

Bay Area Air Quality Management District

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

MAJOR FACILITY REVIEW PERMIT

**for
University of California, Berkeley
Facility #A0059**

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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) more than 100 tons per year of carbon monoxide.

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.

Pursuant to Regulation 2, Rule 6, section 416, the District has reviewed the terms and conditions of this Major Facility Review permit and determined that they are still valid and correct. This review included an analysis of applicability determinations for all sources, including those that have been modified or permitted since the issuance of the initial Major Facility Review Permit. The review also included an assessment of all monitoring in the permit for sufficiency to determine compliance.

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 A0059.

This application is for a permit renewal. Although the current permit expired on April 16, 2017, it continues in force until the District takes final action on the permit renewal. The proposed permit shows all changes to the permit in ~~strikeout~~/underline format.

The permit was originally issued to PE Berkeley, Site B1326, which received its initial Title V permit on February 16, 1999. The permit was transferred to UC Berkeley, Site A0059, on November 28, 2017, because UC Berkeley purchased the site.

UC Berkeley had a Title V permit that was issued on December 18, 1998. The permit was canceled on December 14, 2004, and a synthetic minor permit was issued to the facility. This action will remove the synthetic minor condition that limited emissions of any regulated air pollutant to less than 95 tpy.

B. Facility Description

The facility has a cogeneration facility comprised of a multi-fuel turbine/generator and a duct burner to fire a heat recovery steam generator. The facility produces electricity that is sold to PG&E and steam that is used for space heat. The total electrical output of the facility is 24 MW. The facility has three 137 MMbtu/hr boilers that can be used if the cogeneration facility is not operating or is not producing enough steam. The boilers are limited to 10% of their capacity per BAAQMD Regulation 9-7-112.2.

The facility also has numerous emergency generators and a paint booth.

Emissions from the facility are primarily combustion emissions (NO_x, CO, PM₁₀, SO₂, VOC, and an insignificant amount of HAPs). There has been no significant change in emissions since the issuance of the last Title V permit renewal.

C. Permit Content

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

I. Standard Conditions

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

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

Changes to permit:

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

The monitoring reports periods and the compliance certification periods in Standard Conditions F and G have been amended to coordinate them with the school year. The facility will submit a "catch-up" monitoring report and a "catch-up" compliance certification so that monitoring reports are submitted at least every six months and compliance certifications are submitted at least every twelve months.

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 per year of a “regulated air pollutant” (as defined in BAAQMD Rule 2-6-222) or 400 pounds per year of a “hazardous air pollutant” (as defined in BAAQMD Rule 2-6-210) but have no District permits. This facility has no significant sources.

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.

Changes to permit:

The Major Facility Review permit for PE Berkeley contained three sources: a turbine, a duct burner, and an emergency generator. UC Berkeley has 3 large boilers, a paint booth, and many emergency generators. The UC Berkeley sources and abatement devices have been added to the equipment list.

The capacity of S3 and S4, Boilers, has been corrected from 137 MMbtu/hr to 135 MMbtu/hr.

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” as defined 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:

- BAAQMD Regulation 11, Rule 18, Reduction of Risk from Air Toxic Emissions at Existing Facilities
- BAAQMD Regulation 14, Rule 1, Mobile Source Emission Reduction Methods – Bay Area Commuter Benefits Program
- 40 CFR Part 82, Subpart H, Protection of Stratospheric Ozone; Halon Emissions Reduction

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 or EPA websites, or in the permit conditions, which are found in Section VI of the permit. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of monitoring is included in Section C.VII of this permit evaluation/statement of basis.

Complex Applicability Determinations

Facility

National Emission Standards for Hazardous Air Pollutants (NESHAPs):

This facility emits hazardous air pollutants through its operation of S201, the natural gas-fired combustion turbine, and S202, the duct burner. HAP emissions from S201 and S202 are listed in Table A below. HAP emissions that result from operation of all other equipment at the facility are insignificant. (Diesel particulate is not listed as a HAP by USEPA.)

As shown in Table A, the facility does not emit and does not have the potential to emit any single HAP at a rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons or more per year. Therefore, the facility is not subject to the 40 CFR 63 Maximum Achievable Control Technology (MACT) standards for combustion turbines, which were promulgated by the U.S. EPA on March 5, 2004.

