

Bay Area Air Quality Management District

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STATEMENT OF BASIS and PERMIT EVALUATION

for

MAJOR FACILITY REVIEW PERMIT

for

**West Contra Costa Sanitary District
Facility #A1840**

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Richmond, CA 94801

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TABLE OF CONTENTS

A.	Background	3
B.	Facility Description.....	3
C.	Permit Content.....	4
I.	Standard Conditions	5
II.	Equipment	5
III.	Generally Applicable Requirements	6
IV.	Source-Specific Applicable Requirements	6
V.	Schedule of Compliance	9
VI.	Permit Conditions	9
VII.	Applicable Limits and Compliance Monitoring Requirements	16
VIII.	Test Methods	24
IX.	Permit Shield:.....	24
D.	Alternate Operating Scenarios:	25
E.	Compliance Status:.....	25
F.	Differences between the Application and the Proposed Permit:.....	26
APPENDIX A		
	BAAQMD COMPLIANCE REPORT	28
APPENDIX B		
	POTENTIAL TO EMIT CALCULATIONS.....	29
APPENDIX C		
	GLOSSARY	34

Title V Statement of Basis

A. Background

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a major facility as defined by BAAQMD Regulation 2-6-212. It is a major facility because it has the “potential to emit,” as defined by BAAQMD Regulation 2-6-218, of more than 100 tons per year of a regulated air pollutant.

Major Facility Operating permits (Title V permits) must meet specifications contained in Regulation 2, Rule 6, Major Facility Review (MFR). The permits must contain all applicable requirements (as defined in 40 CFR § 70.2), monitoring requirements, recordkeeping requirements, and reporting requirements. 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.

B. Facility Description

The West Contra Costa Sanitary Landfill (WCCSL) site includes a landfill, landfill gas combustion equipment (three internal combustion engines and an enclosed ground flare), and leachate treatment equipment. The site has also received an Authority to Construct for a fourth engine and for four micro-turbines (all burning landfill gas), which are not included in this initial Title V permit. The Title V permit will need to be modified upon construction of any of this proposed equipment.

The landfill (S-15) at this site includes two waste disposal units on contiguous property. One disposal unit is an active Class II landfill and is currently accepting municipal solid waste, non-hazardous industrial waste, construction debris, and demolition debris. The second disposal unit is a closed Class I site, which operated from the 1950s until 1985. Hazardous waste was disposed of in this closed area between 1973 and 1985. The entire contiguous landfill has a maximum design capacity of 18.2 million cubic yards (13.9 million cubic meters) and will contain 10.92 million tons of waste materials when the landfill reaches full capacity. As of December 31, 2000, WCCSL reported that the landfill contained 9.98 million tons (17.4 million cubic yards) of waste material. The landfill can accept up to 2500 tons/day of wastes and is expected to reach full capacity by the end of the first quarter in 2003.

As required by various local, state, and federal regulations, the landfill at this site is equipped with an active landfill gas collection system. Landfill gas collection systems are perforated pipes that are buried in the refuse at numerous locations. For active collection systems, the perforated pipes are connected to blowers by solid pipes (referred to as laterals and headers). The blowers maintain a vacuum in the buried refuse and draw landfill gas into the perforated pipes. The blowers then vent this collected landfill gas to control equipment. For active landfills, the perforated pipes are often placed horizontally in the refuse as filling progresses. Perforated pipes can also be installed vertically by drilling holes into refuse areas and placing the perforated pipes within these wells. WCCSL's gas collection system currently includes 16 horizontal gas collectors and 53 vertical gas collection wells. WCCSL has submitted two permit applications for numerous modifications and improvements to their current gas collection system. The District is currently reviewing these proposals. Any approved collection system changes will require a modification of the Title V permit for this site.

Collected landfill gas is mainly vented to three internal combustion engines (S-5, S-6, and S-37). These engines both produce electricity by using the landfill gas as a fuel and serve as abatement equipment for the landfill by reducing precursor organic compound and toxic compound emissions to the atmosphere. The engines are also sources of secondary pollutants (nitrogen oxides, carbon monoxide, sulfur dioxide, particulate matter, formaldehyde, and polycyclic aromatic hydrocarbons) due to the combustion process. When one or more of these engines are not operating, any collected landfill gas that exceeds the capacity of the operating engines is vented to an enclosed ground flare (A-8). This flare destroys methane and organic compounds in the landfill gas, but also generates secondary combustion emissions.

Many landfills are required to collect any liquid runoff or "leachate" from the landfill. This leachate contains small amounts of precursor organic compounds and toxic compounds and must often be treated before it can be disposed of or discharged. In accordance with their closure plans, WCCSL is required to collect and treat the leachate from the closed hazardous waste section of this landfill site. The leachate is collected in a 5000 gallon tank (S-40). The leachate is then treated by a series of conventional physical, chemical, and biological processes (S-21, S-22, S-23, S-24, S-25, S-26, S-27, S-28, S-29, S-30, S-31, S-32, S-33, S-38, and S-39) to remove heavy metals and toxic organic compounds from the water. Some equipment (S-21, S-31, S-32, and S-33) are exempt from District permit requirements and were not included in the MFR permit, because these sources are not significant sources of air emissions (as defined below in Section II.) Air emissions from the permitted leachate treatment equipment are controlled by Carbon Adsorbers (A-1, A-2, A-3, A-4, A-5, and A-6). Treated leachate is stored in three 7000 gallons tanks (S-34, S-35, and S-36). These three tanks are exempt from District permit requirements and are not included in the MFR permit, because they are not significant sources of air emissions.

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.

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, and BAAQMD Regulation 2-6-409, Permit Content, which dictate certain standard conditions that must be placed in the permit. The language that the District has developed for many of these requirements has been adopted into the BAAQMD Manual of Procedures, Volume II, Part 3, Section 4, and therefore must appear in the permit.

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

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

II. Equipment

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

Differences in the equipment list between the time that the facility originally applied for a Title V permit and the permit proposal date:

The facility has installed several new sources (S-37 Internal Combustion Engine, S-38 Oil/Water Separator, S-39 and S-40 Storage Tanks, and A-8 Landfill Gas Flare) since their application was submitted in 1995 and revised in 1997.

III. Generally Applicable Requirements

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

Unpermitted sources are exempt from normal District permits pursuant to an exemption in BAAQMD Regulation 2, Rule 1. They may, however, be specifically described in a Title V permit if they are considered a significant source pursuant to the definition in BAAQMD Rule 2-6-239.

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) listed following the corresponding District Rules. SIP rules are District rules that have been approved by EPA into the California State Implementation Plan. SIP rules are “federally enforceable” and a “Y” (yes) indication will appear in the “Federally Enforceable” column. If the SIP rule is the current District rule, separate citation of the SIP rule is not necessary and the “Federally Enforceable” column will have a “Y” for “yes”. If the SIP rule is not the current District rule, the SIP rule or the necessary portions of the SIP rule are cited separately after the District rule. The SIP portions will be federally enforceable; the non-SIP versions will not be federally enforceable, unless EPA has approved them through another program. [NOTE: for landfills, BAAQMD Regulation 8, Rule 34 is federally enforceable because it was approved into the state plan for landfills pursuant to 40 CFR § 60, Subpart Cc.]
- 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.

Permit Evaluation and Statement of Basis: Site A1840, West Contra Costa Sanitary District,
Foot of Parr Blvd, Richmond, CA

Complex Applicability Determinations

Landfills and landfill gas combustion equipment are subject to BAAQMD and SIP 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 landfill at this site be controlled by an active landfill gas collection system and a landfill gas control system since 1987.

