

**Bay Area Air Quality Management District**

939 Ellis Street  
San Francisco, CA 94109  
(415) 771-6000

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

**for  
Cypress Amloc Land Company  
Facility #A1364**

**Facility Address:**

1 Sand Hill Road  
Colma, CA 94014

**Mailing Address:**

2001 Hillside Boulevard  
Colma, CA 94014

## TABLE OF CONTENTS

A.	Background .....	3
B.	Facility Description .....	3
C.	Permit Content.....	4
I.	Standard Conditions.....	4
II.	Equipment.....	5
III.	Generally Applicable Requirements.....	5
IV.	Source-Specific Applicable Requirements .....	6
V.	Schedule of Compliance .....	7
VI.	Permit Conditions .....	8
VII.	Applicable Limits and Compliance Monitoring Requirements .....	12
VIII.	Test Methods.....	17
IX.	Permit Shield: .....	17
D.	Alternate Operating Scenario: .....	17
E.	Compliance Status:.....	18
F.	Differences Between the Application and the Proposed Permit: .....	18

## **Title V Statement of Basis**

### **A. Background**

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

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

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

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

### **B. Facility Description**

This Cypress Amloc Land Company (CALCO) site is located on the west side of San Bruno Mountain adjacent to a golf course. The site includes the Hillside Landfill (S-1), which is equipped with an active landfill gas collection system, and a Landfill Gas Flare (A-2).

The S-1 Hillside Landfill is divided into three parcels (Parcel 1, Parcel 2, and Parcel 3). The site began accepting waste in 1951 at Parcel 1. Waste acceptance at Parcel 1 ceased in the mid 1970's, and final closure occurred in the late 1970's. The site began accepting waste in Parcels 2 and 3 in 1970. Parcel 3 reached full capacity in December 1999. Parcel 2 is now the only area where waste is actively being disposed. This facility accepts mainly construction and demolition debris and small amounts of wood waste. The maximum design capacity of Parcels 1, 2, and 3 combined is 9,380,230 yd<sup>3</sup>. The landfill will contain a maximum of 5,027,802 tons of waste upon closure of all parcels. The amount of waste in place, as of June 30, 2001, is 4,056,788 tons (in Parcels 2 and 3) and 707,803 tons (in Parcel 1). The remaining design capacity available is

263,211 tons. The maximum allowed waste acceptance rates are 400 tons/day and 144,000 tons/year. At the current average waste acceptance rate of 80,000 tons/year, the site is expected to reach full capacity in 2005.

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. CALCO's gas collection system currently includes 6 horizontal gas collectors and 36 vertical gas collection wells. CALCO has submitted a permit application to request approval of its Landfill Gas Collection and Control System Design Plan, which includes improvements to the current gas collection system. The District is currently reviewing this proposal. Any approved collection system changes will require a modification of the MFR permit for this site.

Collected landfill gas is vented to the A-2 Landfill Gas Flare. This flare destroys most of the methane, precursor organic compounds, non-precursor organic compounds, and toxic compounds in the landfill gas and produces secondary combustion pollutants including: nitrogen oxides, carbon monoxide, sulfur dioxide, particulate matter, and formaldehyde.

## **C. Permit Content**

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

### **I. Standard Conditions**

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

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

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

## **II. Equipment**

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

Permitted sources are those sources that require a BAAQMD operating permit pursuant to BAAQMD 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 this table but will have an “S” number. An abatement device that is also a source (such as a thermal oxidizer that burns fuel) will have an “A” number.

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

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

Following are explanations of the differences in the equipment list between the time that the facility originally applied for a Title V permit and the permit proposal date. Until recently, this facility was permitted to operate a Wood Chipping Operation (S-7), Stockpiles (S-8) for the wood chipper and a Diesel Engine (S-9) to power the wood chipper. CALCO included these three sources on the equipment list when CALCO submitted its application in March 2001. However, the wood chipper and all related equipment were removed from the site in 2002 and are not included in this MFR permit.

## **III. Generally Applicable Requirements**

This section of the permit lists requirements that 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. This facility does not have any significant sources that do not have District permits.

