Bay Area Air Quality Management District

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Permit Evaluation
and
Statement of Basis
for
RENEWAL of

MAJOR FACILITY REVIEW PERMIT

for

Martinez Cogen Limited Partnership
Facility #A1820

Facility Address:
550 Solano Way
Martinez, CA 94553

Mailing Address:
Same As Above

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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 A1820.

This facility received its initial Title V permit on December 18, 1998. This application is for a permit renewal. Although the current permit expires on December 18, 2003, it continues in force until the District takes final action on the permit renewal. Since the initial issuance, the facility has added three new sources, which are included in the renewal permit. In addition, the District has made updates and corrections to the permit as appropriate to update the text to the current standards and to correct outdated or erroneous information. All permit revisions are clearly shown in strikeout and underline formatting in the proposed renewal permit.

B. Facility Description

Cogeneration Plant

The primary business of Martinez Cogen Limited Partnership (MCLP) is the production of steam and electricity at the Cogeneration Plant. The facility operates (2) natural gas/refinery gas fired combustion turbine/generators each with a rated capacity of 500 MMBTU/hr. The exhaust gases from the turbines are ducted to unfired heat recovery boilers, where steam is generated. A portion of the steam is then fed to a steam turbine for additional electrical power generation and the remainder is sold to off-site users. MCLP uses a gas blending system to ensure fuel consistency. The permitted sources at the Cogeneration Plant are the Combustion Turbines S-10 and S-11.

Sludge Drying Plant

In addition to the power generation facilities, MCLP also has permits to operate a sludge drying plant. MCLP has operated this facility in the past when steam demands have been low, but it is not presently in service. The sludge drying plant consists of a two-stage evaporator, centrifuge, and hydro extractor. In order to improve its ability to flow through the drying unit, the sludge is mixed with a carrier oil. The centrifuge and hydro extractor are used to separate and remove the carrier oil from the dried sludge. Vapors released in the first stage evaporator are abated by a vapor condenser and carbon bed adsorber. Dried solids are pneumatically conveyed under vacuum to a product silo. Particulate emissions from the silo are abated by a baghouse. The permitted sources at the Sludge Drying Plant are the Sludge Dryer S-1, the Product Silo S-2, and the Sludge Feed Storage Tank S-3. Permitted abatement devices are the Carbon Adsorber A-1 and the Baghouse A-2.

Other Sources

In addition to the Cogeneration Plant and Sludge Drying Plant, MCLP operates (3) diesel internal combustion engines, two as starter engines for the combustion turbines (S-12 and S-13) and one as an emergency generator to provide backup electrical power during an outage (S-14). MCLP also operates a Cooling Tower that is exempt from District permitting per Regulations 2-1-128.4 and 2-1-319.1.

C. Permit Content

The legal and factual basis for the permit follows. The permit sections are described in the order that they are presented in the permit. Changes to the standard permit text have been made since the initial Title V Permit for this site was issued. These changes are reflected in the new proposed permit in strikeout/underline format.

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:

Standard text has been updated and 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 the abatement device table but will have an "S" number. An abatement device may also be a source (such as a thermal oxidizer that burns fuel) of secondary emissions. If the primary function of a device is to control emissions, it is considered an abatement (or "A") device. If the primary function of a device is a non-control function, the device is considered to be a source (or "S").

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

Each of the permitted sources has previously been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. These permits are issued in accordance with state law and the District's regulations. The capacities in the permitted sources table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-403. The Cooling Tower is exempt from District permitting per Regulations 2-1-128.4 and 2-1-319.1 and was not previously included in the Title V permit. However, revisions were made to Regulation 2-6-405.6 on May 2, 2001 so that significant sources are no longer excluded from the Title V permit, regardless of any exemption from District permitting. Therefore, the applicable requirements for Cooling Tower have been added to the proposed renewal permit.

<u>Changes to permit:</u>
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 proposed permit renewal:

- The Diesel Internal Combustion Engines S-12, S-13, and S-14 were added as permitted sources under District Permit Application #004290. S-12 and S-13 have been in operation at the facility since 1986, S-14 was installed in 1999. Prior to May 17, 2000, these engines were not required to have permits from the District due to exclusions in Regulation 1. However, regulatory changes to Regulation 1 adopted on May 17, 2000 resulted in a "Loss of Exclusion" for the engines and they were required to be permitted.
- The Cooling Tower was added to the proposed permit as a "significant source" as discussed above.

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.

