Bay Area Air Quality Management District

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Permit Evaluation
and
Statement of Basis
for
Initial

MAJOR FACILITY REVIEW PERMIT

for

San Francisco General Hospital
Facility A3974

Facility Address:
1001 Potrero Avenue
San Francisco, CA 94110

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Application 24585

May 2014

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TITLE V STATEMENT OF BASIS

San Francisco General Hospital; PLANT # A3974

APPLICATION # 24585

A. Background

San Francisco General Hospital is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it has the potential to emit more than 100,000 tons per year of greenhouse gases.

EPA has recently adopted Title V permitting thresholds for greenhouse gas (GHG) emissions which became effective for all sites on July 1, 2011. Any site that has the potential to emit more than 100,000 tons/year of greenhouse gases, expressed as CO_2 equivalent (CO_2e) in tons/year and including biogenic CO_2, is required to obtain a Title V permit. Based on current emissions calculations, this site has the potential to emit more than 100,000 tpy of CO_2e, and therefore is subject to Title V permitting unless it adopts federally enforceable limitations on its combustion sources limiting operations to less than 90,000 tons/year of CO_2e. San Francisco General Hospital has determined that it cannot operate its combustion sources in a manner that limits the facility's CO_2e emissions to less than 100,000 tons per year of CO_2e, and has therefore elected to obtain a Title V permit from the BAAQMD.

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 A3974.

B. Facility Description

San Francisco General Hospital is a publically owned and operated general services hospital which has been in existence at its current location since 1912. The facility is located at 1001 Potrero Avenue, San Francisco. The facility was last renovated in 1972, and is currently undergoing a major reconstruction project in order to meet seismic retrofit requirements, as well as expansion to meet increased public demand for services.

The sources emitting air pollutants at this facility are boilers that provide steam and space heat to the facility, and diesel-fueled engines that power emergency standby generators, which provide back-up power to the facility in the case of power failure to the hospital. These combustion devices emit criteria pollutants, hazardous air pollutants, and greenhouse gases. The maximum potential to emit for each pollutant emitted from this facility is summarized in the following table. This PTE excludes a non-federally enforceable operating time limit for the S-5 boiler and includes the standard assumption of 500 operating hours/year (including emergency operation) for the back-up generators.

Table 1. Maximum Potential to Emit for Site # A3974

Source	Description	GHG (as CO_2e) tons/year	CO tons/year	NO_x tons/year	PM_{10} tons/year	POC tons/year	SO_2 tons/year
S-5	Boiler	69,800	22.037	3.620	4.445	3.217	0.351
S-6	Boiler	69,800	22.037	3.620	4.445	3.217	0.351
S-7	Diesel Engine	796	1.207	6.536	0.205	0.344	0.007
S-8	Diesel Engine	796	1.207	6.536	0.205	0.344	0.007
S-9	Diesel Engine	991	1.777	7.458	0.163	0.393	0.009
S-10	Diesel Engine	991	1.777	7.458	0.163	0.393	0.009
S-11	Diesel Engine	991	1.777	7.458	0.163	0.393	0.009
S-12	Boiler	12,556	3.964	1.172	0.800	0.579	0.063
S-13	Boiler	12,556	3.964	1.172	0.800	0.579	0.063
S-15	Diesel Engine	65	0.381	1.767	0.083	0.141	0.001
S-16	Diesel Engine	219	1.030	4.494	0.260	0.140	0.002
Total	**Site # A3974**	**169,558**	**61.161**	**51.292**	**11.731**	**9.738**	**0.873**

C. Permit Content

The legal and factual basis for the permit follows. The permit sections are described in the order that they are presented in the permit. This is the initial Title V Permit for this facility, and the facility does not have a Synthetic Minor Operating 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. This permit does not include Title IV or accidental release provisions.

Many of these conditions derive from 40 CFR § 70.6, Permit Content, which prescribes certain standard conditions that must be included 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.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S-2).

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

Significant sources are those sources which 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.

The District has reviewed the operations at San Francisco General Hospital and concluded that there are no sources at this facility that are exempt from District permit requirements and also significant, as defined above.

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-4). 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 an authority to construct and/or 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.

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. This facility has no unpermitted significant sources.

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 documentation of 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.

Source-Specific Compliance Applicability Determinations:

Existing Boilers (Table IV-A)

San Francisco General Hospital has two existing boilers, Sources S-6 and S-7 which were originally installed in 1970. Typically, one boiler is operating while the other boiler is in standby mode. Each boiler has a maximum firing rate of 136.2 MM BTU/hour. From 2005-2012, each boiler was operated at 2%-30% of maximum capacity. The primary fuel for these boilers is natural gas, but these boilers are allowed to use diesel fuel in the event of natural gas curtailment or loss of natural gas supply. The boilers may operate on diesel fuel for up to 48 hours/year for readiness or emissions testing purposes. The boilers were initially permitted as loss-of-exemption sources in 1994 (Application #12544).

In April 1994, the permit holder submitted Application # 13276 to retrofit these boilers (S-5 and S-6) in order to meet new Regulation 9, Rule 7 emissions limits (30 ppmv NO_x at 3% O_2 for gaseous fuel, 150 ppmv NO_x at 3% O_2 for diesel fuel used only during natural gas curtailment or readiness testing, and 400 ppmv CO at 3% O_2) that would become effective on January 1, 1996. In 1996, San Francisco General Hospital applied for and received a variance that delayed the compliance date for the new NO_x limits until July 30, 1996. This variance was later extended until December 31, 1996. The new burners were installed in late 1996. Compliance testing was conducted in April 1997 and August 1997, and these tests confirmed that the boilers were meeting the new Regulation 9, Rule 7 NO_x and CO emission limits during natural gas firing.

Regulation 9, Rule 7 was amended again in 2008. These 2008 amendments require boilers with a maximum rated heat input capacity of 75 MM BTU/hour or more to meet a new limit of 5 ppmv of NO_x at 3% O_2, dry basis (during gaseous fuel firing). For facilities with multiple boilers, the compliance dates are: 33% of the boilers by January 1, 2012, 66% of the boilers by January 1, 2013, and 100% of the devices by January 1, 2014. This site has two boilers, which means that at least one boiler should be meeting the new standard by no later than January 1, 2013 and the second boiler should be meeting the new standard by no later than January 1, 2014. Regulation 9-7-112 would allow an alternate compliance option for one boiler by designating one boiler to be a low fuel usage boiler subject to the requirements of Regulation 9-7-112.2. One of the boilers would need to meet a heat input limit equal to 10% of the maximum rated capacity, or 119,311 MM BTU/year effective January 1, 2012 and beyond and would need to comply with the record keeping requirements in Section 9-7-504. San Francisco General Hospital reported that S-5 Boiler # 1 used 188,016 therms (18,802 MM BTU) during 11/1/2011 through 10/31/2012, which is equal to 1.6% of maximum capacity. Thus, it appears that S-5 could potentially meet this low-usage limit under the alternative compliance option. However, the District has not received any formal notification regarding compliance plans for these boilers. The applicable requirements were prepared

assuming that San Francisco General Hospital plans to comply with Regulation 9-7-112.2 and 9-7-504 for the S-5 boiler. The S-6 boiler would then need to meet the Regulation 9-7-307.6 NO_x limit by January 1, 2014.

The existing boilers (S-5 and S-6) are potentially subject to Federal NSPS requirements set out in 40 CFR 60, Subpart Db, because each boiler has a rated heat input capacity of more than 100 MM BTU/hour and may potentially have been modified or reconstructed after 1984. The applicability of this NSPS hinges on whether or not the 1996 low-NOx burner retrofit discussed above meets the federal definition of "modification" or "reconstruction". To be deemed a modification pursuant to Section 60.14, the physical change must result in an emission increase. The 1996 low-NOx burner retrofit was not expected to result in any emission increases. In addition, Section 60.14(e)(5) indicates that the addition of a device that is intended to reduce air pollutants shall not be deemed a modification. Therefore, the 1996 low-NOx burner retrofit project is not an NSPS modification. An NSPS reconstruction is defined in Section 60.15(b) and includes the replacement of components to such an extent that the fixed capital cost of the new components exceeds 50% of the fixed capital cost that would be required to construct a comparable new facility. The District does not expect that the cost of the 1996 low-NOx burner retrofit project would have exceeded this cost threshold (50% of the fixed capital cost of a new facility). Therefore, the District does not expect the 1996 low-NOx burner retrofit project to constitute a reconstruction under the NSPS definition. As a result, the District did not include any NSPS requirements for S-5 or S-6.

The existing boilers are potentially subject to Federal NESHAP requirements under 40 CFR Part 63, Subpart DDDDD "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers an Process Heaters" or 40 CFR Part 63, Subpart JJJJJJ "National Emission Standards for Hazardous Air Pollutants Industrial, Commercial, and Institutional Boilers Area Sources". However, Subpart DDDDD does not apply to S-5 and S-6 because these boilers are not located at a major source of hazardous air pollutants (see Section 63.7485). Subpart JJJJJJ does not apply to S-5 and S-6 because these boilers are considered to be gas fired boilers (as defined below in Section 63.11237) and gas fired boilers are not subject to Subpart JJJJJJ pursuant to Section 63.11195(e). As a result, the District did not include any NESHAP requirements for S-5 or S-6.