Table A			
HAP Emissions from Gas Turbine & Duct Burner (S201 & S202)			
Pollutant	Emission Factor (lb/MMBTU)	Annual Emissions (lb/year)	Annual Emissions (TPY)
1,3-Butadiene	4.30E-07	1.23E+00	6.0E-04
Acetaldehyde	4.00E-05	1.15E+02	5.75E-02
Acrolein	6.40E-06	1.80E+01	9.0E-03
Benzene	1.20E-05	3.44E+01	1.72E-02
Ethylbenzene	3.20E-05	9.17E+01	4.6E-02
Formaldehyde	7.10E-04	2.03E+03	1.02E+00
Naphthalene	1.30E-06	3.72E+00	1.9E-03
PAH	2.20E-06	6.3E+00	3.2E-03
Propylene Oxide	2.90E-05	8.31E+01	4.16E-02
Toluene	1.30E-04	3.72E+02	1.86E-01
Xylenes	6.40E-05	1.83E+02	9.15E-02
Total			1.476

Note: Emission factors taken from AP-42, Table 3.1.3, Version 2000

Engines

NSPS: 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines: Source S163 has a diesel particulate filter (DPF). The requirement for a backpressure monitor in Section 60.4209(b) does not apply because the DPF was not required to comply with the emission standards in Section 60.4204.

NESHAPS: 40 CFR 63, Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE): Source 202 was subject to the maintenance requirements of this rule. This source and all of the pre-2006 engines at UC Berkeley are exempt from the standard because Section 6584(f)(1) exempts existing engines at an institution from the standard. UC Berkeley is considered to be an institution.

CARB ATCM: The backpressure monitor requirement for diesel particulate filters (DPF) in Section 93115.10(d) of the CARB ATCM is not necessary for Sources S142, S143, and S144 because the DPFs were not required to comply with the ATCM. This means that the engines complied with the 0.15 g/bhp-hr limit for diesel particulate without the DPF. However, the

facility must comply with the conditions of the CARB verification for these DPFs. A condition has been added requiring compliance. The verification letter has been added to this Statement of Basis because it is not readily available.

Turbine and Duct Burner

New Source Performance Standards (NSPS):

Turbine, S201, is subject to the “General Provisions” requirements in 40 CFR 60, Subpart A which provides the general regulatory framework for NSPS regulations.

The turbine, S201, and the duct burner, S202, are subject to the NO_x and SO₂ requirements contained in 40 CFR 60, Subpart GG “Standards of Performance for Stationary Gas Turbines”, because the turbine and duct burner were constructed after October 3, 1977, and the heat input of the turbine and the duct burner at peak load is greater than 10 MMBTU/hr for each source.

40 CFR 60, Subpart GG

The turbine is subject to the NO_x emission standard of 60.332(a)(1). The NO_x limit is calculated by using the equation given in this section:

$$\text{STD} = (0.0075)(14.4/Y) + F$$

Where:

STD = allowable ISO corrected NO_x emission concentration (percent by volume at 15% oxygen and on a dry basis),

Y = manufacturer’s rated heat rate at manufacturer's rated load (kilojoules per watt hour), and

F = NO_x emission allowance for fuel-bound nitrogen.

Turbine rating: 243 MMBTU/hr; 23.5 MW

F = 0.0

$$\begin{aligned} Y &= (243 \text{ MMBTU/hr})(1055 \text{ joules/BTU})/(23.5 \text{ MW}) \\ &= 10.909 \text{ kilojoules/watt-hr} \end{aligned}$$

$$\begin{aligned} \text{STD} &= (0.0075)(14.4/10.909) \\ &= 0.0099\% \text{ by volume @ 15\% oxygen dry} \\ &= 99 \text{ ppmdv @ 15\% oxygen.} \end{aligned}$$

NSPS, 40 CFR 60 Subparts D, Da, and Db

The requirements of 40 CFR 60, Subparts D, Da, and Db, do not apply to the duct burner because its heat input rating is less than 250 MMBTU/hr.

Title IV, 40 CFR 72 through 78 (Acid Rain)

The facility is exempt from the requirements of Acid Rain Program because it is not an affected unit under 40 CFR 72.6(b)(4)(i). This is a cogeneration facility constructed prior to November 15, 1990, and the facility’s annual electric sale to the utility power distribution system is less than 219,000 MW-hrs. The primary consumers of the plant’s steam and electricity are the University of California, Berkeley campus, and PG&E respectively.

40 CFR Part 64, Compliance Assurance Monitoring (CAM)

A pollutant-specific emissions unit (unit) at a major source that is required to obtain a permit pursuant to part 70 (state operating permit) or part 71 (federal operating permit) of Volume 40 of the Code of Federal Regulations is subject to CAM if the unit satisfies all of the following criteria outlined in 40 CFR 64.2 (a)(1) through (a)(3):

- The unit is subject to an emission limit/standard for the applicable regulated air pollutant; and
- The unit uses a control device to achieve compliance with any such emission limitation or standard; and
- The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100% of the amount, in tons per year, required for a source to be classified as a major source.

