Bay Area Air Quality Management District

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Permit Evaluation
and
Statement of Basis
for
RENEWAL of

MAJOR FACILITY REVIEW PERMIT

for

SFPP, L.P.
Facility #A4020

Facility Address:
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Application No: 26009

January 2017

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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 Title 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 A4020.

This facility received its initial Title V permit on November 21, 2001. The permit was renewed on April 3, 2009. This application is for the second permit renewal. Although the current permit expired on August 2, 2014, it continues in force until the District takes final action on the permit renewal.

The standard sections of the permit will be upgraded to include new standard language used in all Title V permits.

The proposed permit shows all changes to the permit in strikeout/underline format.

B. Facility Description

SFPP systems deliver gasoline and distillates from the refining centers of Los Angeles, Bakersfield and San Francisco, CA and refineries and gathering pipelines in El Paso, Texas and Portland, Oregon to the major population centers of California, Arizona, New Mexico, Nevada, and Oregon.

The SFPP, L.P. San Jose Terminal is located at 2150 Kruse Drive, San Jose, CA. The San Jose terminal occupies a 20-acre site. The site consists of more than 30 refined petroleum products

above-ground storage tanks and more than 990,000 barrels of total tank capacity. The terminal is equipped with six permitted truck loading racks, and an off-spec product loading rack and an ethanol unloading rack.

Petroleum products are being transported by pipeline to the San Jose terminal from Concord, CA. Then, the products are loaded at the Terminal to trucks for distribution. Emissions from the facility are primarily volatile organic compounds, the main pollutant of concern.

There has been no significant change in emissions since issuance of the last renewal. However, the S-47 Unloading Rack was modified in Application No. 20331 which trigger BACT and offset review. The changes made as a result of Application No. 20331 have been added to the permit.

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.

<u>Changes to permit:</u>

- The facility contact was updated on the title page of the permit.
- The dates of adoption and approval of rules in Standard Condition 1.A have been updated.
- The address in Standard Condition 1.F for the Bay Area Air Quality Management District has been updated to 375 Beale Street, Suite 600, in San Francisco, CA 94105.
- The division name and region number format of the USEPA in Standard Condition 1.G was updated.
- 40 CFR Part 68 was added as Part K of the Standard Conditions because the facility is subject to the requirements.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S24).

Permitted sources are those sources that require a BAAQMD operating permit pursuant to BAAQMD Rule 2-1-302.

Significant sources are those sources that have a potential to emit of more than 2 tons of a "regulated air pollutant," as defined in BAAQMD Rule 2-6-222, per year or 400 pounds of a "hazardous air pollutant," as defined in BAAQMD Rule 2-6-210, per year.

All abatement (control) devices that control permitted or significant sources are listed. Each abatement device whose primary function is to reduce emissions is identified by an A and a number (e.g., A-24). If a source is also an abatement device, such as when an engine controls VOC emissions, it will be listed in the abatement device table but will have an "S" number. An abatement device may also be a source (such as a thermal oxidizer that burns fuel) of secondary emissions. If the primary function of a device is to control emissions, it is considered an abatement (or "A") device. If the primary function of a device is a non-control function, the device is considered to be a source (or "S").

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

Each of the permitted sources has previously been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. These permits are issued in accordance with state law and the District's regulations. The capacities in the permitted sources table are the 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:

Abatement devices, A2, was shutdown. As a result, it has been removed from the Title V permit.

<u>Changes to permit:</u>

- Abatement devices, A2, was shutdown. As a result, it has been removed from the Title V permit.
- Added a column to Table IIA to show the basis for the capacity and limit applicable to the source and indicated basis of the limit (see Section VI. Permit Conditions for more details) for consistency with other Title V permits.

III. Generally Applicable Requirements

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

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

Changes to permit:

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

- SIP Regulation 8, Rule 3, Architectural Coatings
- California Health and Safety Code Title 17, Section 93115 (Airborne Toxic Control Measures for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater)
- The dates of adoption or approval of the rules and their "federal enforceability" status in Table III have also been updated.

