

**Bay Area Air Quality Management District**

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**Permit Evaluation  
and  
Statement of Basis  
for  
MAJOR FACILITY REVIEW PERMIT  
REOPENING, ADMINISTRATIVE AMENDMENTS,  
AND MINOR REVISIONS**

for  
**TriCities Waste Management  
Facility # A2246**

**Facility Address:**  
7010 Auto Mall Parkway  
Fremont, CA 94538

**Mailing Address:**  
7010 Auto Mall Parkway  
Fremont, CA 94538

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## **Title V Statement of Basis for Reopening, Administrative Amendments, and Minor Revisions**

### **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 New Source Performance Standards (NSPS) 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 mega grams 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 this NSPS 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. 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.

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 number that consists of a letter and a 4-digit number. This facility number is also considered to be the identifier for the permit.

This facility received its initial Title V permit on November 28, 2001 with an expiration date of October 31, 2006. The main purpose of this action is to reopen the permit to add the requirements related to the NESHAP for Municipal Solid Waste Landfills (40 CFR 63, Subpart AAAA) that was promulgated on January 16, 2003. Reopening this permit is required by Regulation 2, Rule 6 and by EPA's Title V regulations, because the expiration date for the permit is more than three years from the date of promulgation of the standard. This action will also make administrative amendments and minor revisions in order to: (a) update contact information and collection system descriptions based on facility requests, (b) update citations and dates based on SIP approvals and other regulatory changes, (c) update standard sections of the permit that have changed since the permit was initially issued, (d) correct errors, and (e) clarify permit language.

Reopening a permit requires the same process as initial issuance per BAAQMD Regulation 2-6-415. The proposed permit shows all changes to the permit in strikeout/underline format.

## **B. Facility Description**

TriCities Waste Management owns and operates the TriCities Recycling and Disposal Facility (Site # A2246) located in Fremont, CA. The permitted property encompasses about 225 acres. Of the total site area, 115 acres are permitted for solid waste (MSW) disposal in a Class II/III landfill. This facility also includes a landfill gas flare, wood waste recycling operations, and a parts cleaning unit.

The S-1 Landfill has been accepting waste since 1968. The site currently accepts non-hazardous municipal solid waste, green waste, and some designated wastes such as petroleum-contaminated soils. In May 1994, the landfill was issued a revised Solid Waste Facility Permit that approved an increase to the design capacity of the landfill. In accordance with 40 CFR § 60.751, this 1994 design capacity expansion is considered a modification of the landfill. Therefore, the landfill is subject to the NSPS for MSW Landfills (40 CFR, Part 60, Subpart WWW). The landfill now has a maximum permitted capacity of 19.271 million cubic yards (about 13.49 million tons) and accepts a maximum of 2628 tons/day of refuse. The landfill has 10.9 million tons of refuse in place as of October 2003 and is expected to reach full capacity in 2005.

The landfill is equipped with an active continuously operated landfill gas collection system. Currently, all collected landfill gas is burned in the A-2 Landfill Gas Flare. A-2 is an enclosed ground flare with a maximum capacity of 41.8 MM BTU/hour or about 1375 scfm of landfill gas.

The wood waste recycling operations include the S-5 Wood Waste Stockpiles with particulate emissions controlled by the A-5 Water Truck and the S-9 Portable Diesel Engine.

Four diesel-fired engines (S-14, S-15, S-16, and S-17) were issued Permits to Operate in November 2003 due to a loss of exemption from District permit requirements (Permit Application # 8278). These engines will be added to the Title V permit in a separate permit action from this reopening and modification. All other currently permitted operations are included in this proposed MFR Permit revision.

TriCities has submitted permit application packages for a flare replacement project and for new landfill gas fired internal combustion engines. If approved, these projects will be discussed in future MFR permit revisions.

The main source of air emissions at this facility is the S-1 Landfill. This active landfill generates significant fugitive particulate matter emissions due to waste disposal activities, vehicle traffic, cover material handling operations, and wind erosion. In addition, the waste decomposition process generates landfill gas. Landfill gas 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 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 currently includes the A-2 Landfill Gas Flare. All collected landfill gas is vented to this flare. TriCities has requested to replace this flare with a larger flare. This request is still under evaluation by the District. The flare destroys most of the methane, organic compounds, sulfur compounds, and HAPs in the landfill gas, but also produces secondary combustion pollutants including: nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), particulate matter (PM<sub>10</sub>), formaldehyde, and hydrogen chloride.

The wood waste recycling operations are additional sources of particulate matter emissions. The diesel fired internal combustion engines produce combustion emissions including NO<sub>x</sub>, CO, POC, SO<sub>2</sub>, PM<sub>10</sub>, and HAPs. The parts cleaning operation uses a low volatility solvent to equipment parts needing maintenance or repair.