Changes to permit:

Changes to this section of the permit include updating the text to the current standard, updating the applicable requirements in Table III to reflect the current versions of the cited regulations and the addition of generally applicable requirements that were overlooked in the initial Title V permit. For example, the current BAAQMD and SIP versions of Regulation 8, Rule 16 were added because MCLP may engage in solvent cleaning operations that are subject to these requirements but are not included as sources in the Title V permit.

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.

Changes to permit:

Changes to Section IV are primarily routine and include the updating of text to the current standard, updating the applicable requirements tables to reflect the current versions of the cited regulations, addition and deletion of applicable requirements tables for sources that have been added as discussed in Part II above.

V. Schedule of Compliance

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

"409.10 A schedule of compliance containing the following elements:

10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;

10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and

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

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

Changes to permit:

A minor change was made to this section to reflect the current standard text used by the District.

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

- BACT: This term is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This term is used for a condition imposed by the APCO which limits a source's operation to the operation described in the permit application pursuant to BAAQMD Regulation 2-1-403.
- Offsets: This term is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit issued pursuant to Regulation 2, Rule 2.
- 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.

Changes to permit:

A minor wording change was made to Condition #13422, part 1 to clarify the intent of the condition that each turbine may combust up to 500 MMBTU/hr in any combination of natural gas and/or refinery gas. The Regulatory Basis in Condition #13422, part 2 was corrected from "Banking Certificate" to "Offsets". Conditions #18843 and #18844 were added for the "Loss of Exclusion" IC Engines S-12, S-13, and S-14.

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 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**.**

The District has reviewed all monitoring and has determined the existing monitoring is adequate with the following exceptions.

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
COOLING TOWER:	BAAQMD Regulation 6-301	Ringelmann 1.0	None
	BAAQMD Regulation 6-310	0.15 gr/dscf	None
SLUDGE DRYING OPERATION, PRODUCT SILO: S-1, S-2	BAAQMD Regulation 6-301	Ringelmann 1.0	None
	BAAQMD Regulation 6-310	0.15 gr/dscf	None
	BAAQMD Regulation 6-311	3.4 pounds/hour, for Process Weight Rate (P) 1,420 pounds/hour	None
DIESEL IC ENGINES S-12, S-13, S-14	BAAQMD Regulation 6-303.1	Ringelmann 2.0	None
	BAAQMD Regulation 6-310	0.15 gr/dscf	None

PM Discussion:

Cooling Tower

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). Particulate emissions from cooling towers come from dissolved solids in the cooling tower water and are therefore expected to be fairly constant and not subject to operational control. A search of the District's data base for MCLP reveals that the facility has received no violations or complaints in regard to particulate emissions in the past 10 year period. The District is therefore satisfied that a periodic monitoring requirement for visible emissions is not necessary for the Cooling Tower.

BAAQMD 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. As shown in the following calculation, the worst-case grain loading from the Cooling Tower is much less than 0.15 grains per dscf. Therefore, no monitoring is required to ensure compliance with this limit for this source.

Cooling water circulation rate	23,000 gpm
Drift rate	0.003%
Maximum total dissolved solids	2,080 ppm
Minimum Exhaust gas flow rate:	540,500 dscfm

Cooling tower drift:

(23,000 gal/min)(60 min/hr)(8.34 lb/gal)(0.00003) = 345 lb/hr

Max. PM10 emission rate = (345 lb/hr)(2,080 ppm)/10^6
= 0.72 lb/hr

Grain loading = (0.72 lb/hr)(hr/60 min)(7000 gr/lb)/(540,500 dscfm)
= 0.00015 gr/dscf

S-1, S-2: Sludge Drying Operations

Dried sludge from the Sludge Drying Operation S-1 is pneumatically conveyed to the Product Silo S-2. Therefore, the potential particulate emissions from this operation would occur at the exhaust vent of the Product Silo. The Product Silo is abated by the Baghouse A-2, so PM emissions are expected to be low. The maximum throughput of dried sludge from the Sludge Dryer to the Product Silo is 0.71 tons/hr and the silo has a capacity of 1,200 cubic feet (approximately 30 tons). From AP-42 Table 11.12-2, an uncontrolled PM factor of 0.72 lb/ton is given for "cement unloading to elevated storage silo". Due to a similarity in the nature of the operations and the lack of a specific emission factor for handling dried sludge, this factor will be used to estimate emissions from the product silo. Assuming a typical (conservative) baghouse abatement efficiency of 98% and that as a worst case the product silo will be filled and emptied two times per week, the highest estimated PM emissions for this operation will be 0.01 lb/hr and 0.02 tons/yr. Because the predicted PM emissions are so low, the addition of periodic monitoring to demonstrate compliance with Regulation 6, Sections 301, 310, and 311 is not recommended.