Landfills and landfill gas combustion equipment are also potentially subject to either the federal New Source Performance Standards (NSPS) for Municipal Solid Waste (MSW) Landfills or the Emission Guidelines (EG) for MSW Landfills. The federal NSPS for MSW Landfills (40 CFR Part 60, Subpart WWW) applies to landfills that have had a design capacity modification after May 30, 1991. The EG for MSW Landfills (40 CFR Part 60, Subpart Cc) applies to landfills that have had no design capacity modification since May 30, 1991 but that have accepted waste since November 8, 1987. Although the WCCSL has had no design capacity modifications since May 30, 1991, it has accepted waste after November 8, 1987. Therefore the EG regulations are applicable to this landfill.

The California State Plan (40 CFR Part 62.1115) implements the federal EG regulations for existing landfills in California. The BAAQMD implemented these requirements by amending the existing Regulation 8, Rule 34 on October 6, 1999. On September 20, 2001, EPA published a notice in the Federal Register of its intent to adopt revisions to the California State Plan for MSW Landfills by direct final rule. The revisions listed in the 9/20/01 Federal Register notice include the addition of the October 1999 version of BAAQMD Regulation 8, Rule 34 into the California State Plan with an effective date of November 19, 2001. Therefore, the amended BAAQMD Regulation 8, Rule 34 is now federally enforceable, even though the October 1999 revisions have not yet been adopted into the SIP.

In accordance with the federal emission guidelines, BAAQMD Regulation 8, Rule 34 requires landfills with a design capacity of more than 2.5 million Mg and more than 2.5 million m³ to be equipped with a landfill gas collection system and control system. The design capacity of the West Contra Costa Sanitary Landfill exceeds these applicability criteria. Effective July 1, 2002, subject landfills and the associated collection and control systems are required to meet numerous new operating, monitoring, and reporting requirements. 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. All applicable requirements are described in Section IV of the permit.

There are no federal air regulations that apply to any of the leachate treatment equipment. This equipment is subject to several District Regulations and permit conditions as described in Section IV of the permit.

V. Schedule of Compliance

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

“409.10 A schedule of compliance containing the following elements:

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

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

The BAAQMD Compliance and Enforcement Division has conducted a review of compliance over the past year and has no records of compliance problems at this facility. The compliance report is contained in Appendix A of this permit evaluation and statement of basis.

VI. Permit Conditions

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

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.

For sources without existing throughput limits (i.e., limits on usage of materials or fuels), emissions have been calculated based on the capacity of the equipment. In order to ensure that emissions will not increase as a result of a replacement or modification that increases the capacity of a permitted source without a proper preconstruction permit review, conditions have been added to limit the daily or annual throughput of each source of the Title V permit.

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

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.

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

The District is proposing numerous changes to the permit conditions that are currently in effect. In general, these changes are necessary in order to add/revise the basis for the specific condition, to clarify the condition, to make the condition more enforceable, or to add/revise monitoring requirements. Exact text changes are identified in the draft MFR Permit. The reasons for the changes to each condition number are discussed further below.

Condition # 5771 for: S-5 and S-6

The appropriate basis was added for each part number of Condition #5771.

The limitation on venting raw landfill gas (Part 2) was clarified.

All emission limits in Parts 4, 5, and 6 are currently expressed in units of grams per brake horsepower hour (g/bhp-hr). It is difficult to determine brake horsepower in the field during a source test. Therefore, all emission limits are being converted into exhaust concentration limits (ppmv at 15% oxygen, dry basis) that can be easily verified in the field by source testing. The conversion equation is

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

$$\begin{aligned} & (\text{EL grams/bhp-hr}) \cdot (1478 \text{ bhp}) / (10.8 \text{ MM BTU/hr}) / (10^6 \text{ BTU/MM BTU}) \cdot (557 \text{ BTU/ft}^3 \text{ LFG}) / \\ & (5.1506 \text{ ft}^3 \text{ flue gas, dry, 0\% O}_2/\text{ft}^3 \text{ LFG}) / (3.521 \text{ ft}^3 \text{ flue gas, 15\% O}_2/1.0 \text{ ft}^3 \text{ flue gas, 0\% O}_2) \cdot \\ & (379.5 \text{ ft}^3/\text{lbmol}) / (453.6 \text{ grams/pound}) / (\text{MW pounds/lbmol}) \cdot (10^6 \text{ ppmv per ft}^3/\text{ft}^3) \\ & = \text{EL} \cdot (\text{bhp}) / (\text{MM BTU/hour}) \cdot 25.7 / \text{MW} = 3517 \cdot \text{EL} / \text{MW} \end{aligned}$$

NOx	1.0 grams/bhp-hour	76 ppmv at 15% O ₂ , dry
CO	3.0 grams/bhp-hour	376 ppmv at 15% O ₂ , dry
NMHC	0.8 grams/bhp-hour	175 ppmv at 15% O ₂ , dry

The annual source test required by Part 7 was expanded to require testing for all applicable NOx, CO, and hydrocarbon limits. Notification and reporting requirements were modified to conform to standard conditions for MFR permits.

The annual landfill gas characterization test and landfill gas concentration limits (originally parts 8 and 9 of Condition #5771) were consolidated with other similar requirements under the permit condition for the S-15 Landfill (Condition # 17821).

The heat input limits identified in Part 8 were added in order to make the capacity of the source federally enforceable. These limits were calculated based on the maximum firing rate (10.8 MM BTU/hour) as stated in the original permit application materials and were previously considered to be implied permit condition limits for these sources.

Daily record keeping limits (Part 9) were added to satisfy the necessary monitoring requirements for the Part 8 heat input limits.

Condition # 7463 for: S-22, S-23, S-24, S-25, S-26, S-27, S-28, S-29, S-30, S-38, S-39, S-40, A-1, A-2, A-3, A-4, A-5, and A-6

The original Part 1 (The wastewater stream shall not bypass...) is really a RCRA requirement related to the closure of the hazardous waste area of the landfill. Since this part was not required for compliance with any air permitting requirements, it was deleted.

The basis “Toxic Risk Management Policy” was added to Parts 1, 2, 7, 8, 9, 10, 11, and 12, because the Carbon Adsorbers were required for control of toxic emissions in addition to POC and total organic emissions. Minor text changes were also made to these parts to add clarity, to reference the correct part number, to reflect the proper parameter for record keeping, etc.

Under Permit Application #844, WCCSL requested to increase the capacity of the leachate treatment system, to add several new tanks, and to replace the original Secondary Oil/Water Separator (S-23) with a larger Secondary Oil/Water Separator (S-38). During the evaluation of this Title V permit, WCCSL revealed that the capacity of S-23 has to date been sufficient and that S-38 had not been

operated yet. WCCSL requested to retain both sources (S-23 and S-38) in their permit. Part 3 was added to ensure that there would be no cumulative emission increases as a result of retaining both sources in the permit.

Part 4 was based on the superceded part 12. The source numbers for the oil/water separators were added for clarity and the basis was updated for consistency with the current Regulation 8, Rule 8 requirements.

The leachate treatment system was originally limited to 5 gpm, 8 hours/day, and 5 days/week of operation. These limits were increased to 20 gpm, 24 hours/day, and 7 days/week under Application #844. Since the allowable operating times are the same as the maximum possible operating times, operating time limits are not necessary. The wastewater throughput limits reflect the maximum possible throughput rates at 20 gpm.

The daily monitoring requirement for the Carbon Adsorbers was moved from the superceded part 11 to the new Part 10. The record keeping requirements for the Carbon Adsorber monitoring (superceded part 10) were combined with other record keeping requirements in the new Part 11.

The requirement to report any Carbon Adsorber limit excesses to Permits and Enforcement (superceded part 14) was deleted, because these requirements are contained in the standard conditions of the MFR permit and in Regulation 1 requirements. There was no need to restate these reporting requirements in a specific permit condition.