### **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.

#### Changes on Title Page:

The facility requested corrections to the responsible official and facility contact information (see Application # 8916). The name of the APCO was also corrected to reflect staff changes at the District.

### **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.

Changes to Permit:

The dates of adoption of the rules listed in Standard Condition I.A.1 have been updated. Standard text was added to Condition I.B to describe the application shield for renewal permits in Regulation 2-6-407.

**II. Equipment**

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

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

Significant sources are those sources that have a potential to emit of more than 2 tons of a “regulated air pollutant,” as defined in BAAQMD Rule 2-6-222, per year or 400 pounds of a “hazardous air pollutant,” as defined in BAAQMD Rule 2-6-210, per year.

All abatement (control) devices that control permitted or significant sources are listed. Each abatement device is identified by an A and a number (e.g., A24). If a source is also an abatement device, such as when an engine controls VOC emissions, it will have an “S” 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 this table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-403.

Changes to Permit:

The number of vertical wells in the continuously operated collection system is being corrected in Table II-A. The current MFR permit for this site allows up to 55 vertical wells but only 34 wells were ever installed. In July 2002, the District approved an Authority to Construct pursuant to Application # 3515 to replace the existing 34 wells with new wells and to add up to 10 additional wells for a maximum total of 44 wells. The evaluation report for this application is attached in Appendix B. From the facility’s November 2003 Amended and Restated Gas Collection and Control System Design Plan, the number of continuously operating landfill gas collection system components is currently 26 vertical wells. This permit revision will correct the collection system description by changing the number of vertical wells from 55 to 26. Permit condition revisions will clarify that the facility has an Authority to Construct for 18 additional wells.

In Table II-B, the description of the A-2 Landfill Gas Flare is being expanded by listing the materials that are burned in this flare (landfill gas and propane during start-up) and the maximum firing rate (41.8 MM BTU/hour). Text in the Applicable Requirements and Operating Parameters columns was added to reference the appropriate tables for the full list of requirements. The Limit or Efficiency column was corrected by deleting an obsolete limit.

### **III. Generally Applicable Requirements**

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources, portable equipment, and temporary sources 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 Rule 2-6-239.

#### Changes to Permit:

The language has been amended to say that the Generally Applicable Requirements table may also contain requirements that apply to temporary sources. The location of the SIP requirements was corrected by referring to EPA's web site.

The adoption dates of the rules have been updated.

New rules have been added to this section because these rules could be generally applicable or apply to unpermitted or temporary sources.

### **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)
- 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 TriCities Landfill (S-1) be controlled by an active landfill gas collection system and a landfill gas control system since 1987. The current landfill gas control system includes the A-2 Landfill Gas Flare.

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. As discussed previously, the 1994 design capacity increase to the landfill at this site was considered a modification pursuant to 40 CFR § 60.751. Therefore, the S-1 Landfill is subject to this NSPS (40 CFR, Part 60, Subpart WWW). The design capacity of the landfill is now 19.271 million cubic yards (14.734 million m<sup>3</sup>) and about 13.5 million tons (12.25 million Mg) of waste.

In accordance with 40 CFR, Part 60, Subpart WWW and BAAQMD Regulation 8, Rule 34, large landfills (with a design capacity greater than or equal to 2.5 million Mg and greater than or equal to 2.5 million m<sup>3</sup>) must be equipped with landfill gas collection and control systems. Subject landfills and the associated collection and control systems were required to meet numerous operating, monitoring, and reporting requirements pursuant to Subpart WWW and Regulation 8, Rule 34. 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 listed as a source-specific applicable requirement for the landfill (S-1), because the landfill is operating and will produce particulate emissions due to waste deposition, cover material application, and vehicle traffic. All applicable requirements are described in Section IV of the permit.

The NESHAP for Municipal Solid Waste Landfills (40 CFR 63, Subpart AAAA) was adopted in November 2002 with an effective date of January 16, 2003. Any landfills that are subject to the MSW Landfill NSPS or Emission Guidelines landfill gas collection and control requirements are also subject to this NESHAP. For landfills subject to the NESHAP at the date of adoption, the requirements became effective on January 16, 2004. This NESHAP did not add any new control



requirements, but it did require the preparation of a Startup, Shutdown, Malfunction Plan (to be retained on-site at all times) and added new reporting requirements. These requirements were added to Section IV of the permit.

None of the other sources at this facility are subject to any federal requirements. However, these sources are subject to several BAAQMD regulations and permit conditions. All applicable requirements are described in Section IV of the permit.

### Changes to Permit

The location of the SIP requirements was corrected.

