

Bay Area Air Quality Management District

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April 9, 2012

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

MAJOR FACILITY REVIEW PERMIT

for

**San Francisco International Airport
Facility #A1784**

Facility Address:

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Application: 18948

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Title V Statement of Basis

A. Background

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Title 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a major facility as defined by BAAQMD Regulation 2-6-212. It is a major facility because it has the “potential to emit” (as defined by BAAQMD Regulation 2-6-218) more than 100 tons per year of a regulated air pollutant.

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70 as contained in BAAQMD Regulation 2, Rule 6. The permits must contain all “applicable requirements” (as defined in BAAQMD Regulation 2-6-202), monitoring requirements, recordkeeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

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

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 A1784.

This facility received its initial Title V permit on April 14, 2004. This application is for a permit renewal. Although the current permit expired on March 31, 2009, it continues in force until the District takes final action on the permit renewal. The proposed permit shows all changes to the permit in strikeout/underline format.

B. Facility Description

The San Francisco International Airport is an airport facility where aircraft can land and take off, equipped with hangars, facilities for refueling and repair, and accommodations for passengers. In addition to the airport, the facility has a wastewater treatment facility and numerous emergency diesel generators to provide power in the event of a power outage. The main sources of emissions are boilers, emergency generators, and the small sewage treatment plant.

Emissions changes since the initial Title V permit are shown in the following table.

Application-Description	Potential to Emit, Tons/year				
	Organic	NOx	CO	PM	SO2
11596-Standby Diesel Generators S-640 & S-650 (August 2005)	0.037	0.544	0.116	0.012	0.059
12555-Standby Diesel Generators S-660 (July 2005)	0.022	0.394	0.071	0.014	0.010
15044-Gasoline Bulk Loading Operation (October 2006)	0.791	0	0	0	0
21138-Boilers S-12, S-13, S-14, S-15 (August 2010)	0.742	5.019	24.975	1.401	0.134
21458-Standby Diesel Generators S-680 & S-710. (June 2010)	0.011	0.213	0.059	0.006	0
21514- Standby Diesel Generators S-690 & S-700. (May 2010)	0.008	0.160	0.022	0.003	0
23441- Boilers S-16, S-17. (October 2011)	0.146	1.334	4.487	0.607	0.073
Total Emissions Increase	1.757	7.664	29.730	2.043	0.276

C. Permit Content

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

I. Standard Conditions

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

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

Changes to permit:

1. The dates of adoption and approval of rules in Standard Condition 1.A have been updated.
2. SIP Regulation 2, Rule 6 - Permits, Major Facility Review have been added to Standard Condition 1.A.
3. The following language was added to Standard Condition I.B.1: “If the permit renewal has not been issued by [date the renewed permit expires], but a complete application for renewal has been submitted in accordance with the above deadlines, the existing permit will continue in force until the District takes final action on the renewal application.” This is the “application shield” pursuant to BAAQMD Regulation 2-6-407.
4. The following language was added as Standard Condition I.B.12: “The permit holder is responsible for compliance, and certification of compliance, with all conditions of the permit, regardless whether it acts through employees, agents, contractors, or subcontractors. (Regulation 2-6-307).” The purpose is to reiterate that the Permit Holder is responsible for ensuring that all activities at the facility comply with all applicable requirements.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S24 or S-24).

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

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

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., A24 or A-24). If a source is also an abatement device, such as when an engine controls VOC emissions, it will be listed in the abatement device table but will have an “S” number. An abatement device may also be a source (such as a thermal oxidizer that burns fuel) of secondary emissions. If the primary function of a device is to control emissions, it is considered an abatement (or “A”) device. If the primary function of a device is a non-control function, the device is considered to be a source (or “S”).

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

Each of the permitted sources has previously been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. These permits are issued in accordance with state law and the District’s regulations. The capacities in the permitted sources table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-403.

