

# **Bay Area Air Quality Management District**

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San Francisco, CA 94109  
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## **Permit Evaluation and Statement of Basis for RENEWAL of**

## **MAJOR FACILITY REVIEW PERMIT**

for  
**Guadalupe Rubbish Disposal Company, Inc**  
**Facility #A3294**

**Facility Address:**  
15999 Guadalupe Mines Road  
San Jose, CA 95120

**Mailing Address:**  
P.O. Box 20957  
San Jose, CA 95160

Application Engineer: Randy Frazier  
Site Engineer: Randy Frazier

Title V Renewal Application: 14286  
Applications Included: 12985, 14009, 15380

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**TITLE V STATEMENT OF BASIS**  
Guadalupe Rubbish Disposal Company, Inc; PLANT # A3294  
APPLICATION # 14386

**A. BACKGROUND**

The Guadalupe Rubbish Disposal Company, Inc., is subject to the Operating Permit requirements of Title V of the federal clean air act because it is a designated facility as defined by BAAQMD Regulation 2-6-204. The Standards of Performance for Municipal Solid Waste Landfills (40 CFR Part 60, Subpart WWW) 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 (Mg) and 2.5 million cubic meters to obtain an operating permit pursuant to Part 70. This facility is subject to this NSPS because it commenced modification after May 30, 1991 and has design capacities that are larger than 2.5 million Mg (14.891 million Mg) and larger than 2.5 million m<sup>3</sup> (17.203 MM m<sup>3</sup>). Therefore, this facility is required to have an MFR permit pursuant to Regulation 2-6-304.

It should be noted that the facility is not a major facility either for hazardous air pollutants (HAP) or for regulated pollutants. Emissions of HAP are well below the 10 tpy individual HAP and/or 25 tpy of any combination of HAPs. The potential to emit for the highest emitting regulated pollutant CO at the flare A-9 is estimated to be 47.8 tpy, which is well below the 100 tpy PTE major facility threshold.

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

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

Each facility in the Bay Area is assigned a facility identifier that consists of a letter and a 4-digit number. This identifier is also considered to be the identifier for the permit. The identifier for this facility is A3294.

This facility received its initial Title V permit on October 1, 2001 and a minor modification Title V permit on June 24, 2005. This application (AN 14286) is for a Title V Permit renewal. Although the current permit expired on September 30, 2006, it continues in force until the District takes final action on the permit renewal. The standard sections of the permit have been upgraded to include new standard language used in all Title V permits. The proposed renewal permit clearly shows all proposed changes to the permit in strikeout/underline format.

## B. FACILITY DESCRIPTION

The Guadalupe Rubbish Disposal Company (GRDC) landfill is located on a 411-acre site at 15999 Guadalupe Mines Road in San Jose, CA. The site has been used for the disposal of municipal, commercial, industrial and construction wastes since 1929. The facility also accepts green waste materials for recycling in response to Californian Assembly Bill 939. The green waste is received at the landfill or the materials recovery facility (MRF) followed by additional processing into material for alternate daily cover, reuse, or disposal. The facility is currently permitted to receive a maximum of 3650 tons per day (except for temporary situations approved by the local enforcement agency) of municipal solid wastes delivered to the site by the general public and commercial haulers. As of September 30, 2006, the total waste in place was 8.48 million tons (7.7E6 Mg).

On November 21, 1991, GRDC was granted a solid waste facility permit to increase the horizontal capacity from 65 to 115 acres, making the facility a modified facility and therefore subject to the landfill NSPS.

The GRDC includes a gas collection and control system (GCCS) which routes landfill gas to the Gas Recovery Systems Inc (GRS), BAAQMD facility #B1669. The GRS facility burns the landfill gas in a series of 4 (four) internal combustion engines subject to operating conditions specified in the GRS Title V permit. A 70 MM Btu/hour @ 2,000 scfm backup flare, owned and operated by GRDC is used to burn landfill gas during periods when one or more engines are off line or during periods when excess landfill gas is collected. In 2005, on average, 909 scfm was burned in the GRS engines and 243 scfm (~8.3 MM Btu/hr) in the flare (annual average basis).

As noted above, the GRDC accepts municipal, commercial, industrial and construction wastes. There is currently no plan to modify the types of wastes accepted. As provided in the Title V renewal application, the projected growth rate for Santa Clara County is approximately 1 to 2 percent per year over the term of the Title V permit. During calendar year 2005, GRDC received 190,465 ton which is well within their limit of 1.332 MM ton (3650 ton/day \* 365 day/yr). Contaminated soil (concentration of VOC greater than 50 ppm, weight) is not accepted at GRDC.

Since the minor modification Title V Permit was issued in 2003, the following NSR permit applications were processed for GRDC:

- AN 12985      Modification to Debris Sorting System
- AN 14009      Portable Diesel Powered Compressor
- AN 15380      Modification to landfill gas collection and control system configuration.