#### Table IV-A:

- BAAQMD Regulation 1 was replaced with the current version of BAAQMD Regulation 1 and SIP Regulation 1.
- Regulation 6-310, which applies to the A-2 Landfill Gas Flare only, was missing and was added.
- Several Regulation 8, Rule 34 requirements were deleted, because these requirements are now obsolete. BAAQMD Regulations 8-34-304.4, 8-34-408.2, and 8-34-501.3 were added because these applicable requirements were missing.
- BAAQMD Regulation 8, Rule 40 was adopted into the SIP and revisions were made accordingly. In addition, Regulations 8-40-116 and 117 were moved to Table III, because these limits are not on-going requirements. Instead, these limits apply to isolated or unanticipated aeration events involving very small volumes of soil or accidental spillage of organic solvents.
- Text was added to clarify that Regulation 9, Rule 1 applies to the A-2 Flare only.
- For the NSPS requirements, the flare NMOC and temperature monitoring requirements (40 CFR 60.752(b)(2)(iii)(B), 656(b)(1-2), 758(b)(2)(i-ii), and 758(c)(1)(i)) were missing and were added.
- The new NESHAP requirements (40 CFR 63, Subpart AAAA), the general NESHAP requirements (40 CFR 63, Subpart A), and a reporting requirement related to this NESHAP (Condition #8366, Part 17) were added.
- Editorial revisions were made to the bases for several permit conditions (Condition # 8366, Parts 1-4, 6, 8, 10-13, and 16).

#### Table IV-B:

- Editorial revisions were made to the bases of Condition # 15022, Parts 1-3.

Table IV-C:

- Regulations 6-303 and 6-303.1 replaced Regulation 6-301, because engines with less than 1500 cubic inches of displacement are subject to an opacity limit of Ringelmann 2 (6-303) instead of Ringelmann 1 (6-301). The basis of Condition # 17860, Part 2 was corrected accordingly.

Table IV-D:

- Revisions were made to reflect that BAAQMD Regulation 8, Rule 16 (10/16/02) has been adopted in the SIP.

## V. Schedule of Compliance

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

“409.10 A schedule of compliance containing the following elements:

- 10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;
- 10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and
- 10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.”

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

### Changes to Permit:

There is no change in this section for this reopening of the Title V permit.

## 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.

Where 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; all “underline” language will be retained.

The existing permit conditions are generally derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). It is also possible for permit conditions to 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 regulatory basis has been referenced following each condition. The regulatory basis may be a rule or regulation. The District is also using the following codes for regulatory basis:

- BACT: This code 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 code 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 code 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 code 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 code is used for a condition imposed by the APCO to ensure compliance with limits that arise from the District's Toxic Risk Management Policy.

#### Changes to Permit:

##### Condition # 8366:

- Several editorial revisions were made to the bases of Parts 1-4, 6, 8, 10-13, and 16 for consistency with other permits. Other condition changes are discussed below.

Part 2: The number of continuously operating vertical wells was corrected in this part. Text was added to clarify that the facility may install up to 18 additional wells under Authority to Construct # 3515.

Part 6: Due to revisions in Regulation 2, Rule 6, the flare temperature limit cannot be changed administratively. The text in this part was updated to reflect the new procedures that apply to changing the minimum temperature, which are described in BAAQMD Regulations 2-6-414 or 415.

Part 8: Since Regulation 8, Rule 34 no longer has total hydrocarbon limits (THC) for the flare, there is no need to test for THC at the inlet or to determine the THC or methane destruction efficiency. Therefore, these requirements were deleted from this part.

Part 16: The asterisk preceding this part was deleted, because this part is federally enforceable now that BAAQMD Regulation 8, Rule 40 has been adopted into the SIP.

Part 17 (old): This part was deleted, because it is unnecessary now that Regulation 8, Rules 34 and 40 have been adopted in the SIP.

Part 17 (new): This part was added to incorporate the semi-annual reporting frequency that is required by the new MSW Landfill NESHAP. This part also allows the Regulation 8, Rule 34, NSPS, NESHAPs, and Title V reports to be combined into a single document submitted at the same time, provided all elements required by each report are included in this single document.

Condition # 15022:

- Editorial revisions were made to the bases of Parts 1-3 for consistency with other permits.

Condition # 17680:

- The basis of Part 2 was changed to refer to the correct applicable requirement.

Condition # 17682:

- Editorial revisions were made to the bases of Parts 1-2 for consistency with other permits.