> 40 CFR, Part 63.11237:
> Gas-fired boiler includes any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.

Future Boilers (Table IV-C)

San Francisco General Hospital also has two future boilers, Sources S-12 and S-13, which have not yet been installed. These boilers will have to meet the 2008 emission

limitations of 9 ppmv NO_x at 3% O_2, dry basis, and 400 ppmv CO at 3% O_2, dry basis, upon start-up.

The future boilers (S-12 and S-13) are subject to Federal NSPS requirements set out in 40 CFR 60, Subpart Dc, since they meet the capacity and construction date thresholds specified in 40 CFR 60.40c(a):

- Rated at 10 MM BTU/hour or more and less than 100 MM BTU/hr heat input capacity, and
- Constructed after June 9, 1989

Since these boilers are fired only on natural gas, these boilers are not subject to the sulfur dioxide or particulate standards in this regulation. These boilers are subject to some reporting and record keeping requirements as identified in Table IV-C.

The future boilers are potentially subject to Federal NESHAP requirements under 40 CFR Part 63, Subpart DDDDD "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers an Process Heaters" or 40 CFR Part 63, Subpart JJJJJJ "National Emission Standards for Hazardous Air Pollutants Industrial, Commercial, and Institutional Boilers Area Sources". However, Subpart DDDDD does not apply to S-12 and S-13 because these boilers are not located at a major source of hazardous air pollutants (see Section 63.7485). Subpart JJJJJJ does not apply to S-12 and S-13 because these boilers are considered to be gas fired boilers (as defined below in Section 63.11237) and gas fired boilers are not subject to Subpart JJJJJJ pursuant to Section 63.11195(e). As a result, the District did not include any NESHAP requirements for S-12 or S-13.

> 40 CFR, Part 63.11237:
> Gas-fired boiler includes any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.

Generators (Tables IV-B and IV-D)

San Francisco General Hospital has seven existing back-up power generators that are driven by diesel-fired compression ignition internal combustion engines (S-7, S-8, S-9, S-10, S-11, S-15, and S-16). All of these diesel-fired engines are subject to District regulations (Regulation 6, Rule 1; Regulation 9, Rule 1; and Regulation 9, Rule 8) and to the provisions of the California Air Resources Board "Airborne Toxic Control Measure for Stationary Compression-Ignition (CI) Engines", Title 17, California Code of Regulations, Section 93115.

Sources S-7, S-8, S-9, S-10, and S-11 and their associated diesel particulate filters (A-7, A-8, A-9, A-10, and A-11) are grouped together in Table IV-B and are subject to BAAQMD Conditions # 22850 and # 24345. These five engines are subject to Federal NSPS requirements as set out in 40 CFR Part 60, Subpart IIII, Standards of Performance for Stationary Compression-Ignition Internal Combustion Engines, Set G, 2007 and Later

Model Non-Fire Pump Emergency Less than 10L per Cylinder, since each engine's rated power is greater than 25 BHP and each of these engines are model year 2009. Under 40 CFR 60.4211(c), the permit holder may show compliance by buying and operating engines certified to the emission standards for new non-road CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 (PM_{10} emissions less than 0.2 g/kW-hr, NMHC+NOx emissions less than 6.4 g/kW-hr, and CO emissions less than 3.5 g/kW-hr). These engines are certified to comply with these emission levels.

Sources S-15 and S-16 are grouped together in Table IV-D and are subject to BAAQMD Condition # 22820. The S-15 and S-16 engines are not subject to the Federal NSPS, since they were originally manufactured and installed prior to 2007. S-15 was install in 1980 (model year is not known), and S-16 is a Model Year 1995 engine that was installed at this site in year 2000.

All seven engines (S-7, S-8, S-9, S-10, S-11, S-15, and S-16) are subject to Federal NESHAP requirements under 40 CFR Part 63, Subpart ZZZZ. For the S-7, S-8, S-9, S-10, and S-11 engines that are subject to the federal NSPS requirements, no further requirements apply. For the S-15 and S-16 engines, the Federal NESHAP requires good management practice for the engines, including changing the oil and filter at least once every 500 hours, inspecting the air cleaners at least once every 1000 hours or annually, whichever comes first, and inspecting the hoses and belts at least once every 500 hours or annually, whichever comes first. No emissions testing is required under this NESHAP.

Applicability of 40 CFR 64, Compliance Assurance Monitoring (CAM)

The Compliance Assurance Monitoring (CAM) regulation in 40 CFR 64 was developed to provide assurance that facilities comply with applicable emissions limitations by adequately monitoring control devices. The CAM rule was effective on November 21, 1997. However, most facilities are not affected by CAM requirements until they submit applications for Title V permit renewal.

CAM applies to a source of criteria pollutant or hazardous air pollutant (HAP) emissions if all the following requirements are met:

- The source is located at a major source for which a Title V permit is required; and
- The source is subject to a federally enforceable emission limitation or standard for a criteria pollutant or HAP; and
- The source uses a control device to comply with the federally enforceable emission limitation or standard; and
- The source has potential pre-control emissions of the regulated pollutant that are equal to or greater than the major source threshold for the pollutant (in BAAQMD, the major source thresholds are 100 tons per year for each criteria pollutant, 10 tons per year for a single HAP, 25 tons per year for two or more HAPs, and 100,000 tons per year of green-house gases); and
- The source is not otherwise exempt from CAM.

Compliance assurance monitoring (CAM) does not apply to any of the sources at this facility, because:

(a) the boilers (S-5, S-6, S-12, and S-13) and small back-up generators (S-15 and S-16) have no control devices, and

(b) the large back-up generators are (S-7, S-8, S-9, S-10, and S-11) are equipped with control devices, but these control devices are not necessary to achieve compliance with any federally enforceable emission limits. The diesel particulate filters (A-7, A-8, A-9, A-10, and A-11) are required for compliance with project health risk limits in BAAQMD Regulation 2-5-302, which is not a federally enforceable requirement.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10. This regulation requires 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.

VI. Permit Conditions

Each permit condition is identified with a unique numerical identifier, up to five characters in length. 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.

During the Title V permit development, the District has reviewed the existing permit conditions, and is proposing to delete obsolete conditions, and, as appropriate, revise the conditions for clarity and enforceability. After issuance of the Title V permit, permit conditions will be revised using the procedures in Regulation 2, Rule 6, Major Facility

Review. When necessary to meet applicable requirements, additional monitoring, recordkeeping, or reporting will be added to the permit.

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

- BACT: This term is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology in Regulation 2-2-301, as defined in Regulation 2-2-206.
- TBACT: This term is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology for Toxics in Regulation 2-5-301, as defined in Regulation 2-5-205.
- 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.

All proposed 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 specific proposed changes to existing conditions are discussed below.

<u>Changes to Permit Conditions:</u>

- Condition # 11103, Part 2 – removal of existing limit for S-5 and S-6 combined: The fuel usage limits for the S-5 and S-6 Boilers that are currently identified in Part 2 are equivalent to both boilers operating continuously at maximum capacity. Since the maximum capacity for each boiler is identified in Table II-A of this proposed permit, a limit that is equal to continuous operation at maximum capacity is redundant. Therefore, the District is proposing to delete the current limit in Part 2.
- Condition # 11103, Part 2 – addition of new limit for S-5: As discussed in Section IV above, Regulation 9, Rule 7 establishes new NO_x and CO emission limits for boilers, including S-5 and S-6. It appears from the current low fuel usage rate at the S-5 Boiler that S-5 could qualify for the low fuel usage exemption from the new NO_x limit in Section 9-7-112.2. The District is proposing to add the specific low fuel use limit that would apply to S-5 to Part 2 to verify compliance with Section 9-7-112.2.

