

Bay Area Air Quality Management District

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**Permit Evaluation
and
Statement of Basis
for
RENEWAL of**

MAJOR FACILITY REVIEW PERMIT

for
**City of Sunnyvale Water Pollution Control
Facility #A0733**

Facility Address:
1444 Borregas Ave.
Sunnyvale, CA 94089

Mailing Address:
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Application Engineer: Hon Man

Site Engineer: Carol Lee

Application: 3931

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Title V Statement of Basis

A. Background

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a 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 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 A0733.

This facility received its initial Title V permit on July 11, 1997. This application is for a permit renewal. Although the current permit expired on July 1, 2002, it continues in force until the District takes final action on the permit renewal. The standard sections of the permit have changed since the permit was first issued. The proposed permit shows all changes to the permit in strikeout/underline format.

B. Facility Description

City of Sunnyvale Water Pollution Control Facility (CSWPCF) treats wastewater from sanitary and storm sewer systems prior to discharge into the Bay or reuse as reclaimed water. Air emissions result from the normal treatment processes of wastewater influent containing chemicals, solvents, etc as discharged by residential and industrial sources and from combustion of digester gas, landfill gas, and natural gas.

Emission sources are area type from the wastewater treatment equipment. The categories of emissions are typically hydrocarbons (including methane).

Combustion emissions are from gas flares and IC engines burning various gaseous fuels (landfill gas, digester waste gas and natural gas).

This facility is related to the contiguous facility, City of Sunnyvale/Public Works Dept (A5905), which is a Title V landfill plant. The two Engine Generators (S-14 and S-15), under this permit

for A0733, burn landfill gas generated from A5905. Facility A5905 has submitted application #7364 for a Title V permit.

Since the District had issued the first Title V permit to CSWPCF on 7/1/97, the facility submitted two permit applications (AN 3994 and AN 5127).

Permit application AN 3994 was submitted on 1/14/2002 for the Emergency Natural Gas Fired Standby Generator (S-19) and Parts Washer (S-20). S-19 was exempt from permit requirements until 5/17/2000 when Regulation 1 and Regulation 2-1 were modified to require engines greater than 50 HP to require a Permit to Operate. There is no net increase in emission from S-19 because it has been in operation before the District issued the Title V permit. Based on the evaluation report of AN 5127, the net increase in emission from S-18 is 0.17 ton/yr POC.

Permit application AN 5127 was submitted on 5/6/2002 for three Influent Pumps (S-16, S-17 and S-18). These pumps have been in operation since 1954. They were permitted on 9/25/2002 because of loss of exemption as S-19 under AN 3994. Therefore, there is no net increase in emission from these pumps.

In summary, the net increase in emissions from the facility since the District issued the Title V permit is 0.17 ton/yr POC.

C. Permit Content

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

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for certain fossil-fuel fired electrical generating facilities or the accidental release (40 CFR § 68) programs apply, the section will contain a standard condition pertaining to these programs. Many of these conditions derive from 40 CFR § 70.6, Permit Content, which dictates certain standard conditions that must be placed in the permit. The language that the District has developed for many of these requirements has been adopted into the BAAQMD Manual of Procedures, Volume II, Part 3, Section 4, and therefore must appear in the permit.

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

Changes to permit:

The dates of adoption and approval of rules in Standard Condition 1.A have been updated.

SIP Regulation 2, Rule 4 - Permits, Emissions Banking and BAAQMD Regulation 2, Rule 6 - Permits, Major Facility Review have been added to Standard Condition 1.A.

The following language was added to Standard Condition I.B: "If the permit renewal has not been issued by July 1, 2002, but a complete application for renewal has been submitted in accordance with the above deadlines, the existing permit will continue in force until the District

takes final action on the renewal application." This is the "application shield" pursuant to BAAQMD Regulation 2-6-407.

Standard Condition I.B.11, which requires the responsible official to certify all documents submitted, was added to conform to changes in Regulation 2, Rule 6.

Standard Condition I.E.1 requiring the permit holder to provide any information, records, and reports requested or specified by the APCO, was added because it was omitted in error.

Standard Condition I.H was modified to conform to the current standard.

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

This facility is subject to Accidental Release requirements under Cal-ARP due to the quantities of chlorine and sulfur dioxide that they have on-site for disinfection and then chlorine removal as part of their treatment process.