#### **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 portions of the SIP rule are cited separately after the District rule. The SIP portion will be federally enforceable; the non-SIP version will not be federally enforceable, unless EPA has approved it through another program. [NOTE: for landfills, 8-34 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. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of monitoring is included in Section C.VII of this permit evaluation/statement of basis.

#### Complex Applicability Determinations

Landfills and landfill gas combustion equipment are subject to BAAQMD Regulation 8, Rule 34. This regulation requires landfills having more than 1 million tons of refuse in place to collect and control the landfill gas generated by waste decomposition. The regulation 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 CALCO’s Hillside Landfill has had no design capacity

modifications since May 30, 1991, it accepted waste after November 8, 1987. Therefore, the EG regulations are applicable to this landfill.

The California State Plan (40 CFR § 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 to the California State Plan effective November 19, 2001.

In accordance with the federal emission guidelines, BAAQMD Regulation 8, Rule 34 requires large landfills (with a design capacity of at least 2.5 million Mg and at least 2.5 million m<sup>3</sup>) to be equipped with a landfill gas collection system and control system. The EG (40 CFR § 60.32c(c)) requires the owner or operator of a landfill meeting these criteria to obtain a Title V operating permit pursuant to 40 CFR, Part 70. The design capacity of the Hillside Landfill exceeds the design capacity applicability criteria. Accordingly, CALCO was required to submit an application for a Title V permit by April 6, 2001. 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 other BAAQMD regulations and permit conditions. All applicable requirements are described in Section IV of the permit.

## **V. Schedule of Compliance**

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

“409.10 A schedule of compliance containing the following elements:

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

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

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

## **VI. Permit Conditions**

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

While the District has authority to revise the existing permits, and is doing so here concomitantly with the Title V process, it also has authority to supplement the terms of existing permits through the Title V process itself. When necessary to meet Title V requirements, additional monitoring, 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 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, Regulation 2-1-301. For a grandfathered source (which in this case is the landfill itself) these limits are being added to the existing permits pursuant to the authority in 2-1-403, which provides the District with authority to “impose any permit condition [it] deems reasonably necessary to insure compliance with federal or California law or District regulations.” Creating throughput limits for grandfathered sources is not required by either Part 70 or the District’s MFR rules. However, issuance of the Title V permit is an opportunity for the District to exercise authority under 2-1-403 by adding conditions to the District operating permit through a parallel process, that is, by revising the P/O concurrently with the Title V permit issuance. The District believes the addition of these throughput limits is authorized under Regulation 2-6-409.2.2, as these limits will help “assure compliance” with the District preconstruction review program.

The applicability of preconstruction review (2-1-301) depends on whether there is a “modified source” as defined in District Rule 2-1-234. Whether there is a modified source depends in part on whether there has been an “increase” in “emission level.” 2-1-234 defines what will be considered an emissions level increase, and takes a somewhat different approach depending on whether a source has previously permitted by the District. Sources that were modified or

constructed since the District began issuing new source review permits generally will have permits that contain throughput limits, and these limits are reflected in the Title V permit. These limits have previously undergone District review, and are considered to be the legally binding “emission level” for purposes of 2-234.1 and 2-1-234.2. By contrast, for “grandfathered” sources that have never been through preconstruction review, an “increase” in “emission level” is addressed in 2-1-234.3. A grandfathered source is not subject to preconstruction review unless its emission level increases above the highest of either: 1) the design capacity of the source, 2) the capacity listed in a permit to operate, or 3) highest capacity demonstrated prior to March 2000. However, if the throughput capacity of a grandfathered source is limited by upstream or downstream equipment (i.e., is “bottlenecked”), then the relaxing of that limitation (“debottlenecking”) is considered a modification.

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

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

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

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

- BACT: This term is used for a condition imposed by the APCO to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This term is used for a condition imposed by the APCO that limits a source’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 pursuant to Regulation 2, Rule 2.
- TRMP: This term is used for a condition imposed by the APCO to ensure compliance with limits that arise from the District's Toxic Risk Management Policy.