Following are explanations of the differences in the equipment list between the time that the facility originally applied for a Title V permit and the permit proposal date:

Devices Removed from Service or Archived since Application was submitted:

- S-7 High Temperature Hot Water Generator
- S-11 High Temperature Hot Water Generator
- S-12 High Temperature Hot Water Generator
- S-13 High Temperature Hot Water Generator
- S-280 Diesel Generator
- S-300 Emergency Diesel Generator
- S-310 Emergency Diesel Generator
- S-370 Emergency Diesel Generator

Devices Permitted since Application was submitted:

- S-14 High Temperature Hot Water Generator
- S-15 High Temperature Hot Water Generator
- S-16 High Temperature Hot Water Generator
- S-17 High Temperature Hot Water Generator
- S-20 Gasoline Dispensing Station
- S-21 Underground Gasoline Tank
- S-22 Gasoline Bulk Plant
- S-640 Emergency Diesel Generator
- S-650 Emergency Diesel Generator
- S-660 Emergency Diesel Generator
- S-670 Emergency Diesel Generator
- S-680 Emergency Diesel Generator
- S-690 Emergency Diesel Generator
- S-700 Emergency Diesel Generator
- S-710 Emergency Diesel Generator

Devices with Changed Permit Status:

- S-560 Portable Emergency Diesel Generator
- S-570 Portable Emergency Diesel Generator
- S-580 Portable Emergency Diesel Generator
- S-590 Portable Emergency Diesel Generator
- S-600 Portable Emergency Diesel Generator
- S-610 Portable Emergency Diesel Generator
- S-620 Portable Emergency Diesel Generator
- S-630 Portable Emergency Diesel Generator

By Regulation 2 Permits, Rule 6 Major Facility Review, Section 114 Exemption, Non-Road Engines: Engines as defined by 40 CFR Part 89 are exempt from Major Facility Review requirements. S-560 through S-630 IC Engines are non-road engines as defined by 40 CFR Part 89:

Nonroad engine is defined as any internal combustion engine, in or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers); or in or on a piece of equipment that is intended to be

propelled while performing its function (such as lawnmowers and string trimmers); or that, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.

An internal combustion engine is not a nonroad engine, if the engine remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation.

District permit applications included in this proposed permit:

Application #	Project Description	Title V Revision
11596	Standby Diesel Generators S-640 & S-650	Minor Revision
11963	Standby Diesel Generators S-670	Minor Revision
12555	Standby Diesel Generators S-660	Minor Revision
15044	Gasoline Bulk Loading Operation	Minor Revision
21138	Boilers S-12, S-13, S-14, S-15	Minor Revision
21458	Standby Diesel Generators S-680 & S-710.	Minor Revision
21514	Standby Diesel Generators S-690 & S-700.	Minor Revision
23441	Boilers S-16, S-17.	Minor Revision

Corrections to Devices Shown in Application.

Miscellaneous corrections and updates are included in the equipment list.

Changes to permit:

Source Number	Description	Permit Action	Application #	Comments
7	High Temperature Hot Water Generator	Deleted	21138	Removed from service 5/10/2010. Replaced by S-14
11	High Temperature Hot Water Generator	Deleted	21138	Removed from service 6/7/2008. Replaced by S-15
12	High Temperature Hot Water Generator	Deleted	23441	Removed from service 12/30/2010. Replaced by S-16
13	High Temperature Hot Water Generator	Deleted	23441	Removed from service 5/19/2011. Replaced by S-17
14	High Temperature Hot Water Generator	Added	21138	District Permit to Operate issued 9/28/2010
15	High Temperature Hot Water Generator	Added	21138	District Permit to Operate issued 9/28/2010
16	High Temperature Hot Water Generator	Added	23441	District Authority to Construct granted 10/12/2011
17	High Temperature Hot Water Generator	Added	23441	District Authority to Construct granted 10/12/2011
20	Gasoline Dispensing Station	Added	15044	District Permit to Operate issued 10/4/2006