NO_x emissions from the turbine, S201, are abated by steam injection. Steam injection rate is not monitored because the turbine is equipped with a continuous emission monitor for NO_x, CO, and O₂. The turbine is not subject to 40 CFR 64, Compliance Assurance Monitoring for NO_x per exemption 64.2(b)(1)(vi), emission limitations or standards for which a part 70 or 71 permit specifies a continuous compliance determination method. S201 is equipped with a CEM for NO_x.

CO emissions from the turbine, S201, are not abated and do not satisfy all the three criteria outlined in 40 CFR 64.2(a)(1) through (a)(3), and therefore are not subject to 40 CFR 64, Compliance Assurance Monitoring.

The duct burner and emergency engine-generator do not have any abatement devices and do not satisfy all the three criteria outlined in 40 CFR 64.2(a)(1) through (a)(3), and therefore are not subject to 40 CFR 64, Compliance Assurance Monitoring.

Regulation 1-107, Combination of Emissions

Several requirements have been added to the turbine and the duct burner because they share one stack. Regulation 1-107, Combination of Emissions, states that: "Where air contaminants from two or more sources are combined prior to emission and there are no adequate and reliable means to establish the nature, extent and quantity of emission from each source, District Regulations shall be applied to the combined emission as if it originated in a single source." Therefore, the turbine is subject to the duct burner's emission limitations and vice versa.

BAAQMD Regulation 6, Rule 1, Particulate Matter, General Requirements

Regulation 6, Rule 1, was amended on August 1, 2018. There is a new grain loading requirement in Sections 6-1-310.2 for sources that have a potential to emit greater than 1,000 kg/yr of filterable particulate (FP). However, the gas turbine is exempt from 6-1-310.2 per 6-1-114.1 because it is fired on natural gas.

Boilers, S2, S3, S4

BAAQMD Regulation 6, Rule 1, Particulate Matter, General Requirements

Regulation 6, Rule 1, was amended on August 1, 2018. There is a new grain loading requirement in Sections 6-1-310.2 for sources that have a potential to emit greater than 1,000 kg/yr of filterable particulate (FP).

The boilers are limited to 10% of their capacity. The fuel that would produce the highest particulate emissions is fuel oil. Each boiler can burn 978 gal/hr of fuel oil. Following is a calculation of the potential to emit using the following assumptions:

- 877 hours of operation per year (limitation in Regulation 9-7-112.2)
- 978 gal/hr fuel oil
- 2 lb filterable particulate/thousand gallons (AP-42 Table 1.3-1, No. 2 fuel oil factor)

$$877 \text{ hr/yr} \times 0.978 \text{ mgal/hr} \times 2 \text{ lb FP/mgal} \times \text{kg}/2.2 \text{ lb} = 779 \text{ kg/yr}$$

The boilers are not subject to the new standard. Also, the boilers are exempt from 6-1-310.2 per 6-1-114.1 because they are fired on liquid fuel.

Changes to permit

Tables have been added for the facility's emergency generators, boilers, and paint booth.

Table IV-B, In-Use Emergency Diesel Engine Generators

Section 9-8-330.2 of BAAQMD Regulation 9, Rule 8, Nitrogen Oxides and CO from Internal Combustion Engines, has been deleted. The regulation now allows only 50 hr/yr of use for reliability and maintenance testing.

As stated above, Subparts A and ZZZZ of the NESHAPS have been deleted because it does not apply to existing institutional emergency stationary Reciprocating Internal Combustion Engines as defined by the standard.

Various provisions of the CARB ATCM for Stationary Compression Ignition Engines have been added.

The compliance schedule for owners of three or fewer in-use engines has been deleted. The compliance schedule for owners of four or more in-use engines has been added.

The existing conditions for various engines have been added to the table.

Table IV-F, Turbine

BAAQMD Regulation 6, Rule 1, Particulate Matter, General Requirements, was amended on August 1, 2018. The new lower TSP limit in Section 6-1-310.2 and the new testing requirement in Section 6-1-504 have been added to the table.

The citations for BAAQMD Regulation 9, Rule 9, Nitrogen Oxides from Stationary Gas Turbines have been updated.

The following sections have been added:

- 9-9-115, Limited Exemption, Minor Inspection and Maintenance Work
- 9-9-301, Emission Limits, General
- 9-9-603, Continuous Emission Monitoring
- 9-9-605, Compliance with Output Based NOx Emissions Standards

The following sections have been deleted because they are obsolete:

- 9-9-303, Emission Limits-Alternative Schedule
- 9-9-303.2, January 1, 2000 standard
- 9-9-403.5, Modification or installation status report submittal
- 9-9-403.6, Compliance with emission standards
- 9-9-503, Initial Demonstration of Compliance
- 9-9-503.1, Deadline for demonstration of compliance with 9-9-303.1
- 9-9-503.3, Deadline for demonstration of compliance with 9-9-303.2

Other descriptions have been corrected or clarified.