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 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

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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 that the facility originally applied for a Title V permit and the permit proposal date:

Changes to permit:

Devices Permitted Since Permit was last modified:

Application #5217:

S-16 Influent pump #1 – IC Engine, Waukesha, 2.52 MMbtu/hr

S-17 Influent pump #2 – IC Engine, Waukesha, 2.52 MMbtu/hr

S-18 Influent pump #3 – IC Engine, Waukesha, 2.52 MMbtu/hr

Application #3994:

S-19 Emergency Natural Gas Standby Generator Emergency Natural Gas Standby Generator, Ford, 1.7 MMbtu/hr

S-20 Parts Washer, Model I, 20 Gallons

S-16, S-17, S-18 and S-19 are loss of exemption sources.

Devices with Changed Permit Status:

Waste Gas Burner (S-12) and Digester waste Gas Flare (S-13) were changed from source status to abatement status, A-12 and A-13 respectively. They are used to abate emissions from Anaerobic Digesters (S-170).

III. Generally Applicable Requirements

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

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

Changes to permit:

Language has been added to Section III to clarify that this section contains requirements that may apply to temporary sources. This provision allows contractors that have "portable" equipment permits that require them to comply with all applicable requirements to work at the facility on a temporary basis, even if the permit does not specifically list the temporary source. Examples are temporary sandblasting or soil-vapor extraction equipment.

Section III has been modified to say that SIP standards are now found on EPA's website and are not included as part of the permit.

The note regarding SIP information from the Rule Development Section has been deleted since the SIP standards are now found on EPA's website.

Table III has been updated by adding the following rules and standards to conform to current practice:

- BAAQMD Regulation 2, Rule 1, General Requirements
- BAAQMD 2-1-429, Federal Emissions Statement
- SIP Regulation 2, Rule 1, General Requirements
- SIP Regulation 5, Open Burning

- Regulation 8, Rule 2, Miscellaneous Operations
- BAAQMD Regulation 8, Rule 40 Aeration of Contaminated Soil and Removal of Underground Storage Tanks
- BAAQMD Regulation 8, Rule 47, Air Stripping and Soil Vapor Extraction Operations
- SIP Regulation 8, Rule 51, Adhesive and Sealant Products
- 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
- 40 CFR Part 61, Subpart M, National Emission Standards for Hazardous Air Pollutants – National Emission Standard for Asbestos

The dates of adoption or approval of the rules and their "federal enforceability" status in Table III have also been updated.

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 determination-POTW NESHAP: 40 CFR Part 63, Subpart VVV contains the NESHAP standards for POTWs. This NESHAP was evaluated to determine if Union Sanitary District was subject to the MACT emission control requirements. The NESHAP

requires MACT controls at POTWS which are major sources for HAP which are defined thusly: *...any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate 10 tons per year (tpy) or more of any HAP or 25 tpy or more of any combination of HAP.*

The District has reviewed the wastewater borne emissions potential of the most frequently seen HAPs and conclude that CSWPCF is not a major source for HAP emissions or for combined HAP emissions. A conservative estimate of HAP emissions may be obtained by using the 80th % factors as developed by the BAAT-AMSA – CWEA studies in the 1990s. Most conservatively, the total plant throughput would have to be over 125 million gallon per day. The CSWPCF average flow rate is approximately 19.5 million gallons per day. Therefore, the facility is not a major source for HAP.

In addition, this POTW is an existing POTW that has not been reconstructed (as defined by 40 CFR 63.1595). Furthermore, CSWPCF is not an Industrial POTW as defined by 40 CFR 63.1595. CSWPCF processes strictly domestic wastewater streams.

Compliance Assurance Monitoring: The applicability of compliance assurance monitoring (CAM) must be considered at this facility because the facility uses an emission control device to achieve compliance with a federally enforceable emission limit. The control devices in use are Waste Gas Burner (A-12, previously identified as source S-12) and Digester Waste Gas Flare (A-13, previously identified as source S-13). These control devices control emissions from the anaerobic digesters S-170, and are subject to the requirements of Regulation 8, Rule 2-301 (see discussion above) This section prohibits the discharge of an emission containing more than 15 lbs/day and a concentration of more than 300 ppm total carbon.