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

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

Condition# 16884 for: S-1, Hillside Landfill; and A-2, Landfill Gas Flare

Part 1: Waste acceptance rate limits were added to define the capacity of the landfill, which is a grandfathered source. The tons-per day limit pertains to regulation of particulate emissions from waste transport and disposal. The total cumulative waste disposal limit and the design capacity limit pertain to regulation of VOC emissions from decomposing waste in the landfill. The tons per day limit and the design capacity limit were provided in CALCO's Initial Design Capacity and Emission Rate Reports and in the Collection and Control System Design Plan. These limits are proposed as firm throughput limits and modification thresholds, so that any change to these rates constitutes a modification of the landfill source as defined in Regulation 2-1-234.4 and is subject to the Authority to Construct requirements of Regulation 2-1-301. The total cumulative limit is based on assumptions regarding compaction density and current cover practices. The correlation between the total cumulative limit and emissions is therefore changeable based on these variables. Accordingly, this limit is proposed as a reporting threshold and as a presumptive throughput limit and modification threshold.

Part 2: CALCO stated that no contaminated soil would be accepted at this site. Part 2 reflects this statement and clarifies the District's "contaminated soil" definitions.

Part 3: Any on-site handling of non-contaminated (low VOC) soil is subject to Regulation 8, Rule 2. Due to the fugitive nature of the emissions that occur from 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 provide a method for demonstrating compliance with the 15 pound per day VOC emission limit of 8-2-301.

Part 9: This part identifies the maximum rated capacity of the A-2 Landfill Gas Flare by imposing heat input limits. These limits were derived from information reported in Permit Application # 31677. These heat input limits and the nitrogen oxide and carbon monoxide concentration limits in Parts 10 and 11 will ensure that replacement or modification will not lead to an emissions increase.

Part 10: The NO<sub>x</sub> emission rate in the permit application for this flare is an implied limit. For the MFR permit, an explicit NO<sub>x</sub> limit is necessary to show that the flare is operating properly and that the allowable emission rate has not been exceeded. The maximum emission rate

reported in Permit Application # 31677 was 0.12 pounds of NO<sub>x</sub> per million BTU. An equivalent exhaust concentration limit is derived below by assuming that the landfill gas contains 55% methane with a heating value of 557 BTU/ft<sup>3</sup> at 60 °F (547 BTU/scf). (Definitions of the terms used below are contained in the glossary.)

$$(0.12 \text{ pounds NO}_x/\text{MM BTU})/(10^6 \text{ BTU/MM BTU}) * (557 \text{ BTU/ft}^3 \text{ LFG})/(5.1506 \text{ ft}^3 \text{ flue gas, dry, 0\% O}_2/\text{ft}^3 \text{ LFG})/(3.521 \text{ ft}^3 \text{ flue gas, 15\% O}_2/1.0 \text{ ft}^3 \text{ flue gas, 0\% O}_2)/(46.01 \text{ pounds NO}_x/\text{lbmol}) * (379.5 \text{ ft}^3/\text{lbmol}) = 3.04 \text{ E-5 ft}^3 \text{ of NO}_x/\text{ft}^3 \text{ of flue gas at 15\% O}_2 \\ = 30.4 \text{ ppmv of NO}_x \text{ at 15\% O}_2, \text{ dry basis}$$

Part 11: The CO emission rate in the permit application for this flare is an implied limit. For the MFR permit, an explicit CO limit is necessary in order to verify that the flare is operating properly and that the allowable emission rate has not been exceeded. The maximum emission rate reported in Permit Application # 31677 was 0.5 pounds of CO per million BTU. An equivalent exhaust concentration limit is derived below by assuming that the landfill gas contains 55% methane with a heating value of 557 BTU/ft<sup>3</sup> at 60 °F (547 BTU/scf). (Definitions of the terms used below are contained in the glossary.)

$$(0.5 \text{ pounds CO/MM BTU})/(10^6 \text{ BTU/MM BTU}) * (557 \text{ BTU/ft}^3 \text{ LFG})/(5.1506 \text{ ft}^3 \text{ flue gas, dry, 0\% O}_2/\text{ft}^3 \text{ LFG})/(3.521 \text{ ft}^3 \text{ flue gas, 15\% O}_2/1.0 \text{ ft}^3 \text{ flue gas, 0\% O}_2)/(28.01 \text{ pounds CO/lbmol}) * (379.5 \text{ ft}^3/\text{lbmol}) = 2.08 \text{ E-4 ft}^3 \text{ of CO/ft}^3 \text{ of flue gas at 15\% O}_2 \\ = 208 \text{ ppmv of CO at 15\% O}_2, \text{ dry basis}$$

Part 12: The District requires a minimum temperature of at least 1400 °F to ensure adequate destruction of toxic compounds. The current minimum temperature limit (with no averaging time) is changed to a limit averaged over any three hour period for consistency with the federal Emission Guidelines for MSW Landfills. This part also incorporates the EG procedure for establishing a minimum temperature limit based on source test results.