IV. Source-Specific Applicable Requirements

This section of the permit lists the applicable requirements that apply to permitted or significant sources. These applicable requirements are contained in tables that pertain to one or more sources that have the same requirements. The order of the requirements is:

- District Rules
- SIP Rules (if any) are listed following the corresponding District rules. SIP rules are District rules that have been approved by EPA for inclusion in the California State Implementation Plan. SIP rules are "federally enforceable" and a "Y" (yes) indication will appear in the "Federally Enforceable" column. If the SIP rule is the current District rule, separate citation of the SIP rule is not necessary and the "Federally Enforceable" column will have a "Y" for "yes". If the SIP rule is not the current District rule, the SIP rule or the necessary portion of the SIP rule is cited separately after the District rule. The SIP portion will be federally enforceable; the non-SIP version will not be federally enforceable, unless EPA has approved it through another program.
- Other District requirements, such as the Manual of Procedures, as appropriate.
- Federal requirements (other than SIP provisions)
- BAAQMD permit conditions. The text of BAAQMD permit conditions is found in Section VI of the permit.

- Federal permit conditions. The text of Federal permit conditions, if any, is found in Section VI of the permit.

Section IV of the permit contains citations to all of the applicable requirements. The text of the requirements is found in the regulations, which are readily available on the District's or EPA's websites, or in the permit conditions, which are found in Section VI of the permit. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of monitoring is included in Section C.VII of this permit evaluation/statement of basis.

CAM:

The loading racks (S1, S28, S29, S30, S31, and S32) comply with the Compliance Assurance Monitoring (CAM) requirements of 40 CFR Part 64. Material throughput limit is monitored on an hourly and daily basis. The operating temperature of the vapor processing units, A2 & A3, which abate VOC emissions from these racks, and its exhaust VOC concentration are monitored continuously. The vapor processing units are also subject to periodic source test to demonstrate compliance with the emission limits.

NESHAPS

The facility is not subject to the requirements of 40 CFR 63, Subpart R – National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations). The facility is exempt from the requirements of Subpart R because E_T, emissions screening factor (= 0.44) is <1.0, and emissions of a single HAP are less than 10 tpy and total HAPs are less than 25 tpy.

However, the facility is subject to the requirements of 40 CFR 63, Subpart BBBBBB – National Emission Standards for Hazardous Air Pollutants for Source category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities as per 63.11081(a)(1).

The calculations are as follows:

ET Calculations

$$E_T=CF\ [0.59(T_F)(1\text{-}CE)+0.17(T_E)+0.08(T_{ES})+0.038(T_I)+8.5X10^{-6}(C)+KQ]+0.04(OE)$$
$$= 0.44$$

Where,
E_T=emissions screening factor for bulk gasoline terminals;
CF=0.161;
CE=0.0, control efficiency;
T_F=0.0, total number of fixed roof tanks without internal floating roof;
T_E=0.0, total number of external floating roof tanks with only primary seals;
T_{ES}=0.0, total number of external floating roof tanks with primary and secondary seals;;
T_I=28; total number of fixed roof gasoline tanks with an internal floating roof;

C=2701, number of valves, pumps, connectors, loading arm valves, and open ended lines in gasoline service;
Q=15,141,200, gasoline throughput (liters/day);
K, (4.5x10-9(EF+L)=1.017E-07;
EF=9.6, emission rate limitation (mg/l);
OE=0.3, other HAP screening factor (tons/yr);
L=13, for gasoline cargo tank not meeting the requirements to satisfy the test criteria for a vapor-tight gasoline tank truck (mg/l)

HAP emission calculations

Potential to emit VOC from gasoline products = 678,215 lbs/yr
= 339.1 tpy
HAP concentrations by weight in VOC (Ref: Gasoline Marketing (Stage I & Stage II), Volume III Chapter 11, Revised final, Area Source Committee, Emission Inventory Improvement Program, January 2001, Table 11.3-2) are used to calculate HAP emissions:

Benzene (= 0.9%) = 3.05 tpy
Ethyl Benzene (= 0.1%) = 0.339 tpy
n-hexane (= 1.6%) = 5.42 tpy
POM as 16-PAH (= 0.05%) = 0.17 tpy
Toluene (= 1.3%) = 4.4 tpy
2,2,4-Trimethylpentane (= 0.8%) = 2.71 tpy
Xylene (= 0.5%) = 1.7 tpy

Total HAP emissions = 17.79 tpy

Changes to permit:
The permit conditions for S-47 were amended as part of Application No. 20331. As a result, Condition # 23134 in Table IV-L was amended.

The throughput limits for grandfathered tanks were added to tanks in this section reflecting the addition of Condition # 26356.