The District performed a conservative calculation (see below) to estimate the NMOC emissions potential from digester gas. The calculation includes all compounds of carbon with the exception of methane and carbon dioxide. CSWPC has a maximum daily digester gas production rate of 300,000 cu ft, with a maximum concentration of 82 micro-grams NMOC per liter (16 ppmv), of digester gas. Assuming all digester gas is vented at the maximum NMOC concentration gives a daily uncontrolled emission limit of approximately 3.1 lb per day (see below for calculation). CAM only applies if the uncontrolled emissions are more than 100 tpy. Since the maximum annual emissions are less than a ton (560 lb/yr), CAM is not required.

1. NMOC Compound Concentrations in Digester Gas

Average MW of NMOC: 113 lb/lb-mole (113 g/g-mole)
Concentration of NMOC: 82 µg/l = 82 E-06 g/l (there are no digester gas test results for CSWPCF digester gas, 82 µg/l taken from EBMUD Source Tests, based on highest observed concentration; average measured concentration = 30 µg/l)
CSWPC Digester Gas Production Rate: 300,000 cu ft/day (12,500 cu ft/hr)
Digester Gas Typical Composition:
Methane: 59% (typical, dry basis)
CO₂: 41%
(Average DG Density = 1.22 g/l at STP)
Nitrogen + Oxygen: <1%

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NMOC Emissions, Uncontrolled = (300,000 cu ft/day)(82 E-06 g NMOC/liter)(1000 liter/cu m)(cu m/35.314cu ft)(lb/454 g) = 1.5 lb/day (560 lb/yr)

Conversion of 82 µg/l to ppmv, basis 1,000,000 liter digester gas: (82 E-06 g NMOC/liter DG)(1,000,000 liter DG)(g-mole NMOC/113 g NMOC)(22.4 liter NMOC/g-mole NMOC) = 16 liter NMOC per 1,000,000 liter DG = 16 ppmv

300 ppm Carbon in Digester Gas (DG):

MW, Methane: 16.1 lb/mole

Total carbon (NMOC) emitted @ 300 ppm = [300,000 cu ft/day][300 cu ft NMOC as methane/1E6 cu ft DG][lb-mole/386 cu ft][16.1 lb/lb-mole] = 3.8 lb/day

112 (j) MACT: This requirement does not apply because there are no major sources for HAP nor does the facility qualify as a major facility for HAP.

Changes to Permit:

S-14 and S-15, Engines

S-14 and S-15 are also subject to Regulation 1-107, Regulation 1-523, Regulation 6, Regulation 8-2, Regulation 8-34, Regulation 9-1 and Regulation 9-2.

Regulations 6, 9-1, and 9-2 were not included in the Section IV table for the original permit because in 1997, the District relied on the generally applicable requirements section for pollutant-specific requirements when the emissions of a pollutant were judged to be insignificant. Generally, for permits issued after 1997, all source-specific requirements for permitted sources are cited in Section IV.

Regulation 1-107, Combination of Emissions has been added to the engines, since they abate the adjacent landfill and the digester. Therefore, the engines are subject to Regulation 8, Rules 2 and 34. The engines are not subject to the Federal Emission Guideline for Landfills, 40 CFR 60, Subpart Cc, because the City of Sunnyvale landfill is closed, and therefore, not subject to the Emission Guideline.

Regulation 1-523, Parametric Monitoring and Recordkeeping Procedures, is a requirements that was adopted on 9/2/98. It applies because Regulation 8, Rule 34, requires parametric monitoring of abatement devices for landfill gas.

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.”

The District has determined that the facility is subject to BAAQMD Regulation 2-6-409.10.3. Sources S-14 and S-15, Engines, burn landfill gas that is generated at Facility A5095. Therefore, these engines and the landfill gas piping are subject to BAAQMD Regulation 8, Rule 34, as amended on October 6, 1999. The facility is out of compliance with Regulation 8-34-509. Therefore, the District is including a "custom" schedule of compliance to achieve compliance as soon as possible.

Other changes to permit

The language in the "standard" schedule of compliance has been updated to the current standard language.

VI. Permit Conditions

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

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

All changes to existing permit conditions are clearly shown in “strike-out/underline” format in the proposed permit. When the permit is issued, all “strike-out” language will be deleted; 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 will be revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

The District has reviewed and, where appropriate, revised or added new annual and daily throughput limits on sources so as to help ensure compliance with District rules addressing preconstruction review. For S-14 and S-15, an annual fuel throughput was added to the existing permit condition. For S-16, S-17 and S-18, no throughput limit was added because these are loss of exemption sources.