Part 15: All landfill gas combustion equipment is subject to the 9-2-302 limit of no more than 300 ppmv of SO<sub>2</sub> in the exhaust (dry basis). Under theoretical combustion conditions, 300 ppmv of SO<sub>2</sub> in an exhaust stream with 0% oxygen is equal to 1300 ppmv of H<sub>2</sub>S in landfill gas. Since the sulfur content of landfill gas can vary, quarterly monitoring of the sulfur content in the landfill gas is appropriate.

Part 16: The annual source test required by 8-34-412 is described in more detail in Part 16. Testing of the exhaust concentration for benzene, formaldehyde, and vinyl chloride is required to ensure that the flare is operating properly and to collect toxic emissions data for this equipment. This information is necessary to satisfy the reporting requirements of the Toxic Hot Spots Act.

Part 17: The annual landfill gas characterization required by 8-34-412 is described in more detail in Part 17.

Part 18: 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, the heat input limits of Part 9, and several other 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 for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

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

Monitoring decisions are typically the result of a balancing of several different factors including: 1) the likelihood of a violation given the characteristics of normal operation, 2) 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.

### NO<sub>x</sub> Sources

<b># &amp; Description</b>	<b>Emission Limit Citation</b>	<b>Federally Enforceable Emission Limit</b>	<b>Monitoring</b>
A-2 Landfill Gas Flare	BAAQMD Condition # 16884, Part 10	≤ 30 ppmv of NO <sub>x</sub> , corrected to 15% O <sub>2</sub> , dry	Annual Source Test

### NO<sub>x</sub> Discussion:

The District has imposed an additional annual source test requirement for NO<sub>x</sub> limits on landfill gas fired flares in Title V permits. This monitoring is standard monitoring for engines that are used for control of landfill gas. The flares control a comparable quantity of landfill gas and have much lower emissions. Therefore this monitoring is adequate.

### CO Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
A-2 Landfill Gas Flare	BAAQMD Condition # 16884, Part 11	≤ 208 ppmv of CO, corrected to 15% O <sub>2</sub> , dry	Annual Source Test

#### CO Discussion:

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

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

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
A-2 Landfill Gas Flare	BAAQMD 9-1-301	Property Line Ground Level Limits: ≤ 0.5 ppm for 3 minutes and ≤ 0.25 ppm for 60 min. and ≤ 0.05 ppm for 24 hours	None
A-2 Landfill Gas Flare	BAAQMD 9-1-302	300 ppm (dry)	Quarterly Sulfur Analysis of Landfill Gas and Annual Source Test
S-1 Hillside Landfill	BAAQMD Condition # 16884, Part 15	Landfill Gas Sulfur Content ≤ 1300 ppmv of TRS as H <sub>2</sub> S	Quarterly Sulfur Analysis of Landfill Gas

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

BAAQMD Regulation 9-1-301: As discussed below for BAAQMD Regulation 9-1-302, this facility will be subject to a federally enforceable limit, which will ensure compliance with the BAAQMD Regulation 9-1-302 emission limit of 300 ppmv of SO<sub>2</sub> in the flare exhaust. Sources that comply 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<sub>2</sub> concentrations in addition to the proposed landfill gas monitoring would not be appropriate. Maximum potential emissions from the A-2 Landfill Gas Flare are 17 tons/year of SO<sub>2</sub> and are not substantial.

BAAQMD Regulation 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 SO<sub>2</sub> in the engine exhaust because the air required for combustion dilutes the concentration of sulfur compared to the concentration in the landfill gas. Proposed permit conditions requiring quarterly monitoring of the landfill gas for total reduced sulfur content will ensure compliance with the landfill gas concentration limit of 1300 ppmv of TRS. District source tests have shown that the

actual concentration of TRS in typical Bay Area landfill gas is less than 400 ppmv of TRS (less than a third of the allowable emission rate).