S-12, S-13, S-14: IC Engines

BAAQMD Regulation 6-303.1 limits visible emissions from IC Engines that are less than 1,500 cubic inches of displacement to no darker than 2.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour). Due to the sporadic and infrequent nature of the usage of these engines for Gas Turbine starts (S-12, S-13) and standby power generation (S-14) and because Ringelmann 2 is not a stringent limit, the District has determined that the addition of periodic monitoring for the Regulation 6-303.1 visible emissions limit is not necessary.

BAAQMD Regulation 6-310 limits PM emissions to 0.15 gr/dscf. If it is assumed that the diesel engine exhaust gases contain 15% excess oxygen under normal operating conditions, the Regulation 6-310 limit can be compared to the expected emissions from S-12, S-13 and S-14 as follows:

From 40 CFR 60, Appendix A, Method 19, Table 19-1, a stoichiometric dry gas combustion factor of 9,190 dscf/MMBTU is given for distillate oil combustion. At 15% excess O_2 this factor becomes:

9,190 x [21%/(21% - 15%)] = 32,165 dscf (combustion products)/MMBTU

The conversion of 0.15 gr/dscf @ 15% O_2 to lb/MMBTU is then:

(32,165 dscf/MMBTU) x (0.15 gr/dscf) x (lb/7,000 gr) = 0.689 lb/MMBTU

The converted manufacturer's PM emission factors (in lb/MMBTU) for S-12, S-13, and S-14 are as follows:

- S-12, S-13: 0.10 lb/MMBTU
- S-14: 0.12 lb/MMBTU

Since the manufacturer's PM emission factors for each of these engines are less than the converted Regulation 6-310 limit, compliance is assumed.

SO2 Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
DIESEL IC ENGINES S-12, S-13, S-14	BAAQMD 9-1-304	Fuel Sulfur Content Limit: ≤ 0.5% sulfur by weight	Vendor fuel certification

SO2 Discussion:

S-12, S-13, S-14: IC Engines
BAAQMD Regulation 9-1-304 limits the sulfur content of liquid fuels to 0.5% by weight. Per the CAPCOA/ARB/EPA Agreement of 6/24/99 entitled "Periodic Monitoring Recommendations For Generally Applicable Requirements in SIP", vendor fuel sulfur content certifications for liquid fuels will provide sufficient assurances of compliance with SO2 emissions limits. Compliance with Diesel fuel sulfur limits in BAAQMD Regulation 9-1-304 and BAAQMD Conditions #18843 and #18844 will be assured by certification of the sulfur content by the fuel supplier for each fuel delivery.

Changes to permit:
Add Tables VII C, D, and E for the IC Engines S-12, S-13, and S-14 and the unpermitted Cooling Tower.

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:

Fuel sulfur content test method added. An alternative method for Regulation 6-310 was added. ST 19B "Total Sulfur Oxides" was deleted because it is obsolete.

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.

Changes to permit

MCLP currently has (6) permit shields of the first type (Non-Applicable Requirements) and (11) of the second type (Subsumed Requirements). In their Title V renewal application, MCLP requested that the existing permit shields be retained. However, the District proposes to make the following changes to the Non-Applicable Requirements in Table IX-A as follows:

- The SIP version of Regulation 8, Rule 18 is now the same as the current BAAQMD version, so the reference to the SIP version was deleted.
- The BAAQMD version of Regulation 8, Rule 25 was deleted on January 7, 1998, but the SIP approved version still exists. Therefore, the version listed in Table IX-A was changed from BAAQMD to SIP.

D. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility.

E. Compliance Status:

A March 29, 2004 office memorandum from the Director of Compliance and Enforcement, to the Director of Engineering, presents a review of the compliance record of Martinez Cogen Limited Partnership (MCLP), Site #A1820. The Compliance and Enforcement Division staff has reviewed the records for MCLP for the period from January 1, 2003 through December 31, 2003. This review was initiated as part of the District evaluation of an application by MCLP for a renewal of their Title V permit. During the period subject to review, activities known to the District include:

- There were no Notices of Violation issued during this review period.
- The District received no complaints relating to the facility.
- No breakdowns, inoperative monitors, or excesses have occurred.
- The facility is not operating under a Variance or an Order of Abatement from the District Board.

The Responsible Official certified that all equipment was operating in compliance on June 2, 2003. No non-compliance issues have been identified to date.

F. Differences between the Application and the Proposed Permit:

The renewal Title V permit application was submitted on June 9, 2003. This version is the basis for constructing the proposed Title V permit. There are no significant differences between the renewal Title V application and the proposed permit.