The emission changes associated with these permits are as follows:

### Permitted Emission Increases Since 2003 Title V Minor Modification

Application	CO (tpy)	SO <sub>2</sub> (tpy)	POC (tpy)	NO <sub>x</sub> (tpy)	PM <sub>10</sub> (tpy)
12985	None	None	None	None	0.27
14009	0.27	0.014	0.032	0.61	0.003

15380	None	None	None	None	None
TOTALS	0.27	0.014	0.032	0.61	0.273

Since the total on a per pollutant basis is less than 1 ton per year, we conclude there has been no significant increase or change in the pollutant levels at GRDC since the initial Title V Permit was issued.

### C. PERMIT CONTENT

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

#### I. Standard Conditions

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

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

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

#### Changes to Permit, Section I:

- The dates of adoption and approval of rules in Standard Condition 1.A have been updated.
- The following language was added as Standard Condition I.B.12: "The permit holder is responsible for compliance, and certification of compliance, with all conditions of the permit, regardless whether it acts through employees, agents, contractors, or subcontractors. (Regulation 2-6-307)." The purpose is to reiterate that the Permit Holder is responsible for ensuring that all activities at the facility comply with all applicable requirements.
- Errors in the bases for Standard Conditions I.E.2 and I.F were corrected by deleting “Regulation 3;” from these bases.
- The certification period in Standard Condition I.G was clarified by changing it from “October 1<sup>st</sup> to September 30<sup>th</sup>” to “October 1st through September 30th”.

## II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S-24).

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

Significant sources are those sources that have a potential to emit of more than 2 tons of a “regulated air pollutant,” as defined in BAAQMD Rule 2-6-222, per year or 400 pounds of a “hazardous air pollutant,” as defined in BAAQMD Rule 2-6-210, per year. This facility has no unpermitted significant sources.

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

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

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

Following are explanations of the differences in the equipment list between the time of the most recent Title V Permit (6-24-2005). S-9 Landfill Gas Collection System was updated to reflect the revised number of wells and other hardware currently in service and also the equipment that has been permitted for addition or modification as permitted in Application Number 15380. The capacity of S-18 Debris Sorting System was corrected in Application Number 12985 to reflect the actual permitted capacity which is 900 ton/day instead of the 280 ton/day erroneously listed previously. Permit Application 14009 was to permit a new diesel engine powered portable compressor S-23, abated by A-23 catalytic diesel particulate filter. Source S-23 has been added to the equipment list in Table IIA and A-23 has also been added to Table IIB-Abatement Devices.

In addition GRDC has decided to surrender the permits for sources S-19 Dirt Screen and S-20 Diesel IC Engine (driver for S-19). Both of these units were removed from GRDC property.

*Devices Permitted Since previous Major Facility Review permit (2003 Minor Revision) was issued:*

Device #	Description	Application Number	Explanation
S-23	Portable Diesel Engine Compressor, Abated by A-23	14009	Permitted under new source review
A-23	Catalytic Diesel Particulate Filter	14009	Permitted under new source review

### 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. Unpermitted sources may, however, be specifically described in a Title V permit if they are considered *significant sources* pursuant to the definition in BAAQMD Rule 2-6-239. This facility has no unpermitted significant sources.

#### Changes to Permit, Section III:

- Table III has been updated by amending dates of adoption or approval of the rules, by correcting the "federal enforceability" status for these rules, and by adding or deleting rules and standards to conform to current practice. The rules that were amended, added, or removed are listed below:
  - Regulation 1, General Provisions and Definitions
  - Regulation 2, Rule 1, General Requirements
  - Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants
  - Regulation 8, Rule 2, Miscellaneous Operations
  - Regulation 8, Rule 3, Architectural Coatings
  - Regulation 8, Rule 4, General Solvent and Surface Coating Operations
  - Regulation 8, Rule 15, Emulsified and Liquid Asphalts
  - Regulation 8, Rule 16, Solvent Cleaning Operations
  - Regulation 8, Rule 40, Aeration of Contaminated Soil and Removal of Underground Storage Tanks
  - Regulation 8, Rule 47, Air Stripping and Soil Vapor Extraction Operations
  - California Health and Safety Code Section 41750 et seq., Portable Equipment
  - California Health and Safety Code Section 44300 et seq., Air Toxics "Hot Spots" Information and Assessment Act of 1987
  - California Code of Regulations Title 17, Section 93115 et seq., Airborne Toxic Control Measure for Stationary Compression Ignition Engines

- California Code of Regulations Title 17, Section 93116, Airborne Toxic Control Measure for Portable Engines Rated at 50 Horsepower and Greater
- 40 CFR Part 61, Subpart A, National Emission Standards for Hazardous Air Pollutants – General Provisions
- 40 CFR Part 61, Subpart M, National Emission Standards for Hazardous Air Pollutants – National Emission Standard for Asbestos

#### **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:

The New Source Performance Standard (NSPS, 40 CFR, Part 60, Subpart WWW) and Emission Guidelines for air emissions from municipal solid waste landfills (MSWL) were adopted (published) on March 1, 1996. The NSPS requires that Best Demonstrated Technology (BDT) be used to reduce MSW landfill emissions from affected new and existing MSW landfills emitting greater than or equal to 50 Mg/yr (55 tpy) on non-methane organic compounds (NMOC). Guadalupe Rubbish Disposal Company, Inc. is subject to the NSPS because the facility was after May 30, 1991 when the horizontal capacity was increased from 65 acres to 115 acres.