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Source Number	Description	Permit Action	Application #	Comments
21	Underground Gasoline Tank	Added	15044	District Permit to Operate issued 10/4/2006
22	Gasoline Bulk Plant, Fireboat Refueling Trucks	Added	15044	District Permit to Operate issued 10/4/2006
280	Emergency Diesel Generator	Deleted	21514	On-site Credit used for S-690 and S-700 approved 5/17/2010.
300	Emergency Diesel Generator	Deleted	N/A	Removed from service prior to 2000
310	Emergency Diesel Generator	Deleted	21458	On-site Credit used for S-680 and S-710. Authority to Construct granted 6/1/2010.
350	Emergency Diesel Generator	Added	N/A	Exempt from permitting, Regulation 2-1-114.2.1
370	Emergency Diesel Generator	Deleted	21458	On-site Credit used for S-680 and S-710. Authority to Construct granted 6/1/2010.
560	Emergency Generator (diesel fuel) Portable	Moved to Table II D	N/A	Exempt from Title V permitting, Regulation 2-6-113
570	Emergency Generator (diesel fuel) Portable	Moved to Table II D	N/A	Exempt from Title V permitting, Regulation 2-6-113
580	Emergency Generator (diesel fuel) Portable	Moved to Table II D	N/A	Exempt from Title V permitting, Regulation 2-6-113
590	Emergency Generator (diesel fuel) Portable	Moved to Table II D	N/A	Exempt from Title V permitting, Regulation 2-6-113
600	Emergency Generator (diesel fuel) Portable	Moved to Table II D	N/A	Exempt from Title V permitting, Regulation 2-6-113
610	Emergency Generator (diesel fuel) Portable	Moved to Table II D	N/A	Exempt from Title V permitting, Regulation 2-6-113
620	Emergency Generator (diesel fuel) Portable	Moved to Table II D	N/A	Exempt from Title V permitting, Regulation 2-6-113
630	Emergency Generator (diesel fuel) Portable	Moved to Table II D	N/A	Exempt from Title V permitting, Regulation 2-6-113
640	Emergency Generator (diesel fuel) SPOE	Added	11596	District Permit to Operate issued 8/4/2005.
650	Emergency Generator (diesel fuel) Concourse H	Added	11596	District Permit to Operate issued 8/4/2005.
660	Emergency Generator (diesel fuel) Water Quality Control Plant	Added	12555	District Permit to Operate issued 7/28/2005.
670	Emergency Generator (diesel fuel) Singapore Airlines Cargo	Added	11963	Permitted by Singapore Airlines Cargo Plant 16861 (B6861). District permit issued 5/5/2005. Merged into Facility A1784 4/27/2009.
680	Emergency Generator (diesel fuel)	Added	21458	District Authority to Construct granted 6/1/2010.
690	Emergency Generator (diesel fuel)	Added	21514	District Permit to Operate issued 5/17/2010.
700	Emergency Generator (diesel fuel)	Added	21514	District Permit to Operate issued 5/17/2010.
710	Emergency Generator (diesel fuel)	Added	21458	District Authority to Construct granted 6/1/2010.

III. Generally Applicable Requirements

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

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

Changes to permit:

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

- BAAQMD Regulation 2, Rule 2, Permits, New Source Review
- SIP Regulation 2, Rule 2, Permits, New Source Review
- BAAQMD Regulation 2, Rule 4, Permits, Emissions Banking
- SIP Regulation 2, Rule 4, Permits, Emissions Banking
- BAAQMD Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants
- BAAQMD Regulation 2, Rule 6, Permits, Major Facility Review
- SIP Regulation 2, Rule 6, Permits, Major Facility Review
- BAAQMD Regulation 3, Fees
- SIP Regulation 3, Fees
- BAAQMD Regulation 6, Particulate Matter and Visible Emissions has been designated as SIP Regulation 6, since the rule has been renamed and renumbered as Regulation 6, Rule 1, Particulate Matter, General Provisions
- BAAQMD Regulation 8, Rule 2, Miscellaneous Operations
- SIP Regulation 8, Rule 2, Miscellaneous Operations
- BAAQMD Regulation 8, Rule 4, General Solvent and Surface Coating Operations
- BAAQMD Regulation 8, Rule 16, Solvent Cleaning Operations
- SIP Regulation 8, Rule 16, Solvent Cleaning Operations
- SIP Regulation 8, Rule 40 Aeration of Contaminated Soil and Removal of Underground Storage Tanks
- BAAQMD Regulation 8, Rule 47, Air Stripping and Soil Vapor Extraction Operations
- BAAQMD Regulation 9, Rule 1, Inorganic Gaseous Pollutants, Sulfur Dioxide
- SIP Regulation 9, Rule 1, Inorganic Gaseous Pollutants, Sulfur Dioxide
- California Health and Safety Code Section 41750 et seq., Portable Equipment
- California Health and Safety Code Title 17 Section 93115 et seq., Airborne Toxic Control Measure for Stationary Compression Ignition Engines

- California Health and Safety Code Title 17, Section 93116 et seq., Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater
- 40 CFR Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
- 40 CFR Part 82, Subpart E, The Labeling of Products Using Ozone-Depleting Substances

The dates of adoption or approval of the rules and their “federal enforceability” status in Table III have also been updated.

IV. Source-Specific Applicable Requirements

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

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

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

Applicability of State and Federal Regulations to Compression Ignition Internal Combustion Engines.