## **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.

### SO<sub>2</sub> Sources

<b># &amp; Description</b>	<b>Emission Limit Citation</b>	<b>Federally Enforceable Emission Limit</b>	<b>Monitoring</b>
A-2 Landfill Gas Flare and S-9 Portable Diesel Engine	BAAQMD 9-1-301	Property Line Ground Level SO <sub>2</sub> Limits: ≤ 0.5 ppm for 3 minutes and ≤ 0.25 ppm for 60 min. and ≤ 0.05 ppm for 24 hours	None
A-2 Landfill Gas Flare	BAAQMD 9-1-302	Gas Stream SO <sub>2</sub> Limit: ≤ 300 ppm (dry)	Quarterly Sulfur Analysis of Landfill Gas
S-9 Portable Diesel Engine	BAAQMD 9-1-304	Fuel Sulfur Content Limit: ≤ 0.5% sulfur by weight	Fuel Certification Records

### SO<sub>2</sub> Discussion:

Maximum potential sulfur dioxide (SO<sub>2</sub>) emissions are calculated below for all sources of SO<sub>2</sub> 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 A-2 Landfill Gas Flare:

Maximum potential SO<sub>2</sub> emissions are based on the maximum permitted concentration of total reduced sulfur (TRS) compounds in the landfill gas (1300 ppmv, expressed as H<sub>2</sub>S from Condition # 8366, Part 10). Testing at Bay Area landfills has found that the landfill gas at most sites is less than 150 ppmv of TRS. One test on the landfill gas at this site found 70 ppmv of total reduced sulfur compounds, expressed as H<sub>2</sub>S. The methane concentration in landfill gas at this site is typically 45%-55%. All calculations below assume an average landfill gas methane concentration of 50%.

$$(48.1 \text{ E6 BTU/hour}) * (8760 \text{ hours/year}) / (496.9 \text{ BTU/scf LFG}) * (1300 \text{ scf H}_2\text{S}/1\text{E6 scf LFG}) / (387 \text{ scf H}_2\text{S}/\text{lbmol H}_2\text{S}) * (1 \text{ lbmol SO}_2/1 \text{ lbmol H}_2\text{S}) * (64.06 \text{ pounds SO}_2/\text{lbmol SO}_2) / (2000 \text{ pounds SO}_2/\text{ton SO}_2) = 91.23 \text{ tons SO}_2/\text{year}$$

For most Bay Area landfills the landfill gas sulfur content is less than 150 ppmv as H<sub>2</sub>S. Therefore, sulfur dioxide emissions are not expected to exceed 10.53 tons/year of SO<sub>2</sub>. Emissions based on the 70 ppmv of TRS found at this site are 4.91 tons/year of SO<sub>2</sub>.

#### Flare Exhaust Concentration:

At the maximum permitted concentration of 1300 ppmv of H<sub>2</sub>S, the flare exhaust concentration is:

$$(1300 \text{ scf H}_2\text{S/MM scf LFG}) * (1 \text{ scf SO}_2/1 \text{ scf H}_2\text{S}) / (4.7733 \text{ MM dscf exhaust gas/MM scf LFG}) \\ = 272 \text{ ppmv of SO}_2 \text{ in the flare exhaust at 0\% oxygen}$$

However, at the maximum expected concentration of 150 ppmv of H<sub>2</sub>S, the flare exhaust is only about 10% of the Regulation 9-1-302 limit:

$$(150 \text{ scf H}_2\text{S/MM scf LFG}) * (1 \text{ scf SO}_2/1 \text{ scf H}_2\text{S}) / (4.7733 \text{ MM dscf exhaust gas/MM scf LFG}) \\ = 31 \text{ ppmv of SO}_2 \text{ in the flare exhaust at 0\% oxygen}$$

Potential to Emit Calculations for S-9 Portable Diesel Engine:

Maximum potential SO<sub>2</sub> emissions are based on the maximum permitted fuel sulfur content of 0.5% sulfur by weight from Regulation 9-1-304 and the maximum fuel usage rate of 2 gallons/hour.

$$(2 \text{ gallons fuel/hour}) * (8760 \text{ hours/year}) * (7.1 \text{ pounds/gallon}) * (0.005 \text{ pounds sulfur/pound fuel}) / \\ (32.06 \text{ pounds sulfur/lbmol sulfur}) * (1 \text{ lbmol SO}_2/\text{lbmol sulfur}) * (64.06 \text{ pounds SO}_2/\text{lbmol SO}_2) / \\ (2000 \text{ pounds SO}_2/\text{ton SO}_2) = 0.62 \text{ tons SO}_2/\text{year}$$

CARB requires diesel fuel that contains no more than 0.05% sulfur in the fuel. Since this diesel engine is expected to use CARB compliant fuel, expected emissions from S-9 are only 0.062 tons/year of SO<sub>2</sub>.