Condition # 17812 for: S-37

Parts 1, 3, 4, and 5: Minor text revisions were made for clarity.

Part 2: The S-37 Internal Combustion Engine was permitted as a replacement source for the S-4 Internal Combustion Engine. Regulations 2-2-313 and 2-2-608 (October 1999 version of Regulation 2, Rule 2) indicated that a replacement source would not be subject to offsets, if the new source was limited to the same capacity and emissions (after adjusting for new BACT requirements) as the original source. The capacity of S-4 was 1215 hp and 9.55 MM BTU/hour. Although the rated capacity for S-37 is 1585 hp, it has been limited to 9.55 MM BTU/hour, 229.2 MM BTU/day, and 83,658 MM BTU/year to ensure that S-37 has no greater capacity than the replaced source. Maximum emissions from the replaced source (S-4) after adjusting for new BACT levels are determined below.

Maximum Permitted Emissions for S-37, Based on BACT Adjusted Emissions from S-4:

	<u>hp</u>	<u>g/hp-hr</u>	<u>lbs/hour</u>	<u>lbs/day</u>	<u>tons/year</u>
NOx	1215	1.00	2.679	64.29	11.732
CO	1215	2.65	7.098	170.36	31.091
POC	1215	0.60	1.607	38.57	7.039

Parts 6, 7, 8: The BACT emission limits described above are equivalent to the exhaust concentrations shown below (Definitions of the terms used below are contained in the glossary.):

$$\begin{aligned} & (\text{EL grams/bhp-hr}) \cdot (1215 \text{ bhp}) / (9.55 \text{ MM BTU/hr}) / (10^6 \text{ BTU/MM BTU}) \cdot (557 \text{ BTU/ft}^3 \text{ LFG}) / \\ & (5.1506 \text{ ft}^3 \text{ flue gas, dry, 0\% O}_2/\text{ft}^3 \text{ LFG}) / (3.521 \text{ ft}^3 \text{ flue gas, 15\% O}_2/1.0 \text{ ft}^3 \text{ flue gas, 0\% O}_2) \cdot \\ & (379.5 \text{ ft}^3/\text{lbmol}) / (453.6 \text{ grams/pound}) / (\text{MW pounds/lbmol}) \cdot (10^6 \text{ ppmv per ft}^3/\text{ft}^3) \\ & = \text{EL} \cdot (1215 \text{ bhp}) / (9.55 \text{ MM BTU/hour}) \cdot 25.7/\text{MW} = 3269.2 \cdot \text{EL}/\text{MW} \end{aligned}$$

NOx	1.00 grams/bhp-hour	71 ppmv at 15% O ₂ , dry
CO	2.65 grams/bhp-hour	309 ppmv at 15% O ₂ , dry
NMHC	0.60 grams/bhp-hour	122 ppmv at 15% O ₂ , dry

These corrected exhaust concentration limits are reflected in Parts 6, 7, and 8. The heat input limits from Part 2 and the BACT concentration limits will ensure that emission rate limits (listed in subparts b. and c. of Parts 6, 7, and 8) will not be exceeded. Therefore, the pounds/day and tons/year emission limits were deleted.

The sulfur dioxide emissions are a function of the sulfur content in the landfill gas and the heat input limits. The landfill gas sulfur content will be monitored pursuant to Condition # 17821 for the S-15 Landfill. Therefore, there is no need to limit the SO₂ emissions at S-37, and Part 9 was deleted.

The initial compliance demonstration test required by Part 11 was completed in 1999. Therefore, this part is no longer necessary, and Part 11 was deleted.

The annual source testing requirements (currently Part 10, previously Part 12) were modified to include standard MFR permit language and compliance time limits.

The record keeping requirements (currently Part 11, previously Part 13) were modified to include calculations needed to demonstrate compliance with the Part 2 heat input limits.

Condition# 17821 for: S-15 and A-8

Part 1: Waste acceptance rate limits were added to define the capacity of the landfill source. These maximum rates were provided in WCCSL's Initial Design Capacity and Emission Rate Reports and in the Collection and Control System Design Plan. Any change to these rates constitutes a modification of the landfill and is subject to the Authority to Construct requirements of Regulation 2-1-301.

Part 2: The District has been adding contaminated soil handling procedures to any landfills that accept contaminated soil in order to assure compliance with the aeration prohibitions and emission minimization requirements of Regulation 8, Rule 40. However, WCCSL stated that they would not be accepting any contaminated soil. Part 2 reflects this statement and more clearly defines what the District considers to be "contaminated soil".

Part 3: Any on-site handling operations of non-contaminated (low VOC soil) soil are subject to Regulation 8, Rule 2. Due to the fugitive nature of the emissions that occur due to handling low VOC soil, the source testing procedures typically used to determine compliance with the 300 ppm total

carbon limit are not appropriate. The calculation procedures in this part were added in order to provide a simple way to demonstrate compliance with the 15 pound/day emission limit of 8-2-301.

Part 4: The active filling operations and associated vehicle traffic can generate significant particulate emissions. These emissions are subject to Regulation 6, Section 301 and 305 (Ringelmann 1.0 and no visible emissions) limitations. Presently this facility has no means of demonstrating compliance with these limits. Additional monitoring is required pursuant to Part 70 of the Clean Air Act. Typically, landfills (including WCCSL) maintain compliance with 6-301 and 6-305 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. The District is proposing to add the requirement to use these typical dust mitigation measures (Part 4) and to keep records of all water and dust suppressant applications and road cleaning activities (Part 14.e.), in order to demonstrate compliance with the 6-301 and 6-305 limits. District inspectors will occasionally observe the landfill operations on dry days to ensure that WCCSL's dust mitigation measures are adequate to prevent visible emissions or exceedance of the Ringelmann 1.0 limit.

Part 5: Text was added to clarify that this landfill is required to control all collected gas and is prohibited from intentionally venting collected landfill gas.

Part 6: Text was added to clearly identify the required landfill gas collection system components (53 vertical wells and 16 horizontal wells). Regulation 8-34 requires that the gas collection system be operated continuously. Continuous operation is defined as having all wells and collectors operating under vacuum and with landfill gas flow. Therefore, it is critical that the landfill gas collection system be clearly defined, so that both the operator and the District are aware of which wells and collectors are required to be under vacuum (and to meet the other requirements of 8-34-305).

Part 7: The text of this condition was rephrased into the current standard continuous operation requirement for landfill gas collection systems. This part elaborates on the requirement to operate the gas collection system continuously (8-34-301.1) and is based on the definition of continuous operation (8-34-219). The exemption Sections (113,116,117,118) describe situations in which a few wells may be shut down for short periods of time in order to perform necessary installations, repairs, maintenance, etc. on the system.

Superseded Parts 4, 5, and 6: These parts were deleted because the requirements are contained in either other parts of this condition or the standard conditions of this MFR permit.

Superseded Part 7: The annual report required by Regulation 8-34-411 replaces this part.

Part 8: This part was added to clearly identify the required landfill gas control system components (S-5, S-6, and S-37 operating concurrently or A-8 operating concurrently with any 2 engines) and to

establish heat input limits for the A-8 Flare. The basis for the flare heat input limits is described in the following paragraph.