Table IV-G, Duct Burner

BAAQMD Regulation 6, Rule 1, Particulate Matter, General Requirements, was amended on August 1, 2018. The new lower TSP limit in Section 6-1-310.2 and the new testing requirement in Section 6-1-504 have been added to the table.

Table IV-H, S100, Facility-wide Painting Operations

A permit condition prohibiting spray application of coatings containing chromium, lead, manganese, nickel, or cadmium has been added to ensure that the facility is not subject to 40 CFR 63, Subpart HHHHHH, National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources.

V. Schedule of Compliance

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

“409.10 A schedule of compliance containing the following elements:

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

The responsible official for UC Berkeley submitted a signed Certification Statement form on January 6, 2020. 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.

Changes to permit:

A Schedule of Compliance has been added to require the facility to install individual fuel meters for natural gas and fuel for each of the following boilers: S2, S3, S4, to comply with BAAQMD Regulation 9-7-504.

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

Changes to permit:

Condition 366, S201, Turbine, and S202, Duct Burner

Part 4 has been amended in accordance with BAAQMD Regulation 9, Rule 9, Nitrogen Oxides from Stationary Gas Turbines.

Condition 14330, for S2, S3, S4, Boilers

Part 6 has been corrected to clarify that visible emissions inspection is conducted while the boiler, not the turbine, is firing on fuel oil.

Condition 21880, Synthetic Minor Condition

The facility received a synthetic minor permit pursuant to Application 9872 on December 4, 2004. In 2017, the facility purchased PE Berkeley, an adjacent facility containing a large turbine, S201, and duct burner, S202. The site number for PE Berkeley was B1326. On November 20, 2017, the Major Facility Review permit for PE Berkeley was transferred to UC Berkeley and the site number was changed to A0059. Because the emissions of the turbine and duct burner are over 100 tons per year of a regulated air pollutant, carbon monoxide, the facility is no longer eligible for a synthetic minor permit. Therefore, the synthetic minor condition has been deleted.

The facility now emits more than 35 tons per year of NO_x. Therefore, it is no longer eligible to use offsets from the District's Small Facilities Bank (SFB). The facility has repaid the offsets from the SFB and the 35 tpy limit has been removed.

The conditions for the paint booth, S100, have been retained. A permit condition prohibiting spray application of coatings containing chromium, lead, manganese, nickel, or cadmium has been added to ensure that the facility is not subject to 40 CFR 63, Subpart HHHHHH, National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources.

Other:

The permit conditions for UC Berkeley's boilers, emergency generators, and paint booth have been added.

Condition 27020 has been added for sources S142, S143, and S144, Emergency Engines, to ensure that the facility complies with the conditions of CARB's verification for the diesel particulate filters.

VII. Applicable Limits and Compliance Monitoring Requirements

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

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

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 requirements only when it can support a conclusion that existing monitoring is inadequate.

NOx Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S2, S3, S4, Boilers	BAAQMD 9-7-112.2	30 ppmvd @ 3% O ₂ , dry	Annual monitoring with portable monitor
	SIP 9-7-301.1	30 ppmv @ 3% O ₂ , dry, when operating on gaseous fuels	Annual monitoring with portable monitor
S2, S3, S4, Boilers	SIP 9-7-302.1	40 ppmv @ 3% O ₂ , dry, when operating on non-gaseous fuels	None
	SIP 9-7-303	Weighted average of 9-7-301.1 and 9-7-302.1	Non-resettable fuel meters
	SIP 9-7-305.1	150 ppmv @ 3% O ₂ , dry, when operating on non-gaseous fuels during natural gas curtailment	None
	SIP 9-7-306.1	150 ppmv @ 3% O ₂ , dry, when operating on non-gaseous fuels for equipment testing	None
S201 Gas Turbine, S202 Duct Burner	BAAQMD 9-9-301.2	0.70 lbs/MW-hr or 20.2 ppmv, 3-hr average when burning natural gas	CEM
	BAAQMD 9-9-301.2	3.04 lbs/MW-hr or 65 ppmv, 3-hr average when burning non-gaseous fuel	CEM
S201 Gas Turbine, S202 Duct Burner	SIP 9-9-303.2	20.2 ppmv @ 15% O ₂ , dry (adjusted per 9-9-401), except during start-up	CEM