- Condition # 11103, Part 3 – removal of existing fuel oil sulfur content limit: The fuel oil sulfur content limit listed in Part 3 is the same as the Regulation 9-1-304 sulfur content limit, which is listed as an applicable requirement in Table IV-A. Therefore, the District is proposing to delete this redundant limit from the permit conditions. Note that current CARB limitations on the sulfur content for diesel oil ($\leq$ 0.0015% S by weight) are much more stringent than this Regulation 9-1-304 limit ($\leq$ 0.5% S by weight).
- Condition # 11103, Part 4 – removal of existing Ringelmann 1.0 limit: The Ringelmann 1.0 limit for visible emissions from the boilers that is currently listed in Part 4 is the same as the limit in Regulation 6-1-301, which is listed as an applicable requirement in Table IV-A. Therefore, the District is proposing to delete this redundant limit from the permit conditions.
- Condition # 11103, Part 5 (renumbering to Part 3) – revision of record keeping requirements: The District is proposing to clarify the current record keeping requirements in subparts a and b, as indicated. The District is proposing to add subpart c, which includes a summarization requirement for all records to ensure consistency with and adequate demonstration of compliance with the proposed Part 2 limit.
- Condition # 24342, Part 1: The District is correcting the basis for this fuel limitation.
- Condition # 24342, Part 2: The District is clarifying that the specified limit applies to each boiler.
- Condition # 24342, Part 3: The District is deleting the hourly heat input limit for the S-12 and S-13 boilers from the permit conditions, because it is redundant to the capacity limits in Table II-A.
- Condition # 24342, Part 4: The District is deleting an obsolete NO_x limit for S-12 and S-13. As indicated in Table IV-C, the S-12 and S-13 boilers will be subject to Regulation 9-7-307.5 upon start-up of these boilers, and the applicable NO_x limit in this section (9 ppmv of NO_x at 3% O_2, dry) is more stringent than the old BACT limit (20 ppmv of NO_x at 3% O_2, dry) listed in Part 4.
- Condition # 24342, Part 5 (renumbered as Part 3): Since the BACT limit for CO emissions from S-12 and S-13 (50 ppmv of CO at 3% O_2, dry) is more stringent then the regulatory limit in Section 9-7-307.5 (400 ppmv of CO at 3% O_2, dry), the District is proposing to retain this CO BACT limit. The District is clarifying this requirement and the basis for this part.
- Condition # 24342, Part 6 (renumbered as Part 4): The District is linking this fuel meter requirement to the proper part and adding as basis for this requirement.
- Condition # 24342, Part 7: The District is deleting this NO_x limit because it is incorrect. The 15 ppmv NO_x limit applies to load following boilers (see Regulation 9-7-307.4). Since S-12 and S-13 are not load following units, the 9 ppmv NO_x limit from Regulation 9-7-307.5 applies instead of 9-7-307.4.
- Condition # 24342, Part 8 (renumbered as Part 5): The District is clarifying the source testing requirements for S-12 and S-13 and correcting the basis for this part. Regulation 9-7-506 now requires annual source testing for boilers subject to the limits in Regulation 9-7-307.5.

- Condition # 24342, Part 8 (duplicate part number): The District is deleting this boiler tune-up requirement because this compliance demonstration option was removed from Regulation 9-7-313 in May 2011.
- Condition # 24342, Part 9: This limit was added as a means of limiting site-wide emissions to avoid becoming a major facility. Since the site has now applied for an MFR permit, this limit is not necessary and is being deleted.
- Condition # 24342, Part 9 (duplicate part number): The District is deleting this part and is combining this initial source testing requirement with the source testing requirements in Part 5.
- Condition # 24342, Part 10: This was a duplicate of Part 9, which the District is deleting.
- Condition # 24342, Part 11: The District is deleting this part and is combining this periodic source testing requirement with the source testing requirements in Part 5.
- Condition # 24342, Part 12 (renumbering to Part 6): The District is removing the record keeping requirement for the obsolete tune-up provision and is addition the records of notifications and boiler manufacture date required by the NSPS and Regulation 9-7-505, respectively. This District is also correcting the basis for this part.

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 contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

Monitoring decisions are typically the result of a balancing of several different factors including: 1) the likelihood of a violation given the characteristics of normal operation, 2) degree of variability in the operation and in the control device, if there is one, 3) the potential severity of impact of an undetected violation, 4) the technical feasibility and probative value of indicator monitoring, 5) the economic feasibility of indicator monitoring, and 6) whether there is some other factor, such as a different regulatory restriction applicable to the same operation, that also provides some assurance of compliance with the limit in question.

These factors are the same as those historically applied by the District in developing monitoring for applicable requirements**.** It follows that, although Title V calls for a re-examination of all monitoring**,** there is a presumption that these factors have been appropriately balanced and incorporated in the District's prior rule development and/or permit issuance. It is possible that, where a rule or permit requirement has historically had no monitoring associated with it, no monitoring may still be appropriate in the Title V permit if, for instance, there is little likelihood of a violation**.** Compliance behavior and associated costs of compliance are determined in part by the frequency and nature of associated monitoring requirements. As a result, the District will generally revise the

nature or frequency of monitoring only when it can support a conclusion that existing monitoring is inadequate**.**

The District has reviewed all monitoring and has determined that the existing or proposed monitoring is adequate. The tables below contain only the federally enforceable limits for which there is no 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.

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
Boilers (S-5, S-6, S-12, and S-13)	BAAQMD 6-1-301 and SIP 6-301	≤ Ringelmann 1.0 for 3 minutes in any hour	None
Diesel Engines for Back-up Generators (S-7, S-8, S-9, S-10, S-11 and S-16)	BAAQMD 6-1-301 and SIP 6-301	≤ Ringelmann 1.0 for 3 minutes in any hour	None
Diesel Engine for Back-Up Generator (S-15)	BAAQMD 6-1-303.1 and SIP 6-303.1	≤ Ringelmann 2.0 for 3 minutes in any hour	None
Boilers (S-5, S-6, S-12, and S-13) and Diesel Engines for Back-up Generators (S-7, S-8, S-9, S-10, S-11, S-15, and S-16)	BAAQMD 6-1-310 and SIP 6-310	≤ 0.15 grains/dscf	None

PM Discussion:

Potential to Emit for Boilers: 10.490 tons/year of PM_{10}
Potential to Emit for Diesel Engines: 1.241 tons/year of PM_{10}
Total PTE for Site: 11.731 tons/year of PM_{10}

BAAQMD 6-1-301 and SIP 6-301 for Boilers: The S-5 and S-6 Boilers (with 4.4 tons/year of PM_{10} emissions each) are primarily fired on natural gas. Diesel fuel will only be used for a maximum of 216 hours/year during natural gas curtailment or for reliability related testing. The S-12 and S-13 Boilers (0.8 tons/year of PM_{10} emissions each) will be fired on natural gas only. Visible particulate emissions are normally not associated with combustion of gaseous fuels, such as natural gas. Since particulate emissions from these boilers are not substantial, and it is unlikely that violations of the Ringelmann 1.0 limit would occur during the limited diesel oil firing events or during natural gas firing, periodic monitoring for the Ringelmann 1.0 limit is not justified.

BAAQMD 6-1-301 and SIP 6-301 for Diesel Engines: Visible emissions darker than Ringelmann 1.0 are normally not expected for the proper combustion of low-sulfur (maximum sulfur content of 15 ppm by weight) diesel oil. All of the back-up generator engines are required to use CARB diesel oil that meets this low sulfur content limit. Therefore, the District does not expect any of the back-up engines to exceed the Ringelmann 1.0 limit. Furthermore, the large diesel engines (S-7, S-8, S-9, S-10, and S-11) are each equipped with diesel PM filters to ensure that particulate emissions are less than 0.15 g/bhp-hr. For such low diesel PM emission rates, violation of Ringelmann 1.0 is highly unlikely. Since these diesel engines are not expected to exceed this limit and the maximum potential PM emissions are very low (< 1.3 tons/year for all diesel engines (including emergency operations and only 0.1 tons/year for routine emissions), no additional monitoring is warranted.

BAAQMD 6-1-303.1 and SIP 6-303.1 for Diesel Engines: Visible emissions darker than Ringelmann 2.0 are normally not expected for the proper combustion of diesel oil. Since this small diesel engine (S-15) is not expected to exceed this limit and will be burning low-sulfur diesel fuel, which further reduces PM emissions, and since the maximum potential PM emissions are very low (0.26 tons/year including emergency operations and 0.01 tons/year for routine emissions), no additional monitoring is warranted for this diesel engine.

BAAQMD 6-1-310 and SIP 6-310 for Boilers: BAAQMD Regulation 6-1-310 and SIP 6-310 limit filterable particulate (FP) emissions in the stack from a boiler to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume, corrected to 6% oxygen by volume. Based on the AP-42 emission factor for natural gas fired boilers (7.6 pounds of total PM per million scf of natural gas fired), the boilers will each emit 0.006 gr/dscf of exhaust at 0% oxygen (0.004 gr/dscf of exhaust, corrected to 6% O_2). The grain loading limit is far above any expected PM emissions for these boilers (37:1 compliance ratio). Since maximum potential PM emissions from the boilers are not substantial and an excess of the emission standard is highly unlikely, it would not be appropriate to add periodic monitoring for this standard.

BAAQMD 6-1-310 and SIP 6-310 for Diesel Engines for Emergency Back-Up Generators: The diesel engines for the back-up generators are also subject to the BAAQMD 6-1-310 and SIP 6-310 limit of 0.15 gr/sdcf; however, the limit applies at the as found oxygen concentration for these engines. Typically, diesel engine exhaust contains at least 6% oxygen by volume. For the older diesel engines (S-15 and S-16), the District has calculated that these engines will emit, respectively: 0.114 gr/dscf, corrected to 6% O_2 and 0.103 gr/dscf, corrected to 6% O_2. Thus, these engines are expected to comply with this 0.15 gr/dscf limit. Although the compliance margin is not high, these engines are only operated on a routine basis for 20 hours/year. For the newer engines (S-7, S-8, S-9, S-10, and S-11), the District has calculate that these engines will emit no more than 0.023 gr/dscf, corrected to 6% O_2. The compliance margin for these newer engines, which are equipped with diesel particulate filters, is more than 6:1, and these engines operate on a routine basis for only 50 hours/year.

Based on the District's experience with permitting standby diesel engines, the District does not expect any excesses of this grain loading standard. The District expects that the Ringelmann standard would be exceeded before the grain loading standard is exceeded. Since PM emissions are low (<1.3 tons/year from all seven diesel engines), compliance with this limit is expected, and the testing necessary to demonstrate compliance with this standard would be very expensive, the District has determined that monitoring for compliance with this grain loading standard is not appropriate.