This facility operates over 30 sources that are back-up emergency generators driven by Diesel engines. In addition to the District regulations applicable to these sources (Regulation 6, Rule 1 - Particulate Matter, General Requirements, Regulation 9, Rule 1 - Inorganic Gaseous Pollutants - Sulfur Dioxide, and Regulation 9, Rule 8 - Inorganic Gaseous Pollutants, NOx and CO from Stationary IC Engines), the following state and federal regulations are potentially applicable to any stationary compression ignition engine at this facility:

- California Air Resource Board (CARB) Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines -- CCR, Title 17, Section 93115.
- NSPS for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60 Subpart III.
- NESHAPS for Stationary Reciprocating Internal Combustion Engines, 40 CFR 63 Subpart ZZZZ

These engines are referred to in several ways: IC engines or ICE (Internal Combustion, which also includes spark ignited engines), CI engines (Compression Ignition - Diesel fuel specific), and RICE (Reciprocating Internal Combustion Engines, also includes spark ignition engines). The applicability of these regulations and the requirements for each engine depend on the type of facility (major source or area source), the year the source was placed in service, the model year of the engine, the power rating of the engine and the displacement of the engine. The following table summarizes the pertinent data for the engines at this facility based on the District records. Most of the engines were initially exempt from permitting when placed in service. Since the initial operation, owner/operators of engines with power ratings equal to or greater than 50 HP, that were brought on site before September 1, 2001, lost their exemption from permitting. These engines are referred to Loss of Exemption (LOE) engines. When these LOE engines were permitted, detailed engine information such as Displacement or Engine Model Year was not required.

San Francisco International Airport Facility A1784 Diesel Engine Summary

Source	HP (kW)	Year Placed in Service	Displacement cu in (liters)	Engine Model Year
270	1850	1986	3067	N/A (LOE)
290	2172	Before 5/2000	N/A (LOE)	N/A (LOE)
320	2220	Before 5/2000	N/A (LOE)	N/A (LOE)
330	2220	Before 5/2000	N/A (LOE)	N/A (LOE)
340	1850	Before 5/2000	N/A (LOE)	N/A (LOE)
350	46	Before 5/2000	N/A (Exempt)	N/A (Exempt)
360	380	Before 5/2000	N/A (LOE)	N/A (LOE)

Source	HP (kW)	Year Placed in Service	Displacement cu in (liters)	Engine Model Year
380	166	Before 5/2000	N/A (LOE)	N/A (LOE)
390	605	Before 5/2000	N/A (LOE)	N/A (LOE)
400	600	Before 5/2000	N/A (LOE)	N/A (LOE)
410	434	Before 5/2000	N/A (LOE)	N/A (LOE)
420	900	Before 5/2000	N/A (LOE)	N/A (LOE)
430	605	Before 5/2000	N/A (LOE)	N/A (LOE)
440	2220	Before 5/2000	N/A (LOE)	N/A (LOE)
450	2220	Before 5/2000	N/A (LOE)	N/A (LOE)
460	750	Before 5/2000	N/A (LOE)	N/A (LOE)
470	700	Before 5/2000	N/A (LOE)	N/A (LOE)
480	380	Before 5/2000	N/A (LOE)	N/A (LOE)
490	630	Before 5/2000	N/A (LOE)	N/A (LOE)
500	830	Before 5/2000	N/A (LOE)	N/A (LOE)
510	750	Before 5/2000	N/A (LOE)	N/A (LOE)
520	238	Before 5/2000	N/A (LOE)	N/A (LOE)
530	165	Before 5/2000	N/A (LOE)	N/A (LOE)
540	150	Before 5/2000	N/A (LOE)	N/A (LOE)
550	165	Before 5/2000	N/A (LOE)	N/A (LOE)
640	395	10/2002	661	2002
650	1620	10/1999	3067	2000
660	2220	2/9/2004	3067	2003
670**	755 (563)	5/1/1998	1150	2002
680	1119 (835)	6/1/2010*	1458 (23.9)	2009
690	757 (565)	02/2010	984 (16.1)	2009
700	757 (565)	02/2010	984 (16.1)	2009
710	1119 (835)	6/1/2010*	1458 (23.9)	2009

* date that the Authority to Construct was granted

** S-670 was initially owned and permitted by Singapore Airlines.

LOE = permitted as a Loss of Exemption

A. ATCM.

Since the issuance of the initial Title V permit, the California Air Resource Board (CARB) adopted and amended an Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (<http://www.arb.ca.gov/diesel/documents/FinalReg2011.pdf>). The non-federally enforceable requirements of the ATCM apply to all engines greater than 50 bhp and have been included in this Title V renewal permit. The emission standards applicable to the engines at this

facility depend on whether the engine is a prime or emergency standby engine, whether the engine drives fire pump (a pump that provides emergency firewater), and whether the source is a new or in-use engine.