NOx Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
	SIP 9-9-303.2	42 ppmv @ 15% O ₂ , dry during natural gas curtailment or short testing periods	CEM
	BAAQMD Cond #366 Part 4	0.70 lbs/MW-hr or 20.2 ppmv - natural gas: @ 15 % O ₂ , 3 hr avg, except during start-up	CEM
	BAAQMD Cond #366 Part 5	0.70 lb/MW-hr or 20.2 ppmv - natural gas: @ 15 % O ₂ (combined S201 & S202), 3 hr avg, except during start-up	CEM
	BAAQMD Cond #366 Part 6	42 ppmv - fuel oil: @15 % O ₂ , 3 hr avg, except during start-up	CEM
	BAAQMD Cond #366 Part 7	39 ppmv - fuel oil: @15 % O ₂ (combined S201 & S202), 3 hr avg, except during start-up	CEM
	BAAQMD Cond #366 Part 10	547 lb/day when burning natural gas and 1093 lb/day when burning fuel oil (combined S201 & S202)	CEM
	NSPS Subpart GG, 60.332(a)(1)	99 ppmv @ 15% O ₂ dry, 4-hr average	CEM

NOx Discussion:

S2, S3, S4, Boilers

The boilers are limited to 10% of their capacity per BAAQMD Regulation 9-7-112, so NOx emissions are minimized. Nonetheless, the facility will monitor the boilers every calendar year in which each boiler operates with a portable monitor. This is the same monitoring imposed on boilers without a limit on capacity in BAAMD Regulation 9, Rule 8.

S201, Turbine, and S202, Duct Burner

NOx at these sources is monitored by a continuous emission monitor (CEM), which is considered to be the most rigorous form of monitoring. The monthly CEM reports show compliance with the limits.

CO Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
<u>S2, S3, S4, Boilers</u>	<u>BAAQMD 9-7-112.2</u>	<u>400 ppmvd @ 3% O₂</u>	<u>Annual monitoring with portable monitor</u>

CO Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
	<u>SIP</u> <u>9-7-301.2</u>	<u>400 ppmv @ 3% O₂, dry</u>	<u>Annual monitoring with portable monitor</u>
	<u>SIP</u> <u>9-7-302.2</u>	<u>400 ppmv @ 3% O₂, dry</u>	<u>None</u>
	<u>SIP 9-7-303</u>	<u>400 ppmv @ 3% O₂, dry</u>	<u>None</u>
	<u>SIP</u> <u>9-7-305.2</u>	<u>400 ppmv @ 3% O₂, dry</u>	<u>None</u>
	<u>SIP</u> <u>9-7-306.2</u>	<u>400 ppmv @ 3% O₂, dry</u>	<u>None</u>
S201 Gas Turbine, S202 Duct Burner	BAAQMD Cond #366 Part 4a	200 ppm @ 15% O ₂ , 3-hour average except during start-up	CEM
	BAAQMD Cond #366 Part 5a	200 ppm @ 15% O ₂ (combined S201 & 41) 3-hour average except during start-up	CEM
	BAAQMD Cond #366 Part 10	2195 lb/day (natural gas or fuel oil) (combined S201 & 201)	CEM, annual source test

CO Discussion:

S2, S3, S4, Boilers

The boilers are limited to 10% of their capacity per BAAQMD Regulation 9-7-112, so NO_x emissions are minimized. Nonetheless, the facility will monitor the boilers every calendar year in which each boiler operates with a portable monitor. This is the same monitoring imposed on boilers without a limit on capacity in BAAMD Regulation 9, Rule 8.

S201, Turbine, and S202, Duct Burner

CO at these sources is monitored by a continuous emission monitor (CEM), which is considered to be the most rigorous form of monitoring. The monthly CEM reports show compliance with the limits.

SO₂ Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S2, S3, S4, Boilers, S201, Gas Turbine, S202, Duct Burner, Engines	BAAQMD 9-1-301	Ground level concentrations of SO ₂ shall not exceed: 0.5 ppm for 3 consecutive minutes AND 0.25 ppm averaged over 60 consecutive minutes AND 0.05 ppm averaged over 24 hours	None

SO₂ Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S201 Gas Turbine, S202 Duct Burner Natural Gas and LPG engines	BAAQMD 9-1-302	300 ppm (dry)	None
S2, S3, S4, Boiler	BAAQMD 9-1-304	Sulfur content of fuel < 0.5% by weight	Fuel certification
S201, Gas Turbine	BAAQMD 9-1-304	Sulfur content of fuel < 0.5% by weight	At Each Delivery, Fuel Sampling using District's Laboratory Procedure Method 10
Diesel Engines	BAAQMD 9-1-304	Sulfur content of fuel < 0.5% by weight	None
Diesel Engines	CARB ATCM 93115.5(a)(1)	Sulfur content of diesel fuel ≤ 15 ppmw	None
S201 Gas Turbine	BAAQMD Cond #366 Part 2	Maximum of 0.12% by wt. Sulfur in fuel oil	At Each Delivery, Fuel Sampling using District's Laboratory Procedure Method 10
	BAAQMD Cond #366 Part 3	Maximum of 0.25% by wt. Sulfur in fuel oil during periods of natural gas curtailment	At Each Delivery, Fuel Sampling using District's Laboratory Procedure Method 10
S201 Gas Turbine, S202 Duct Burner	BAAQMD Cond #366 Part 11	987 lb/day except during natural gas curtailment or shutdown as allowed by Cond #366, part 3 (combined S201 & S202)	Fuel Sampling using District's Laboratory Procedure Method 10
	BAAQMD Cond #366 Part 11	40 tons/year (combined S201 & S202)	Fuel Sampling using District's Laboratory Procedure Method 10