In 1987, this facility was permitted to emit a maximum of 353 lbs/day and 64.5 tons/year of NO_x, 578 lbs/day and 105.5 tons/year of CO, and 192.7 lbs/day and 35.2 tons/year of NMHC from 3 engines and 1 flare. The flare was permitted as a back-up device and was only allowed to operate when one of the engines was down. Since each engine would emit more than the flare, maximum emissions occurred when the three engines were operating together. Maximum possible emissions from this 30 MM BTU/hr flare were 17.0 lbs/day and 3.11 tons/year of NO_x and 48.0 lbs/day and 8.76 tons/year of CO. All three engines and the flare have since been replaced. The 1997 permit application for the flare replacement indicated that the new flare would operate for approximately 3 hours/day and 1100 hours/year and would have no emission increases over current maximum emission limits. The three current engines are permitted to emit a maximum of 220.7 lbs/day and 40.3 tons/year of NO_x, 639.6 lbs/day and 116.7 tons/year of CO, and 163.7 lbs/day and 29.9 tons/year of NMHC. Maximum possible emissions from the current flare (A-8) are 86.4 lbs/day and 15.77 tons/year of NO_x, 216.0 lbs/day and 39.42 tons/year of CO, and 16.2 lbs/day and 2.96 tons/yr of NMHC. Although the new flare and 3 new engines (S-5, S-6, and S-37) could all operate concurrently without exceeding the original NO_x or NMHC emission limits, concurrent operation of the flare and 3 engines would exceed the original CO emission limits of 578 lbs/day and 105.5 tons/year. Therefore, the condition prohibiting concurrent operation of the flare and all three engines must remain in place. Worst case emissions will occur when S-5 and S-6 are operating concurrently, with combined maximum emissions of 469.2 pounds/day of CO. The remaining emissions available to the A-8 Flare are:
 $(578 - 469.2) = 108.8$ pounds/day of CO at 0.20 lb CO/MM BTU = 544.0 MM BTU/day
This is equivalent to a maximum flare operating rate of 12 hours/day.

Part 9: The A-8 Landfill Gas Flare currently has no minimum temperature requirement. A combustion zone temperature limit is necessary to demonstrate on-going compliance with the 8-34-301.3 NMOC destruction efficiency requirement. The requirement to determine by source testing the appropriate minimum combustion zone temperature for this flare was added to Part 9 with the District's default minimum temperature of 1400 °F as the initial requirement.

Part 10: All landfill gas combustion equipment is subject to the 9-2-302 limit of no more than 300 ppmv of SO₂ in the exhaust (dry basis). Under theoretical combustion conditions, 300 ppmv of SO₂ in the exhaust is equal to 1300 ppmv of H₂S in landfill gas. Since the sulfur content of landfill gas can vary considerable over time, the District has determined that quarterly monitoring of the sulfur content in the landfill gas is appropriate.

Part 11: The annual source test required by 8-34-412 is described in more detail in Part 11.

Parts 12 and 13: The toxic compound emission limits and annual landfill gas characterization requirement from Condition # 5771 for the S-5 and S-6 Engines was moved to Condition # 17821, Parts 12 and 13, because these requirements really apply to the entire landfill and not just to S-5 and S-6. In addition Regulation 8-34-412 also requires an annual characterization of the landfill gas. These two requirements were combined in Parts 12 and 13.

Part 14: Additional record keeping requirements were added to ensure compliance with the gas collection system installation requirements of 8-34-304, the collection system continuous operation requirements of 8-34-301.1, the waste acceptance limits of Part 1, the low VOC soil acceptance limits of Part 3, the dust mitigation requirement of Part 4, and several other new 8-34-501 record keeping requirements.

VII. Applicable Limits and Compliance Monitoring Requirements

This section of the permit is a summary of numerical limits and related monitoring requirements that apply to each source. The summary includes a citation for each monitoring requirement, frequency, and type. 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 the authority to impose additional monitoring where: (1) the existing applicable requirement does not require monitoring AND (2) monitoring is necessary to assure compliance with such applicable requirement.

The tables below show the limits that, prior to incorporation in the Title V permit, lack periodic monitoring requirements. Additional monitoring, if any, imposed pursuant to Title V is shown in the last column. The basis for the monitoring decision is present in the discussion following each table. Applicable limits not shown in the following tables have adequate monitoring, and so no additional monitoring is being proposed in the Title V permit.

NO_x Sources

Affected Sources	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-5, S-6, S-37, Engines	BAAQMD 9-8-302.1	Waste Fuel Gas, Lean-Burn ≤ 140 ppmv, dry basis @ 15% O ₂ expressed as NO ₂	Annual source test

NO_x Discussion:

The District has imposed a standard annual source test requirement for NO_x limits on all landfill-gas fueled engines in Title V permits.

CO Sources

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

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-5, S-6, S-37, Engines	BAAQMD 9-8-302.3	Waste Fuel Gas: ≤ 2000 ppmv, dry basis @ 15% O ₂	Annual source test

CO Discussion:

The District has imposed a standard annual source test requirement for CO limits on all landfill-gas fueled engines in Title V permits.

SO₂ Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-5, S-6, S-37, Engines A-8, Landfill Gas Flare	BAAQMD 9-1-302	300 ppm (dry)	Quarterly Sulfur Analysis of Landfill Gas and Annual Source Test

SO₂ Discussion:

BAAQMD 9-1-302:

This facility will be subject to a federally enforceable limit of 1300 ppmv of total reduced sulfur (TRS) compounds in the landfill gas. This limit will ensure compliance with the BAAQMD Regulation 9-1-302 emission limit of 300 ppmv of SO₂ in the engine exhaust because the air required for combustion dilutes the concentration of sulfur compared to the concentration in the landfill gas. Staff has proposed permit conditions that require the landfill gas to be monitored for total reduced sulfur content (on a quarterly basis) to ensure compliance with the landfill gas concentration limit of 1300 ppmv of TRS. District source tests indicated that the actual concentration of TRS in typical Bay Area landfill gas is less than 400 ppmv of TRS. One test indicates a TRS concentration of 70 ppmv for this site. Facility wide sulfur dioxide emissions are not significant (less than a third of the allowable emission rate).

Sources of Organics

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-5, S-6, Engines	BAAQMD 8-34-114	90% removal by weight	Annual Source Test
S-5, S-6, Engines	SIP 8-34-114	90% removal by weight	Annual Source Test

Sources of Organics

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-15, Landfill	BAAQMD 8-2-301	15 pounds/day or 300 ppm, dry basis (applies only to aeration of or use as cover soil of soil containing < 50 ppmw of volatile organic compounds)	Records
S-15, Landfill	BAAQMD Condition # 17821, Part 2	Facility shall not accept soil containing more than 50 ppmw of VOC	Records
S-22, S-23, S-38, Separators, A-1, A-2, Carbon Adsorbers	BAAQMD 8-8-301.3	combined collection and removal efficiency of at least 95% by weight	Daily FID Measurements at Carbon Adsorbers and Daily Records of Wastewater Throughput
S-30, Air Stripper, A-3-A6, Carbon Adsorbers	BAAQMD 8-47-301 and 8-47-302	control device shall reduce total organic compound emissions to the atmosphere by at least: 90% by weight	Daily FID Measurements at Carbon Adsorbers, Daily Records of Wastewater Throughput and Monthly Records of Water Analyses
S-37, Engine	BAAQMD 8-34-301.4a	97% removal by weight	Annual Source Test
S-37, Engine	SIP 8-34-301.3	97% removal by weight	Annual Source Test
A-8, Landfill Gas Flare	BAAQMD 8-34-301.3a	98% removal by weight	Annual Source Test
A-8, Landfill Gas Flare	SIP 8-34-301.2	98% removal by weight	Annual Source Test

POC Discussion:

The District has imposed a standard annual source test requirement for all organic destruction limits on all landfill-gas fueled engines and flares in Title V permits.

The on-site handling operations of non-contaminated (low VOC soil) soil at the S-15 Landfill are subject to Regulation 8, Rule 2, Section 301. Due to the fugitive nature of the emissions that occur due to handling low VOC soil, the source testing procedures typically used to determine compliance with the 300 ppm total carbon limit are not appropriate. Therefore, calculation procedures were added in the permit condition in order to provide a simple way to demonstrate compliance with the 15 pound VOC/day emission limit of 8-2-301.