The Guadalupe Rubbish and Waste Disposal landfill is also subject to the Municipal Solid Waste Landfill NESHAP (40 CFR, Part 63, Subpart AAAA) because the facility has a design capacity greater than 2.5 million Mg and 2.5 million cubic meters and has estimated uncontrolled emissions equal to or greater than 50 Mg per year of NMOC as calculated according to the NESHAP guidelines. Based on the estimated landfill gas generation rate in 2007 of 2,000 scfm combined with an assumed NMOC concentration (based on actual sampling) of 500 ppm gives approximately 61 Mg/year NMOC emissions. Therefore, at this time we conclude that the facility is subject to the municipal solid waste NESHAP.

Guadalupe is also subject to BAAQMD Regulation 8, Rule 34, because the Guadalupe Landfill has accepted waste within the last 30 years and contains more than 1,000,000 tons of decomposable refuse. As of September 30, 2006, the total waste in place was 8.48 million tons (7.7E6 Mg).

District Permit Applications Not Included In This Proposed Permit:

This facility sends a large number of permit applications to the District every year. The Title V permit will be revised periodically to incorporate these applications as permit revisions following the procedures in Regulation 2, Rule 6, Major Facility Review. At this time there are no applications outstanding for Guadalupe Rubbish Disposal Company.

Changes to Permit, Section IV:

- In Table IV-C, the amendment dates for BAAQMD Regulation 8, Rule 2, Regulation 8, Rule 34 and Regulation 8, Rule 40 were updated. Since the most recent revisions to these to rules involved changes to a definition and a description that had no impact on the applicability or execution of any of the S-1 specific requirements cited in Table IV-A, all cited sections of Regulation 8, Rules 2 and 40 remain federally enforceable.
- In Table IV-C, the amendment dates were updated for the following federal requirements: 40 CFR Part 60, Subpart A, 40 CFR Part 60, Subpart WWW, 40 CFR Part 63, Subpart A; and 40 CFR Part 63, Subpart AAAA.
- In Table IV-C, the basis for Condition # 6188, Part 14 was added.
- In Table IV-C footnotes related to wording that has been removed will be deleted since they are no longer applicable.
- In Table IV-F, part 4 limiting diesel fuel sulfur content has been deleted. All diesel fuel sold in California is CARB Diesel, with 15 ppm sulfur. Hence Part 4 is no longer needed.

**V. Schedule of Compliance**

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

“409.10 A schedule of compliance containing the following elements:

- 10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;
- 10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and

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

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

Changes to Permit, Section V:

- None

## **VI. Permit Conditions**

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

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

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

The existing permit conditions are derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). Permit conditions may also be imposed or revised as part of the annual review of the facility by the District pursuant to California Health and Safety Code (H&SC) § 42301(e), through a variance pursuant to H&SC § 42350 et seq., an order of abatement pursuant to H&SC § 42450 et seq., or as an administrative revision initiated by District staff. After issuance of the Title V permit, permit conditions are revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

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

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

- BACT: This term is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This term is used for a condition imposed by the APCO, which limits a source’s operation to the operation described in the permit application pursuant to BAAQMD Regulation 2-1-403.

- Offsets: This term is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit issued pursuant to Regulation 2, Rule 2.

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

#### Changes to Permit, Section VI:

- In Condition # 6188, Part 2a, the equipment (landfill gas well) count as well as the appropriate permit applications have been corrected. These modifications were considered in permit application # 15380.
- In Condition #6188, Part 2b, the landfill gas collection system modifications which have been approved are corrected/updated. These modifications were considered in permit application # 15380.
- In Condition #6188, Part 4a, the recordkeeping basis was changed from monthly (for quantity of refuse accepted) to daily to make Part 1a of Condition 6188 enforceable.
- Condition #6188, Parts 15, 16 and 18 were modified to clean up typographical errors.
- Condition #18258 (source S-18, Materials Recovery Operation), was modified to provide additional clarification of the source description, and to correct the allowable throughput of the source—based on the capacity of the source. Additional modifications to this condition were to improve enforceability by requiring recordkeeping to demonstrate compliance on an on-going basis. These changes were officially evaluated in permit application 12985 (copy attached to this SOB).
- Condition #20516 (source S-20 Diesel IC Engine for Dirt Screen), part 4 was deleted since the condition is no longer applicable since all California diesel is required to have a sulfur content  $\leq 15$  ppm by weight.
- Condition 23202 for the new S-23 portable diesel engine compressor was added to the Title V permit. This project was evaluated in permit application 14009 (copy attached to this SOB).