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

Conditions have also been deleted due to the following:

- Redundancy in record-keeping requirements.

- Redundancy in other conditions, regulations and rules.
- The condition has been superseded by other regulations and rules.
- The equipment has been taken out of service or is exempt.
- The event has already occurred (i.e. initial or start-up source tests).

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 that limits a source's operation to the operation described in the permit application pursuant to BAAQMD Regulation 2-1-403.
- **Offsets:** This term is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- **PSD:** This term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit issued pursuant to Regulation 2, Rule 2.
- **TRMP:** This term is used for a condition imposed by the APCO to ensure compliance with limits that arise from the District's Toxic Risk Management Policy.

Additional monitoring has been added, where appropriate, to assure compliance with the applicable requirements.

Changes to permit:

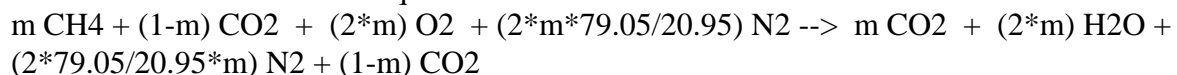
Condition 10844 parts 1, 2, 3, 5, 6, 7, 8 and 9 were added because they are standard conditions for engines burning landfill gas. Original part 2 was deleted because it is replaced with part 6. Part 4 was amended for clarification.

In part 9, total reduced sulfur compounds (surrogate gas) of 1300 ppm dry was back calculated from the sulfur dioxide (300 ppm) limit requirement in the engine's exhaust :

Assumption:

1. Composition of landfill gas and digester gas has 45% methane and 55% carbon dioxide
2. Stoichiometric Combustion

Stoichiometric Combustion Equation



Volume of dry flue gas = $7.52*m+1$ Where m is the composition of methane gas = 0.45

Therefore, volume of dry flue gas = 4.38 mole dry

Surrogate gas concentration = $300 \text{ ppm} * 4.38 \text{ mole} / 1 \text{ mole}$

= 1314 ppm dry

= 1300 ppm dry

Condition 10844

For Sources S-14 and S-15, Engine Generators

Effective 6/15/97

1. The Engine Generators (S-14 and S-15) shall be fired on landfill gas, digester gas and natural gas exclusively. (Basis: Offsets and Cumulative Increase)
 - ~~2. The owner/operator shall ensure that an annual performance test is conducted in accordance with the District test procedures to demonstrate compliance with the NOx and CO limits. The owner/operator may submit an alternative monitoring plan to the District for approval. If the alternative monitoring plan is approved, the plan shall supersede the annual source test requirement. Approvals shall be processed using the permit modification procedure contained in Regulation 2, Rule 6.~~
2. The heat input to S-14 and S-15 shall not exceed 200 million BTUs per day per generator nor 72,000 million BTUs per generator during any consecutive 12-month period. (Basis: Offsets and Cumulative Increase)
3. S-14 and S-15 shall operate continuously during all times that landfill gas and digester gas are vented to. (Basis: Regulation 8-34-301.1)
4. ~~1. The emission factors of~~ rates from the Engine/Generator Engine Generator No. 4 (S-14) and Engine/Generator Engine Generator No. 5 (S-15) shall not exceed:
 - a. 0.3 gram/bhp-hr for POC,
 - b. 2.5 gram/bhp-hr for CO; and
 - c. 1.5 gram/bhp-hr for NOx. (Basis: BACT, Offsets)
5. In order to demonstrate compliance with part 2, S-14 and S-15 shall be equipped with gas flow meters and recorders that record the gas flow rates of landfill gas, digester gas and natural gas at least every 15 minutes. (Basis: Offsets and Cumulative Increase)
6. In order to demonstrate compliance with part 4 above and Regulations 8-2,-301, 8-34-301.4, 9-8-302.1, and 9-8-302.3, the Permit Holder shall ensure that a District approved source test is conducted annually on S-14 and S-15. Source tests shall be conducted no sooner than 9 months and no later than 12 months after the previous source test. The Source Test Section of the District shall be contacted to obtain their approval of the source test procedures at least 14 days in advance of each source test. They shall be notified of the scheduled test date at least 7 days in advance of each source test. The source test report shall be submitted to the Compliance and Enforcement Division of the District within 45 days of the test date. The report shall include the following information:
 - a. landfill gas and digester gas flow rates to S-14 and S-15 (dry basis);