FID (flame ionization detector) measurements are a standard method of monitoring fugitive emissions at wastewater sources and outlet concentration from carbon adsorbers.

Particulate Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-15, Landfill	BAAQMD Condition # 17821, Part 2	Ringelmann No. 1 for < 3 minutes/hr	Records of all site watering and road cleaning events

Particulate discussion:

A detailed discussion of the particulate monitoring for this source and limit can be found in Section C.IV, Condition 17821, Part 4.

Other Limits

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-5, S-6, S-37, Engines	BAAQMD Condition # 5771, Part 8	259.2 MM BTU per day (each engine) and 94,608 MM BTU per year (each engine)	Gas Flow Meter and Recorder and Records
S-15, Landfill	BAAQMD Condition # 17821, Part 1	≤ 2500 tons/day and ≤ 10,920,000 tons (cumulative amount of all wastes) and ≤ 18,200,000 yd ³ (cumulative amount of all wastes and cover materials)	Records
S-22, S-23, S-38, Separators, A-1, A-2, Carbon Adsorbers, S-24-S-26, S-39, S-40, Tanks, S27, Clarifier, S-28, Air Stripper Sump, S-30, Air Stripper, A-3-A6, Carbon Adsorbers	BAAQMD Condition # 7463, Part 5	1200 Gallons/Hour 28,800 Gallons/Day 10,512,000 Gallons/Year	Records
S-37, Engine	BAAQMD Condition # 17812, Part 2	229.2 MM BTU per day and 83,658 MM BTU per consecutive 12-month period	Gas Flow Meter and Recorder and Records

Other Limits

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
A-8, Flare	BAAQMD Condition # 17821, Part 8	≤ 544 MM BTU per day and ≤ 198,560 MM BTU per year	Records

Other Limits Discussion:

The use of a gas flow meter and records is a standard method for monitoring for heat input limits to engines and flares.

The use of records is a standard method for monitoring for waste acceptance rates and wastewater throughput rates.

Federally Enforceable Emission Limits Without Monitoring

The District staff has determined that periodic or continuous monitoring is either not necessary or not appropriate for these emission limits. The specific reasons for these determinations are discussed following the table.

Affected Sources	Emission Limit Citation	Federally Enforceable Emission Limit	Maximum Potential Emissions	Monitoring Recommendation
Internal Combustion Engines (S-5, S-6, and S-37) and Landfill Gas Flare (A-8)	BAAQMD 6-301	Ringelmann 1.0 (particulate limit)	S-5: 2.24 tons/year PM ₁₀ S-6: 2.24 tons/year PM ₁₀ S-37: 1.98 tons/year PM ₁₀ A-8: 1.67 tons/year PM ₁₀	None
Internal Combustion Engines (S-5, S-6, and S-37) and Landfill Gas Flare (A-8)	BAAQMD 6-310	0.15 grains of FP per dry standard cubic foot of exhaust	S-5: 2.24 tons/year PM ₁₀ S-6: 2.24 tons/year PM ₁₀ S-37: 1.98 tons/year PM ₁₀ A-8: 1.67 tons/year PM ₁₀	None
Internal Combustion Engines (S-5, S-6, and S-37), and Landfill Gas Flare (A-8)	BAAQMD 9-1-302	Property Line Ground Level Limits (SO ₂) ≤ 0.5 ppm for 3 minutes, ≤ 0.25 ppm for 60 minutes, and ≤ 0.05 ppm for 24 hrs	S-5: 6.96 tons/year SO ₂ S-6: 6.96 tons/year SO ₂ S-37: 6.15 tons/year SO ₂ A-8: 14.60 tons/year SO ₂	None
Landfill (S-15), Internal Combustion Engines (S-5, S-6, and S-37), and Landfill Gas Flare (A-8)	BAAQMD 9-2-301	Property Line ground level limits (H ₂ S) ≤ 0.06 ppm Averaged over 3 minutes and ≤ 0.03 ppm Averaged over 60 minutes	3.73 tons/year of H ₂ S	None
Landfill (S-15)	BAAQMD 8-34-303a (expires 7/1/02) and SIP 8-34-303	1000 ppmv as methane, measured at 3 inches above landfill surface	~ 14.03 tons/year of POC	None Until 7/1/02
Oil/Water Separators (S-22, S-23, and S-38)	BAAQMD 8-8-303	vapor tight covers, seals, and lids	(before control by A-1 - A-2) S-22: 0.07 tons/year POC S-23: 0.07 tons/year POC S-38: 0.07 tons/year POC	None
Oil/Water Separators (S-22, S-23, and S-38), Leachate Treatment System Tanks (S-24, S-25, S-26, S-27, S-28, S-29, S-39, and S-40), and Air Stripper (S-30)	BAAQMD Condition # 7463, Part 6	Leak Limit for Valves, Flanges or Pumps: 100 ppmv (above background at 1 cm from any component)	(before control by A-1-A-6) S-22: 0.07 tons/year POC S-23: 0.07 tons/year POC S-38: 0.07 tons/year POC S-24: 0.04 tons/year POC S-25: 0.01 tons/year POC S-26: 0.01 tons/year POC S-27: 0.08 tons/year POC S-28: 0.00 tons/year POC S-29: 0.02 tons/year POC S-39: 0.00 tons/year POC S-40: 0.08 tons/year POC S-30: 11.76 tons/year POC	None

BAAQMD 6-301:

Particulate emissions from lean-burn internal combustion engines fired on landfill gas are expected to be similar to engines burning natural gas. AP-42 emission factors for these two fuels are 0.046 pounds of PM₁₀ per MM BTU for natural gas and 0.0474 pounds PM₁₀ per MM BTU for landfill gas. As with natural gas combustion, visible emissions are not normally associated with the proper combustion of

landfill gas. Since particulate emissions are not significant and violations of Ringelmann 1.0 limit are not expected, periodic monitoring for the Ringelmann limit would not be appropriate for these engines.

Particulate emissions from enclosed ground flares burning landfill gas are also expected to be similar to flares burning natural gas. The AP-42 emission factor is 0.0168 pounds/MM BTU for an enclosed ground flare burning landfill gas. Visible emissions are not normally associated with the proper combustion of landfill gas in an enclosed ground flare. Since particulate emissions are not significant and violations of Ringelmann 1.0 limit are not expected, periodic monitoring for the Ringelmann limit would not be appropriate for this flare.

BAAQMD 6-310:

Using the AP-42 emission factor for landfill gas combustion in a lean burn engine (0.048 pounds PM_{10} /MM BTU) and typical landfill gas data (heat content of 557 BTU/scf at 55% methane), the particulate grain loading in the engine exhaust is calculated to be 0.036 grains/dscf at 0% oxygen. The grain loading limit (0.15 grains/dscf) is far above any expected PM emissions. It would therefore not be appropriate to add periodic monitoring for this standard.

Using the AP-42 emission factor for landfill gas combustion in a flare (0.017 pounds PM_{10} /MM BTU) and typical landfill gas data (heat content of 557 BTU/scf at 55% methane), the particulate grain loading in the flare exhaust is calculated to be 0.013 grains/dscf at 0% oxygen. The grain loading limit (0.15 grains/dscf) is far above any expected PM emissions. It would therefore not be appropriate to add periodic monitoring for this standard.

BAAQMD 9-1-301:

This facility will be subject to a federally enforceable limit of 1300 ppmv of total reduced sulfur (TRS) compounds in the landfill gas. This limit will ensure compliance with the BAAQMD Regulation 9-1-302 emission limit of 300 ppmv of SO_2 in the engine exhaust. Staff has proposed permit conditions that require the landfill gas to be monitored for total reduced sulfur content (on a quarterly basis) to ensure compliance with the landfill gas concentration limit of 1300 ppmv of TRS. District source tests indicated that the actual concentration of TRS in typical Bay Area landfill gas is less than 400 ppmv of TRS. One test indicates a TRS concentration of 70 ppmv for this site. Facility wide sulfur dioxide emissions are not significant (less than a third of the allowable emission rate). Sources complying with the 9-1-302 limit are not expected to exceed the ground level concentration limits listed in BAAQMD Regulation 9-1-301. Monitoring for ground level SO_2 concentrations in addition to the proposed landfill gas monitoring would not be appropriate.