BAAQMD Regulation 9-1-301:

This facility is subject to federally enforceable limits and monitoring requirements, which will ensure compliance with the Regulation 9-1-302 gas stream emission limit of 300 ppmv of SO<sub>2</sub> in the exhaust from the flare and with the Regulation 9-1-304 fuel sulfur content limit of 0.5% sulfur by weight. Based on modeling analyses conducted at another landfill site, 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. Furthermore, the actual emissions from A-2 and S-9 are expected to be no more than 10% of these federally enforceable limits. Therefore, non-compliance with the Regulation 9-1-301 limits is extremely unlikely and monitoring for ground level SO<sub>2</sub> concentrations would not be appropriate.

BAAQMD Regulation 9-1-302:

This facility is subject to a federally enforceable limit of 1300 ppmv of TRS in the landfill gas (BAAQMD Condition # 8366, Part 10). As shown by the calculation above, this limit will result in a maximum of 272 ppmv of SO<sub>2</sub> in the flare exhaust and will ensure compliance with the BAAQMD Regulation 9-1-302 emission limit of 300 ppmv of SO<sub>2</sub> in the exhaust. Condition # 8366, part 10 requires this facility to analyze the landfill gas for hydrogen sulfide on a quarterly basis. The hydrogen sulfide concentration typically accounts for 85%-95% of the total reduced sulfur concentration in landfill gas. Based on site testing, the TRS concentration is not expected to exceed 150 ppmv of TRS, which results in a maximum expected concentration of 31 ppmv of SO<sub>2</sub> in the flare exhaust. The maximum expected concentration is only about 10% of the BAAQMD 9-1-302 limit. Since the margin of compliance is high and the maximum expected sulfur dioxide emissions are not substantial, quarterly monitoring of the landfill gas is appropriate for demonstrating compliance with this limit.

BAAQMD Regulation 9-1-304: Per Condition # 17680, Part 1, this facility is required to maintain records of vendor-certified sulfur content for all fuels burned in this diesel engine. The use of vendor certification is a standard method of monitoring for compliance with a liquid fuel sulfur content limit.

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-1 Landfill	BAAQMD 6-301	Ringelmann 1.0	Visual Observation and Records of Site Watering and Road Cleaning Events
S-5 Wood Waste Stockpiles	BAAQMD 6-301	Ringelmann 1.0	Visual Observation of Source During Operation
A-2 Landfill Gas Flare	BAAQMD 6-301	Ringelmann 1.0	None
S-9 Portable Diesel Engine	BAAQMD 6-303	Ringelmann 2.0	Visual Observation of Source During Operation
A-2 Landfill Gas Flare	BAAQMD 6-310	0.15 gr/dscf	None
S-9 Portable Diesel Engine	BAAQMD 6-310	0.15 gr/dscf	None

PM Discussion:

Maximum potential PM<sub>10</sub> emissions are described below for sources listed above that have a PM limit and no proposed monitoring for that limit.

Potential to Emit for A-2 Landfill Gas Flare:

From AP-42, Chapter 2.4, the particulate emission rate from landfill gas fired flares is 17 pounds per million dscf of methane. For the emission calculations below, the landfill gas is assumed to contain an average of 50% methane.

$$(48.1 \text{ E6 BTU/hour}) / (1013 \text{ BTU/dscf CH}_4) * (17 \text{ pounds PM/1 E6 dscf CH}_4) * (8760 \text{ hours/year}) / (2000 \text{ pounds/ton}) = 3.536 \text{ tons/year of PM}$$

Flare Exhaust Grain Loading Rate:

$$(17 \text{ pounds PM/1 E6 dscf CH}_4) * (7000 \text{ grains/pound}) * (0.50 \text{ dscf CH}_4/\text{dscf LFG}) / (4.7733 \text{ dscf exhaust/dscf LFG}) = 0.013 \text{ grains/dscf LFG at 0\% oxygen}$$

Potential to Emit Calculations for S-9 Portable Diesel Engine:

The maximum potential PM<sub>10</sub> emissions from S-9 are based on an AP-42 emission factor (0.0022 pounds/bhp-hour) and the maximum possible operating rate.

$$(0.0022 \text{ pounds PM}_{10}/\text{bhp-hour}) * (70 \text{ bhp}) * (8760 \text{ hours/year}) / (2000 \text{ pounds/ton}) = 0.675 \text{ tons/year of PM}_{10}$$

Engine Exhaust Grain Loading Rate:

$$(0.0022 \text{ pounds PM}_{10}/\text{bhp-hour}) * (7000 \text{ grains/pound}) * (70 \text{ bhp}) / (2.0 \text{ gallons/hour}) / (7.1 \text{ pounds/gallon}) / (0.0193 \text{ MM BTU/pound}) / (9190 \text{ dscf/MM BTU}) * (20.9-15) / (20.9-0) = 0.12 \text{ grains/dscf flue gas, dry, 15\% O}_2$$