SO_2 Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
Boilers (S-5, S-6, S-12, and S-13) and Diesel Engines for Back-up Generators (S-7, S-8, S-9, S-10, S-11, S-15, and S-16)	BAAQMD 9-1-301	Property Line Ground Level Limits: ≤ 0.5 ppm for 3 minutes, AND ≤ 0.25 ppm for 60 minutes, AND ≤ 0.05 ppm for 24 hours	None
Boilers (S-5, S-6, S-12, and S-13), during natural gas firing	BAAQMD 9-1-302	≤ 300 ppmv, dry basis	None

SO_2 Discussion:

Potential to Emit for Boilers: 0.828 tons/year of SO_2
Potential to Emit for Diesel Engines: 0.045 tons/year of SO_2
Total PTE for Site: 0.873 tons/year of SO_2

BAAQMD 9-1-301: Sulfur dioxide (SO_2) emissions from all sources at this site are less than 1.0 tons/year. This facility is subject to federally enforceable limits that will ensure a high compliance margin with the Regulation 9-1-302 gas stream emission limit of 300 ppmv of SO_2 in the exhaust from each boiler (during natural gas firing) and with the Regulation 9-1-304 liquid fuel sulfur content limit of 0.5% by weight. The District expects that boilers and back-up generator engines that are complying with these other applicable limits will not result in an excess of the fence-line ground level concentration limits listed in Regulation 9-1-301. Monitoring for ground level SO_2 concentrations would not be appropriate for the low SO_2 PTE for this site.

BAAQMD 9-1-302: BAAQMD Regulation 9-1-302 applies to the boilers when they are firing gaseous fuels. The only gaseous fuel burned in these boilers will be natural gas. During natural gas firing, the outlet SO_2 concentration from the boilers will be less than 1 ppmv based on the maximum sulfur content of natural gas. Additional SO2 monitoring would not be appropriate for the low SO2 emissions (0.83 tons/year) from the boilers.

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.

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. Revision History

This section of the permit will summarize each revision to the permit. This application is for the initial Title V permit for this facility. The District has summarized the proposed changes to the existing permit conditions for this site.

XI. Glossary

This section of the permit defines and explains acronyms, abbreviations, and other terms that are used in this permit.

D. Alternate Operating Scenarios:

This facility as not requested any alternate operating scenarios.

E. Compliance Status:

The responsible official for San Francisco General Hospital submitted a signed Certification Statement form with submittal of the application for the initial Title V permit, dated March 28, 2014. On this form, the responsible official certified that the following four 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.

F. Differences Between the Application and the Proposed Permit:

BAAQMD Permit Application #24585 is the basis for the Initial Title V Permit for this facility. The application included another back-up generator engine (S-14), which was subsequently shut-down. The District has not included S-14 in this proposed permit. The District identified and included additional applicable requirements for the boilers and back-up generators, such as SIP versions of District regulations, California ATCM requirements, and federal NSPS and NESHAP requirements that were not identified in the application materials. The applicability of these requirements are discussed in detail in Section C.IV of this document. There are no other significant differences between what is represented in the application and what appears in the proposed permit.

APPENDIX A

GLOSSARY

GLOSSARY

ACT
Federal Clean Air Act

AP-42
An EPA Document "Compilation of Air Pollution Emission Factors" that is used to estimate emissions from numerous source types. It is available electronically from EPA's web site at: http://www.epa.gov/ttn/chief/ap42/index.html

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

API
American Petroleum Institute

ARB
Air Resources Board (same as CARB)

ASTM
American Society for Testing and Materials

ATC
Authority to Construct

ATCM
Airborne Toxic Control Measure

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.

BDT
Best Demonstrated Technology

C1
An organic chemical compound with one carbon atom, for example: methane

C3
An organic chemical compound with three carbon atoms, for example: propane

C5
An Organic chemical compound with five carbon atoms

C6
An Organic chemical compound with six carbon atoms

CAA
The federal Clean Air Act

CAAQS
California Ambient Air Quality Standards

CAPCOA
California Air Pollution Control Officers Association

CARB
California Air Resources Board (same as ARB)

CCR
California Code of Regulations

CEC
California Energy Commission

CEQA
California Environmental Quality Act

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

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

CH4 or CH_4
Methane

CO
Carbon Monoxide

CO2 or CO_2
Carbon Dioxide

CT
Combustion Zone Temperature

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

District
The Bay Area Air Quality Management District

dscf
Dry Standard Cubic Feet

dscm
Dry Standard Cubic Meter

E 6, E9, E12
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.

EG
Emission Guidelines

EGT
Exhaust Gas Temperature

EO
Executive Order

EPA
The federal Environmental Protection Agency.

Excluded
Not subject to any District regulations.

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

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

FR
Federal Register

GDF
Gasoline Dispensing Facility

GLC
Ground level concentration.

GLM
Ground Level Monitor

grains
1/7000 of a pound

H2S or H_2S
Hydrogen Sulfide

H&SC
Health and Safety Code

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

Hg
Mercury

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

LFG
Landfill gas

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

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

MAX or Max.
Maximum

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

Mg
Mega (million) gram

MIN or Min.
Minimum

MOP
The District's Manual of Procedures.

MSDS
Material Safety Data Sheet

MSW
Municipal solid waste

MSWL
Municipal solid waste landfill

MTBE
methyl tertiary-butyl ether

MW
Molecular weight

N2 or N_2
Nitrogen

NA
Not Applicable

NAAQS
National Ambient Air Quality Standards

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

NMHC
Non-methane Hydrocarbons (Same as NMOC)

NMOC
Non-methane Organic Compounds (Same as NMHC)

NOx or NO_x
Oxides of nitrogen.

NSPS
Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the 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 or O_2
Oxygen

Offset Requirement
A New Source Review requirement to provide federally enforceable emission offsets for the emissions from a new or modified source. Applies to emissions of POC, 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 or PM_{10}
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.

PV or P/V Valve
Pressure/Vacuum Valve

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.

RMP
Risk Management Plan

RWQCB
Regional Water Quality Control Board

S
Sulfur

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

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

SO2 or SO_2
Sulfur dioxide

SO3 or SO_3
Sulfur trioxide

SSM
Startup, Shutdown, or Malfunction

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

TAC
Toxic Air Contaminant (as identified by CARB)

THC
Total Hydrocarbons (NMHC + Methane)

therm
100,000 British Thermal Unit

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

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

TPH
Total Petroleum Hydrocarbons

TRMP
Toxic Risk Management Policy

TRS
Total Reduced Sulfur

TSP
Total Suspended Particulate

TVP
True Vapor Pressure

VMT
Vehicle Miles Traveled

VOC
Volatile Organic Compounds

Symbols:

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

Units of Measure:

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

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

APPENDIX B

PERMIT APPLICATION ENGINEERING EVALUATIONS

Engineering Evaluations for the following permit applications are attached to the Statement of Basis in this Appendix.

AN	TITLE
20357	Steam Boilers and Emergency Standby Generators
24417	3 Emergency Standby Generators (Loss of Exemption)

ENGINEERING EVALUATION REPORT

Plant Name:	**San Francisco General Hospital**
Application Number:	**20357**
Plant Number:	**3974**

BACKGROUND

The applicant, San Francisco General Hospital (SFGH), is in the process of upgrading its physical facilities at its hospital in San Francisco.

Under this application, the applicant is applying for an Authority to Construct for five new standby generators and two new hot water boilers. Upon start-up of the new boilers, the applicant will decrease the heat input to the existing boilers by 50%, either by shutting down one of the existing boilers, or by physically derating both boilers to 50% of their current heat input.

The applicant is requesting an Authority to Construct for the following equipment:

S-7 EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLAR MODEL 3516C, 2,937 BHP
ABATED BY
A-7 CATALYZED DIESEL PARTICULATE FILTER, (MANUFACTURER TBD)

S-8 EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLAR MODEL 3516C, 2,937 BHP
ABATED BY
A-8 CATALYZED DIESEL PARTICULATE FILTER, (MANUFACTURER TBD)

S-9 EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLAR MODEL 3516C HD, 3,604 BHP
ABATED BY
A-9 CATALYZED DIESEL PARTICULATE FILTER, (MANUFACTURER TBD)

S-10 EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLAR MODEL 3516C HD, 3,604 BHP
ABATED BY
A-10 CATALYZED DIESEL PARTICULATE FILTER, (MANUFACTURER TBD)

S-11 EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLAR MODEL 3516C HD, 3,604 BHP
ABATED BY
A-11 CATALYZED DIESEL PARTICULATE FILTER, (MANUFACTURER TBD)

S-12 SPACE HEAT BOILER, CLEAVER BROOKS MODEL CBLE-NTI-600-250ST, 24.5 MM BTU/HR

S-13 SPACE HEAT BOILER, CLEAVER BROOKS MODEL CBLE-NTI-600-250ST, 24.5 MM BTU/HR

CRITERIA POLLUTANT EMISSION FACTORS

Generators: Generator emission factors for the two 2,937 BHP generators are taken from the CARB certified emission factors for the proposed engines, under CARB Executive Order U-R-001-0371, and generator emission factors for the three 3,604 BHP generators are taken from the CARB certified emission factors for the proposed engines, under CARB Executive Order U-R-001-0365.