## **VII. Applicable Limits and Compliance Monitoring Requirements**

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

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

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

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

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

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
A-9 Landfill Gas Flare	BAAQMD 9-1-301	Property Line Ground Level Limits: ≤ 0.5 ppm for 3 minutes, AND ≤ 0.25 ppm for 60 minutes, AND ≤ 0.05 ppm for 24 hours	None
S-23 Portable Diesel Engine Compressor	BAAQMD 9-1-301	Property Line Ground Level Limits: ≤ 0.5 ppm for 3 minutes, AND ≤ 0.25 ppm for 60 minutes, AND ≤ 0.05 ppm for 24 hours	None
	BAAQMD 9-1-304	Fuel Sulfur Content Limit: ≤ 0.5% sulfur by weight	None
	Title 17, Section 93114	Airborne Toxic Control Measure to Reduce Particulate from Diesel Fueled Engines – Standards for Nonvehicular Engines	None
	Title 13, Section 2281	Standards for Vehicular Diesel Fuel	None

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

A-9 Landfill Gas Flare: Appendix C presents emission estimates for the maximum emissions case (300 ppm in the flue gas from the flare A-9, per 9-1-302) as well as estimated actual emissions based on source test results. Based on a flue concentration of 300 ppm at 0% excess oxygen (stiochiometric combustion) the landfill gas (LFG) concentration of H2S would have to be 1422 ppm. District source tests indicate that the actual concentrations of total reduced sulfur in typical Bay Area landfill gas are less than 400 ppmv. Total reduced sulfur samples for Guadalupe Rubbish Disposal landfill gas are less than 150 ppm resulting in actual tested flue gas concentrations of under 20 ppm SO<sub>2</sub>. Actual SO<sub>2</sub>emissions from landfill gas combustion, assuming all landfill gas is burned at the flare are approximately 11 tpy. The maximum SO<sub>2</sub> emissions based on 300 ppm SO<sub>2</sub> in the flue gas is approximately 123 tpy. This emission rate is only a regulatory upper bound and is an unenforceable limit since landfill gas quality is based on the materials been disposed of in the landfill. The expected upper limit (based on actual source test averages) with additional sources is expected to be closer to 20 tpy total, for all sources combined.

Diesel Engine S-23: Annual SO<sub>2</sub> emissions from S-23 diesel IC engine is less than 1 lb/yr (based on 15 ppm ultra low sulfur diesel, as required by California State Law). We conclude that facility wide sulfur dioxide emissions are not significant and no further conditions are necessary. Hence this facility has complied with and will continue to easily comply with Regulation 9-1-302.

Regarding offsite concentrations of SO<sub>2</sub> Bay Area computer modeling studies have shown that facilities that are in compliance with the 300 ppm SO<sub>2</sub> standard (Regulation 9-1-302) and with the new statewide ultra low sulfur diesel fuel standard (15 ppm) are not expected to exceed the ground level concentration standards noted in 9-1-301. No further monitoring is recommended at this time.

Some additional discussion regarding the sulfur content of the diesel fuel in relation to state law is needed. Engine S-23 is portable as defined by the Stationary CI Engine ATCM and the Portable CI Engine ATCM. As such, S-23 is subject to the requirements of the Portable CI Engine ATCM. As such S-23 must be fueled with CARB Diesel Fuel or an equivalent fuel verified through the verification process. CARB Diesel Fuel is defined in part (d) of Section 93116.2 of the Portable ATCM as a fuel that meets the specifications defined in Title 13 CCR, Sections 2281, 2282, and 2284. Section 2281 requires, effective June 2006, that no person shall sell diesel fuel having a sulfur content exceeding 15 ppm by weight. In addition, CCR Title 17, Section 93114 (ATCM to Reduce Particulate Emissions from Nonvehicular Diesel-Fueled Engines) states that all nonvehicular diesel engines are subject to the same fuel specifications as vehicular diesel engines (CCR Title 13 Sections 2281-2285). Effectively all nonvehicular and vehicular diesel fuel is required to be ultra low sulfur (≤15 ppmw) with the burden of proof placed on the fuel supplier, rather than the end user. As such there is no compelling reason to require further testing and/or certification of diesel sulfur content.

Total Potential to Emit SO<sub>2</sub> is less than 20 tpy.

**PM Sources**

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

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
A-9 Landfill Gas Flare	BAAQMD 6-301	Ringelmann 1.0	None
	BAAQMD 6-310	≤0.15 grains/dscf	None
S-18 Materials Recovery Operations	BAAQMD 6-301	Ringelmann 1.0	None
	BAAQMD 6-311	40 pounds/hour, for Process Weight Rate (P) ≥57,320 lb/hr	None
S-23 Portable Diesel Engine Compressor	BAAQMD 6-303	Ringelmann 2.0	Visual Observation of source during operation
	BAAQMD 6-310	≤0.15 grains/dscf	None

### **PM Discussion:**

A-9 Landfill Gas Flare: Maximum potential PM emissions for A-9 were based on the AP-42 emission factor for landfill gas fired flares (17 lbs PM<sub>10</sub>/MM dscf of methane). These factors are converted to units of lbs/MM BTU and grains/dscf of exhaust as shown below. All calculations assume that the landfill gas contains 50% methane with an HHV of 497 BTU/scf LFG and that this landfill gas produces 4.773 scdf of exhaust at 0% oxygen per scf of landfill gas burned. Maximum calculated emissions (presented in Appendix C) are less than 5 ton/yr with a resulting PM concentration in the flue gas of 0.013 gr/dscf. This source will easily comply with the 0.15 gr/dscf flue gas PM concentration limit of Regulation 6-310. Visible emissions from gaseous fuel combustion are typically minimal—therefore we do not expect any violations of the Ringelmann 1.0 standards for this flare. Additional periodic monitoring would not be appropriate for this source.