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 responsible official for SFPP, LLC submitted a signed Certification Statement form dated September 22, 2016. On this form, the responsible official certified that the following statements are true:

- Based on information and belief formed after reasonable inquiry, the source(s) identified in the Applicable Requirements and Compliance Summary form that is(are) in compliance will continue to comply with the applicable requirement(s);
- Based on information and belief formed after reasonable inquiry, the source(s) identified in the Applicable Requirements and Compliance Summary form will comply with future-effective applicable requirement(s), on a timely basis;
- Based on information and belief formed after reasonable inquiry, information on application forms, all accompanying reports, and other required certifications is true, accurate, and complete;
- All fees required by Regulation 3, including Schedule P, have been paid.

Changes to permit:
No changes will be made to this part of the permit.

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 and 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:

The permit conditions for S-47 were amended as part of Application No. 20331. As a result, Condition # 23134 in the Section VI was amended.

Grandfathered Sources

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. The applicability of preconstruction review 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 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 older sources that have never been through preconstruction review (commonly referred to as "grandfathered" sources), 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, 3) 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.

The District has written throughput limits into the Title V permit for grandfathered sources. As discussed above, these limits are written for the purpose of determining whether an increase in emission levels has occurred. The purpose of these limits is to facilitate implementation of preconstruction review program. If these limits are exceeded, the facility would be expected to report the exceedence, and the District would treat the reported exceedence as presumptively establishing the occurrence of a modification. The facility would then be expected to apply for a preconstruction permit addressing the modification and the District would consider whether an enforcement action was appropriate.

It is important to note the presumptive nature of throughput limits for grandfathered sources that are created in the Title V permit. These limits are generally based upon the District's review of information provided by the facility regarding the design capacity or highest documented capacity of the grandfathered source. To verify whether these limits reflect the true design, documented, or "bottlenecked" capacity (pursuant to 2-10234.1) of each source is beyond the resource abilities of the District in this Title V process. Moreover, the District cannot be completely confident that the facility has had time or resources necessary to provide the most accurate information available in this regard. Creating throughput limits in the Title V permit for grandfathered sources is not required by either Part 70 or the District's Major Facility Review rules. Despite the lack of such a requirement, and despite the resource and information challenges presented in the Title V process, the District believes that writing presumptive limits for grandfathered sources into the Title V permit will provide a measure of predictability regarding the future applicability of the preconstruction review program, and that this increased predictability is universally beneficial.

It follows from the presumptive nature of these throughput limits for grandfathered sources that exceedence of these limits is not per se a violation of the permit. Failure to report an exceedence would be a permit violation. In this sense, the throughput limits function as monitoring levels, and are imposed pursuant to the District's authority to required monitoring that provide a reasonable assurance of compliance. 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. In other words, the protection afforded the facility by complying with the throughput limit in the Title V permit is only as strong as the information on which it was based. There is no Title V "permit shield" associated with throughput limits for grandfathered sources, as they are being proposed. A shield may be provided if the District determines with certainty that a particular limit is appropriate for purposes of 2-1-234.3.

Permit condition ID # 26356 for the storage tanks will be added as part of this Title V renewal to set a grandfathered limit for these grandfathered sources.

All other sources have either firm or NSR limits.

VII. Applicable Limits and Compliance Monitoring Requirements

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

The District has reviewed all monitoring and has determined the existing monitoring is adequate. Monitoring in Regulation 8 Rule 5 has increased and is adequate.

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**.**

POC Sources

S# & Description	Citation of Limit	Federally Enforceable Emission Limit	Monitoring
S47, Unloading Rack 7 (Ethanol)	BAAQMD 8-6-304	Y	N
S48, Offspec Unloading Rack 8	BAAQMD 8-2-301	N	N
	SIP 8-2-301	Y	N

POC Discussion:

S47, Unloading Rack 7 is used to unload ethanol from trucks to above ground storage tanks. POC emissions are controlled by a vapor balance system with a control efficiency of 95%. The violation of the control efficiency and the emission limit are unlikely. Therefore, no monitoring is necessary for this source.

S48, Offspec Unloading Rack 8 is used to unload product (gasoline), which does not meet the specifications (ethanol concentration), from trucks to above ground storage tanks. POC emissions are controlled by a vapor balance system with a control efficiency of 95%. The violation of the control efficiency and the emission limit are unlikely. Therefore, no monitoring is necessary for this source.