Steam and Space Heat Boilers: SFGH currently operates two 132.31 MM BTU/hour steam boilers at this site, and will be adding two additional space heat boilers rated at 24.5 MM BTU/hour each. The new boilers are fire-tube forced-draft boilers with flue gas recirculation and low NOx burners. They are solely natural gas-fueled, (no diesel fuel backup).

NOx and CO emission factors for the existing boilers are calculated from the boilers' most recent source test data. PM10, ORG and SO2 emission factors for the existing boilers are taken from AP 42, Table 1.4-2.

All emission factors for the new boilers are from the manufacturer's specifications.

Source	Type	PM10	ORG	NOx	SO2	CO	Units
S-5	Boiler	0.0075	0.0054	0.034	0.0006	0.0318	lb/MM BTU
S-6	Boiler	0.0075	0.0054	0.032	0.0006	0.045	lb/MM BTU
S-7	Generator	0.127	0.213	4.038	0.005	0.746	g/bhp-hr
S-8	Generator	0.127	0.213	4.038	0.005	0.746	g/bhp-hr
S-9	Generator	0.082	0.198	3.755	0.005	0.895	g/bhp-hr
S-10	Generator	0.082	0.198	3.755	0.005	0.895	g/bhp-hr
S-11	Generator	0.082	0.198	3.755	0.005	0.895	g/bhp-hr
S-12	Boiler	0.245	0.039	0.24	0.041	0.89	lb/hr
S-13	Boiler	0.245	0.039	0.24	0.041	0.89	lb/hr

TOTAL POTENTIAL TO EMIT FOR MODIFIED FACILITY

Upon start-up of the new sources, the facility will either shut down one of the two existing boilers or physically derate both existing boilers by 50%. Assuming that Source S-5 is shut down (resulting in maximum Potential to Emit), the facility will have the following facility-wide Potential to Emit after start-up of the new sources:

TABLE 1 - TOTAL FACILITY POTENTIAL TO EMIT

SOURCE	DESCRIPTION	SIZE[(1)]	UNITS	PM (lb/year)	ORG (lb/year)	NOx (lb/year)	SO2 (lb/year)	CO (lb/year)
S-5	BOILER	370,793	MM BTU/yr	0	0	0	0	0
S-6	BOILER	313,954	MM BTU/yr	2,355	1,695	9,984	188	14,128
S-7	GENERATOR	2,937	BHP	41	69	1,307	1	241
S-8	GENERATOR	2,937	BHP	41	69	1,307	1	241
S-9	GENERATOR	3,604	BHP	33	79	1,492	2	355
S-10	GENERATOR	3,604	BHP	33	79	1,492	2	355
S-11	GENERATOR	3,604	BHP	33	79	1,492	2	355
S-12	BOILER	214,567	MM BTU/yr	2,146.20	341.64	2,102.40	359.16	7,796.40
S-13	BOILER	214,567	MM BTU/yr	2,146.20	341.64	2,102.40	359.16	7,796.40
TOTAL LB/YR				6,827	2,752	21,278	915	31,270
TPY				3.41	1.38	10.64	0.46	15.64

(1) S-5 and S-6 size based on the greater of historical maximum throughput or highest of last three years throughput

After start-up of the new sources and reduction of the maximum potential heat input to the existing boilers by 50%, the maximum total facility-wide Potential to Emit of all criteria pollutants will be 31.52 tons per year.

Total Potential to Emit calculations for the facility are summarized in Attachment 1.

OLD BOILERS: EMISSION REDUCTIONS

Emission reduction credits for the reduction in heat input to the existing boilers are calculated using the procedures set out in Regulation 2-2-605, Emission Calculation Procedures, Emission Reduction Credits. This regulation defines the baseline period as the three year period immediately preceding the date that the application is complete. The baseline throughput is the lesser of the actual average throughput during the baseline period, or the average permitting throughput during the baseline period, if permitted by permit condition.

These boilers do not have a condition limiting natural gas throughput, so the natural gas baseline throughput is the actual average throughput during the three years immediately preceding this application, or the period November 1, 2005 through October 31, 2008. Using average actual throughput for Source S-5 (minimum impact), the contemporaneous on-site emission reductions are as follows:

TABLE 2 - CONTEMPORANEOUS ON-SITE EMISSION REDUCTIONS FROM SHUTDOWN OF S-5

	Source S-5 (lb/year)	TOTAL (tons/year)
PM	**1,051**	**0.53**
POC	**757**	**0.38**
NOx	**4,764**	**2.38**
SO2	**84**	**0.04**
CO	**4,456**	**2.23**

Baseline throughput calculations and contemporaneous reduction credit calculations are shown in Attachment 2.

CUMULATIVE EMISSION INCREASES

As shown in Table 1 above, the facility has the potential to emit more than 10 tons per year but less than 35 tons per year of NOx emissions on a pollutant-specific basis, therefore the facility is subject to NOx offsets under Regulation 2-2-302. Offsets will be provided by the District's Small Facility Banking Account at a 1.0:1.0 ratio for the new NOx emissions plus pre-existing cumulative increase, minus on-site contemporaneous on-site emission reduction credits as determined above. If the applicant chooses to meet the heat input reduction to Sources S-5 and S-6 by shutting down one of these sources, they are willing to surrender the permit for that source upon start-up of the new sources, in accordance with Regulation 2-2-302.3

Changes to the cumulative emissions inventory are as follows:

TABLE 3 - CUMULATIVE EMISSION INCREASE INVENTORY

	Current Balance (tons/yr)	Emission Increases (tons/yr)	On-Site Reductions (tons/yr)	Off-sets From DSFB (tons/yr)	New Total (tons/yr)
PM	2.27	2.24	0.53		3.98
ORG	0.59	0.53	0.38		0.74
NOx	5.65	5.65	2.38	8.92	0
SO2	0.36	0.36	0.04		0.68
CO	8.84	8.57	2.23		15.18

Since the facility will not have the potential to emit more than 100 tons per year of any criteria pollutant, the facility is not a "Major Facility" as defined in Regulation 2-1-203, and is not subject to PM10 or SO2 offsets under Regulation 2-2-303.

TOXIC POLLUTANT CALCULATIONS

Toxic air pollutants are emitted by all of the combustion sources under consideration. Because several of the pollutants emitted by the generators and boilers exceed the trigger level set in

Regulation 2, Rule 5 for such pollutants, a health risk assessment must be performed for the project.

Boiler toxic pollutant emission factors from natural gas combustion were taken from the Brian Bateman memo of 9/7/2005. Diesel particulate matter was used as a proxy for standby generator toxic emissions, and was calculated using CARB certified emission factors for the generator engines.

A summary of toxic pollutant emission factors is given in Attachment 3, and total toxic emissions are shown in Attachment 4. None of the toxic emissions exceed the acute trigger levels for the pollutants of concern.

MODELING

An ISCST3 risk screen for the four identified pollutants emitted by the boilers and generators, emitted at their respective emission release points was run using both rural and urban terrain data, using "Screen3" screening meteorological data.

TOTAL RISK

Based on operation of 50 hours per year per generator and 8,760 hours per year per boiler, total cancer risk and hazard quotients for this project are as follows:

TABLE 4 – PROJECT RISK SUMMARY

	RURAL TERRAIN OPTION NO RAINCAPS			URBAN TERRAIN OPTION NO RAINCAPS		
TOTAL RISK	***Max Cancer Risk (per million)***	***Max Chronic Non-cancer Hazard Quotient***	***Max Acute Non-Cancer Hazard Quotient***	***Max Cancer Risk (per million)***	***Max Chronic Non-cancer Hazard Quotient***	***Max Acute Non-Cancer Hazard Quotient***
RESIDENTIAL	**2.335**	**2.35E-03**	**N/A**	**1.214**	**2.35E-03**	**N/A**
NONRESIDENT	**0.233**	**3.52E-04**	**N/A**	**0.110**	**2.48E-04**	**N/A**
	MAX CANCER RISK	**MAX CHRONIC NON-CAN RISK**	**MAX ACUTE NON-CAN RISK**			
RESIDENTIAL	**2.335**	**2.35E-03**	**N/A**			
NONRESIDENT	**0.233**	**3.52E-04**	**N/A**			

Because the maximum annual cancer risk from this project is less than 10 in a million and the maximum annual chronic hazard quotient is less than 1.0, the application for an AC for the total project is acceptable under Regulation 2, Rule 5.

BACT/TBACT REVIEW

Under Regulation 2, Rule 2, any new source which results in an increase of 10 lbs/day or more of any criteria pollutant must be evaluated for adherence to BACT control technologies. Based on Table 1 above, all of the generators and boilers covered by this application emit more than 10 lbs/day of one or more criteria pollutants and must meet BACT.

For compression ignition I.C. engines with firing rates greater than 50 BHP, this means the engine must be fired on ultra-low sulfur diesel fuel (fuel oil with less than 0.0015% by weight sulfur content). BACT/TBACT also requires that the engine meet current tier standards for POC and NOx emissions, meet the more stringent of either 0.15 g/bhp-hr or the current tier standard for PM10 emissions, and meet the more stringent of 2.75 g/bhp-hr or the current tier standard for CO emissions. The proposed engines meet these requirements.