BAAQMD Regulation 6-301 for S-1 Landfill and Gas Collection System:

Regulation 6 has no requirements for demonstrating compliance with the Regulation 6-301 limit, which limits 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). The active filling operations and associated vehicle traffic can generate significant particulate emissions. Typically, landfills maintain compliance with Regulation 6-301 by employing a dust mitigation program and using visual monitoring by site operators to ensure that dust mitigation measures are adequate. Dust mitigation measures include the application of water and/or dust suppressants on unpaved roads, fill areas, stockpiles, and other dust prone operations and sweeping, watering, or other cleaning measures on paved roads and parking areas. The frequency of watering and sweeping schedules varies from several water applications/day for dry days to no watering or sweeping on rainy days. During the initial Title V permitting action for this facility, the District imposed Condition #8366, Part 14, which requires the site to keep records of all water and/or dust suppressant applications and road cleaning activities, in order to demonstrate compliance with the Regulation 6-301. District inspectors will observe the landfill operations on dry days to ensure that the dust mitigation measures are adequate to maintain compliance with the Ringelmann 1.0 limit.

BAAQMD Regulation 6-301 for S-5 Wood Waste Stockpiles: Condition # 15022, Part 3 requires observation of the stockpiles during all wood waste loading and unloading events and requires the operator to take corrective actions to stop any visible emissions. These actions will ensure compliance with the Regulation 6-301 Ringelmann 1 limit, because particulate emissions will be visible before the Ringelmann 1 limit is exceeded.

BAAQMD Regulation 6-301: Regulation 6-301 limits the opacity from the A-2 Flare to Ringelmann 1. Flares burning landfill gas have particulate emission rates similar to natural gas. As with natural gas combustion, properly operating flares burning landfill gas have no visible emissions. Since non-compliance with this limit is very unlikely, monitoring to show compliance with this limit is not justifiable.

BAAQMD Regulation 6-303 for Portable Diesel Engine: Condition # 17680, Part 2 requires observation of the engine during operation and requires the operator to take corrective actions to stop any visible smoke. These actions will ensure compliance with the Regulation 6-303 Ringelmann 2 limit, because particulate emissions will be visible before the Ringelmann 2 limit is exceeded.



BAAQMD Regulation 6-310: Regulation 6-310 limits the grain loading in the exhaust of A-2 and S-9 to 0.15 grains/dscf. For the A-2 Flare, the expected emission rate is less than 10% of the Regulation 6-310 limit. Since the expected emission rate is far below the emission limit and maximum potential emissions are low for this flare, it would not be appropriate to add periodic monitoring at the flare for this standard. For the S-9 Portable Diesel Engine, the expected emission rate is 20% below the Regulation 6-310 limit. Although the compliance margin is not high for this limit, periodic monitoring for compliance this limit would not be appropriate for this small diesel engine, because particulate emissions are low (<0.7 tons/year) and source testing for PM emissions from portable engines is difficult and costly.

### Organic Compounds

S# & Description	Limit Citation	Federally Enforceable Limit	Monitoring
S-1 Landfill, on-site handling of VOC laden soils	BAAQMD 8-2-301	Total Carbon ≤ 15 pounds/day or ≤ 300 ppm, dry basis	Daily Records and Analyses of VOC Laden Soil Lots

#### Organic Compounds Discussion:

BAAQMD Regulation 8-2-301 for S-1 Landfill: This limit applies to the handling of VOC-laden soil that is not considered “contaminated” pursuant to Regulation 8, Rule 40. Such VOC-laden soil may contain up to 50 ppmw of VOC. All VOC emissions from this operation will be fugitive. BAAQMD Regulation 8, Rule 2 does not have an approved test method for monitoring fugitive organic emissions from a source. For fugitive emission sources, compliance with Regulation 8-2-301 is typically demonstrated by using emission calculations to show compliance with the 15 pounds per day total carbon limit. Condition # 8366, Part 15 describes the limits and calculation procedures that are used to ensure compliance with this limit. The Permit Holder is also required to maintain records of the VOC-laden soil acceptance rate, the VOC Content of this soil, and the calculated VOC emission rate. These record keeping requirements will adequately demonstrate compliance with the limits in Part 15 and with Regulation 8-2-301.