- b. concentrations (dry basis) of carbon dioxide (CO₂), nitrogen (N₂), oxygen (O₂), methane (CH₄), and non-methane organic compounds (NMOC) in the landfill gas and digester gas;
 - c. exhaust gas flow rates from S-14 and S-15 (dry basis);
 - d. concentrations (dry basis) of NO_x, CO, NMOC, and O₂ in the exhaust gas from S-14 and S-15;
 - e. the NMOC destruction efficiency achieved by S-14 and S-15; and
 - f. the average air to fuel ratio setting range and exhaust gas oxygen content range, or other proposed key emission control system operating parameters approved by the APCO, for S-14 and S-15 that is required to maintain compliance with part 4 above and Regulation 8-34-301.4. (Basis: BACT, and Regulations 8-34-301.4, 8-34-412, 9-8-302.1, and 9-8-302.3)
7. The Permit Holder shall maintain the following records:
- a. Records of all start up and shut down dates and times and the reason for any shut downs for S-14 and S-15.
 - b. Records of landfill gas, digester gas and natural gas throughputs to S-14 and S-15.
 - c. On a monthly basis calculate and record the maximum daily and total monthly heat input rate (in BTU) to each engine based on the average methane concentrations in the landfill gas and digester gas (as measured during the most recent source test), a high heating value for methane of 1013 BTU/ft³ at 60 degrees F, and the amounts of landfill gas and digester gas burned in each generator.
 - d. Records of all compliance demonstration test data.
All records shall be retained on site for a minimum of 5 years and shall be made available to District staff upon request. (Basis: BACT, Offsets, Cumulative Increase, and Regulation 8-34-501)
8. Within 3 months of issuance of the MFR Permit, The Permit Holder of S-14 and S-15 shall submit source test protocol to the District to establish the air to fuel ratio setting range and exhaust gas oxygen content range, or other proposed key emission control system operating parameters to be approved by the APCO, that S-14 and S-15 shall be operated at to demonstrate compliance with Regulation 8-34-301.4 NMOC reduction efficiency. Within 3 months, The Permit Holder shall identify monitoring equipment, procedures and monitoring frequency for those agreed key parameter measurements. The Engineering Division and Source Test Section of the District shall review and approve these key parameters, source test protocols, and monitoring requirements.

Within 3 months of receiving the APCO's approval of the above, The Permit Holder shall conduct source test to determine source specific ranges for the key parameters and shall submit test results within 60 days of conducting source test. The Source Test Section of the District shall review and approve test results. The Engineering Division of the District shall modify permit conditions to include the source key parameters, operating ranges/limits, and the final monitoring procedures and frequency. The MFR Permit shall be modified to reflect these condition revisions.

9. Total reduced sulfur compounds in the collected landfill gas and digester gas shall be monitored as a surrogate for monitoring sulfur dioxide in control system's exhaust. The concentrations of total reduced sulfur compounds in the collected landfill gas and digester gas shall not exceed 1300 ppmv (dry). In order to demonstrate compliance with this part, the Permit Holder shall measure the total sulfur content in collected landfill gas and digester gas on a quarterly basis using a Draeger Tube. The samples of landfill gas and digester gas shall be taken from their respective main gas headers. The Permit Holder shall follow the manufacturer's recommended procedures for using the Draeger Tube and interpreting the results. The Permit Holder shall conduct the first Draeger Tube test no later than 3 months after the issue date of the MFR Permit and quarterly thereafter. (Basis: Regulation 9-1-302)

The following S-16, S-17 and S-18 were permitted after the original Title V had been issued. Under the original regular permit, there was only one condition (Condition 19978 part 1). Part 2 is now added because these engines burn digester gas.

COND# 19978

- S-16 Influent Pump: Digester Gas Engine, Make: Waukesha, Model: NKR 1905, Horsepower Rating: 224 HP.
- S-17 Influent Pump: Digester Gas Engine, Make: Waukesha, Model: NKR 1905, Horsepower Rating: 224 HP.
- S-18 Influent Pump: Digester Gas Engine, Make: Waukesha, Model: NKR 1905, Horsepower Rating: 224 HP.