For small boilers (less than 100 MM BTU/hr), BACT requires that the fire-tube boilers meet emissions limitations of 20 ppmv at 3% oxygen, dry, for NOx, and 50 ppmv at 3% oxygen, dry, for CO, when firing natural gas. The boilers proposed in this application meet these limitations.

COMPLIANCE DETERMINATION

Generators

The generator engines in this application are covered under ministerial exemption, Chapter 2.3.1 of the BAAQMD Permit Handbook. CEQA is not triggered for emergency stand-by generators under this provision.

The engines are governed by and comply with the **California Air Resources Board's Air Toxic Control Measure for Stationary Compression Ignition Engines, CCR Title 17, Section 93115**. The explicit annual equipment usage limitation of 50 hours per year per engine except for operation under emergency conditions (Reg 9-8-330) will be included as part of the permit conditions.

The engines are also governed by and comply with the provisions of **Regulation 2, Rule 5, "New Source Review for Toxic Air Contaminants**."

The engines are exempt from emission limitations of **Regulation 9, Rule 8-301 through 9-8-305, "Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines**," since they meet the provisions of Regulation 9, Rule 8-111, (Limited Exemption for Low Usage; Operation of Less than 100 Hours per Year Exclusive of Emergency Operations).

Sulfur emissions will be controlled by the requirement that any fuel used in the engines meet California Ultra-Low Sulfur Diesel fuel content of 0.0015% bw sulfur.

The generators are required to meet NSPS requirements as set out in **40 CFR Part 60, Subpart IIIIG, Standards of Performance for Stationary Compression-Ignition Internal Combustion Engines, Set G, 2007 and Later Model Non-Fire Pump Emergency Less than 10L per Cylinder**, since the rated engine power is greater than 25 BHP. Under 40 CFR 60.4211(c), the applicant may show compliance by buying an operating an engines certified to the emission standards for new non-road CI engines for the same model year and maximum engine power in

40 CFR 89.112 (PM10 emissions less than 0.2 g/kW-hr, NMHC+NOx emissions less than 6.4 g/kW-hr, and CO emissions less than 3.5 g/kW-hr). The generators proposed in this application are certified to these emission levels.

Boilers

The boilers in this application are covered under ministerial exemption, Chapter 2.1 of the BAAQMD Permit Handbook. CEQA is not triggered for small boilers (less than 100 MM BTU/hour maximum firing rate).

The boilers are governed by and comply with **Regulation 9, Rule 7, "Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters."** The operator will have to meet the emission limitations of **Regulation 9-7-301 through 9-7-307**. This regulation requires the operator to either (1) Operate in a manner than maintains stack-gas oxygen concentrations at less than or equal to 3% by volume on a dry basis; or (2) Tune at least once every twelve months by a technician in accordance with the procedure specified in Section 9-7-604; or
(3) Meet the emission limitations specified in Sections 9-7-301, 302 or 303. With this condition, Regulation 9, Rule 7 requirements for NOx and CO control will be met.

The boilers are required to meet NSPS requirements as set out in **40 CFR Part 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units**, since the rated heat input is greater than or equal to 10 MM BTU/hour and less than or equal to 100 MM BTU/hour. The boilers will be required to meet reporting and recordkeeping requirements which are identical to the District Requirements.

CONDITIONS

Conditions #22850, setting out the operating conditions and recordkeeping requirements for operations at Sources S-7, S-8, S-9, S-10, and S-11, and Condition #24342, setting out the operating conditions and recordkeeping requirements for operations at Sources S-12 and S-13 shall be made part of the sources' Authority to Construct.

RECOMMENDATION

I recommend that an Authority to Construct be issued for the following sources:

S-7 EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLAR MODEL 3516C, 2,937 BHP
ABATED BY
A-7 CATALYZED DIESEL PARTICULATE FILTER, (MANUFACTURER TBD)

S-8 EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLAR MODEL 3516C, 2,937 BHP
ABATED BY
A-8 CATALYZED DIESEL PARTICULATE FILTER, (MANUFACTURER TBD)

*****

S-9 EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLAR MODEL 3516C HD, 3,604 BHP
ABATED BY
A-9 CATALYZED DIESEL PARTICULATE FILTER, (MANUFACTURER TBD)

S-10 EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLAR MODEL 3516C HD, 3,604 BHP
ABATED BY
A-10 CATALYZED DIESEL PARTICULATE FILTER, (MANUFACTURER TBD)

S-11 EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLAR MODEL 3516C HD, 3,604 BHP
ABATED BY
A-11 CATALYZED DIESEL PARTICULATE FILTER, (MANUFACTURER TBD)

S-12 SPACE HEAT BOILER, CLEAVER BROOKS MODEL CBLE-NTI-600-250ST, 24.5 MM BTU/HR

S-13 SPACE HEAT BOILER, CLEAVER BROOKS MODEL CBLE-NTI-600-250ST, 24.5 MM BTU/HR

By _____ **Date** _____
Catherine Fortney

COND# 22850 ----------

1. The owner/operator shall not exceed 50 hours per year per engine for reliability-related testing.
[Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3)]

2. The owner/operator shall operate each emergency standby engine only for the following purposes: to mitigate emergency conditions, for emission testing to demonstrate compliance with a District, State or Federal emission limit, or for reliability-related activities (maintenance and other testing, but excluding emission testing). Operating while mitigating emergency conditions or while emission testing to show compliance with District, State or Federal emission limits is not limited.
[Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3)]

3. The owner/operator shall operate each emergency standby engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated and properly maintained.
[Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection(e)(4)(G)(1)]

4. Records: The owner/operator shall maintain the following monthly records in a District-approved log for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit). Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.
   a. Hours of operation for reliability-related activities (maintenance and testing).
   b. Hours of operation for emission testing to show compliance with emission limits.
   c. Hours of operation (emergency).
   d. For each emergency, the nature of the emergency condition.
   e. Fuel usage for each engine(s).

   [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(4)(I), (or, Regulation 2-6-501)]

5. At School and Near-School Operation:

If the emergency standby engine is located on school grounds or within 500 feet of any school grounds, the following requirements shall apply:
The owner/operator shall not operate each stationary emergency standby diesel-fueled engine for non-emergency use, including maintenance and testing, during the following periods:

a. Whenever there is a school sponsored activity (if the engine is located on school grounds)
b. Between 7:30 a.m. and 3:30 p.m. on days when school is in session. "School" or "School Grounds" means any public or private school used for the purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in a private home(s). "School" or "School Grounds" includes any building or structure, playground, athletic field, or other areas of school property but does not include unimproved school property.

[Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(1)] or (e)(2)(B)(2)]

COND# 24342 ----------

1. Sources S-12 and S-13 shall burn only natural gas. [Basis: Regulation 9-7-113]

2. The total fuel used at Sources S-12 and S-13 shall not exceed 2,145,674 therms in any successive 12-month period. [Basis: Cumulative Increase]

3. Maximum firing rate shall not exceed 24.5 MM BTU/hour per boiler (based on HHV of the fuel) when firing natural gas. [Basis: NSPS]

4. NOx emissions from any boiler shall not exceed 20 ppmv at 3% oxygen, dry, at any firing rate when firing natural gas. [Basis: BACT; 5/13/98]

5. CO emissions from any boiler shall not exceed 50 ppmv at 3% oxygen, dry, at any firing rate when firing natural gas. [Basis: BACT; 5/13/98]

6. To demonstrate compliance with the above, the permit holder shall install and maintain a non-resettable totalizing fuel meter, unless the permit holder applies for and receives written approval from the District to use an alternative method for measuring the cumulative annual fuel usage.

7. On or before the later of January 1, 2012, or ten years after the boiler's original date of manufacture if such date was before January 1, 2012, NOx emission from any boiler shall not exceed 15 ppmv at 3% oxygen, dry, at any firing rate. [Basis: Regulation 9-7-307]

8. Permit holder shall not operate any boiler unless one of the following conditions is satisfied:
   a. The boiler is operated at less than 10% of the boiler's annual maximum rated heat capacity during the calendar year; or
   b. An inspection and tune-up on the boiler is performed at least once per calendar year by a technician in accordance with the procedure specified in Regulation 9-7-604.

   [Basis: Regulation 9-7-313]

9. Within 90 days of start-up, the applicant shall conduct an initial demonstration of compliance with the above emissions limitations. All source testing shall be done in compliance with the District's Manual of

Procedures. The applicant shall obtain approval from the Manager of the District's Source Test Section for the installation of test ports and source test procedures. The source test results shall be submitted to the District's Director of Compliance and Enforcement no later than 60 days from the date of the source test. [Basis: Regulation 9-7-403]

10. On or before start-up, the applicant shall physically limit the emissions from Sources S-5 and S-6 by 50%, either by removing one of the sources from operation, or by installing a physical orifice capable of restricting gas flow to the boilers by 50%, or by other means mutually acceptable to the applicant and the District. If such emissions reduction is not completed on or before start-up, the applicant shall submit a new application for establishment of the facility as a Major Facility as set out in Regulation 2, Rule 6, and Title V of the Federal Clean Air Act. [Basis: Regulation 2-2-314; Regulation 2-6-301; 40 CFR 51.165]

11. On or before the later of January 1, 2012, or ten years after the boiler's original date of manufacture if such date was prior to January 1, 2012, the permit holder must initiate periodic emissions testing of each boiler at least once every two years. Such testing may be conducted either by source testing performed in accordance with the District's Manual of Procedures, or by use of a portable analyzer that meets the specifications and testing protocols set out in Regulation 9, Rule 7, Attachment 1. [Basis: Regulation 9-7-506]

12. The permit holder shall maintain records of the following:
    a. Total monthly natural gas usage, and dates and times of such usage for each boiler;
    b. Documentation verifying tune-ups performed in accordance with paragraph 8(b) above;
    c. The results of any testing required under paragraphs 9 and 10 above.