### H<sub>2</sub>S Sources

S# & Description	Emission Limit Citation	Emission Limit (Not Federally Enforceable)	Monitoring
S-1 Landfill	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 (H<sub>2</sub>S) 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, H<sub>2</sub>S 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 receives complaints about hydrogen sulfide odors from Bay Area landfills. This site has had no alleged odor complaints in the last five years. Since H<sub>2</sub>S odors have not been detected at this facility, the concentration of H<sub>2</sub>S at the property line is expected to be well below the Regulation 9-2-301 limits. Furthermore, the maximum expected H<sub>2</sub>S emissions are not expected to be significant (<0.9 tons/year from the District's 2003 inventory) and the BAAQMD Regulation 9-2-301 emission limits are not federally enforceable. Monitoring for ground level H<sub>2</sub>S concentrations would not be appropriate when no H<sub>2</sub>S odor problem exists.

Changes to Permit:

Table VII-A:

- Effective dates that have passed were deleted.
- The general NESHAP requirement to minimize emissions during startup, shutdown, and malfunction (SSM) events was added. The MSW Landfill NESHAPS requires that facilities develop an SSM Plan to minimize emissions during SSM events and requires that records be kept of all SSM events including records of emissions were minimized and the corrective actions that were taken. These records are adequate for demonstrating compliance with this standard.
- The limits in Regulations 8-40-116 and 117 were deleted because these requirements were moved to Table III and no monitoring is necessary for generally applicable requirements.
- Obsolete Regulation 8, Rule 40 requirements were deleted, and the "FE" column was revised to show that all applicable 8-40 limits are now federally enforceable.
- The Regulation 6-301 and 6-315 limits were clarified by which stating source (the landfill or the flare) the limits apply to.
- The waste acceptance limits that are listed in Condition # 8366, Part 9 were added, because these limits were inadvertently missing from Table VII-A.

Table VII-C:

- The opacity limit was corrected. This engine is subject to the Regulation 6-303 Ringelmann 2 limit (and not the Regulation 6-301 Ringelmann 1 limit), because the engine displacement is less than 1500 cubic inches.

Table VII-D:

- The Regulation 8-16-501.2 record keeping requirement was deleted because it is obsolete now that BAAQMD 8-34-501.2 was adopted into the SIP.

### **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.

#### Changes to Permit:

Table VIII:

- The test method for the Regulation 6-303 Ringelmann 2 limit was added.
- An alternative test method for the Regulation 6-310 Particulate Weight Limitation was added.
- Obsolete SIP requirements and obsolete MOP test methods were deleted.
- The appropriate test methods for the Condition #8366, Part 8 annual flare source test requirement were added for clarity.
- A typographical error was corrected in the methods referenced for Condition #8366, Part 15.

### **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 that identifies and justifies specific federally enforceable regulations and standards which the APCO has confirmed are not applicable to a source or group of sources, or (2) A provision in a major facility review permit that identifies and justifies specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting which 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 no permit shields.

#### Changes to Permit:

There is no change in this section for this Title V reopening.

### **X. Revision History:**

This section summarizes the revisions that have been made to the permit since it was initially issued.

Changes to Permit:

The changes proposed by this permit revision are summarized in this section.

**XI. Glossary:**

This section explains words, phrases, acronyms, symbols, and usage unit abbreviations that are used in this permit.

Changes to Permit:

Numerous terms were added to or corrected in the Glossary to improve the clarity of this permit.

**XII. Applicable State Implementation Plan:**

This section provides the web site address for the SIP versions of BAAQMD rules and regulations. No changes are being made to this section

**D. Alternate Operating Scenarios:**

No alternate operating scenario has been requested for this facility. There is no change in this section for this Title V reopening.

**E. Compliance Status:**

There is no change in compliance status for this facility.

**F. Differences between the Application and the Proposed Permit:**

The facility requested an administrative amendment to correct the responsible official and facility contact information under Application # 8916. There is no difference between this requested change and the proposed change.

The facility submitted Application # 3515 and an Amended and Restated Landfill Gas Collection and Control System Design Plan to request changes to the gas collection system for the S-1 Landfill. The landfill gas collection system described in Table II-A and Condition # 8366, Part 2 are consistent with the applicant's requested revisions.

Since the District initiated the reopening action and the other minor and administrative corrections to this permit, the facility did not submit an application for these actions. No changes are being made to the number of sources and abatement devices at this facility. As discussed in Section B above, this facility was issued Permits to Operate for four diesel-fired engines in November 2003. These engines will be added to this permit in a separate revision action.

APPENDIX A  
GLOSSARY

**ACT**

Federal Clean Air Act

**APCO**

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

**ARB**

Air Resources Board (same as CARB)

**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.

**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

**CEM**

A "continuous emission monitor" is a monitoring device that provides a continuous direct measurement of some pollutant (e.g. NO<sub>x</sub> concentration) in an exhaust stream.