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APPENDIX A
BAAQMD COMPLIANCE REPORT

APPENDIX B
GLOSSARY

ACT
Federal Clean Air Act

APCO
Air Pollution Control Officer

API
American Petroleum Institute

ARB
Air Resources Board

BAAQMD
Bay Area Air Quality Management District

BACT
Best Available Control Technology

BARCT
Best Available Retrofit Control Technology

C5
An Organic chemical compound with five carbon atoms

C6
An Organic chemical compound with six carbon atoms

CAA
The federal Clean Air Act

CAAQS
California Ambient Air Quality Standards

CAPCOA
California Air Pollution Control Officers Association

CEC
California Energy Commission

CEQA
California Environmental Quality Act

CEM
A "continuous emission monitor" is a monitoring device that provides a continuous direct measurement of some pollutant (e.g. 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.

CO

Carbon Monoxide

CO2
Carbon Dioxide

Cumulative Increase
The sum of permitted emissions from each new or modified source since a specified date. Used to determine whether threshold-based requirements are triggered.

District
The Bay Area Air Quality Management District

dscf
Dry Standard Cubic Feet

dscm
Dry Standard Cubic Meter

E 6, E 9, E 12
Very large or very small number values are commonly expressed in a form called scientific notation, which consists of a decimal part multiplied by 10 raised to some power. For example, 4.53 E 6 equals (4.53) x (10^6) = (4.53) x (10 x 10 x 10 x 10 x 10 x 10) = 4,530,000. Scientific notation is used to express large or small numbers without writing out long strings of zeros.

EGT
Exhaust Gas Temperature

EPA
The federal Environmental Protection Agency.

Excluded
Not subject to any District Regulations.

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

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

FR
Federal Register

GDF
Gasoline Dispensing Facility

GLC
Ground level concentration.

GLM
Ground Level Monitor

grains
1/7000 of a pound

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 both 40 CFR Part 63, and District Regulation 2, Rule 5.

H2S
Hydrogen Sulfide

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

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 60F.

Major Facility
A facility with potential emissions of regulated air pollutants greater than 100 tons per year, greater than or equal to 10 tons per year of any single hazardous air pollutant, and/or greater than or equal to 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity 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 Act and implemented by District Regulation 2, Rule 6.

MOP
The District's Manual of Procedures.

MSDS
Material Safety Data Sheet

MW
Megawatts

NA
Not Applicable

NAAQS
National Ambient Air Quality Standards

NESHAPS
National Emission Standards for Hazardous Air Pollutants. Contained in 40 CFR Part 61.

NMHC
Non-methane Hydrocarbons

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 Act, and implemented by both 40 CFR Part 60 and District Regulation 10.

NSR
New Source Review. A federal program for preconstruction 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
The chemical name for naturally-occurring oxygen gas.

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 SO_2.

Phase II Acid Rain Facility
A facility that generates electricity for sale through fossil-fuel combustion and by virtue of certain other characteristics (defined in Regulation 2, Rule 6) is subject to Titles IV and V of the Clean Air Act.

POC
Precursor Organic Compounds

PM
Total Particulate Matter

PM10
Particulate matter with aerodynamic equivalent diameter of less than 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.

SCR
A "selective catalytic reduction" unit is an abatement device that reduces NOx concentrations in the exhaust stream of a combustion device. SCRs utilize a catalyst, which operates at a specific temperature range, and injected ammonia to promote the conversion of NOx compounds to nitrogen gas.

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

SO2
Sulfur dioxide

SO2 Bubble
An SO2 bubble is an overall cap on the SO2 emissions from a defined group of sources, or from an entire facility. SO2 bubbles are sometimes used at refineries because combustion sources are typically fired entirely or in part by "refinery fuel gas" (RFG), a waste gas product from refining operations. Thus, total SO2 emissions may be conveniently quantified by monitoring the total amount of RFG that is consumed, and the concentration of H2S and other sulfur compounds in the RFG.

SO3
Sulfur trioxide

THC
Total Hydrocarbons (NMHC + Methane)

therm
100,000 British Thermal Unit

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

TOC
Total Organic Compounds (NMOC + Methane, Same as THC)

TRMP
Toxic Risk Management Plan

TSP
Total Suspended Particulate

TVP
True Vapor Pressure

VOC

Volatile Organic Compounds

Units of Measure:

bhp	=	brake-horsepower
Btu	=	British Thermal Unit
g	=	grams
gal	=	gallon
hp	=	horsepower
hr	=	hour
lb	=	pound
in	=	inches
max	=	maximum
m^2	=	square meter
min	=	minute
MM	=	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
scfm	=	standard cubic feet per minute
yr	=	year

Symbols:

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