

Bay Area Air Quality Management District

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

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

Facility Address:
1 Sand Hill Road
Colma, CA 94014

Mailing Address:
2001 Hillside Boulevard
Colma, CA 94014

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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 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 of greater than or equal to 2.5 million mega grams and 2.5 million cubic meters to obtain an operating permit pursuant to Part 70. As discussed in more detail below in Section C.IV of this report, this facility is subject to these emission guidelines because it meets the designated facility criteria listed in 40 CFR § 60.32c(c).

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70 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.

This facility received its initial Title V permit on November 26, 2002 with an expiration date of October 31, 2007. The main purpose of this action is to reopen the permit to add the requirements related to the NESHAP for Municipal Solid Waste Landfills (40 CFR 63, Subpart AAAA) that was promulgated on January 16, 2003. Reopening this permit is required by Regulation 2, Rule 6 and by EPA's Title V regulations, because the expiration date for the permit is more than three years from the date of promulgation of the standard. This action will also make administrative amendments and minor revisions in order to: (a) update facility address and contact information, (b) correct collection system descriptions based on facility requests, (c) update citations and dates based on SIP approvals and other regulatory changes, (d) update standard sections of the permit that have changed since the permit was initially issued, (e) correct errors, and (f) clarify permit language.

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

B. Facility Description

This Cypress Amloc Land Company (CALCO) site is located on the west side of San Bruno Mountain and 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. For Parcel 1, waste acceptance 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 yd³. 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, 2003 is 4,180,000 tons (in Parcels 2 and 3) and 707,803 tons (in Parcel 1). The remaining design capacity available is 140,000 tons. The maximum allowed waste acceptance rates are 400 tons/day and 144,000 tons/year. At the current average waste acceptance rate of 40,000 tons/year, the site is expected to reach full capacity by 2007.

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 7 horizontal gas collectors and 36 vertical gas collection wells.

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, but also produces secondary combustion pollutants including: nitrogen oxides, carbon monoxide, sulfur dioxide, particulate matter, and formaldehyde.

C. Permit Content

Since a Statement of Basis was prepared for the initial MFR Permit that fully describes and explains the legal and factual basis for the MFR Permit, this report will only address the proposed changes to the MFR Permit. Changes to the permit sections are described in the order that they are presented in the permit.

Changes on the Title Page:

- The facility mailing address and facility contact information were corrected.
- The name of the APCO was corrected to reflect staff changes at the District.

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. The proposed revisions to this section are listed below.

Changes to Standard Conditions Section of the Permit:

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

II. Equipment

This section of the permit lists all permitted or significant sources and all abatement or control devices for these sources. This permit reopening and revision action will make minor corrections and clarifications to the equipment tables, as described below.

Changes to Equipment Section of the Permit:

- In Table II-A, the number of horizontal collectors in the continuously operated collection system has been corrected based on information provided by the facility.
- In Table II-B, the description of the A-2 Landfill Gas Flare is being expanded by listing the materials that are burned in this flare (landfill gas and propane during start-up) and the maximum firing rate (26.4 MM BTU/hour). In the Operating Parameters column, the minimum combustion zone temperature limit was corrected based on recent source test data. The Limit or Efficiency column was corrected by deleting an obsolete limit.

III. Generally Applicable Requirements

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources, portable equipment, and temporary sources that may not require a District permit. This permit reopening and revision action will update and correct this section, as described below.

Changes to Generally Applicable Requirements Section of the Permit:

- The language has been amended to say that the Generally Applicable Requirements table may also contain requirements that apply to temporary sources.
- The adoption dates of rules and SIP amendments have been updated.
- Obsolete SIP rules and regulations were deleted.
- New rules have been added to this section because these rules could be generally applicable or could apply to unpermitted or temporary sources.

IV. Source-Specific Applicable Requirements

This section of the permit lists all the applicable requirements that apply to permitted or significant sources. 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

As discussed in the Statement of Basis for the initial MFR Permit for CALCO, this facility is subject to the Emission Guidelines for MSW Landfills (40 CFR Part 60, Subpart Cc). The California State Plan (40 CFR Part 62.1115) implements these emission guidelines for existing landfills in California. In the Bay Area, Regulation 8, Rule 34 implements the state plan and federal emission guidelines requirements. All applicable Regulation 8, Rule 34 requirements, the emission guidelines and the state plan are currently listed in Table IV-A. Other applicable District requirements for the S-1 Hillside Landfill and A-2 Landfill Gas Flare are also listed in Table IV-A.