SO_2 Sources

S# & Description	Citation of Limit	Federally Enforceable Emission Limit	Monitoring
A3, Portable Vapor Combustion Unit	BAAQMD 9-1-301	N	N
	BAAQMD 9-1-302	N	N
	SIP 9-1-301	Y	N
	SIP 9-1-302	Y	N

SO_2 Discussion:

BAAQMD Regulation 9-1-301

Area monitoring to demonstrate compliance with the ground level SO_2 concentration requirements of Regulation 9-1-301 is at the discretion of the APCO (per BAAQMD Regulation 9-1-501). This facility does not have equipment that emits large amounts of SO_2 and therefore is not required to have ground level monitoring by the APCO.

All facility combustion sources are subject to the SO_2 emission limitations in District Regulation 9, Rule 1 (ground-level concentration and emission point concentration). In EPA's June 24, 1999

agreement with CAPCOA and ARB, "Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", EPA has agreed that natural-gas-fired combustion sources do not need additional monitoring to verify compliance with Regulation 9, Rule 1, since violations of the regulation are unlikely. Therefore, no monitoring is necessary for this requirement.

PM Sources

S# & Description	Citation of Limit	Federally Enforceable Emission Limit	Monitoring
A3, Portable Vapor Combustion Unit	BAAQMD 6-1-301	N	N
	SIP Regulation 6-301	Y	N
	BAAQMD 6-1-310	N	N
	SIP Regulation 6-310	Y	N

PM Discussion:

BAAQMD Regulation 6 "Particulate Matter"

Visible Emissions

BAAQMD Regulation 6-1-301 limits visible emissions to no darker than 1.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour). Visible emissions are normally not associated with combustion of gaseous fuels, such as natural gas. Abatement devices, A2 & A3, burn gasoline vapors and natural gas exclusively, therefore, per the EPA's June 24, 1999 agreement with CAPCOA and ARB titled "Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", no monitoring is required to assure compliance with this limit for these abatement devices.

Particulate Weight Limitation

BAAQMD Regulation 6-1-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Section 310.3 limits filterable particulate emissions from "heat transfer operations" to 0.15 gr/dscf @ 6% O_2. These are the "grain loading" standards.

Exceedances of the grain loading standards are normally not associated with combustion of gaseous fuels, such as natural gas. Abatement devices, A2 & A3, burn gasoline vapors and natural gas exclusively, therefore, per the EPA's July 2001 agreement with CAPCOA and ARB entitled "CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP: Combustion Sources: Summary of Periodic Monitoring Recommendations for Generally Applicable

Requirements in SIP", no monitoring is required to assure compliance with this limit for these abatement devices.

Changes to permit:
Effective dates that are in the past have been deleted.

The permit conditions for S-47 were amended as part of Application No. 20331. As a result, Table VII-K was amended to reflect the changes.

The throughput limits for grandfathered tanks were added to tanks in this section reflecting the addition of Condition # 26356.

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:
Added a test method for Regulation 6-311.

IX. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in a major facility review permit explaining that specific federally enforceable regulations and standards do not apply to a source or group of sources, or (2) A provision in a major facility review permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program. The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

This facility has no permit shields.

X. Glossary

Changes to permit:
Additional terms were added to the glossary for additional information and clarity.

D. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility.

E. Compliance Status:

The responsible official for SFPP, LLC submitted a signed Certification Statement form dated September 22, 2016. On this form, the responsible official certified that the following four statements are true:

Based on information and belief formed after reasonable inquiry, the sources identified in the Applicable Requirements and Compliance Summary form that are in compliance will continue to comply with the applicable requirements;

Based on information and belief formed after reasonable inquiry, the sources identified in the Applicable Requirements and Compliance Summary form will comply with future-effective applicable requirements, on a timely basis;

Based on information and belief formed after reasonable inquiry, information on application forms, all accompanying reports, and other required certifications is true, accurate, and complete;

All fees required by Regulation 3, including Schedule P have been paid.

F. Differences between the Application and the Proposed Permit:

The Title V permit application 14536 was submitted on February 3, 2014. This version is the basis for constructing the proposed Title V permit. Changes to the permit ***conditions, application, sources, etc.*** include the following:

The applicant indicated A-3 was archived in their submittal. But the District's database showed that A-2 was archived.