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour that is as dark or darker than Ringelmann 1 or equivalent to 20% opacity. [Regulation 6]
2. Total reduced sulfur compounds in the collected digester gas shall be monitored as a surrogate for monitoring sulfur dioxide in control system's exhaust. The concentrations of total reduced sulfur compounds in the collected digester gas shall not exceed 1300 ppmv (dry). In order to demonstrate compliance with this part, the permit holder shall measure the total sulfur content in collected digester gas on a quarterly basis using a Draeger Tube. The samples of digester gas shall be taken from their respective main gas headers. The permit holder shall follow the manufacturer's recommended procedures for using the Draeger Tube and interpreting the results. The permit holder shall conduct the first Draeger Tube test no later than 3 months after the renewal date of the MFR Permit and quarterly thereafter. (Basis: Regulation 9-1-302)

COND# 19929

- S-19 Emergency Natural Gas Fired Standby Generator

REQUIREMENTS FOR ESSENTIAL EMERGENCY ENGINES: An essential emergency engine is one that is used in the service of an essential public service. An essential public service is defined in Reg. 9-8-233 as: a sewage treatment facility, and associated collection system, which is publicly owned and operated; water treatment and delivery operations; public transit; police or fire fighting facility; airport runway lights; or a hospital or other medical emergency facility.

1. **Hours of Operation:** The owner/operator shall operate the emergency standby engine(s) only to mitigate emergency conditions or for reliability-related activities. Operating while mitigating emergency conditions is unlimited. Operating for reliability-related activities is limited to 200 hours per any calendar year. [Basis: Reg. 9-8-331]

"Emergency Conditions" is defined as any of the following:

- a. Loss of regular natural gas supply.
- b. Failure of regular electric power supply.
- c. Flood mitigation.
- d. Sewage overflow mitigation.
- e. Fire.
- f. Failure of a primary motor, but only for such time as needed to repair or replace the primary motor.

[Basis: Reg. 9-8-231]

"Reliability-related activities" is defined as any of the following:

- a. Operation of an emergency standby engine to test its ability to perform for an emergency use, or
- b. Operation of an emergency standby engine during maintenance of a primary motor.

[Basis: Reg. 9-8-232]

2. The owner/operator shall equip the emergency standby engine(s) with either:
 - a. non-resettable totalizing meter that measures and records the hours of operation for the engine.
 - b. a non-resettable fuel usage meter.

[Basis: Reg. 9-8-530]

3. **Records:** The owner/operator shall maintain the following monthly records in a District-approved log for at least 5 years and shall make the log available for District inspection upon request:
 - a. Hours of operation (total).
 - b. Hours of operation (emergency).
 - c. For each emergency, the nature of the emergency condition.

[Basis: Reg. 9-8-530]

S-20 Parts Washer, Model I-52150, 20 Gallons

1. The net solvent usage at the Parts Washer (S-20) shall not exceed 50 gallons during any rolling 12 consecutive month period. [Basis: Cumulative Increase]
2. To demonstrate compliance with Part #1, the monthly net usage of solvent shall be maintained in a District approved log. These usage records shall be kept on site and made available for District inspection for a period of at least 5 years from the date on which a record is made. [Basis: Plant Cumulative Increase]

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 the existing monitoring is adequate with the following exceptions.

The tables below contain only the limits for which there is no monitoring or inadequate monitoring in the applicable requirements. The District has examined the monitoring for other limits and has determined that monitoring is adequate to provide a reasonable assurance of compliance. Calculations for potential to emit will be provided 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.

NOX Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-14, S-15 Engine Generators	BAAQMD 9-8-301.2	140 ppmv @ 15% O2, dry	Annual source test
	BAAQMD 9-8-302.1	140 ppmv @ 15% O2, dry	Annual source test
	BAAQMD cond #10844, part 4c	1.5 gram/bhp-hr	Annual source test

NOx Discussion:

Based on the annual source test reports submitted by the facility, S-14 and S-15 meet the NOx emission requirements of 140 ppmv @ 15% O2, dry and 1.5 gram/bhp-hr. Any exceedence, if any, would be rectified at once and source tested again to demonstrate compliance. Annual source tests are a standard way to determine compliance at engines.

The option for an alternate monitoring plan has been deleted since it has been in places for seven years and never utilized by the facility. Of course, the facility may apply to use alternate monitoring at any time and the proposal will be evaluated by the District.