BAAQMD 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 a concentration of 0.005 ppmv or less. Therefore, hydrogen sulfide emissions are typically discovered by smell well before the concentration approaches the lowest 9-2-301 emission limit of 0.03 ppmv. The District rarely ever receives complaints about

hydrogen sulfide odors from Bay Area landfills and has never received any complaints about hydrogen sulfide odors from this facility. Since hydrogen sulfide odors have not been detected at this facility, the concentration of hydrogen sulfide at the property line is expected to be well below the Regulation 9-1-301 limits. Furthermore, the maximum potential hydrogen sulfide emissions are not significant (3.73 tons/year) and actual hydrogen sulfide emissions are expected to be much lower (less than 0.7 tons/year of H₂S, based on a more typical TRS concentration of 70 ppmv in landfill gas). Monitoring for ground level H₂S concentrations would not be appropriate for such low emission rates unless an on-going hydrogen sulfide odor problem has been documented.

BAAQMD 8-34-303a and SIP 8-34-303:

Surface leaks of total organic compounds (TOC) from the S-15 Landfill are currently limited to 1000 ppmv as methane. This limit will expire on 7/1/02 and be replaced by a more stringent limit of 500 ppmv as methane. New quarterly surface emissions monitoring and monthly cover integrity monitoring requirements will become effective on 7/1/02, in conjunction with the change to the surface leak limit. Implementation of the surface emission and cover monitoring plans requires a long lead time for preparing monitoring plans, obtaining District approval, purchasing equipment and/or engaging in contracts with testing companies. This facility has been preparing to begin implementation of their monitoring plan by 7/1/02 and will not be ready to begin monitoring any sooner than the scheduled effective date of 7/1/02. Therefore, no monitoring is recommended for this interim TOC surface emission limit of 1000 ppmv as methane.

BAAQMD 8-8-303:

The Oil/Water Separators are processing wastewater that contains less than 300 ppm by weight of volatile organic compounds (VOCs). A leaking seal, cover or lid on a gauge or sampling port is most similar to a leaking connector. Using the SOCMi emission factor for a leaking connector and correcting for the VOC concentration in the waste water results in a maximum emission rate of 3.5E-3 lbs/day (<2 lbs/year) per seal. Due to the low concentration of VOCs in the wastewater, any component leaks are not expected to result in any detectable level of VOC emissions in the atmosphere. Therefore, monitoring for compliance with this vapor tight requirement is not necessary.

(The SOCMi emission factors are attached in Appendix B.)

BAAQMD Condition # 7463, Part 6:

The leachate treatment equipment is processing wastewater that contains less than 300 ppm by weight of volatile organic compounds (VOCs). A leaking pump would result in the highest emission rate. Using the SOCMi emission factor for a leaking pump and correcting for the VOC concentration in the waste water results in a maximum emission rate of 9.8E-3 lbs/day (<4 lbs/year) per pump. Due to the low concentration of VOCs in the wastewater, any leaking valves, flanges, or pumps (at any liquid leachate treatment sources) are not expected to result in any detectable VOC emissions in the atmosphere. Therefore, monitoring for compliance with the POC leak limit is not necessary.

The S-30 Air Stripper includes both liquid and gas phase streams. The maximum exhaust rate is 200 cfm. The average concentration of VOCs in the exhaust stream is 5400 ppmv as methane. Maximum emissions would occur from a leaking compressor. Using the SOCFMI average emission factor for leaking compressors and correcting for the VOC concentration in the gas stream results in a maximum emission rate of 0.065 pounds/day (<24 pounds/year) from the compressor. Average emissions due to equipment leaks from all S-30 components (compressor, pump, valves, and flanges) are estimated to be less than 30 pounds/year (0.015 tons/year) of POC. Periodic monitoring for equipment leaks is not justified for such low emission rates.

VIII. Test Methods

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

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

IX. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in 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. Therefore, this permit has no streamlining.

Following is the detail of the permit shields that were requested by the applicant.

The applicant requested permit shields from BAAQMD Regulation 9-2-301 and 9-2-501 for sources S-3, S-4, S-5, S-6, and S-15. Regulation 9-2-301 limits ground level hydrogen sulfide (H₂S) emissions. Regulation 9-2-501 requires ground level monitoring for certain facilities. Neither of these regulations is federally enforceable. The permit shield was requested on the basis that the S-15 Landfill and IC Engines (S-3, S-4, S-5, and S-6) do not emit H₂S. Sources S-3 and S-4 have been shut down and are no longer operating. At the time this application was submitted 9-2-501 required ground level monitoring for any source which emitted any amount of H₂S. Regulation 9-2-501 was modified on October 6, 1999 and now only requires monitoring if the APCO deems that monitoring is necessary. The APCO has not deemed that ground level H₂S monitoring is necessary for this facility (nor for any

other landfill). Therefore, S-5, S-6, and S-15 are not subject to Regulation 9-2-501 and a permit shield is not necessary. The District has a landfill gas analysis for this site indicating that their landfill gas contains approximately 70 ppmv of hydrogen sulfide. Since there is no basis to WCCSL's claim that S-5, S-6, and S-15 do not emit H₂S, the permit shield from Regulation 9-2-301 is denied. The MFR permit reflects that S-5, S-6, S-15, S-37, and A-8 are subject to BAAQMD Regulation 9-2-301.

The applicant also requested a permit shield from BAAQMD Regulation 8, Rule 2 for S-3, S-4, S-5, S-6, and S-15. As discussed above, S-3 and S-4 have been shut down. Regulation 8-2-201 defines a miscellaneous operation as: "Any operation other than those limited by other Rules of this Regulation 8 and the Rules of Regulation 10." Since S-5, S-6, and S-15 are subject to Regulation 8, Rule 34 requirements for emissions related to the collection and control of landfill gas, these operations are not considered to be "miscellaneous operations" by definition 8-2-201. Since S-15 is an active landfill, the on-site handling and disposal of certain material is potentially subject to other District regulations. The on-site handling and disposal of low VOC soil is the only operation that emits organic compounds and that is not subject to other Regulation 8 requirements or to Regulation 10. In conclusion, S-5 and S-6 are not subject to Regulation 8, Rule 2 and a permit shield is not necessary. The collection and control of landfill gas at S-15 is not subject to Regulation 8, Rule 2. However, the on-site handling of low VOC soil is subject to Regulation 8, Rule 2. Instead of granting a permit shield from the 8-2-301 requirement, the District is proposing an emission limit, calculation procedure, and record keeping requirements (Condition # 17821, Parts 3 and 14.d.), which will ensure compliance with the 8-2-301 limits.

D. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility.

E. Compliance Status:

A September 20, 2001 office memorandum from the Director of Compliance and Enforcement to the Director of Permit Services presents a review of the compliance record of the facility (Site #1840). The Compliance and Enforcement Division staff has reviewed the records for the period between 9/1/00 through 9/1/01. During the period subject to review, activities known to the District include:

- There was a one-day violation issued on 5/10/01.
- The District did not receive any alleged complaints.
- The facility is not operating under a Variance or an Order of Abatement from the District Board.
- There were no monitor excesses or equipment breakdowns reported or documented by District staff.

The owner certified that all equipment was operating in compliance on October 24, 1995. No non-compliance issues have been identified to date.