APPENDIX A

Evaluation Report for Application # 20331

ENGINEERING EVALUATION
SFPP, LP
Plant # 4020
Application # 20331

I. BACKGROUND

SFPP, L.P. has been operating the following permitted equipment at a gasoline bulk terminal in San Jose.

S-47 Denatured Ethanol Unloading Rack 7: 2 Lanes; 8 Loading Arms; Abated by A-47, Vapor Balance System.

The rack unloads denatured ethanol from trucks to internal floating roof storage tanks, S-6 and S-12. SFPP, L.P. is proposing to replace the equipment for both lanes of the existing rack system with two modern skid-mounted systems.

Each loading skid system will consist of a strainer, product accumulator, pump, air eliminator, meter, and flow control valve. Ethanol is first gravity fed to the product accumulator, which ensures there is always a liquid feed to either pump. The pump discharges the ethanol through the air eliminator and flow meter to storage tanks. Vapors are generated during the filling of the product accumulator and potentially throughout the unloading process from the air eliminator. The vapor will be directed back to the unloading tanker truck through A-47, Vapor Balance System.

The new skid mounted systems will increase the unloading rate and capacity so that the terminal can prepare for the potential growth in the region. However, the facility requests to keep the existing permitted throughput of 123,480,000 gallons per year unchanged in this application.

II. EMISSION CALCULATIONS

BULK TRANSLOADING EMISSIONS
POC emissions from the unloading rack are calculated using emission factor derived from the following equation in AP-42, Chapter 5.2, Transportation and Marketing of Petroleum Liquids, July 2008.

$$L_L = [12.46*S*P*M/T]*(1-E/100)*C$$
$$L_L = [12.46*1.00*0.79*47.22/526.3]*(1-98.5/100)*1.30$$
= 0.017 lb POC/1000 gal transferred

Where:
L_L = loading loss, lb/1000 gallons of liquid loaded
S = saturation factor (Table 5.2-1, submerged loading: dedicated vapor balance service) = 1.00
P = true vapor pressure of liquid loaded (psia) = 0.79
M = molecular weight of vapors (lb/lb-mole) = 47.22
T = temperature of bulk liquid loaded (°R) = 459.67+66.6°F = 526.3 °R
E = overall reduction efficiency (capture and control) = 98.5% per District Source Test Manager, Ken Kunaniec.
C = correction factor for error range of the equation of ±30% = 1.30

Maximum Hourly Emissions (based on 2 unloading skids operating at max. 600 gal/min each)
(2 skids)(600 gal/min/skids)(60 min)(0.017 lb/thousand gal)/(1000gal) = 1.224 lb POC/hr

Maximum Daily Emissions (based on 24 hr/day operation because no daily limit will be imposed.)
(1.224 lb POC/hr)(24 hr/day) = 705.024 lb POC/day

Annual Emissions (based on 123,480,000 gallons/year transferred in Permit Condition 23134)

(123,480,000 gallons/year)(0.017 lb/thousand gal)/(1000gal) = 2099.16 lb POC/yr or 1.050 TPY POC

FUGITIVE EMISSIONS

Per Regulation 2-1-308, fugitive emissions shall be included as emissions from the facility. Fugitive emissions were calculated using "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Refineries" (1999), Table IV-1b: 1995 EPA Protocol Marketing Terminal Average Emission Factors.

Since the fugitive components that will be removed have been fully offset by the facility in Application 14448, the emission increase from fugitive components is based on the net increase of fugitive component counts.

Component	No. Components Removed	No. Components Installed	Emission Factor (kg/hr/source)	POC Emissions (lb/hr)	POC Emissions (lb/day)	POC Emissions (lb/year)	POC Emissions (TPY)
Valves, Gas	0	21	1.30E-05	6.01E-04	0.01	5.26	0.0026
Valves, Light liquid	12	88	4.3E-05	7.19E-03	0.17	62.98	0.0315
Pumps, Light liquid	2	2	5.4E-04	0.00E+00	0.00	0.00	0.0000
Fittings, Gas	0	30	4.2E-05	2.77E-03	0.07	24.28	0.0121
Fittings, Light liquid	32	270	8.0E-06	4.19E-03	0.10	36.69	0.0183
Other	8	7	1.3E-04	0.00E+00	0.00	0.00	0.0000
TOTAL				0.014	0.34	123.96	0.0620

III. PLANT CUMULATIVE INCREASE SINCE 4/5/1991

Annual emissions from bulking loading portion do not increase as a result of this application because the facility requests to keep the existing permitted throughput of 123,480,000 gallons per year unchanged. Therefore, the annual emission increase from this project is only contributed by the fugitive components.