SO₂ Discussion:

BAAQMD Regulation 9-1-301

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

All facility combustion sources are subject to the SO₂ 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 when firing natural gas exclusively.

BAAQMD Regulation 9-1-302

This standard limits the SO₂ concentration at sources burning gaseous fuels to 300 ppm in an as found condition. This means that the oxygen content is not adjusted to a standard concentration. Because the gaseous fuel used is pipeline quality natural gas, with an maximum concentration of about 140 ppm sulfur (PG&E standard of 5 grains per 100 scf), the standard cannot be exceeded and no monitoring is necessary.

BAAQMD Regulation 9-1-304

This standard limits the sulfur in liquid or solid fuels to 0.5% by weight. The boilers have a requirement for certification of the sulfur content by the vendor from which is purchased. Generally, the boilers use natural gas exclusively.

The turbine has a requirement for testing of fuel oil if purchased. Generally, the turbine uses natural gas exclusively.

The duct burner does not burn fuel oil.

The facility is not required to monitor or certify the sulfur content of diesel fuel for use in the emergency generators because these sources burn vehicular fuel that contains 0.0015% sulfur by weight.

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S2, S3, S4, Boilers	BAAQMD Regulation 6-1-301 and SIP Regulation 6-301	>Ringelmann No. 1 for no more than 3 minutes in any hour	Visible Emissions Check after firing 200 hours on fuel oil
S201 Gas Turbine, S202 Duct Burner	BAAQMD Regulation 6-1-301 and SIP Regulation 6-301	>Ringelmann No. 1 for no more than 3 minutes in any hour	Visible Emissions Check during fuel oil combustion
Emergency generators	BAAQMD Regulation 6-303.1	>Ringelmann No. 2 for no more than 3 minutes in any hour	None
S201 Gas Turbine, S202 Duct Burner	BAAQMD Regulation 6-1-310.1 and 310.3 and SIP Regulation 6-310	0.15 gr/dscf	None
	BAAQMD Regulation 6-1-310.2 and 6-1-310.3	0.0295 to 0.0425 grain/dscf @ 6% O ₂ based on the flow rate for both S201 and S202 combined	Biennial source test

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S2, S3, S4, Boilers S201 Gas Turbine, S202 Duct Burner	BAAQMD Regulation 6-1-310.1 and 310.3	0.15 gr/dscf at 6% O ₂	None

PM Discussion:

BAAQMD Regulation 6 “Particulate Matter and Visible Emissions”

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. Sources S2, S3, S4, S201, and S202 generally burn natural gas. Per the EPA's June 24, 1999 agreement with CAPCOA and ARB titled “Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP”, no monitoring is required to assure compliance with this limit for these sources when burning natural gas exclusively.

The owner/operator will perform a visible emissions inspection if any boiler, S2, S3, S4, or the turbine, S201, is fired on fuel oil for more than 200 hours in any consecutive period.

BAAQMD Regulation 6-1-303 limits visible emissions to no darker than 2.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour). The emergency generators are subject to this limit. It is unlikely that any emergency generator will be out of compliance with this limit, since it is very high.

Particulate Weight Limitation

BAAQMD Regulation 6-1-310.1 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% O₂. 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. Sources S2, S3, S4, S201, and S202 generally burn natural gas. 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 sources when burning natural gas exclusively.

Regulation 6, Rule 1, as amended on August 1, 2018, will require source testing for TSP for sources that have a potential to emit of filterable particulate greater than 1,000 kg per year of TSP. The turbine, S201, will be subject to this standard. The facility will be required to perform this testing on a biennial basis. This limit is not federally enforceable.