BAAQMD Condition # 16884, Part 15: The use of a draeger tube is a standard method for monitoring for total reduced sulfur (TRS) content in landfill gas.

### PM Sources

<b>S# &amp; Description</b>	<b>Emission Limit Citation</b>	<b>Federally Enforceable Emission Limit</b>	<b>Monitoring</b>
S-1 Hillside Landfill	BAAQMD Regulation 6-301	Ringelmann 1.0	Records of all site watering and road cleaning events
A-2 Landfill Gas Flare	BAAQMD Regulation 6-301	Ringelmann 1.0	None
A-2 Landfill Gas Flare	BAAQMD Regulation 6-310	0.15 gr/dscf	None

### PM Discussion:

BAAQMD Regulation 6-301 for S-1 Hillside Landfill: The active filling operations and associated vehicle traffic can generate significant particulate emissions. Presently this facility has no method for demonstrating compliance with the Regulation 6-301. Additional monitoring is required pursuant to Part 70 of the Clean Air Act, because existing monitoring is inadequate and particulate emissions are potentially sizeable. Landfills typically employ a dust mitigation program to minimize particulate emissions. Dust mitigation measures include the application of water and/or dust suppressants on unpaved roads, fill areas, stockpiles, and other dust prone operations and the use of sweeping, watering, or other cleaning measures on paved roads and parking areas. The frequency of watering and sweeping schedules varies from several water applications per day for dry days to no watering or sweeping on rainy days. CALCO's watering requirements are specified in Condition # 16884, Part 4. Compliance with the dust mitigation requirements in Condition # 16884, Part 4 is expected to provide reasonable assurance of compliance with the Regulation 6-301 Ringelmann 1.0 limit. The District is proposing to add record keeping requirements of all water and/or dust suppressant applications and road cleaning activities (Condition #16884, Part 18.c.) to demonstrate compliance with Condition #16884, Part 4.

BAAQMD Regulation 6-301 for A-2 Landfill Gas Flare: Visible particulate emissions are normally not associated with combustion of gaseous fuels, such as natural gas or landfill gas. The AP-42 emission factor is 0.0168 pounds/MM BTU for an enclosed ground flare burning landfill gas. Maximum potential emissions from A-2 are less than 2 tons/year of PM<sub>10</sub>. Since particulate emissions are not substantial and violations of the Regulation 6-301 limit are not expected, periodic monitoring for the Ringelmann limit is not appropriate for this flare.

BAAQMD Regulation 6-310 for A-2 Landfill Gas Flare: Regulation 6-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Using the AP-42 emission factor for landfill gas combustion in a flare (0.017

pounds PM<sub>10</sub>/MM BTU) and typical landfill gas data (heat content of 547 BTU/scf of landfill gas at 55% methane), the particulate grain loading in the flare exhaust is calculated to be 0.013 gr/dscf at 0% oxygen. The grain-loading limit (0.15 gr/dscf) is far above any expected PM emissions (0.013 grains/dscf). It is therefore not appropriate to add periodic monitoring for this standard.

$$(0.017 \text{ pounds PM}_{10}/\text{MM BTU}) * (7000 \text{ grains/pound}) * (1 \text{ MM BTU}/10^6 \text{ BTU}) * (547 \text{ BTU}/\text{ft}^3 \text{ LFG}) / (5.1506 \text{ ft}^3 \text{ flue gas, dry, 0\% O}_2/\text{ft}^3 \text{ LFG}) = 0.013 \text{ grains}/\text{ft}^3 \text{ flue gas, dry, 0\% O}_2$$

### Organic Compound Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-1 Hillside 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# & Description	Emission Limit Citation	Emission Limit (Not Federally Enforceable)	Monitoring
S-1 Hillside Landfill	BAAQMD Condition # 17821, Part 2	Facility shall not accept soil containing more than 50 ppmw of VOC	Records

#### Organic Compound Discussion:

BAAQMD Regulation 8-2-301: The on-site handling operations of non-contaminated (low VOC) soil at the S-1 Hillside 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 Condition #16884, Part 3, to provide a method of demonstrating compliance with the 15 pound per day VOC emission limit of 8-2-301. Record keeping requirements were added to Condition #16884, Part 18.b. to ensure compliance with these requirements.