**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.

**CH<sub>4</sub> or CH<sub>4</sub>**

Methane

**CO**

Carbon Monoxide

**CO<sub>2</sub> or CO<sub>2</sub>**

Carbon Dioxide

**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

**E 6**

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, 4.53 E 6 equals  $(4.53) \times (10^6) = (4.53) \times (10 \times 10 \times 10 \times 10 \times 10 \times 10) = 4,530,000$ . 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 (HAP), 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

**GLM**

Ground Level Monitor

**H<sub>2</sub>S or H<sub>2</sub>S**

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.

**Hg**

Mercury

**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

**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.

**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<sub>2</sub>**

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<sub>x</sub> or NO<sub>x</sub>**

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.)

**O<sub>2</sub> or O<sub>2</sub>**

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<sub>x</sub>, PM<sub>10</sub>, and SO<sub>2</sub>.

**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<sub>10</sub>**

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.

**PV or P/V Valve**

Pressure/Vacuum Valve

**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.

**SO<sub>2</sub> or SO<sub>2</sub>**

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.

**TAC**

Toxic Air Contaminant (as identified by CARB)

**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

**VMT**

Vehicle Miles Traveled

**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 <sup>3</sup>	=	cubic feet
g	=	grams
gal	=	gallon

Permit Evaluation and Statement of Basis for Reopening, Administrative Amendments, and Minor Revisions:  
A2246, TriCities Waste Management, 7010 Auto Mall Parkway, Fremont, CA 94538

gpm	=	gallons per minute
gr	=	grains (7000 grains = 1 pound)
hp	=	horsepower
hr	=	hour
in	=	inches
kg	=	kilograms
lb	=	pound
lbmol	=	pound-mole
M	=	thousand
m <sup>2</sup>	=	square meter
m <sup>3</sup>	=	cubic meters
Mg	=	mega-grams (1000 kg)
min	=	minute
mm	=	millimeter
MM	=	million
MMBTU	=	million BTU
MMcf	=	million cubic feet
mm Hg	=	millimeters of mercury (pressure)
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
therms	=	1 therm = 100,000 BTU
yd	=	yard
yd <sup>3</sup>	=	cubic yards
yr	=	year

APPENDIX B  
EVALUATION REPORT for  
APPLICATION # 3515

**ENGINEERING EVALUATION REPORT  
TRI-CITIES RECYCLING  
APPLICATION NUMBER 003515**

**BACKGROUND:**

Tri-Cities Recycling has applied for an Authority to Construct for the following modifications to the Tri-Cities Landfill, P# 2246:

**S-1: Municipal Solid Waste Landfill with Gas Collection System – Installation of up to (23) Landfill Gas Extraction Wells**

Upon installation, these modifications will replace existing unproductive gas collection wells and will bring the total number of permitted gas collection wells to 44\*.

\*Note: Although currently permitted for up to 55 gas collection wells, the site has had no more than 34 operational wells at any time since the gas collection system was installed. If all 23 new wells are installed, the total number will be 44.

**EMISSIONS DISCUSSION:**

The gas collection and control system currently collects and processes approximately 720 standard cubic feet per minute (scfm). The proposed gas collection wells are expected to increase gas collection by 400 scfm of landfill gas. Therefore, upon completion the estimated total volume of collected landfill gas will be 1,120 scfm.

The existing control system for collected landfill gas is the Enclosed Landfill Gas Flare A-2. This flare has a landfill gas capacity of 1,322 scfm, sufficient to process the entire gas flow from the landfill. In addition, Tri-Cities has been issued an Authority to Construct (#3541) to add (3) IC Engines, each able to combust up to 493 scfm of landfill gas

Since emissions from the flare and IC engines have already been fully accounted for there is no increase of emissions for this application.

**STATEMENT OF COMPLIANCE:**

There are no new District or Federal regulations triggered by the proposed landfill gas collection system modification.

**MODIFIED PERMIT CONDITIONS:**

It is recommended that part 2 of Condition #8366 be changed as shown below to reflect the correct number of wells at the landfill.

2. The gas collection system at S-1 is permitted for ~~55~~ 44 vertical collection wells and associated piping as identified in ~~the Collection and Control System Design Plan required by Regulation 8-34-408~~ Permit Application #3515. Prior to increasing or decreasing the number of landfill gas wells from the authorized total, or significantly changing the locations, depths or lengths of existing wells or collectors, an Authority to Construct shall be obtained from the District. (basis: Regulation 2-1-301, Regulation 8-34-301.1, Regulation 8-34-305)

**RECOMMENDATIONS:**

It is recommended that an Authority to Construct be issued to Tri-Cities Recycling for the following:

**S-1:           Municipal Solid Waste Landfill with Gas Collection System – Installation of  
up to (23) Landfill Gas Extraction Wells**

By: \_\_\_\_\_

Ted Hull  
Air Quality Engineer II