VOC Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S100, Facility Wide Painting Operations	BAAQMD 8-19-302	Baked Coatings: 2.3 lb/gal Air Dried Coatings: 2.8 lb/gal	Records
	BAAQMD 8-19-312.1	Camouflage: Baked Coatings: 3.0 lb/gal Air Dried Coatings: 3.5 lb/gal	Records
	BAAQMD 8-19-312.3	Heat Resistant: Baked Coatings: 3.0 lb/gal Air Dried Coatings: 3.5 lb/gal	Records
	BAAQMD 8-19-312.4	High Performance Architectural Baked Coatings: 3.5 lb/gal Air Dried Coatings: 3.5 lb/gal	Records
S100, Facility Wide Painting Operations	BAAQMD 8-19-312.5	Metallic Topcoat Baked Coatings: 3.0 lb/gal Air Dried Coatings: 3.5 lb/gal	Records
	BAAQMD 8-19-312.7	Pretreatment Wash Primer Baked Coatings: 3.5 lb/gal Air Dried Coatings: 3.5 lb/gal	Records
	BAAQMD 8-19-312.8	Silicon Release Baked Coatings: 3.5 lb/gal Air Dried Coatings: 3.5 lb/gal	Records
	BAAQMD 8-19-312.9	Solar Absorbent Baked Coatings: 3.0 lb/gal Air Dried Coatings: 3.5 lb/gal	Records
	BAAQMD 8-19-312.12	Extreme Performance Baked Coatings: 3.5 lb/gal Air Dried Coatings: 3.5 lb/gal	Records

VOC Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
	BAAQMD 8-19-312.13	High Temperature Baked Coatings: 3.5 lb/gal Air Dried Coatings: 3.5 lb/gal	Records
	BAAQMD 8-23-301	2.1 lb/gal	Records
	BAAQMD 8-31-302	2.8 lb/gal	Records
	BAAQMD 8-31-302	2.8 lb/gal	Records
	BAAQMD 8-31-306.1	Flexible Parts: Flexible Primer: 4.1 lb/gal	Records
	BAAQMD 8-31-306.2	Flexible Parts: Color Topcoat: 3.8 lb/gal	Records
	BAAQMD 8-31-306.3	Flexible Parts: Base coat/clear coat (combined system): 2.8 lb/gal	Records
	BAAQMD 8-31-309.1	Camouflage: 3.5 lb/gal	Records
	BAAQMD 8-31-309.2	Conductive: 2.7 lb/gal	Records
	BAAQMD 8-31-309.3	Metallic Topcoat: 3.5 lb/gal	Records
S100, Facility Wide Painting Operations	BAAQMD 8-31-309.4	Extreme Performance: 6.2 lb/gal	Records
	BAAQMD 8-31-309.5	High Gloss: 3.5 lb/gal	Records
	BAAQMD 8-31-309.6	Optical: 6.7 lb/gal	Records
	BAAQMD 8-31-301	See rule	Records
	Condition 21880, part 1a	Non-water-based coating < 80 gal/consecutive 12-month period	Records
	Condition 21880, part 1a	Water-based coating < 250 gal/consecutive 12-month period	Records
	Condition 21880, part 1b	Cleanup and surface preparation solvent < 10 gal/consecutive 12-month period	Records

VOC Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
	Condition 21880, part 1b	Organic thinner < 10 gal/consecutive 12-month period	Records

VOC discussion

Recordkeeping is the standard monitoring for limits on VOC in coating and to determine compliance with throughput limits.

Changes to permit:

The description of the BAAQMD 6-1-301 and 6-1-303 limits and the SIP 6-301 and 6-303 limits in Section VII have been corrected to say “for < 3 min/hr.”

Tables have been added for the facility’s emergency generators, boilers, and paint booth.

Table VII-B

The 100-hour per year limit in BAAQMD Regulation 9-8-330.2 has been deleted because it is obsolete.

The fuel certification requirement to ensure compliance with the 0.5% limit for sulfur in liquid fuel has been deleted because only diesel containing 0.0015% sulfur by weight is available in California.

Table VII-G

BAAQMD Regulation 9, Rule 9, Nitrogen Oxides from Stationary Gas Turbines

Section 9-9-303.2 has been deleted because it is obsolete. The standards in Section 9-9-301.2 as amended on December 6, 2006, have been added.

The description of the SIP NOx limit during fuel oil combustion in case of curtailment or testing has been clarified.

The limits in Condition 366, part 4 and 5 have been changed in accordance with Regulation 9, Rule 9.

The new limit and monitoring in BAAQMD Regulation 6, Rule 1, Particulate Matter, have been added.

The description of the two SO2 limits in Condition 366, part 11, has been clarified.

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” as defined by Regulation 2-6-202.

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

Changes to permit

EPA Test Method 5 has been added for BAAQMD Regulation 6, Rule 1, Particulate Matter.

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 the first type of permit shield.

Following is the detail of the permit shields that were requested by the applicant.