    Such records shall be retained for at least two years from date of entry and shall be made available to District staff upon request. [Basis: Regulation 9-7-503; Regulation 1-1-441, Cumulative Increase]

BAAQMD OFFSET REGULATIONS

2-2-302 **Offset Requirements, Precursor Organic Compounds and Nitrogen Oxides, NSR:** Except as provided by Sections 2-2-313 or 421, before the APCO may issue an authority to construct or a permit to operate for a new or modified source at a facility which emits 35 tons per year or more or will be permitted to emit 35 tons per year or more, on a pollutant specific basis, of precursor organic compounds or nitrogen oxides, federally enforceable emission offsets shall be provided, for the emission from the new or modified source and any pre-existing cumulative increase, minus any onsite contemporaneous emission reduction credits determined in accordance with Section 2-2-605, at a 1.15 to 1.0 ratio; additionally, the applicant must reimburse the District Small Facility Banking Account for any unreimbursed offsets previously provided by the District, at a 1.0 to 1.0 ratio. Before the APCO may issue an authority to construct or a permit to operate for a new or modified source at a facility which emits or will be permitted to emit more than 10 tons per year but less than 35 tons per year, on a pollutant specific basis, of precursor organic compounds or nitrogen oxides, emission offsets shall be provided, by the District (or by the applicant, if the Small Facility Banking account has been exhausted) at a 1.0 to 1.0 ratio for the emission from the new or modified source and any pre-existing cumulative increase, minus any onsite contemporaneous emission reduction credits determined in accordance with Section 2-2-605, from the Small Facility Banking account in the District's Emissions Bank in accordance with the provisions of Regulations 2-4-414. The APCO shall determine the total facility emissions, on a pollutant specific basis, by adding the emissions from the proposed new or modified source(s) to the most recent District Emissions Inventory, adjusted for any errors and adjusted upward for any permitted levels of emissions not currently being emitted.

302.1 Deleted May 17, 2000

302.2 Emission reduction credits of precursor organic compounds may be used to offset increased emissions of nitrogen oxides at the offset ratio specified above in Section 2-2-302, provided that the PSD requirements of Section 2-2-304, if applicable, are met.

302.3 Reimbursement of the small facility bank may be provided by adjusting the cumulative increase calculated for the application for which small facility bank credits were originally provided. An adjustment may be made under the following circumstances: the applicant accepts an enforceable permit condition limiting emissions to a lower level than approved in the permit in question, or the applicant surrenders the permit.

(Amended 11/20/91; 6/15/94; 10/7/98; 5/17/00; 12/21/04)

2-2-303 **Offset Requirement, PM_{10} and Sulfur Dioxide, NSR:** Except as provided by Section 2-2-421, before the APCO may issue an authority to construct or a permit to operate for a new or modified source, of PM10 or sulfur dioxide located at a Major Facility, which will result in a cumulative increase minus any contemporaneous emission reduction credits at the facility, for that pollutant, in excess of 1.0 ton per year since April 5, 1991, emission offsets shall be provided, for the emission from the new or modified source and any pre-existing cumulative increase, minus any onsite contemporaneous emission reduction credits determined in accordance with Section 2-2-605, at a 1.0:1.0 ratio or at a ratio, approved by the APCO, in accordance with subsection 2-2-303.1.

303.1 Emission reduction credits of nitrogen oxides and/or sulfur dioxide may be used to offset increased emissions of PM_{10} at offset ratios determined by the APCO to result in a net air quality benefit. This determination shall be made after a case-by-case analysis that includes adequate modeling, public notice and opportunity for public comment, and EPA concurrence.

A facility which emits less than 100 tons of any pollutant, subject to this section, may voluntarily provide emission offsets for all, or any portion, of their cumulative increase, at the ratio required above.

ATTACHMENT 1
FACILITY-WIDE POTENTIAL TO EMIT

							PM10	ORG	NOX	SO2	CO
SOURCE	S CODE	SOURCE DESCRIPTION	THRUPUT	UNITS	COND	APPLIC	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)
5	C1030189	Boiler #1	1,159,036	MM BTU/yr	11103	13276	8,693	6,259	39,407	695	37,089
NEW SOURCES											
							PM10	ORG	NOX	SO2	CO
SOURCE	S CODE	SOURCE DESCRIPTION	THRUPUT	UNITS	COND	APPLIC	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)
7	C2250098	Stand-By Diesel Generator	50	hr/year	22850	20357	41.041	68.805	1307.286	1.457	241.419
8	C2250098	Stand-By Diesel Generator	50	hr/year	22850	20357	41.041	68.805	1307.286	1.457	241.419
9	C2250098	Stand-By Diesel Generator	50	hr/year	22850	20357	32.587	78.505	1491.600	1.833	355.496
10	C2250098	Stand-By Diesel Generator	50	hr/year	22850	20357	32.587	78.505	1491.600	1.833	355.496
11	C2250098	Stand-By Diesel Generator	50	hr/year	22850	20357	32.587	78.505	1491.600	1.833	355.496
12	C1340189	Space Heat Boiler	214567	MM BTU/yr	24342	20357	2,146.20	341.64	2,102.40	359.16	7,796.40
13	C1340189	Space Heat Boiler	214567	MM BTU/yr	24342	20357	2,146.20	341.64	2,102.40	359.16	7,796.40
					TOTAL	LB/YEAR	13,165	7,315	50,701	1,422	54,231
						TPY	6.58	3.66	25.35	0.71	27.12
				TOTAL	TOTAL FACILITY PTE =		63.42	TPY			
Reg 2-2-302	>10 and < 35 TPY of NOx or POC, must provide for offsets at a 1.0:1.0 ratio										
Reg 2-2-303	Not a Major Facility since no single criteria pollutant emissions > 100 TPY										

ATTACHMENT 2
BASELINE THROUGHPUT CALCULATIONS AND CALCULATION OF CONTEMPORANEOUS ON-SITE EMISSION REDUCTIONS

ACTUAL NATURAL GAS USAGE RATES AT EXISTING BOILER					
	Period Ending	Period Ending	Period Ending		
	10/31/08	10/31/07	10/31/06	Average	Average
Source #	(MCF)	(MCF)	(MCF)	MCF/Year	MM BTU/year
S-5	307,798	236,868	241,026	261,897	267,135

SOURCE TEST DATA FOR EXISTING BOILER						
			Corrected Concentration		Emission Factor	
		Firing Rate	(ppmv at 3% O2)		(lb/MM BTU)	
Source #	Test Date	(MM BTU/hr)	NOx	CO	NOx	CO
S-5	3/1/1997	132.31	26.3	60.8	0.0318	0.045

CONTEMPORANEOUS ON-SITE EMISSION REDUCTIONS FROM EXISTING BOILER				
		SOURCE S-5		TOTAL
	Basis	(lb/MM BTU)	(lb/year)	(tons/year)
PM	AP-42, Table 1.4-2	0.0075	995	0.50
POC	AP-42, Table 1.4-2	0.0054	720	0.36
NOx	Source Test Data	0.0320	4,274	2.14
SO2	AP-42, Table 1.4-2	0.0006	79	0.04
CO	Source Test Data	0.0450	6,011	3.01

ENGINEERING EVALUATION REPORT

Plant Name:	**San Francisco General Hospital**
Application Number:	**24417**
Plant Number:	**3974**

BACKGROUND

The applicant is applying for Permits to Operate following loss of exemption for three existing Emergency Standby- Diesel Generator Sets following loss of exemption for such engines on September 1, 2001.