West Contra Costa Sanitary Landfill stated that they are in full compliance with all applicable local, state, and federal air quality requirements by signing compliance certification statements on October 24, 1995 and April 14, 1997.

F. Differences between the Application and the Proposed Permit:

The Title V permit application was originally submitted on October 24, 1995 and revised on April 14, 1997. The 1997 version is the basis for constructing the proposed Title V permit. Revisions were made to the application to include the leachate treatment operations, which were initially approved pursuant to Permit Application #7707 and later modified pursuant to Permit Application #844. Differences between the application and the proposed permit include the following:

Throughput limits (identified by a basis of Regulation 2-1-234.3) have been added to all sources with no existing throughput or emission limits.

In their application, WCCSL identified numerous applicable requirements for the Internal Combustion Engines (S-5 and S-6), Landfill (S-15), and Leachate Treatment Equipment (S-22, S-23, S-24, S-25, S-26, S-27, S-28, S-29, and S-30). The District agrees that the District and federal regulations identified by WCCSL are applicable to S-5, S-6, S-15, and S-22 through S-29 with several regulations having new applicable amendments. The District has also identified several other regulations with specific applicable requirements.

In addition to the requirements cited by WCCSL, S-5, S-6, are subject to: BAAQMD Regulation 1; Regulation 9, Rule 2; 40 CFR Part 60, Subparts A and Cc; 40 CFR Part 62; and BAAQMD Conditions # 5771.

In addition to the requirements cited by WCCSL, S-15 is subject to: BAAQMD Regulation 1; Regulation 8, Rule 2; Regulation 9, Rule 2; 40 CFR Part 60, Subparts A and Cc; 40 CFR Part 62; and BAAQMD Condition # 17821.

In addition to the requirements cited by WCCSL, S-22 and S-23 are subject to BAAQMD Regulation 8-8-303, 501, 503, and 504 and BAAQMD Condition # 7463.

WCCSL stated that S-30 was subject to Regulation 8-2-301 and Permit Condition # 7463. At the time the application was submitted, this was true. However, modifications approved in June 2000 resulted in S-30 losing its exemption from Regulation 8, Rule 47. S-30 is now subject to Regulation 8, Rule 47 and BAAQMD Condition # 7463.

In addition, WCCSL has installed several new sources (S-37 Internal Combustion Engine, S-38 Oil/Water Separator, S-39 and S-40 Storage Tanks, and A-8 Landfill Gas Flare) since their application was submitted in 1995 and revised in 1997. All of the applicable requirements for this equipment are listed in the MFR Permit.

Permit Evaluation and Statement of Basis: Site A1840, West Contra Costa Sanitary District,
Foot of Parr Blvd, Richmond, CA

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Permit Evaluation and Statement of Basis: Site A1840, West Contra Costa Sanitary District,
Foot of Parr Blvd, Richmond, CA

APPENDIX A
BAAQMD COMPLIANCE REPORT

APPENDIX B

POTENTIAL TO EMIT CALCULATIONS

Emission Calculations:

The calculations of maximum potential emissions and conversions to various applicable limits are described in more detail below.

Particulate Matter from Internal Combustion Engines (S-5, S-6, S-37) and Flare (A-8):

Maximum potential particulate matter emissions were based on the maximum permitted heat input rates identified in the permit conditions and the AP-42 emission factors (page 2.4-15) of: 48 pounds PM₁₀ per MM dscf of methane for landfill gas combustion in an engine and 17 pounds PM₁₀ per MM dscf of methane for landfill gas combustion in a flare. The emission factors were converted to units of pounds PM₁₀/MM BTU by using the following equation:

$$(1 \text{ lbs/MM dscf CH}_4) * (0.55 \text{ dscf CH}_4/\text{dscf LFG}) / (557 \text{ BTU/dscf LFG}) = 9.87\text{E-}4 \text{ lbs/MM BTU}$$

Maximum Potential PM₁₀ Emissions

	MM BTU/year	Pounds PM ₁₀ /MM BTU	tons/year of PM ₁₀
S-5	94,608	0.0474	2.242
S-6	94,608	0.0474	2.242
S-37	83,658	0.0474	1.983
A-8	198,560	0.0168	1.668

The outlet grain loading conversions for the engines and the flare are:

$$(0.0474 \text{ lbs/MM BTU}) * (7000 \text{ grains/lb}) / (10^6 \text{ BTU/MM BTU}) * (557 \text{ BTU/scf LFG}) / (5.1506 \text{ scf flue gas @ 0\% O}_2/\text{scf LFG}) = 0.036 \text{ grains/dscf @ 0\% O}_2$$

$$(0.0168 \text{ lbs/MM BTU}) * (7000 \text{ grains/lb}) / (10^6 \text{ BTU/MM BTU}) * (557 \text{ BTU/scf LFG}) / (5.1506 \text{ scf flue gas @ 0\% O}_2/\text{scf LFG}) = 0.013 \text{ grains/dscf @ 0\% O}_2$$

Sulfur Dioxide from Internal Combustion Engines (S-5, S-6, S-37) and Flare (A-8):

Maximum potential sulfur dioxide emissions were based on the maximum permitted heat input rates identified in the permit conditions and the maximum expected sulfur content in the landfill gas. Based on source test data all Bay Area landfill gas is expected to contain no more than 400 ppmv of TRS, expressed as H₂S. All H₂S is assumed to be converted to SO₂ during combustion. Worst case SO₂ emissions will occur when burning landfill gas with low heat content. The lowest expected heat content is 450 BTU/scf. The emission factor (pounds SO₂/MM BTU) is determined by using the following equation:

$$(400 \text{ scf H}_2\text{S}/10^6 \text{ scf LFG})/(450 \text{ BTU}/\text{scf LFG}) \cdot (10^6 \text{ BTU}/\text{MM BTU})/(387 \text{ scf H}_2\text{S}/\text{lbmol H}_2\text{S}) \cdot (1 \text{ lbmol SO}_2/1 \text{ lbmol H}_2\text{S}) \cdot (64.06 \text{ lbs SO}_2/\text{lbmol SO}_2) = 0.1471 \text{ pounds SO}_2/\text{MM BTU}$$

Maximum Potential SO₂ Emissions

	MM BTU/year	pounds SO ₂ /MM BTU	tons/year of SO ₂
S-5	94,608	0.1471	6.958
S-6	94,608	0.1471	6.958
S-37	83,658	0.1471	6.153
A-8	198,560	0.1471	14.604

The sulfur dioxide standard (300 ppmv in the exhaust) is equivalent to a landfill gas H₂S content of 1300 ppmv as calculated below. The landfill gas is assumed to having a heat content of 450 BTU/scf, a methane content of 45%, and a theoretical dry flue gas factor of 4.3949 ft³ flue/ft³ LFG at 0% excess oxygen.

$$(300 \text{ scf SO}_2/10^6 \text{ scf flue gas}) \cdot (4.3949 \text{ scf flue}/\text{scf LFG}) \cdot (1 \text{ scf H}_2\text{S}/1 \text{ scf SO}_2) \cdot (10^6) = 1318 \text{ ppmv of total reduced sulfur (TRS) as H}_2\text{S in landfill gas}$$

Bay Area landfill gas contains no more than 400 ppmv of H₂S or 30% of the standard. WCCSL landfill gas contains about 70 ppmv of H₂S or about 5% of the standard.