The NESHAP for Municipal Solid Waste Landfills (40 CFR 63, Subpart AAAA) was adopted in November 2002 with an effective date of January 16, 2003. Any landfills that are subject to the MSW Landfill NSPS or Emission Guidelines landfill gas collection and control requirements are also subject to this NESHAP. For landfills subject to the NESHAP at the date of adoption, the requirements became effective on January 16, 2004. This NESHAP did not add any new control requirements, but it did require the preparation of a Startup, Shutdown, Malfunction Plan (to be retained on-site at all times) and added new reporting requirements. These requirements were added to Table IV-A of the permit.

Changes to Table IV-A:

- BAAQMD Regulation 1 was replaced with the current version of BAAQMD Regulation 1 and SIP Regulation 1.
- The date format was corrected for consistency with the format of other dates cited in this permit.
- For BAAQMD Regulation 8, Rule 2 and 40 CFR Part 62, the amendment dates were updated.
- Future effective dates that have passed were deleted.
- The new NESHAP requirements (40 CFR 63, Subpart AAAA), the general NESHAP requirements (40 CFR 63, Subpart A), and a reporting requirement related to this NESHAP (Condition # 16884, Part 19) were added.
- The basis of Condition # 16884, Part 17 was corrected.

V. Schedule of Compliance

No changes to this section are proposed.

VI. Permit Conditions

During the Title V permit development, the District has reviewed the existing permit conditions, deleted the obsolete conditions, and as appropriate, revised the conditions for clarity and enforceability. Each permit condition is identified with a unique numerical identifier, up to five digits. Where necessary to meet Title V requirements, additional monitoring, recordkeeping, or reporting has been added to the permit.

For this reopening/revision, the District is proposing several changes to the permit conditions that are currently in effect. In general, these changes are necessary in order to add/revise the

basis for the specific condition, to clarify the condition, to make the condition more enforceable, or to revise monitoring requirements/procedures. Exact text changes are identified in the draft MFR Permit. All changes to existing permit conditions are clearly shown in “strike-out/underline” format in the proposed permit. When the revised permit is issued, all “strike-out” language will be deleted; all “underline” language will be retained. The reasons for the changes to each condition number are discussed further below.

Changes to Condition # 16884 for S-1 Hillside Landfill and A-2 Landfill Gas Flare:

- Part 3: The equation in Part 3c was revised to use scientific notation ($1E6$) instead of the equivalent exponential expression (10^6), due to District databank limitations.
- Part 5: The number of horizontal collectors in operation was corrected based on information provided by the facility.
- Part 12: The minimum required combustion zone temperature for the flare was changed to 1500 °F based on October 2002 and October 2003 source test data and the criteria described in this part. As a result of amendments to Regulation 2, Rule 6, any changes to the temperature limit in Part 12 cannot be handled as an administrative amendment. The text of this part was modified to reflect this procedural revision.
- Part 16: Source testing requirements for an obsolete limit (a pre 7/1/02 total hydrocarbon destruction efficiency limit) were deleted.
- Part 17: The District has established new standard language for a landfill gas analysis requirement in order to address comments received on other Title V permits and to correctly reflect the basis for this requirement. The District is proposing to replace the old landfill gas analysis text with the most recent version of the standard landfill gas analysis requirement. This part now lists the specific toxic air contaminants that the District requires testing for and eliminates the ambiguous language for removing compounds from the test list. The need for this testing is to correctly report the toxic emission inventory, which is an AB-2588 Air Toxics Hot Spots Act requirement.
- Part 19: This part was added to incorporate the semi-annual reporting frequency that is required by the new MSW Landfill NESHAP. This part also allows the Regulation 8, Rule 34, NESHAPs, and Title V reports to be combined into a single document submitted at the same time, provided all elements required by each report are included in this single document.

VII. Applicable Limits and Compliance Monitoring Requirements

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

For this reopening/revision, the District is not proposing any changes to any existing federally enforceable monitoring requirements. The only new federally enforceable requirement is the general NESHAP requirement to minimize emissions during startup, shutdown, and malfunction (SSM) events. The MSW Landfill NESHAPS requires that facilities develop an SSM Plan to minimize emissions during SSM events and requires that records be kept of all SSM events

including records of how emissions were minimized and the corrective actions that were taken. These records are adequate for demonstrating compliance with this standard.

The District is proposing revisions to the non-federally enforceable landfill gas testing requirement (Condition # 16884, Part 17). The new monitoring requirements will not require testing for non-carcinogenic compounds, because these compounds have no impact on the carcinogenic risk for the facility and the health impacts from non-carcinogenic compounds are negligible. The monitoring frequency is the same. Since these monitoring revisions only affect a non-federally enforceable requirement, these changes do not constitute a significant permit revision.

Changes to Table VII-A:

- The general NESHAP requirement to minimize emissions during startup, shutdown, and malfunction (SSM) events was added.
- The combustion zone temperature limit for the flare was corrected.
- Obsolete citations were deleted.
- For requirements with no monitoring (N in the 7th column of the table), missing text and abbreviations (None and NA) were added to the 6th and 8th columns of the table.