BAAQMD Regulation 8-40-301: CALCO has stated that it does not accept contaminated soil at this facility. Therefore, the requirements of Regulation 8, Rule 40 are not applicable. The record keeping requirements added to Condition #16884, Part 18.b. will verify that no contaminated soil is accepted at this facility.

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

S# & Description	Emission Limit Citation	Emission Limit (Not Federally Enforceable)	Monitoring
S-1 Hillside Landfill	BAAQMD 9-2-301	Property line ground level limits: ≤ 0.06 ppm Averaged over 3 minutes and ≤ 0.03 ppm Averaged over 60 minutes	None

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

<b>S# &amp; Description</b>	<b>Emission Limit Citation</b>	<b>Emission Limit (Not Federally Enforceable)</b>	<b>Monitoring</b>
A-2 Landfill Gas Flare	BAAQMD 9-2-301	Property line ground level limits: $\leq 0.06$ ppm Averaged over 3 minutes and $\leq 0.03$ ppm Averaged over 60 minutes	None

### Hydrogen Sulfide (H<sub>2</sub>S) Discussion:

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 odor at 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 receives complaints about hydrogen sulfide odors from Bay Area landfills and has never received any complaints about hydrogen sulfide odors from this facility. Therefore, the concentration of hydrogen sulfide at the property line is expected to be well below the Regulation 9-1-301 limits. Maximum potential hydrogen sulfide emissions are not substantial (2.5 tons/year) and the Regulation 9-2-301 emission limits are not federally enforceable. Monitoring for ground level H<sub>2</sub>S concentrations is not appropriate unless an odor problem has been documented.

### Other Limits

<b>S# &amp; Description</b>	<b>Limit Citation</b>	<b>Federally Enforceable Limit</b>	<b>Monitoring</b>
S-1 Hillside Landfill	BAAQMD Condition # 16884, Part 1	Waste Acceptance Limits: $\leq 400$ tons/day and $\leq 5,028,000$ tons (cumulative amount of all wastes) and $\leq 9,830,000$ yd <sup>3</sup> (cumulative amount of all wastes and cover materials)	Quarterly Records and Calculations of the Amount of Waste Accepted
A-2 Landfill Gas Flare	BAAQMD Condition # 16884, Part 9	$\leq 633.6$ MM BTU per day and $\leq 231,264$ MM BTU per year	Gas Flow Meter and Daily Records of Operating Times

Other Limits Discussion:

BAAQMD Condition # 16884, Part 1: Records are a standard method for monitoring for waste acceptance rates. Since this facility does not have a weigh scale, quarterly records of waste receipts and calculation procedures approved by the County of San Mateo Health Services Agency will be used instead of daily weigh scale records.

BAAQMD Condition # 16884, Part 9: The use of a gas flow meter and records is a standard method for monitoring for heat input limits to flares.

**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 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. This permit has no streamlining. The applicant did not request any permit shields or streamlining.

**D. Alternate Operating Scenarios:**

No alternate operating scenario has been requested for this facility.

## **E. Compliance Status:**

A June 11, 2002 memorandum from the Director of Compliance and Enforcement, to the Director of Permit Services, presents a review of the compliance record of Cypress Amloc Land Company (Site #A1364). The Compliance and Enforcement Division staff has reviewed the records for Site #A1364 for the period between May 1, 2001 through April 30, 2002. This review was initiated as part of the District evaluation of an application by Cypress Amloc Land Company for a Title V permit. During the period subject to review, activities known to the District include:

- There were no Notices of Violation issued during this review period.
- The District did not receive any alleged complaints.
- The facility reported one breakdown due to a PG&E power failure.
- The facility is not operating under a Variance or an Order of Abatement from the District Board.

The owner certified that all equipment was operating in compliance on May 10, 2001. No non-compliance issues have been identified to date.

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

The Title V permit application was originally submitted March 30, 2001 and completed on May 10, 2001. The May 10, 2001 version is the basis for constructing the proposed Title V permit.