CO Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-14, S-15 Engine Generators	BAAQMD 9-8-301.3	2000 ppmv @ 15% O2, dry	Annual source test
	BAAQMD 9-8-302.3	2000 ppmv @ 15% O2, dry	Annual source test
	BAAQMD cond #10844, part 4b	2.5 gram/bhp-hr	Annual source test

CO Discussion:

Based on the annual source test report submitted by the facility, S-14 and S-15 meet the CO emission requirements of 140 ppmv @ 15%O2, dry and 1.5 gram/bhp-hr. Any exceedence, if any, would be rectified at once and source tested again to demonstarte compliance. Annual source tests are a standard way to determine compliance at engines.

The option for an alternate monitoring plan has been deleted since it has been in places for seven years and never utilized by the facility. Of course, the facility may apply to use alternate monitoring at any time and the proposal will be evaluated by the District.

SO₂ Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-14 and S-15	BAAQMD cond #10844, part 9	Total reduced sulfur compounds in the collected landfill gas and digester gas ≤ 1300 ppmv (dry)	Monitored by Draeger Tube quarterly
S-14, S-15, S-16, S-17, S-18 and S-19	BAAQMD 9-1-301	Ground level concentrations of SO ₂ shall not exceed: 0.5 ppm for 3 consecutive minutes AND 0.25 ppm averaged over 60 consecutive minutes AND 0.05 ppm averaged over 24 hours	N/A
S-14 and S-15	BAAQMD 9-1-302	300 ppm (dry)	Monitored by Draeger Tube quarterly
S-16, S-17 and S-18	BAAQMD 9-1-302	300 ppm (dry)	Monitored by Draeger Tube quarterly
S-19	BAAQMD 9-1-302	300 ppm (dry)	N/A

SO₂ Discussion:

BAAQMD Regulation 9-1-301

Area monitoring to demonstrate compliance with the ground level SO₂ concentration requirements of Regulation 9-1-301 is at the discretion of the APCO (per BAAQMD Regulation 9-1-501). This facility does not have equipment that emits large amounts of SO₂ and therefore is not required to have ground level monitoring by the APCO.

S-14, S-15, S-16, S-17 and S-18 are subject to the SO₂ emission limitations in District Regulation 9, Rule 1 (ground-level concentration and emission point concentration). Annual source tests are required to demonstrate compliance. S-14 and S-15 burn landfill gas and digester gas. S-16, S-17 and S-18 burn digester gas. Since the sulfur content of landfill gas and digester gas is variable, the facility will monitor the total reduced sulfur compounds in both of these collected gases as a surrogate for monitoring sulfur dioxide in these engines' exhausts.

No monitoring is required for S-19 per EPA's June 24, 1999 agreement with CAPCOA and ARB, "Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP". EPA has agreed that natural-gas-fired combustion sources do not need additional monitoring to verify compliance with Regulation 9, Rule 1, since violations of the regulation are unlikely.

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
S-14, S-15, S-16, S-17 and S-18	BAAQMD Regulation 6-301	No. 1 on Ringelmann Chart for 3 minutes in any hour	N/A
S-19	BAAQMD Regulation 6-303	No. 2 on Ringelmann Chart for 3 minutes in any hour	N/A
S-14, S-15, S-16, S-17, S-18 and S-19	BAAQMD Regulation 6-310	0.15 gr/dscf	N/A

PM Discussion:

BAAQMD Regulation 6 “Particulate Matter and Visible Emissions”

Visible Emissions

BAAQMD Regulation 6-301 limits visible emissions to no darker than 1.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour). Visible emissions are normally not associated with combustion of gaseous fuels, such as natural gas. Source S-19 burns natural gas exclusively, therefore, per the EPA's June 24, 1999 agreement with CAPCOA and ARB titled "Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", no monitoring is required to assure compliance with this limit for these sources.

S-14, S-15, S-16, S-17 and S-18 only burn gaseous fuels. They are expected to operate with compliance of Regulation 6-301 and Regulation 6-310. Monitoring is therefore not required.