POC Emissions from S-15 Landfill:

From WCCSL’s Collection and Control System Design Plan, the maximum landfill gas generation rate is expected to be 1520 scfm. WCCSL is currently collecting an average of 893 scfm of landfill gas. Assuming the landfill gas contains 595 ppmv of NMOC as hexane, maximum NMOC generated is 53 tons/year.

$$(1520 \text{ scf}/\text{min}) \cdot (60 \text{ min}/\text{hour}) \cdot (24 \text{ hours}/\text{day}) \cdot (365 \text{ days}/\text{year}) \cdot (595 \text{ scf NMOC}/10^6 \text{ scf LFG}) / (387 \text{ scf NMOC}/\text{lbmol NMOC}) \cdot (86.18 \text{ pounds NMOC}/\text{lbmol NMOC}) / (2000 \text{ pounds}/\text{ton}) = 52.93 \text{ tons}/\text{year of NMOC generated}$$

Assuming 75% collection efficiency and 98% control efficiency and that all NMOC is POC, maximum potential POC emissions are:

$$(52.93 \text{ tons}/\text{year}) \cdot (0.75) \cdot (1.00 - 0.98) + (52.93 \text{ tons}/\text{year}) \cdot (0.25) = 14.03 \text{ tons}/\text{year of POC}$$

POC Emissions from S-22 through S-30 and S-38 through S-40:

Maximum uncontrolled POC emissions from the leachate treatment sources were taken from Permit Application #844. All calculations were based on the procedures described in AP-42 Chapter 4.3. All

uncontrolled emissions are vented to Carbon Adsorbers achieving at least 95% control of organics. Maximum permitted emissions (after control) are only 0.61 tons/year for all sources combined.

SOCMI leak factors are used to estimate emissions from leaking components. These factors are attached.

Leaking Connector:

$$(0.22 \text{ kg/hour}) * (300 \text{ kg VOC}/10^6 \text{ kg liquid}) / (0.4536 \text{ kg/lb}) * (24 \text{ hrs/day}) * (365 \text{ days/yr}) \\ = 1.3 \text{ pounds/year}$$

Leaking Pump:

$$(0.62 \text{ kg/hour}) * (300 \text{ kg VOC}/10^6 \text{ kg liquid}) / (0.4536 \text{ kg/lb}) * (24 \text{ hrs/day}) * (365 \text{ days/yr}) \\ = 3.6 \text{ pounds/year}$$

Concentration of Organics in Air Stripper Gas Streams:

$$(11.76 \text{ tons/yr}) * (2000 \text{ lbs/ton}) / (365 \text{ days/yr}) / (24 \text{ hrs/yr}) / (60 \text{ mins/hr}) / (200 \text{ ft}^3/\text{min}) / (16.04 \\ \text{ lbs/lbmol}) * (387 \text{ ft}^3/\text{lbmol}) * (10^6) = 5398 \text{ ppmv of VOC in exhaust from S-30 Air Stripper}$$

Leaking Compressor:

$$(0.228 \text{ kg/hour}) * (5400 \text{ kg VOC}/10^6 \text{ kg gas}) / (0.4536 \text{ kg/lb}) * (24 \text{ hrs/day}) * (365 \text{ days/yr}) \\ = 23.8 \text{ pounds/year}$$

Total Air Stripper Components Using Average SOCMI Emission Factors:

$$\text{Gas: } (1 * .228 + 5 * .00597) = 0.25785 \text{ kg gas/hr}$$

$$\text{Liquid: } (5 * .00403 + 1 * 0.0199 + 10 * .00183) = 0.05835 \text{ kg liquid/hr}$$

$$(0.25785 \text{ kg/hr}) * (104.3 \text{ lbs VOC/year} / \text{kg gas/hr}) = 26.9 \text{ pounds VOC/year} \\ (0.05835 \text{ kg/hr}) * (5.8 \text{ lbs VOC/year} / \text{kg liquid/hr}) = \underline{0.3} \text{ pounds VOC/year} \\ \underline{\underline{27.2 \text{ pounds VOC/year}}}$$

Hydrogen Sulfide Emissions from Landfill (S-15), Internal Combustion Engines (S-5, S-6, S-37), and Flare (A-8):

From WCCSL's Collection and Control System Design Plan, the maximum landfill gas generation rate is expected to be 1520 scfm. Based on source test data all Bay Area landfill gas is expected to contain no more than 400 ppmv of TRS, expressed as H₂S. Assuming all of the total reduced sulfur content is hydrogen sulfide (H₂S), maximum H₂S generated is 14 tons/year.

$$(1520 \text{ scf/min}) * (60 \text{ min/hour}) * (24 \text{ hours/day}) * (365 \text{ days/year}) * (400 \text{ scf H}_2\text{S}/10^6 \text{ scf LFG}) / (387 \text{ scf} \\ \text{ H}_2\text{S/lbmol H}_2\text{S}) * (34.08 \text{ pounds H}_2\text{S/lbmol H}_2\text{S}) / (2000 \text{ pounds/ton}) \\ = 14.07 \text{ tons/year of H}_2\text{S generated}$$

Assuming 75% collection efficiency and 98% control efficiency, maximum potential H₂S emissions from S-15 are:

Permit Evaluation and Statement of Basis: Site A1840, West Contra Costa Sanitary District,
Foot of Parr Blvd, Richmond, CA

$$(14.07 \text{ tons/year}) * (0.75) * (1.00 - 0.98) + (14.07 \text{ tons/year}) * (0.25) = 3.73 \text{ tons/year of H}_2\text{S}$$

Permit Evaluation and Statement of Basis: Site A1840, West Contra Costa Sanitary District,
Foot of Parr Blvd, Richmond, CA

APPENDIX C

GLOSSARY

ACT

Federal Clean Air Act

AP-42

EPA's Compilation of Air Pollutant Emission Factors, Fifth Edition. Available at:
<http://www.epa.gov/ttn/chief/ap42/index.html>

APCO

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

ARB

Air Resources Board

BAAQMD

Bay Area Air Quality Management District

BACT

Best Available Control Technology

Basis

The underlying authority which allows the District to impose requirements.

CAA

The federal Clean Air Act

CAAQS

California Ambient Air Quality Standards

CAPCOA

California Air Pollution Control Officers Association

CEQA

California Environmental Quality Act

CFR

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

CH4

Methane

CO

Carbon Monoxide

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

EL

Emission limit

EPA

The federal Environmental Protection Agency.

Excluded

Not subject to any District regulations.

Federally Enforceable, FE

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

FID

Flame Ionization Detector

FP

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

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.

H2S

Hydrogen sulfide

LFG

Landfill gas

Major Facility

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

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.

MOP

The District's Manual of Procedures.

MSW

Municipal solid waste

MW

Molecular weight

NAAQS

National Ambient Air Quality Standards

NESHAPS

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

NMHC

Non-methane Hydrocarbons (Same as NMOC)

NMOC

Non-methane Organic Compounds (Same as NMHC)

NO_x

Oxides of nitrogen.

NSPS

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

NSR

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

O₂

Oxygen

Offset Requirement

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

Phase II Acid Rain Facility

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

POC

Precursor Organic Compounds

PM

Particulate Matter

PM10

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.

RCRA

Resource Conservation and Recovery Act

SIP

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

SO2

Sulfur dioxide

SOCMI

Synthetic Organic Compound Manufacturing Industry

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 Plan

TRS

Total Reduced Sulfur

TSP

Total Suspended Particulate

VOC

Volatile Organic Compounds

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
BTU	=	British Thermal Unit
°C	=	degrees Centigrade
cfm	=	cubic feet per minute
dscf	=	dry standard cubic feet
°F	=	degrees Fahrenheit
ft ³	=	cubic feet
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
gr	=	grains
hp	=	horsepower
hr	=	hour
lb	=	pound
lbmol	=	pound-mole
in	=	inches
max	=	maximum
m ²	=	square meter
m ³	=	cubic meters
min	=	minute
mm	=	million
MM	=	million
MM BTU	=	million BTU
MMcf	=	million cubic feet
Mg	=	mega grams
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
yd	=	yard
yd ³	=	cubic yards
yr	=	year