliance is low, maximum potential emissions are not substantial (<2 tons/year of PM₁₀), and actual emissions are expected to be insignificant (<0.2 tons/year of PM₁₀), periodic monitoring for the Ringelmann limit would not be appropriate for this engine.

BAAQMD Regulation 6-310 for S-11 Diesel Engine: Regulation 6-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Using the AP-42 emission factor and diesel oil data, a typical diesel oil flue gas production rate of 9190 dscf/MM BTU at 0% oxygen, and typical flue gas oxygen content of 15% O₂, the particulate grain loading in the engine exhaust is expected to be less than 0.07 grains/dscf at 15% O₂.

$$(0.0022 \text{ pounds PM}_{10}/\text{bhp-hour}) * (207 \text{ bhp}) * (7000 \text{ grains/pound}) / (10.6 \text{ gallons/hour}) / (7.1 \text{ pounds/gallon}) / (0.0193 \text{ MM BTU/pound}) / (9190 \text{ dscf/MM BTU}) * (20.9-15) / (20.9-0) = 0.0674 \text{ grains/dscf flue gas, dry, 15\% O}_2$$

The compliance margin with the Regulation 6-310 limit is about 2:1. Periodic monitoring for compliance this limit would not be appropriate for S-11, because particulate emissions are low and source testing for PM emissions from standby engines is difficult and costly.

BAAQMD Regulation 6-310 for Microturbines: Regulation 6-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Using the vendor's emission factor of 0.027 pounds/MM BTU and typical landfill gas data (55% methane), the particulate grain loading in a microturbine exhaust stream will be 0.02 grains/dscf at 0% O₂.

$$(0.027 \text{ pounds PM}_{10}/\text{MM BTU}) / (9423 \text{ dscf flue gas at 0\% O}_2/\text{MM BTU}) * (7000 \text{ grains/pound}) = 0.0201 \text{ grains/dscf at 0\% O}_2$$

The grain loading limit is far above any expected PM emissions with a compliance ratio (limit/emissions) of more than 7:1. It would therefore not be appropriate to add periodic monitoring for this standard.

BAAQMD Regulation 6-310 for Flares: Regulation 6-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Using the AP-42 emission factor for landfill gas combustion in a flare (17 pounds PM₁₀/MM ft³ CH₄) and the methane flue gas factor for theoretical combustion (8.55 dscf of flue gas at 0% O₂ per dscf of methane), the particulate grain loading in a flare exhaust will be less than 0.02 grains/dscf at 0% O₂.

$$(17 \text{ pounds PM}_{10}/10^6 \text{ ft}^3 \text{ CH}_4) * (7000 \text{ grains/pound}) / (8.55 \text{ dscf flue gas at 0\% O}_2/\text{ft}^3 \text{ CH}_4) = 0.0139 \text{ grains/dscf at 0\% O}_2$$

The grain loading limit is far above any expected PM emissions with a compliance ratio (limit/emissions) of more than 10:1. It would therefore not be appropriate to add periodic monitoring for this standard.

H₂S Sources

S# & Description	Emission Limit Citation	Emission Limit (Not Federally Enforceable)	Monitoring
S-1 Landfill and Gas Collection System	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
S-12 and S-13 Microturbines	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
A-3, A-4, and A-5 Landfill Gas Flares	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

Hydrogen Sulfide (H₂S) Discussion:

BAAQMD Regulation 9-2-301: Hydrogen sulfide can be detected by its odor at concentrations as low as 0.0005 ppmv and is generally identified by its characteristic rotten egg smell at a concentration of 0.005 ppmv or less. Therefore, H₂S emissions are typically discovered by smell well before the concentration approaches the lowest Regulation 9-2-301 emission limit of 0.03 ppmv. The District rarely ever receives complaints about hydrogen sulfide odors from Bay Area landfills and has never received any complaints about hydrogen sulfide odors from this facility. Since H₂S odors have not been detected at this facility, the concentration of H₂S at the property line is expected to be well below the Regulation 9-2-301 limits. Furthermore, the maximum expected H₂S emissions are not significant (less than 7 tons/year) and the BAAQMD Regulation 9-2-301 emission limits are not federally enforceable. Monitoring for ground level H₂S concentrations would not be appropriate when no H₂S odor problem exists.

Other Limits

S# & Description	Limit Citation	Federally Enforceable Limit	Monitoring
S-1 Landfill and Gas Collection System	BAAQMD Condition # 16065, Part 5b	Landfill Gas Concentration Limits (at main header): ≤ 5% O ₂ and ≥ 35% CH ₄	Monthly Analysis of Landfill Gas
S-12 and S-13 Microturbines	BAAQMD Condition # 20297, Part 1	Landfill Gas Throughput (to each microturbine): ≤ 76,200 ft ³ per day	Gas Flow Meter and Records

Other Limits

S# & Description	Limit Citation	Non-Federally Enforceable Limit	Monitoring
A-3, A-4, and A-5 Landfill Gas Flares	BAAQMD Condition # 16065, Part 11	Vinyl Chloride Limit (in any flare stack): ≤ 48 ppmv	Annual Source Test

Other Limits Discussion:

BAAQMD Condition # 16065, Part 5b: These landfill gas concentration limits are APCO-approved alternative limits that replace the nitrogen or oxygen concentration limits in Regulation 8-34-305 for the wells listed in Part 5b (mainly perimeter wells). Analyzing the landfill gas is a standard method for determining oxygen and methane contents in landfill gas. Monthly monitoring was chosen for consistency with the monthly wellhead monitoring required by Regulation 8-34-505.