POC = 0 (existing, post 1991) + 0.062 tpy (application increase) = 0.062 tpy

IV. OFFSETS

Offsets are required from the facility per Regulation 2-2-302 because the facility has been permitted to emit more than 35 tons POC per year. In this application, the facility must provide offset credits for the cumulative increase (0.062 TPY of POC) at a 1.15 to 1.0 ratio. The facility has agreed to provide 0.071 TPY of POC offset credits from Banking Certificate 1073, which is owned by SFPP, LP.

V. TOXICS SCREENING ANALYSIS

Denatured ethanol contains up to 5% by weight of gasoline, which contains up to 1% by weight of benzene and other toxic compounds. Benzene has the lowest toxic trigger levels of 2.9 lb/hr and 3.8 lb/yr, and therefore benzene emissions are estimated for this project.

Benzene Hourly Emissions = [(1.224+0.014) POC lb/hr]*(5% gasoline)*(1% benzene) = 0.001 lb/hr
Benzene Annual Emissions = [(2099.16+123.96) POC lb/yr]*(5% gasoline)*(1% benzene) = 1.112 lb/yr

Since benzene emissions are less than the risk screening trigger levels in Regulation 2-5, a Health Risk Screening Analysis is not required

VI. BEST AVAILABLE CONTROL TECHNOLOGY

Per Regulation 2-2-301, S-47 triggers BACT because emissions of POC are in excess of 10.0 pound per highest day. According to the District's BACT/TBACT Workbook, the BACT for Liquid Transfer and Handling – Tank Truck and Rail Car Bulk Loading (except Gasoline Bulk Terminals) is submerged pipe fill and vapor collection system with a 98.5% destruction efficiency. The facility will use submerged pipe fill and the vapor balance system is expected to have a capture efficiency of at least 98.5% based on similar vapor balance systems, per the District Source Test Manager, Ken Kunaniec. In addition, as recommended by Ken, an 98.5% reduction efficiency is equivalent to an emission rate of 0.04 lbs of VOC per 1000 gallons of ethanol loaded based on the available source test data from ethanol transfer operations.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Best Available Control Technology (BACT) Guideline

Source Category

Source:	*Liquid Transfer & Handling - Tank Truck & Rail Car Bulk Loading*	Revision:	*2*
		Document #:	*109.1*
Class:	*All (except Gasoline Bulk Terminals)*	Date:	*06/28/00*

Determination

POLLUTANT	BACT 1. Technologically Feasible Cost Effective 2. Achieved in Practice	TYPICAL TECHNOLOGY
POC	1. *n/d* 2. *Submerged pipe fill and vapor collection system vented to a thermal incinerator w/ a destruction efficiency ≥98.5%* [b]	1. *n/d* 2. *BAAQMD Approved Design and Operation* [b]
NOx	1. *n/a* 2. *n/a*	1. *n/a* 2. *n/a*
SO_2	1. *n/a* 2. *n/a*	1. *n/a* 2. *n/a*
CO	1. *n/a* 2. *n/a*	1. *n/a* 2. *n/a*
PM_{10}	1. *n/a* 2. *n/a*	1. *n/a* 2. *n/a*
NPOC	1. *n/d* 2. *Submerged pipe fill and vapor recovery system w/ an overall system efficiency ≥95%* [b]	1. *n/d* 2. *Refrigerated Condenser; or Carbon Adsorber; or BAAQMD Approved Equivalent* [b]

References

b. BAAQMD

VII. STATEMENT OF COMPLIANCE

The owner/operator of S-47 is subject to and expected to comply with Regulation 8, Rule 6—Organic Liquid Bulk Terminals and Bulk Plants. Per Regulation 8-6-204, this operation is a Bulk Terminal since its annual throughput is expected to be 123.48 million gallons of denatured ethanol. The owner/operator of S-47 is not subject to Regulation 8-6-304, Deliveries to Storage Tanks, since the storage tanks, S-6 and S-12, have a capacity greater than 39,630 gallons. However, the operation complies with the emission limit in Regulation 8-

6-304 because it is equipped with a vapor balance system that is limited to less than 0.17 lbs of thousand gallons of organic liquid loaded by permit conditions. The owner/operator of S-47 is subject to and expected to comply with Regulation 8-6-306, Equipment Maintenance, since all trucks and equipment are expected to be maintained to be vapor tight, leak free, and in good working order. The owner/operator is also expected to comply with Reg. 8-6-307, Operating Practices.