Regulation 6-311 limits mass emissions on a sliding scale based on the weight-based process rate. Since it would be virtually impossible to meaningfully monitor compliance with these limits due to the variable operating rates and the fugitive nature of particulate emissions

S-18 Materials Recovery Operation: Observation of a source during operation is a standard method of monitoring for visible emissions. The Permit Holder is required to take all steps necessary to prevent visible emissions from each of these sources including shutting down if necessary. Since particulate emissions are visible before a Ringelmann 1.0 limit would be exceeded, these observation and action procedures should prevent the Exceedance of the Ringelmann 1.0 limit.

Regulation 6-311 limits emissions on a sliding scale based on the process weight rate. The estimated unabated particulate emission factor for S-18 is 2.37E-03 lb/ton throughput (from AP-42 Chapter 13.2.4 “Aggregate Handling and Storage Piles”). S-18 has a maximum capacity of 280 ton/day, resulting in a maximum unabated particulate emission rate of 0.7 lb/day (0.08 lb/hr, based on 8 hour operating day). At a process weight rate of 35 ton/hr, Regulation 6-311 limits emissions to 40 lb/hr (based on 6-311 maximum allowable emission rate for any operation processing more than 57,320 pound/hour of material). The maximum allowable emission rate is 500 times higher than the expected unabated emission rate, therefore no monitoring is recommended to demonstrate compliance with Regulation 6-311.

S-19 Dirt Screen: This source has been taken out of service, removed from the facility and the air permit surrendered.

S-20 Dirt Screen IC Engine and S-23 Portable Diesel Engine Compressor: This source has been taken out of service, removed from the facility and the air permit surrendered.

With the removal of source S-19 and S-20, PM emissions at the facility are reduced by 1840 and 2190 lb/year, respectively. Total revised potential to emit for PM from the permitted sources at GRDC is approximately 4 tpy.

### **VIII. Test Methods**

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

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

#### Changes to Permit, Section VIII:

- The fuel sulfur content test method has been removed since all diesel fuel is required to be CARB Diesel and since the sulfur content of all CARB diesel fuel is  $\leq 15$  ppm by weight.
- The footnote that was used in Table VIII has been removed because it dealt with Regulation 11 Rule 14 (Asbestos Containing Serpentine) which was never included in any requirements in this 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 a major facility review permit explaining that specific federally enforceable regulations and standards do not apply to a source or group of sources, or (2) A provision in a major facility review permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

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

This facility has no permit shields. This permit has no streamlining.

Changes to Permit, Section IX:

- None

**X. Revision History**

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

Changes to Permit, Section X:

- The permit revisions associated with this renewal were added to Section X.

**XI. Glossary**

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

Changes to Permit, Section XI:

- The glossary was updated by clarifying explanations and adding numerous new terms.

**XII. Applicable State Implementation Plan**

Changes to Permit, Section XII:

- This section has been deleted. The address for EPA's website is now found in Sections III and IV.

**D. ALTERNATIVE OPERATING SCENARIOS**

No alternate operating scenario has been requested for this facility.

**E. COMPLIANCE STATUS**

A May 7, 2007 office memorandum from the Director of Compliance and Enforcement, to the Director of Permit Services, presents a review of the compliance record of Guadalupe Rubbish Disposal Company, Inc (Site # A3294). The Compliance and Enforcement Division staff has reviewed the records for Guadalupe Rubbish Disposal Company, Inc for the period between April 30, 2002 through April 30, 2007. This review was initiated as part of the District evaluation of an application by renewal of a Title V permit. During the period subject to review, activities known to the District include:

- There were no Notices of Violation issued during this review period.
- The District received one air complaint alleging Guadalupe Rubbish Disposal Company. The compliant was not confirmed.
- The facility is not operating under a Variance or an Order of Abatement from the District Board.

- The District received one notification for a Reportable Compliance Activity (RCA) related to a breakdown request to remedy a damaged landfill gas well header. The header was damaged upon re-excavation of an idle portion of the landfill. The affected area was subsequently isolated from the rest of the landfill gas system and repairs completed within 24 hours

The owner certified that all equipment was operating in compliance on March 1, 2006. No non-compliance issues have been identified to date.

## **F. DIFFERENCES BETWEEN THE APPLICATION AND THE PROPOSED PERMIT**

The Title V permit application for renewal was originally received on March 1, 2006. Permit Application 12985 to correct Condition #12858 was received on July 8, 2005 and issued on May 6, 2006. This application has been discussed in this Statement of Basis and will be included in the Title V Permit. In addition, permit application #14009 was submitted on December 23, 2005 and issued on August 24, 2006. This application has also been discussed in this Statement of Basis and will be integrated into the Title V Permit. Application 15380 was received on October 24, 2006 and has been addressed in this Statement of Basis. Sources S-19 and S-20 have recently been archived and are discussed in this Statement of Basis. The applicant in the original Title V renewal submittal did not identify any of these revisions.