VIII. Test Methods

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

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

Changes to Test Methods Section of the Permit:

- An editorial revision was made to the standard text.
- An alternate method was added for BAAQMD Regulation 6-310, Particle Weight Limitation.
- An obsolete MOP test method was deleted.
- The appropriate test methods for the Condition # 16884, Part 16 annual flare source test requirement and Part 17 landfill gas analysis requirement were added for clarity.

IX. Permit Shield:

This facility has no permit shields. There is no change to this section due to this Title V reopening action.

X. Revision History:

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

Changes to Permit:

This is a new section. The initial permit application number and issuance date were listed. The changes proposed by this permit reopening/revision are summarized in this section under "Reopening".

XI. Glossary:

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

Changes to Permit:

This section was Section X and is now Section XI, due to the addition of Section X Revision History. Numerous terms were added to or corrected in the Glossary to improve the clarity of this permit.

XII. Applicable State Implementation Plan:

This section provides the web site address for the SIP versions of BAAQMD rules and regulations. This section was Section XI and is now Section XII, due to the addition of Section X Revision History. No other changes are being made to this section.

D. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility. No changes are proposed for this section for this reopening/revision of the MFR permit.

E. Compliance Status:

There is no change in compliance status for this facility.

F. Differences between the Application and the Proposed Permit:

Since the District initiated the reopening action and the other minor and administrative corrections to this permit, the facility did not submit an application for these actions. The District assigned Application # 10392 to this reopening/revision action.

The Responsible Official for this facility was notified in writing that the District was planning to reopen the MFR Permit for this site on April 2, 2004. A preliminary draft of the proposed revisions was sent to the Responsible Official by email on April 13, 2004. The proposed revisions are summarized below.

No changes are being made to the number of sources and abatement devices at this facility. The District is proposing to add the MSW Landfill NESHAP requirements (40 CFR Part 63, Subparts A and AAAA) that became effective on January 16, 2003. In addition, the District is proposing numerous administrative and minor revisions in order to correct facility contact information, update citations and dates based on SIP approvals and other regulatory changes, correct errors, and clarify permit language. The District is not proposing any changes to federally enforceable monitoring requirements. The District is proposing minor revisions to a non-federally

enforceable monitoring requirement, which requires annual testing of the landfill gas for toxic compounds. This revision will specifically list the compounds that need to be analyzed for rather than referring to lists in other documents. This revision will also eliminate ambiguous language that allowed compounds to be removed from the test list based on health impact determinations. These changes will clarify the landfill gas testing requirements and eliminate unnecessary testing.

On April 29, 2004, the Responsible Official provided comments on the preliminary draft and requested revisions to: (1) facility contact telephone number, (2) the number of operating horizontal collectors, and (3) condition changes related to “unplanned shutdown events”. As discussed earlier in this report, the District is proposing to make the telephone number and horizontal well count corrections requested by the Applicant.

However, the District is not proposing any text that would allow an “unplanned shutdown event” to be exempt from Regulation 8, Rule 34. The exemption of “unplanned shutdown events” is not allowed by any of the potentially applicable exemption sections (Sections 113, 116, 117, or 118) in Regulation 8, Rule 34. Therefore, the District cannot include such contradictory language in the MFR Permit. However, an “unplanned shutdown event” (such as the loss of primary A/C power) may potentially qualify for Breakdown relief pursuant to Regulation 1-112, where breakdown is defined in Regulation 1-208, and provided that the facility has complied with all applicable breakdown procedures and reporting requirements. The District will evaluate each such event to determine if the event qualifies for breakdown relief. The criteria for the District’s determination will include compliance all applicable procedures and reporting requirements, the circumstances that caused or contributed to the unplanned shutdown event, the amount and duration of excess emissions during the event, the frequency of unplanned shutdown events at the site, procedures or precautions the facility has taken to prevent such events or to minimize the impacts of such events, and may include other criteria deemed appropriate by the APCO or his designee. Since the applicant’s requested permit revisions concerning “unplanned shutdown events” would be in conflict with applicable regulatory requirements, the District has not include any of these requested revisions in this proposed permit action.

APPENDIX A
GLOSSARY

ACT

Federal Clean Air Act

APCO

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

ARB

Air Resources Board

BAAQMD

Bay Area Air Quality Management District

BACT

Best Available Control Technology

BARCT

Best Available Retrofit Control Technology

Basis

The underlying authority that allows the District to impose requirements.