The proposed permit includes the S-1 Hillside Landfill and gas collection system and the A-2 Landfill Gas Flare. This equipment was listed in the MFR permit application. However, the proposed permit does not include the S-7 Wood Chipper, S-8 Stockpiles, or S-9 Diesel Engine (which were also listed in the MFR permit application), because these operations were discontinued and the equipment was removed from the facility.

For S-1 and A-2, the applicant listed only the Regulation 8, Rule 34 requirements as applicable requirements. The proposed permit includes all requirements that are applicable to this equipment. The District added applicable requirements from the following regulations: BAAQMD Regulation 1; BAAQMD Regulation 6; BAAQMD Regulation 8, Rule 2; SIP Regulation 8, Rule 34; BAAQMD Regulation 9, Rule 1; BAAQMD Regulation 9, Rule 2; 40 CFR Part 60, Subpart A; 40 CFR Part 60, Subpart Cc; 40 CFR Part 62; and BAAQMD Permit Condition # 16884. Note that 40 CFR 62.1115 did not become effective until November 19, 2001 (after the application was submitted). The District is proposing to add Parts 1, 2, 3, 9, 10, 11, 15, 16, 17, and 18 to Condition # 16884 pursuant to this MFR Permit. These new parts include throughput limits and emission limits for equipment with no existing throughput or emission limits and monitoring requirements for limits that did not have adequate monitoring. Part 7 of Condition # 16884 was added pursuant to Permit Application # 2370. All other regulations listed above and Condition # 16884, Parts 4, 5, 6, 8, 12, 13, and 14 were applicable at the time the application was submitted.

Permit Evaluation and Statement of Basis: Site A1364, Cypress Amloc Land Company,  
1 Sand Hill Road, Colma, Ca 94014

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

**CALCO**

Cypress Amloc Land Company

**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.

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

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

**District**

The Bay Area Air Quality Management District

**EG**

Emission Guidelines

**EPA**

The federal Environmental Protection Agency.

**Excluded**

Not subject to any District regulations.

**Federally Enforceable, FE**

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

**FP**

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

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

Hydrogen Sulfide

**HAP**

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

**LFG**

Landfill gas

**Major Facility**

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

**MAX or Max.**

Maximum

**MFR**

Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Federal Clean Air Act and implemented by District Regulation 2, Rule 6.

**MIN or Min.**

Minimum

**MOP**

The District's Manual of Procedures.

**MSW**

Municipal solid waste

**MW**

Molecular weight

**NAAQS**

National Ambient Air Quality Standards

**NESHAPS**

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

**NMHC**

Non-methane Hydrocarbons (Same as NMOC)

**NMOC**

Non-methane Organic Compounds (Same as NMHC)

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

Oxides of nitrogen.

**NSPS**

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

**NSR**

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

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

Oxygen

**Offset Requirement**

A New Source Review requirement to provide federally enforceable emission offsets for the emissions from a new or modified source. Applies to emissions of POC, NO<sub>x</sub>, PM<sub>10</sub>, and SO<sub>2</sub>.

**Phase II Acid Rain Facility**

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

**POC**

Precursor Organic Compounds

**PM**

Particulate Matter

**PM10 or PM<sub>10</sub>**

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

**PSD**

Prevention of Significant Deterioration. A federal program for permitting new and modified sources of those air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

**SIP**

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

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

Sulfur dioxide

**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 <sup>3</sup>	=	cubic feet
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
gr	=	grains
hp	=	horsepower
hr	=	hour
lb	=	pound
lbmol	=	pound-mole
in	=	inches
m <sup>2</sup>	=	square meter
m <sup>3</sup>	=	cubic meters
min	=	minute
mm	=	million
MM	=	million
MM BTU	=	million BTU
MMcf	=	million cubic feet
Mg	=	mega grams
ppb	=	parts per billion
ppbv	=	parts per billion, by volume
ppm	=	parts per million
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scf	=	standard cubic feet
scfm	=	standard cubic feet per minute
sdcf	=	standard dry cubic feet
sdcfm	=	standard dry cubic feet per minute
yd	=	yard
yd <sup>3</sup>	=	cubic yards
yr	=	year