*H:\Pub\_Data\TitleV Permit Appls\1 All T5 Application Files Here\A3294\Renewal-14386\Preliminary\A3294-14386\_renewal SOB.doc*

**APPENDIX A**  
**BAAQMD COMPLIANCE REPORT**

**COMPLIANCE & ENFORCEMENT DIVISION**

**Inter-Office Memorandum**

**May 7 , 2007**

TO: BRIAN BATEMAN – DIRECTOR OF ENGINEERING

FROM: KELLY WEE – DIRECTOR OF ENFORCEMENT

SUBJECT: REVIEW OF COMPLIANCE RECORD OF:

**GUADALUPE RUBBISH DISPOSAL COMPANY, SITE # A3294**

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**Background**

This review was initiated as part of the District evaluation of an application by Guadalupe Rubbish Disposal Company for a Title V Permit Renewal. It is standard practice of the Compliance and Enforcement Division to undertake a compliance record review in advance of a renewal of a Title V Permit to Operate. The purpose of this review is to assure that any non-compliance problems identified during the prior five-year permit term have been adequately addressed, or, if non-compliance persists, that a schedule of compliance is properly incorporated into the Title V permit compliance schedule. In addition, the review checks for patterns of recurring violation that may be addressed by additional permit terms. Finally, the review is intended to recommend, if necessary, any additional permit conditions and limitations to improve compliance.

**Compliance Review**

Staff reviewed Guadalupe Rubbish Disposal Company Annual Compliance Certifications for April 30, 2002 to April 30, 2007 and found no ongoing non-compliance and no recurring pattern of violations.

Staff also reviewed the District compliance records for Guadalupe Rubbish Disposal Company for April 30, 2006 through April 30, 2007. During this period Guadalupe Rubbish Disposal Company activities known to the District include:

The District did not issue any Notices of Violation.

The District received one air pollution complaint alleging Gudalupe Rubbish Disposal Company. The complaint was not confirmed.

The District received one notification for a Reportable Compliance Activity (RCA) This involved a breakdown request, which was granted, and the facility has since returned to compliance. This incident involved a well header that was damaged upon re-excavation of an idle portion of the landfill; the affected well area was immediately isolated from the rest of the Landfill Gas (LFG) collection system. Within 24 hours of the breakdown the well header in question was repaired.

There are no enforcement agreements, open variances, or open abatement orders for Guadalupe Rubbish Disposal Company.

### **Conclusion**

The Compliance and Enforcement Division has made a determination that for the five year period Guadalupe Rubbish Disposal was in compliance. There is no evidence of on-going non-compliance and no recurring pattern of violations that would warrant consideration of a Title V permit compliance schedule.

## **APPENDIX B**

### **GLOSSARY**

**ACT**

Federal Clean Air Act

**AP-42**

An EPA Document “Compilation of Air Pollution Emission Factors” that is used to estimate emissions from numerous source types. It is available electronically from EPA’s web site at: <http://www.epa.gov/ttn/chief/ap42/index.html>

**APCO**

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

**API**

American Petroleum Institute

**ARB**

Air Resources Board (same as CARB)

**ASTM**

American Society for Testing and Materials

**ATC**

Authority to Construct

**ATCM**

Airborne Toxic Control Measure

**BAAQMD**

Bay Area Air Quality Management District

**BACT**

Best Available Control Technology

**BARCT**

Best Available Retrofit Control Technology

**Basis**

The underlying authority that allows the District to impose requirements.

**BDT**

Best Demonstrated Technology

**C1**

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

**C3**

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

**C5**

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

**C6**

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

**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)

**CCR**

California Code of Regulations

**CEC**

California Energy Commission

**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, E 9, E 12**

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), and also 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

**grains**

1/7000 of a pound

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

Hydrogen Sulfide

**H<sub>2</sub>SO<sub>4</sub> or H<sub>2</sub>SO<sub>4</sub>**

Sulfuric Acid

**H&SC**

Health and Safety Code

**HAP**

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

**Hg**

Mercury

**HHV**

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

**GRDC**

Guadalupe Rubbish Disposal Company, Inc

**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 any regulated air pollutant, (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

**Mg**

Mega (million) gram

**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

**MSWL**

Municipal solid waste landfill

**MTBE**

methyl tertiary-butyl ether

**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 contained 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 both 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 air pollutants for which the District is classified "non-attainment". Mandated by Title I of the Clean Air Act and implemented by 40 CFR Parts 51 and 52 as well as 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 at a specified ratio for the emissions from a new or modified source and any pre-existing cumulative increase minus any onsite contemporaneous emission reduction credits. 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 by virtue of certain other characteristics (defined in Regulation 2, Rule 6) is subject to Titles IV and V of the Clean Air Act.

**POC**

Precursor Organic Compounds

**PM**

Total Particulate Matter

**PM<sub>10</sub> 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 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

**Regulated Organic Liquid**

"Regulated organic liquids" are those liquids which require permits, or which are subject to some regulation, when processed at a liquid-handling operation. For example, for refinery marine terminals, regulated organic liquids are defined as "organic liquids" in Regulation 8, Rule 44.