CEQA: This application is considered to be ministerial under the District's Regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emission factors in accordance with Permit Handbook Chapter 3.1 (Bulk Loading Facilities).

Waters Bill: This project is greater than 1,000 ft from the nearest public school and therefore is not subject to the public notification requirements of Regulation 2-1-412.

PSD: The emission increase resulted from this project is expected to be less than 1 TPY of POC. Since it is far below the PSD thresholds, the project is not subject to PSD review.

NSPS: 40 CFR 60 Subpart XX—Standards of Performance for Bulk Gasoline Terminals applies to "the total of all the loading racks at a bulk gasoline terminal which deliver liquid product into gasoline tank trucks" in accordance to Subsection 60.500. Because S-47 is an unloading rack transferring ethanol from tank trucks to storage tanks, it is not subject to 40 CFR 60 Subpart XX.

NESHAPS: 40 CFR 63 Subpart R--National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations) or Subpart BBBBBB—National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities do not apply because S-47 is used to unload ethanol not gasoline.

VIII. PERMIT CONDITIONS

Permit Condition # 23134 will be modified as shown in the underline/strikeout format below, and the facility has reviewed and agreed to the changes:

For S-47, Unloading Rack 7 (ethanol), 48 loading arms
(Revision: A# 16698; A# 20331)

1. The owner/operator shall receive denatured ethanol at this facility only through S-47, and shall not exceed a throughput limit of 123.48 million gallons per consecutive 12-month period. (bBasis: cumulative increase)

2. The owner/operator shall not transfer denatured ethanol unless a vapor balance system is installed and properly connected during delivery. (bBasis: ~~Regulation 8-6-304~~BACT)

3. The owner/operator shall ensure that the POC emissions from S-47 shall not exceed 0.04 pounds per 1000 gallons of denatured ethanol transferred. (Basis: BACT, Cumulative Increase)

4. Not later than 45 days from the startup of S-47, the owner/operator shall conduct District approved source tests to determine initial compliance with the limit in Part 3 for POC emissions. The owner/operator shall submit the source test results to the District's Source Test Section no later than 30 days after the source test. The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements as specified in the District's Manual of Procedures, Volume IV, ST-3. The owner/operator shall notify the District's Source Test Section, in writing, of the source test protocols and projected test dates at least 7 days prior to testing. (Basis: BACT, Cumulative Increase)

5. After the initial source test in Part 4, the owner/operator shall conduct a District approved source test annually to determine compliance with the limit in Part 3 for POC emissions.

When two consecutive annual source tests demonstrate compliance with Part 3, the owner/operator shall conduct a District approved source test biennially. If any source test indicates non-compliance, the owner/operator shall continue to conduct a District approved source test annually until two consecutive annual source tests demonstrate compliance.

(basis: BACT, Cumulative Increase)

~~3. The owner/operator shall keep records in a District-approved logbook to demonstrate compliance with part 1, and keep the records for at least five (5) years from the date of data entry and make it available to the District staff upon request. (basis: Regulation 2-6-501)~~ 6. To demonstrate compliance with the above, the owner/operator shall maintain the following monthly records in a District-approved log for when equipment is in operation:

a. The true vapor pressure of each organic liquid transferred;
b. The amount of each organic liquid transferred;
c. All source test results

The monthly totals shall be summed on a running 12-month basis to demonstrate compliance with Part 1. All records shall be retained on site for at least five years from the date of entry. These logs shall be made available for inspection by District staff upon request. (Basis: Regulation 8-6-501; Cummulative Increase)

IX. RECOMMENDATION

Issue an Authority to Construct to SFPP, L.P. for the following:

S-47 Denatured Ethanol Unloading Rack 7: 2 Lanes; 8 Loading Arms; Abated by A-47, Vapor Balance System.

Xuna Cai
Air Quality Engineer

05/25/2010
Date

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

Basis
The underlying authority that allows the District to impose requirements.

C_5
An Organic chemical compound with five carbon atoms

C_6
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
Continuous Emission Monitor: a monitoring device that provides a continuous direct measurement of some pollutant (e.g. NOx concentration) in an exhaust stream.