CAA

The federal Clean Air Act

CAAQS

California Ambient Air Quality Standards

CALCO

Cypress Amloc Land Company

CAPCOA

California Air Pollution Control Officers Association

CARB

California Air Resources Board (same as ARB)

CEQA

California Environmental Quality Act

CEM

A "continuous emission monitor" is a monitoring device that provides a continuous direct measurement of some pollutant (e.g. NOx concentration) in an exhaust stream.

CFR

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

CH4 or CH₄

Methane

CO
Carbon Monoxide

CO₂ or CO₂
Carbon Dioxide

CT
Combustion Zone Temperature

Cumulative Increase

The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Regulation 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Regulation 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Used to determine whether threshold-based requirements are triggered.

District
The Bay Area Air Quality Management District

E 6
Very large or very small number values are commonly expressed in a form called scientific notation, which consists of a decimal part multiplied by 10 raised to some power. For example, 4.53 E 6 equals $(4.53) \times (10^6) = (4.53) \times (10 \times 10 \times 10 \times 10 \times 10 \times 10) = 4,530,000$. Scientific notation is used to express large or small numbers without writing out long strings of zeros.

EG
Emission Guidelines

EO
Executive Order

EPA
The federal Environmental Protection Agency.

Excluded
Not subject to any District Regulations.

Federally Enforceable, FE

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

FID
Flame Ionization Detector

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

FR

Federal Register

GDF

Gasoline Dispensing Facility

GLM

Ground Level Monitor

H₂S or H₂S

Hydrogen Sulfide

HAP

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

Hg

Mercury

HHV

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

LFG

Landfill Gas

LHV

Lower Heating Value. Similar to the higher heating value (see HHV) except that the water produced by the combustion is not condensed but retained as vapor at 60 °F.

Major Facility

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

MAX or Max.

Maximum

MFR

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

MIN or Min.

Minimum

MOP

The District's Manual of Procedures.

MSDS

Material Safety Data Sheet

MSW

Municipal solid waste

MW

Molecular weight

N2 or N₂

Nitrogen

NA

Not Applicable

NAAQS

National Ambient Air Quality Standards

NESHAPs

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

NMHC

Non-methane Hydrocarbons (same as NMOC).

NMOC

Non-methane Organic Compounds (same as NMHC).

NO_x or 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 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 air pollutants for which the District is classified "non-attainment". Mandated by Title I of the Clean Air Act and implemented by 40 CFR Parts 51 and 52 as well as District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

O₂ or O₂

Oxygen

Offset Requirement

A New Source Review requirement to provide federally enforceable emission offsets at a specified ratio for the emissions from a new or modified source and any pre-existing cumulative increase minus any onsite contemporaneous emission reduction credits. Applies to emissions of POC, NO_x, PM₁₀, and SO₂.

Phase II Acid Rain Facility

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

POC

Precursor Organic Compounds

PM

Total Particulate Matter

PM₁₀ or 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 air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

PV or P/V Valve

Pressure / Vacuum Valve

RMP

Risk Management Plan

S

Sulfur

SIP

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

SO₂ or SO₂

Sulfur dioxide

SSM

Startup, Shutdown, or Malfunction

SSM Plan

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

THC

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

Title V

Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

TOC

Total Organic Compounds includes all NMOC plus methane (same as THC).

TPH

Total Petroleum Hydrocarbons

TRMP

Toxic Risk Management Policy

TRS

Total Reduced Sulfur

TSP

Total Suspended Particulate

VOC

Volatile Organic Compounds

Symbols:

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

Units of Measure:

bbbl	=	barrel of liquid (1 bbl = 42 gallons)
bhp	=	brake-horsepower
btu	=	British Thermal Unit
BTU	=	British Thermal Unit
°C	=	degrees Centigrade
cfm	=	cubic feet per minute
dscf	=	dry standard cubic feet
°F	=	degrees Fahrenheit
ft ³	=	cubic feet
g	=	grams

gal	=	gallon
gpm	=	gallons per minute
gr	=	grains (7000 grains = 1 pound)
hp	=	horsepower
hr	=	hour
in	=	inches
kg	=	kilograms
lb	=	pound
lbmol	=	pound-mole
M	=	thousand
m ²	=	square meter
m ³	=	cubic meters
Mg	=	mega-grams, 1000 kilograms
min	=	minute
mm	=	millimeter
MM	=	million
MM BTU	=	million BTU
MMcf	=	million cubic feet
mm Hg	=	millimeters of mercury (pressure)
MW	=	megawatts
µg	=	microgram, one millionth of a gram
ppb	=	parts per billion
ppbv	=	parts per billion by volume
ppm	=	parts per million
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scf	=	standard cubic feet
scfm	=	standard cubic feet per minute
sdcf	=	standard dry cubic feet
sdcfm	=	standard dry cubic feet per minute
therms	=	1 therm = 100,000 BTU
yd	=	yard
yd ³	=	cubic yards
yr	=	year