**RMP**

Risk Management Plan

**RWQCB**

Regional Water Quality Control Board

**S**

Sulfur

**SCR**

A "selective catalytic reduction" unit is an abatement device that reduces NO<sub>x</sub> concentrations in the exhaust stream of a combustion device. SCRs utilize a catalyst, which operates at a specific temperature range, and injected ammonia to promote the conversion of NO<sub>x</sub> compounds to nitrogen gas.

**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

**SO<sub>3</sub> or SO<sub>3</sub>**  
Sulfur trioxide

**SSM**  
Startup, Shutdown, or Malfunction

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

**TAC**  
Toxic Air Contaminant (as identified by CARB)

**THC**  
Total Hydrocarbons includes all NMHC plus methane (same as TOC).

**therm**  
100,000 British Thermal Unit

**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 includes all NMOC plus methane (same as THC).

**TPH**  
Total Petroleum Hydrocarbons

**TRMP**  
Toxic Risk Management Policy

**TRS**  
Total Reduced Sulfur, which is a measure of the amount of sulfur-containing compounds in a gas stream, typically a fuel gas stream, including, but not limited to, hydrogen sulfide. The TRS content of a fuel gas determines the concentration of SO<sub>2</sub> that will be present in the combusted fuel gas, since sulfur compounds are converted to SO<sub>2</sub> by the combustion process.

**TSP**

Total Suspended Particulate

**TVP**

True Vapor Pressure

**VMT**

Vehicle Miles Traveled

**VOC**

Volatile Organic Compounds

**Symbols:**

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

**Units of Measure:**

atm	=	atmospheres
bbl	=	barrel of liquid (42 gallons)
bhp	=	brake-horsepower
btu	=	British Thermal Unit
BTU	=	British Thermal Unit
°C	=	degrees Centigrade
cfm	=	cubic feet per minute
dscf	=	dry standard cubic feet
°F	=	degrees Fahrenheit
ft <sup>3</sup>	=	cubic feet
g =		grams
gal	=	gallon
gpm	=	gallons per minute
gr	=	grains
hp	=	horsepower
hr	=	hour
in=		inches
kW	=	kilowatts
lb=		pound
lbmol	=	pound-mole
m <sup>2</sup>	=	square meter
m <sup>3</sup>	=	cubic meters
Mg	=	mega grams
min	=	minute
mm	=	millimeter
mm Hg	=	millimeters of mercury (pressure)
MM	=	million

MM BTU	=	million BTU
M cf	=	one thousand cubic feet
MM cf	=	one million cubic feet
MW	=	megawatts
ppb	=	parts per billion
ppbv	=	parts per billion, by volume
ppm	=	parts per million
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scf	=	standard cubic feet
scfm	=	standard cubic feet per minute
sdcf	=	standard dry cubic feet
sdcfm	=	standard dry cubic feet per minute
yd	=	yard
yd <sup>3</sup>	=	cubic yards
yr	=	year

## APPENDIX C

### CALCULATIONS

#### 1. H<sub>2</sub>S Concentration in Landfill gas to achieve 300 ppm SO<sub>2</sub> in Flue Gas

Basis: 300 ppm SO<sub>2</sub> in flue gas (FG) @ 0% excess oxygen

Landfill Gas Heat Content (from source test):  $[127E6 \text{ Btu/day}] / [(180 \text{ dscf/min})(1440 \text{ min/day})] = 490 \text{ Btu/dscf}$ .

F Factor (@ 0% oxygen) = 4.7356 scf FG/scf LFG (based on 490 Btu/scf @ ~49.5% methane)

H<sub>2</sub>S in LFG =  $(300 \text{ cu ft SO}_2 / 1E6 \text{ cu ft FG})(4.7356 \text{ cu ft FG/cu ft LFG}) = 1421 \text{ ppm H}_2\text{S in LFG}$

#### 2. Estimated Actual SO<sub>2</sub> emissions vs maximum at 300 ppm SO<sub>2</sub> in Flue Gas from LFG Comb

Basis: 6.3% excess oxygen; F Factor =  $(1.43)(4.7356) = 6.772 \text{ cu ft FG/cu ft LFG}$

Source tested SO<sub>2</sub> in flue gas: 18 ppm

Concentration of H<sub>2</sub>S in LFG =  $(18 \text{ cu ft SO}_2 / 1E6 \text{ cu ft FG})(6.772 \text{ cu ft FG/cu ft LFG}) = 122 \text{ ppm H}_2\text{S (LFG) in LFG}$

Actual Emissions =  $(2000 \text{ dscf/min})(1440 \text{ min/day})(365 \text{ day/yr})(122 \text{ cu ft H}_2\text{S} / 1E6 \text{ cu ft LFG})(\text{mole}/387 \text{ cu ft})(1 \text{ cu ft SO}_2 / \text{cu ft H}_2\text{S})(64.1 \text{ lb SO}_2 / \text{mole})(\text{ton}/2000 \text{ lb}) = 10.6 \text{ tpy}$