POC Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-14 and S-15	BAAQMD Regulation 8-2-301	15 lb/day or 300 PPM total carbon on a dry basis	Source test
S-14 and S-15	BAAQMD Regulation 8-34-301.4	98% NMOC reduction by weight or 120 ppmv (dry) NMOC corrected @ 3% O ₂ at exhaust	Air to fuel ratio setting range and exhaust gas oxygen content range to be established, or key operating parameters to be approved by APCO
S-14 and S-15	BAAQMD cond #10844, part 4a	0.3 gram/bhp-hr	Source test

POC Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-16, S-17, and S-18	BAAQMD Regulation 8-2-301	15 lb/day or 300 PPM total carbon on a dry basis	None
S-20	BAAQMD cond #19930, part 1	50 gallons of solvent a year	Record keeping

POC Discussion:

Based on the annual source test reports submitted by the facility, S-14 and S-15 meet the POC emission requirement of 0.3 gram/bhp-hr. Any exceedance would be rectified at once and source tested again to demonstrate compliance.

An annual source test requirement has been imposed to ensure compliance with Regulations 8-2-301 and 8-34-301.4 at S-14 and S-15. This is a standard monitoring condition. Since Regulation 8-34 requires parametric monitoring, requirements for daily monitoring of air-to-fuel ratio and continuous monitoring of exhaust gas oxygen content have been added.

The calculations in Section C.IV of this Statement of Basis show that the total mass emissions of NMOC in the digester gas are less than 15 lb/day. Since sources S-16, S-17, and S-18 exclusively burn digester gas, there is no possibility that the limit in Regulation 8-2-301 could be exceeded and therefore, no monitoring is required.

Based on the enforcement record of the District, S-20 is operating in compliance with the usage limit of 50 gallons solvent a year. Recordkeeping is a standard method of monitoring for throughput limits.

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:

Test methods for compliance with Regulation 6-311, Regulation 9-1-301, Regulation 9-1-304, and Regulation 9-2-301 were omitted in the last permit and therefore added accordingly.

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.

X. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility.

XI. Compliance Status:

An office memorandum from the Director of Compliance and Enforcement to the Director of Permit Services dated March 1, 2006, presents a review of the compliance record of CSWPCF (Site # A0733). The Compliance and Enforcement Division staff has reviewed the records for one year for the period from February 28, 2005 through March 1, 2006. This review was initiated as part of the District evaluation of an application by CSWPCF for a renewal 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 did not receive any complaints alleging CSWPCF as the source.
- 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 January 2, 2002. No non-compliance issues have been identified to date.

XII. Differences between the Application and the Proposed Permit:

Permit Evaluation and Statement of Basis: #A0733, City of Sunnyvale Water Pollution Control Facility, 1444 Borregas Ave., Sunnyvale, CA 94089

Waste Gas Burner (S-12) and Digester waste Gas Flare (S-13) were changed from source status to abatement status, A-12 and A-13 respectively. They are used to abate emissions from Anaerobic Digesters (S-170).

The Title V renewal permit application was originally submitted on January 2, 2002. This version is the basis for constructing the proposed Title V permit.

APPENDIX A

BAAQMD Compliance Report

APPENDIX B

GLOSSARY

ACT

Federal Clean Air Act

APCO

Air Pollution Control Officer

ARB

Air Resources Board

BAAQMD

Bay Area Air Quality Management District

BACT

Best Available Control Technology

Basis

The underlying authority that allows the District to impose requirements.

CAA

The federal Clean Air Act

CAAQS

California Ambient Air Quality Standards

CAPCOA

California Air Pollution Control Officers Association

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.

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). Cumulative increase is used to determine whether threshold-based requirements are triggered.

District

The Bay Area Air Quality Management District

dscf

Dry Standard Cubic Feet

EPA

The federal Environmental Protection Agency.

Excluded

Not subject to any District regulations.

Federally Enforceable, FE

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

FP

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

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.

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.

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.)

Offset Requirement

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

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.

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

STP

Standard Temperature and Pressure

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

TSP

Total Suspended Particulate

VOC

Volatile Organic Compounds

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
cfm	=	cubic feet per minute
cu	=	cubic
ft	=	foot
g	=	grams
µg	=	microgram
gal	=	gallon
gpm	=	gallons per minute
hp	=	horsepower
hr	=	hour
l	=	liter
lb	=	pound
in	=	inches
max	=	maximum
m ²	=	square meter
min	=	minute
mm	=	million
MMbtu	=	million btu
MMcf	=	million cubic feet
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scfm	=	standard cubic feet per minute
yr	=	year