The following permit shield is allowed:

**Table IX
S201, Turbine and S202, Duct Burner**

Citation	Title or Description (Reason not applicable)
Regulation 8, Rule 2	Organic Compounds - Miscellaneous Operations (Rule not applicable to combustion sources)

Changes to permit:

The standard language in the Section IX, Permit Shield, was updated.

X. Revision History

The revision history will be updated when the permit is renewed.

XI. Glossary

Changes to permit:

None.

D. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility.

E. Compliance Status:

The responsible official for UC Berkeley submitted a signed Certification Statement form on January 6, 2020. 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 renewal application was submitted on September 2, 2016. On August 25, 2017, the applicant submitted Application 28853 to incorporate sources that were not in the PE Berkeley permit. These two applications are the basis for constructing the proposed Title V permit.

APPENDIX A - GLOSSARY

ACT

Federal Clean Air Act

APCO

Air Pollution Control Officer

ARB

Air Resources Board

BAAQMD

Bay Area Air Quality Management District

BACT

Best Available Control Technology

Basis

The underlying authority which allows the District to impose requirements.

CAA

The federal Clean Air Act

CAAQS

California Ambient Air Quality Standards

CAM

Compliance Assurance Monitoring per 40 CFR Part 64

CAPCOA

California Air Pollution Control Officers Association

CEM

Continuous Emission Monitor

CEQA

California Environmental Quality Act

CFR

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

CO

Carbon Monoxide

Cumulative Increase

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

District

The Bay Area Air Quality Management District

DPF

Diesel Particulate Filter

EPA

The federal Environmental Protection Agency.

Excluded

Not subject to any District regulations.

Federally Enforceable, FE

All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60 (NSPS), Part 61 (NESHAPs), Part

63 (MACT), and Part 72 (Permits Regulation, Acid Rain), including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

FP

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

HAP

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

Major Facility

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

MFR

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

MOP

The District's Manual of Procedures.

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.)

Offset Requirement

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

Phase II Acid Rain Facility

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

POC

Precursor Organic Compounds

PM

Particulate Matter

PM10

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

PSD

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

PTE

Potential to Emit as defined by BAAQMD Regulation 2-6-218

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

THC

Total Hydrocarbons (NMHC + Methane)

Title V

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

TOC

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

TPH

Total Petroleum Hydrocarbons

TSP

Total Suspended Particulate

VOC

Volatile Organic Compounds

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
cu. ft.	=	cubic foot
cfm	=	cubic feet per minute
dscf	=	dry standard cubic foot
dscfm	=	dry standard cubic foot per minute
g	=	gram
gal	=	gallon
gpm	=	gallons per minute
gr	=	grain
hp	=	horsepower
h r	=	hour
lb	=	pound
in	=	inch
max	=	maximum
m ²	=	square meter
min	=	minute
mm	=	million
MMbtu	=	million btu
MMcf	=	million cubic feet
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scfm	=	standard cubic feet per minute
tpy	=	tons per year
yr	=	year

APPENDIX B

Verification Letter for Clean Air Diesel Particulate Filters



Air Resources Board

Alan C. Lloyd, Ph.D.
Chairman

9528 Telstar Avenue • P.O. Box 8001 • El Monte, California 91731 • www.arb.ca.gov



Gray Davis
Governor

June 6, 2003

Dr. Mike Tripodi
CleanAIR Systems
4379 Center Place
Santa Fe, New Mexico 87505

Reference # RAS-03-19

Dear Dr. Tripodi:

The Air Resources Board (ARB) has reviewed your application for the verification of the PERMIT™. Based on the evaluation of the data provided, the ARB hereby verifies that the PERMIT™ reduces emissions of diesel particulate matter (PM) by 85 percent or greater for use in stationary emergency generators with engines listed in the enclosure. The PERMIT™ is therefore verified as a Level 3 diesel emission control device.

The aforementioned verification is valid provided the following operating criteria are met:

Application	Stationary emergency generators
Maximum consecutive minutes at idle	240 minutes
Number of 10 minute idle sessions before regeneration is required	Regeneration recommended after 12 consecutive sessions; required after 24
Minimum temperature/load/time requirements for regeneration in 4-stroke engine	300° Celsius for 30% of operating time or 2 hours, whichever is longer. For most engines, 40% load results in temperature of at least 300° Celsius
Number of hours of operation before cleaning/disposal of filter	5000 hours under normal operating conditions
Fuel	Diesel sulfur content must not exceed 15 parts per million by weight
PM emission/certification level	Equal or less than 0.1 g/bhp-hr (as tested on an appropriate steady-state certification cycle outlined in the ARB off-road regulations – similar to ISO 8178 D2)
Cycle	Four-stroke

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Website: <http://www.arb.ca.gov>.

California Environmental Protection Agency

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