Maximum Emissions =  $(10.6 \text{ tpy})(1421 \text{ ppm}/122 \text{ ppm}) = 123.7 \text{ tpy}$

#### 3. Estimated Maximum SO emissions from S-23 diesel engine

S-23:  $(1350 \text{ hr/yr})(3.3 \text{ gal/hr})(6.11 \text{ lb/gal})(500 \text{ lb}/1E6 \text{ lb}) = 14 \text{ lb/yr}$  (based on 500 ppm)  
 $(1350)(3.3)(6.11)(15/1E6) = 0.41 \text{ lb/yr}$

#### 4. PM Emissions From A-9 LFG Flare

PM Factor:  $(17 \text{ lbs PM}_{10} / \text{MM dscf CH}_4, \text{ AP-42}) / (1E6 \text{ scf CH}_4 / \text{MM dscf CH}_4) * (0.50 \text{ scf CH}_4 / \text{scf LFG}) / (497 \text{ BTU}/\text{scf LFG}) * (1E6 \text{ BTU}/\text{MM BTU}) = 0.0171 \text{ lbs PM}_{10} / \text{MM BTU}$

A-9:  $[(2000 \text{ dscfm})(4.97E-04 \text{ MMBtu}/\text{dscf LFG})(60 \text{ min/hr})(8760 \text{ hr/yr})(0.0171 \text{ lbs PM}_{10} / \text{MM BTU})] / (2000 \text{ pounds PM}_{10} / \text{ton PM}_{10}) = 4.5 \text{ tons PM}_{10} / \text{year}$

PM Concentration:  $[(0.0171 \text{ lb PM}/\text{MM Btu})(7000 \text{ gr}/\text{lb})(1 \text{ MM Btu}/1E6 \text{ BTU})(497 \text{ Btu}/\text{scf})] / (4.736 \text{ cu ft flue gas}/\text{cu ft LFG}, @ 0\% \text{ O}_2) = 0.013 \text{ gr}/\text{dscf}$

#### 5. PM Flue Gas Concentration from S-20 Dirt Screen IC Engine:

AP-42 lists an exhaust gas rate of 9,190 dscf/MM Btu for distillate oil combustion at stoichiometric conditions. At 15% excess oxygen, this factor becomes:  $(9190)[21/(21-15)] = 32,165 \text{ dscf exhaust}/\text{MM Btu}$ . Reg 6-310 Standard =  $(0.15 \text{ grain}/\text{dscf})(\text{lb}/7000 \text{ grain})(32165 \text{ dscf}/\text{MM Btu}) = 0.69 \text{ lb}/\text{MM Btu}$   
S-20 Emissions:  $[(0.15 \text{ g}/\text{hp-hr})(66 \text{ hp})(\text{lb}/454 \text{ g})] / [0.53 \text{ MM Btu}/\text{hr}] = 0.04 \text{ lb}/\text{MM Btu}$

Based on the fuel consumption rate (0.53 MM BTU/hr) and PM emissions data for S-20, the PM emission rate in terms of fuel consumption is 0.04 lb/MM BTU.

**APPENDIX D**

**EMISSIONS INCREASES**

The following table lists the emissions increases from the eleven permit applications processed since the original Title V Permit Issuance

**Guadalupe Rubbish Disposal Company, Inc. (plant A3294)  
Emission Increases Since Initial Title V Permit (dated October 1, 2001)**

	<b>NOx (tpy)</b>	<b>CO (tpy)</b>	<b>POC (tpy)</b>	<b>SO2 (tpy)</b>	<b>PM10 (tpy)</b>
<b>AN 3072</b>	0.000	0.000	0.000	0.000	0.121
<b>AN 3259</b>	14.191	47.830	0.000	0.894	0.000
<b>AN 6796</b>	1.680	0.204	0.102	0.026	0.021
<b>Total</b>	<b>15.871</b>	<b>48.034</b>	<b>0.102</b>	<b>0.920</b>	<b>0.142</b>

(The above applications addressed in Title V Minor Modification  
AN 9780 SOB; Revised Title V Permit dated 6-24- 05)

<b>AN 12985</b>	0.000	0.000	0.000	0.000	0.27
<b>AN 14009</b>	0.27	0.014	0.032	0.61	0.003
<b>AN 15380</b>	0.000	0.000	0.000	0.000	0.000
<b>Total</b>	<b>0.27</b>	<b>0.014</b>	<b>0.032</b>	<b>0.61</b>	<b>0.273</b>

(The above applications addressed in  
Title V Renewal AN 14286)

**Grand Total Since Original (10-1-01)  
Title V Permit Issued**

	<b>16.141</b>	<b>48.048</b>	<b>0.134</b>	<b>1.53</b>	<b>0.415</b>
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## APPENDIX E

### PERMIT APPLICATION ENGINEERING EVALUATIONS

Engineering Evaluations for the following permit applications are attached to the Statement of Basis in this Appendix.

<u>AN</u>	<u>TITLE</u>
12985	S-18 Materials Sorting System Change of Condition
14009	New Source S-23; Portable Diesel Engine Compressor
15380	S-9 Solid Waste Landfill Gas Collection & Control System