CFP
Clean Fuels Project

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

CO_2
Carbon Dioxide

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

DAF
A "dissolved air flotation" unit is a process vessel where air bubbles injected at the bottom of the vessel are used to carry solids in the liquid into a froth on the liquid surface, where it is removed.

DWT
Dead Weight Ton

District
The Bay Area Air Quality Management District

DNF
Dissolved Nitrogen Flotation (See DAF)

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.

EFRT
An "external floating roof tank" minimizes VOC emissions with a roof with floats on the surface of the liquid, thus preventing the formation of a VOC-rich vapor space above the liquid surface as the level in the tank drops. If such a vapor space were allowed to form, it would be expelled when the tank was re-filled. On an EFRT, the floating roof is not enclosed by a second, fixed tank roof, and is thus described as an "external" roof.

EPA
The federal Environmental Protection Agency.

ETP
Effluent Treatment Plant

Excluded
Not subject to any District regulations.

FCC
Fluid Catalytic Cracker

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), 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

FRT
Floating Roof Tank (See EFRT and IFRT)

GDF
Gasoline Dispensing Facility

GLM
Ground Level Monitor

grain
1/7000 of a pound

Graphitic
Made of graphite.

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.

H_2S
Hydrogen Sulfide

H_2SO_4
Sulfuric Acid

Hg
Mercury

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.

IFRT
An "internal floating roof tank" minimizes VOC emissions with a roof with floats on the surface of the liquid, thus preventing the formation of a VOC-rich vapor space above the liquid surface as the level in the tank drops. If such a vapor space were allowed to form, it would be expelled when the tank was re-filled. On an IFRT, the floating roof is enclosed by a second, fixed tank roof, and thus is described as an "internal" roof.

ISOM
Isomerization plant

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.

Lighter
"Lightering" is a transfer operation during which liquid is pumped from an ocean-going tanker vessel to a smaller vessel such as a barge. Like any liquid transfer operation, lightering of organic liquids produces organic vapor emissions.

Long ton
2200 pounds

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.

MDEA
Methyl Diethanolamine

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.

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.

Mo Gas
Motor gasoline

MOP
The District's Manual of Procedures.

MOSC
Mobil Oil Sludge Conversion (licensed technology)

MSDS
Material Safety Data Sheet

MTBE
methyl tertiary-butyl ether

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)

NOx
Oxides of nitrogen.

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

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

O2
The chemical name for naturally-occurring oxygen gas.

Offset Requirement
A New Source Review requirement to provide federally enforceable emission offsets for the emissions from a new or modified source. Applies to emissions of POC, NOx, PM10, and SO_2.

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

POC
Precursor Organic Compounds

PM
Particulate Matter

PM10
Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

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

Regulated Organic Liquid
"Regulated organic liquids" are those liquids which require permits, or which are subject to some regulation, when processed at a liquid-handling operation. For example, for refinery marine terminals, regulated organic liquids are defined as "organic liquids" in Regulation 8, Rule 44.

RFG
Refinery Fuel Gas

RMG
Refinery Make Gas

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.

SO_2
Sulfur dioxide

SO_2 Bubble
An SO_2 bubble is an overall cap on the SO_2 emissions from a defined group of sources, or from an entire facility. SO_2 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 SO_2 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.

SO_3
Sulfur trioxide

THC
Total Hydrocarbons (NMHC + Methane)

therm
100,000 British Thermal Units

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" is a measure of the amount of sulfur-containing compounds in a gas stream, typically a fuel gas stream, including, but not limited to, hydrogen sulfide. The TRS content of a fuel gas determines the concentration of SO_2 that will be present in the combusted fuel gas, since sulfur compounds are converted to SO_2 by the combustion process.

TSP
Total Suspended Particulate

TVP
True Vapor Pressure

VOC
Volatile Organic Compounds

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
cfm	=	cubic feet per minute
C	=	degrees Celcius
F	=	degrees Fahrenheit
f^3	=	cubic feet
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
hp	=	horsepower
hr	=	hour
lb	=	pound
in	=	inches
max	=	maximum
m^2	=	square meter
min	=	minute
M	=	thousand
Mg	=	mega-gram, one thousand grams
µg	=	micro-gram, one millionth of a gram
MM	=	million
mm	=	millimeter
MMbtu	=	million btu
mm Hg	=	millimeters of Mercury (pressure)
MW	=	megawatts
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