BAAQMD Condition # 20297, Part 1: The use of a gas flow meter and records is a standard method for monitoring landfill gas throughput rates at turbines.

BAAQMD Condition # 16065, Part 11: This limit is not federally enforceable. Therefore, no additional monitoring is required pursuant to Title V. However, the additional analysis for vinyl chloride during the annual source required by Condition # 16065, Part 13 is not expected to be overly burdensome. Therefore, annual source test has been proposed for demonstrating compliance with this limit.

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 VI of the permit.

IX. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in an MFR permit explaining that specific federally enforceable regulations and standards are not applicable to a source or group of sources, or (2) A provision in an MFR 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, record keeping, 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 no permit shields. This permit has no streamlining. The applicant did not request any permit shields or streamlining.

D. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility.

E. Compliance Status:

A July 31, 2002 office memorandum, from the Director of Compliance and Enforcement to the Director of Permit Services, presents a review of the compliance record of the City of Mountain View (Site #A2740). The Compliance and Enforcement Division staff has reviewed the records for Site #A2740 for the period between August 1, 2001 through July 31, 2002. This review was initiated as part of the District evaluation of an application by the City of Mountain View for a Title V permit. During the review period:

- There were no Notices of Violation issued during this review period.
- The District did not receive any complaints.
- There were no monitor excesses or equipment breakdowns reported or documented by District staff.
- The facility is not operating under a Variance or an Order for Abatement from the District's Hearing Board.

The owner initially certified that all equipment was operating in compliance on April 6, 2001. The owner subsequently certified that all equipment was operating in compliance on March 24, 2003. No non-compliance issues have been identified to date.

F. Differences between the Application and the Proposed Permit:

The Title V permit application was originally submitted April 6, 2001 and is the basis for the proposed Title V permit. The Landfill and Gas Collection System (S-1), Landfill Gas Flares (A-3, A-4, and A-5), and all requirements that were applicable to this equipment at the time the application was submitted were described in the City's application. After the application was submitted, EPA amended the California State Plan for MSW Landfills (40 CFR § 62.1115) and the Federal Plan for MSW Landfills (40 CFR Part 62, Subpart GGG). These amendments added the District's October 6, 1999 amendments of Regulation 8, Rule 34 to the California State Plan and deleted Bay Area landfills from the Federal Plan, effective until November 19, 2001. Consequently, 40 CFR § 62.1115 has been included in the proposed permit, while 40 CFR Part 62, Subpart GGG has not been included in the proposed permit. In addition, EPA adopted the

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NESHAP for MSW Landfills (40 CFR Part 63, Subpart AAAAA) on January 16, 2003. The NESHAP requirements (Subparts A and AAAAA) have been included in the proposed permit, but these requirements are not applicable until January 16, 2004.

The Diesel Engine for an Emergency Standby Generator (S-11) was listed in the application under exempt equipment. This engine was previously exempt from District permit requirements pursuant to BAAQMD Regulation 2-1-114.2.3 (as amended on May 17, 2000), but the engine lost its exemption status when BAAQMD Regulation 2, Rule 1 was amended on August 1, 2001. The City of Mountain View submitted Permit Application # 4920 for this engine. The District issued a Permit to Operate for this engine on May 9, 2002. All applicable requirements for this engine are described in the proposed Title V permit.

The City of Mountain View submitted Permit Application # 6697 for two Microturbines (S-12 and S-13) on November 27, 2002. The District issued an Authority to Construct for S-12 and S-13 on January 24, 2003. Although this equipment has not been installed yet, all applicable requirements are described in the proposed Title V permit.

In this Permit, the District is proposing amendments to Conditions # 16065, # 19210, and # 20297. The proposed revisions are described in detail in Section C.VI. of this report.

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APPENDIX A
BAAQMD COMPLIANCE REPORT

APPENDIX B
GLOSSARY

ACT

Federal Clean Air Act

APCO

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

ARB

Air Resources Board

BAAQMD

Bay Area Air Quality Management District

BACT

Best Available Control Technology

Basis

The underlying authority which allows the District to impose requirements.

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)

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 CH₄

Methane

CO

Carbon Monoxide

CT

Combustion Zone Temperature

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.

District

The Bay Area Air Quality Management District

EG

Emission Guidelines

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.

H₂S or H₂S

Hydrogen Sulfide

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.

HHV

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

LFG

Landfill gas

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.

MSW

Municipal solid waste

MW

Molecular weight

N2 or N₂

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)

NO_x or NO_x

Oxides of nitrogen.

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 O₂

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, NO_x, PM₁₀, and SO₂.

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 PM₁₀

Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 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.

RMP

Risk Management Plan

S

Sulfur

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 SO₂

Sulfur dioxide

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.

THC

Total Hydrocarbons (NMHC + Methane)

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

TSP

Total Suspended Particulate

VOC

Volatile Organic Compounds

Symbols:

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

Units of Measure:

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
lb	=	pound
lbmol	=	pound-mole
in	=	inches
m ²	=	square meter
m ³	=	cubic meters
min	=	minute
mm	=	million
MM	=	million
MM BTU	=	million BTU
MMcf	=	million cubic feet
Mg	=	mega grams
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