The applicant is requesting Permits to Operate for the following equipment:

S-14 Emergency Stand-By Diesel Generator Set; Detroit Diesel Model 12V17, 497 BHP

S-15 Emergency Stand-By Diesel Generator Set; John Deere Model 6466A, 228 BHP

S-16 Emergency Stand-By Diesel Generator Set; Caterpillar Model 3412, 749 BHP

CRITERIA POLLUTANT EMISSIONS CALCULATIONS

Emission factors for all criteria pollutants for the engines except PM10 and SO2 were taken from AP 42, Table 3.3-1 for Sources S-14 and S-15, and AP 42, Table 3.4-1 for Source S-16. PM10 emission factors were taken from the Internal Policy Memo signed by Brian Bateman, dated January 9, 2006. SO2 emission factors were based on stoichiometric conversion of the total sulfur in the gasoline based on the CARB limitation of 0.0015% by weight sulfur fuel, and the manufacturers' listed diesel fuel consumption of each engine. The emission factors used are as follows:

Source(s)	S-14	S-15	S-16
EPA Engine Family	N/A	N/A	N/A
CARB Executive Order	N/A	N/A	N/A
PM10 (lb/bhp-hr)	1.46E-03	1.46E-03	1.39E-03
POC (lb/bhp-hr)	2.47E-03	2.47E-03	7.05E-04
NOx (lb/bhp-hr)	3.10E-02	3.10E-02	2.40E-02
SO2 (lb/bhp-hr)	7.49E-06	1.05E-05	1.09E-05
CO (lb/bhp-hr)	6.68E-03	6.68E-03	5.50E-03

The applicant requested operation at 20 hours per year per engine, which is consistent with the California Air Resources Board Air Toxic Control Measure for Stationary Compression Ignition Engines, 17 CFR 93115, (December 4, 2004). At a 20 hours per year per engine testing and maintenance limitation, criteria emissions are as follows:

TABLE 1 – CRITERIA POLLUTANT EMISSIONS

SOURCE	BHP	PM10 LB/BHP-HR	POC LB/BHP-HR	NOX LB/BHP-HR	SOX LB/BHP-HR	CO LB/BHP-HR
S-14	497	1.46E-03	2.47E-03	3.10E-02	7.49E-06	6.68E-03
S-14 LB/DAY		17.36	29.46	369.77	0.09	79.68
S-14 LB/YEAR		14.46	24.55	308.14	0.07	66.40
S-15	228	1.46E-03	2.47E-03	3.10E-02	1.05E-05	6.68E-03
S-15 LB/DAY		7.96	13.52	169.63	0.06	36.55
S-15 LB/YEAR		6.63	11.26	141.36	0.05	30.46
S-16	749	1.39E-03	7.05E-04	2.40E-02	1.09E-05	5.50E-03
S-16 LB/DAY		24.97	12.67	431.42	0.20	98.87
S-16 LB/YEAR		20.81	10.56	359.52	0.16	82.39
TOTAL LB/YEAR		41.9	46.4	809.0	0.3	179.3
TOTAL TPY		0.021	0.023	0.405	1.43E-04	0.090

OFFSETS

Since these engines are being permitted under loss of exemption provisions, and are not new sources as defined in Regulation 2-1-232, they are not subject to offsets under Regulation 2, Rule 2.

CUMULATIVE EMISSIONS INCREASE

Since these engines are being permitted under loss of exemption provisions, and are not new sources as defined in Regulation 2-1-232, there is no change to the facility's existing emissions inventory.

TOXIC RISK MODELING

Since these engines were first operated before May 2000 and are being permitted under loss of exemption provisions, they are not subject to toxic risk health risk assessment under Regulation 2, Rule 5.

BACT/TBACT REVIEW

Since these engines are being permitted under loss of exemption provisions, and are not new sources as defined in Regulation 2-1-232, they are not subject to BACT/TBACT requirements under Regulation 2, Rule 2.

PUBLIC NOTIFICATION REQUIREMENTS

Since the proposed generator sets are not new sources are defined in Regulation 2-1-232, they are not subject to Public Notice requirements under Section 42301.6 of the California Health and Safety Code.

COMPLIANCE DETERMINATION

The generators are covered under ministerial exemption, Chapter 2.3.1 of the BAAQMD Permit Handbook. CEQA is not triggered for emergency standby generators under this provision.

The generators are governed by and comply with the **California Air Resources Board's Air Toxic Control Measure for Stationary Compression Ignition Engines, CCR Title 17, Section 93115**. The explicit annual equipment usage limitation of 20 hours per year per generator except for operations under emergency conditions will be included as part of the sources' permit conditions.

The generators are exempt from the emission limitations of **Regulation 9, Rule 8-305, 8-501**, and **8-503**, since they meet the provisions of **Regulation 9, Rule 8-110.5, "Exemptions: Emergency Standby Engines**."

The generators are required to meet NSPS requirements as set out in **40 CFR Part 60, Subpart IIIIG, Standards of Performance for Stationary Compression-Ignition Internal Combustion Engines, Set G, 2007 and Later Model Non-Fire Pump Emergency Less than 10L per Cylinder**, since the rated engine power is greater than 25 BHP. Under **40 CFR 60.4211(c)**, the applicant may show compliance by buying and operating engines certified to the emission standards for new non-road CI engines for the same model year and maximum engine power in **40 CFR 89.112** and **40 CFR 89.113** (PM10 emissions less than 0.2 g/kW-hr, NMHC+NOx emissions less than 6.4 g/kW-hr, and CO emissions less than 3.5 g/kW-hr). The generators proposed in this application are certified to these emission levels.

Visible emissions from Sources S-14 and S-15 will be required to meet Ringelmann 2 limitation per **Regulation 6-303.1**. Visible emissions from Source S-16 will be required to meet Ringelmann 1 limitation per **Regulation 6-301**.

Sulfur emissions will be controlled by the requirement that any fuel used in the engines meet California Clean Air fuel content of 0.0015% bw sulfur, as required by the **California Air Resources Board's Air Toxic Control Measure for Stationary Compression Ignition Engines, CCR Title 17, Section 93115**.

CONDITIONS

Condition #22820, setting out the operating conditions and recordkeeping requirements for operations at Sources S-14, S-15, and S-16 shall be made part of the sources' authority to construct/permits to operate.

RECOMMENDATION

The proposed project is expected to comply with all applicable requirements of District, State, and Federal air quality related regulations. I recommend that the District waive an Authority to Construct, and issue Permits to Operate for the following sources:

S-14 Emergency Stand-By Diesel Generator Set; Detroit Diesel Model 12V17, 497 BHP

S-15 Emergency Stand-By Diesel Generator Set; John Deere Model 6466A, 228 BHP

S-16 Emergency Stand-By Diesel Generator Set; Caterpillar Model 3412, 749 BHP

subject to Condition #22820.

By _____ **Date** _____

Catherine S. Fortney

COND# 22820 ----------

1. The owner/operator shall not exceed 20 hours per year per engine for reliability-related testing.
[Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3)]

2. The owner/operator shall operate each emergency standby engine only for the following purposes: to mitigate emergency conditions, for emission testing to demonstrate compliance with a District, State or Federal emission limit, or for reliability-related activities (maintenance and other testing, but excluding emission testing). Operating while mitigating emergency conditions or while emission testing to show compliance with District, State or Federal emission limits is not limited.
[Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3)]

3. The owner/operator shall operate each emergency standby engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated and properly maintained.
[Basis: "Stationary Diesel Engine ATCM" section 93115,title 17, CA Code of Regulations,subsection(e)(4)(G)(1)]

4. Records: The owner/operator shall maintain the following monthly records in a District-approved log for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit). Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.
   a. Hours of operation for reliability-related activities (maintenance and testing).
   b. Hours of operation for emission testing to show compliance with emission limits.
   c. Hours of operation (emergency).
   d. For each emergency, the nature of the emergency condition.
   e. Fuel usage for each engine(s).

[Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(4)(I), (or, Regulation 2-6-501)]

5. At School and Near-School Operation:
If the emergency standby engine is located on school grounds or within 500 feet of any school grounds, the following requirements shall apply:
The owner/operator shall not operate each stationary emergency standby diesel-fueled engine for non-emergency use, including maintenance and testing, during the following periods:
   a. Whenever there is a school sponsored activity (if the engine is located on school grounds)
   b. Between 7:30 a.m. and 3:30 p.m. on days when school is in session.

"School" or "School Grounds" means any public or private school used for the purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in a private home(s). "School" or "School Grounds" includes any building or structure, athletic field, or other areas of school property but does not include unimproved school property.
[Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(1)] or (e)(2)(B)(2)]

ATTACHMENT 1 – FACILITY-WIDE POTENTIAL TO EMIT

SOURCE	S CODE	SOURCE DESCRIPTION	THRUPUT	UNITS	APPLIC	COND	PM10 (lb/yr)	POC (lb/yr)	NPOC (lb/yr)	NOX (lb/yr)	SO2 (lb/yr)	CO (lb/yr)
5	C1340189	Space Heat Boiler[1]	132.3	MMBTU/hr	13276	11103	8635.82	6249.61	3522.51	7032.92	1078.80	42816.45
6	C1340189	Space Heat Boiler[1]	132.3	MMBTU/hr	13276	11103	8635.82	6249.61	3522.51	7032.92	1078.80	42816.45
14	C22BG098	Standby Diesel Generator[3]	497	bhp	24417	22820	14.46	24.55		308.14	0.07	66.40
15	C22BG098	Standby Diesel Generator[3]	228	bhp	24417	22820	6.63	11.26		141.36	0.05	30.46
16	C22BG098	Standby Diesel Generator[3]	749	bhp	24417	22820	20.81	10.56		359.52	0.16	82.39
					TOTAL	LB/YEAR	17,286	12,524	7,045	14,374	2,158	85,699
						TPY	8.64	6.26	3.52	7.19	1.08	42.85
				FACILITY TOTAL =			69.54					

[1] Excluding diesel back-up fuel usage

[2] Based on Regulation 9, Ruel 7-307.5 limits of 9 ppmv NOx,and BACT limitations of 50 ppmv CO

[3] Limited to 20 hours per year operation; 0.0015 ppm sulfur fuel