All engines at this facility are emergency standby engines. None of the engines at this facility are fire pumps. Therefore, the applicable standards are contained in § 93115.6 ATCM for Stationary CI Engines – Emergency Standby Diesel-Fueled CI Engine (>50 bhp) Operating Requirements and Emission Standards.

A new engine is defined in § 93115.4(50) as one that was installed after January 1, 2005. Therefore, all engines at this facility are in-use engines except S-680, S-690, S-700 and S-710. The applicable standards for S-680, S-690, S-700 and S-710 engines are contained in § 93115.6(a). The applicable standards for the in-use engines are contained in § 93115.6(b).

The requirements for new engines are included in § 93115.6(a). The emission standards of §93115.6(a)(3)(A)(1)(a) and (c), and § 93115.6(a)(3)(B), and are summarized below:

- Diesel PM – General Requirements
 - 93115.6(a)(3)(A)1.a Meet 0.15 g/bhp-hr PM standard
 - 93115.6(a)(3)(A)1.c Operate 50 hours per year, or less, for maintenance and testing (except emergency use and emissions testing)
- HC,NO_x, NMHC+NO_x, CO
 - 93115.6(a)(3)(B) Meet standards for off-road engines of the same model year and horsepower rating as specified in the OFF-Road Compression Ignition Engine Standards; Or if no standards have been established, meet the Tier 1 standards in Title 13, CCR, Section 2423 for off-road engines of the same horsepower rating, irrespective of the new engine's model year

S-680, S-690, S-700 and S-710 comply with these standards because they are Tier 2 engines.

The requirements for the in-use engines at this facility are included in § 93115.6(b). In-use engine emission standards limit the engine operation depending on the Diesel PM emissions. Table 2 of the ATCM summarizes the requirements of § 93115.6(b)(3):

Table 2: Summary of the Emission Standards and Operating Requirements for In-Use Stationary Emergency Standby Diesel-Fueled CI Engines > 50 BHP (See section 93115.6(b)(3))				
<i>Diesel PM</i>				<i>Other Pollutants</i>
<i>Diesel PM Standards (g/bhp-hr)</i>	<i>Maximum Allowable Annual Hours of Operation for Engines Meeting Diesel PM Standards</i>			<i>HC, NOx, NMHC+NOx, and CO Standards (g/bhp-hr)</i>
	<i>Emergency Use</i>	<i>Non-Emergency Use</i>		
		<i>Emission Testing to show compliance¹</i>	<i>Maintenance & Testing (hours/year)</i>	
>0.40 ²	Not Limited by ATCM ²	Not Limited by ATCM ²	20	Not limited by ATCM ²
>0.15 and ≤0.40	Not Limited by ATCM ²	Not Limited by ATCM ²	21 to 30	For engines with emission control strategies not verified through the verification procedure: Off-Road CI Engine Certification Standards for an off-road engine of the model year and maximum rated power of the engine installed to meet the applicable PM standard, or Tier 1 standards. ³
>0.01 and ≤0.15	Not Limited by ATCM ²	Not Limited by ATCM ²	31 to 50 (Upon approval by the District)	
≤0.01	Not Limited by ATCM ²	Not Limited by ATCM ²	51 to 100 (Upon approval by the District)	

1. Emission testing limited to testing to show compliance with section 93115.6(b)(3).
2. May be subject to emission or operational restrictions as defined in current applicable district rules, regulations, or policies.
3. The option to comply with the Tier 1 standards is available only if no off-road engine certification standards have been established for an off-road engine of the same model year and maximum rated power as the new stationary emergency standby diesel-fueled CI engine.

The in-use engines at this facility comply with these standards because each engine is subject to a permit condition that limits non-emergency operation.

B. NSPS.

40 CFR 60 Subpart IIII applies to all owners/operators of CI ICE that commenced construction after July 11, 2005 where the engine was manufactured after April 1, 2005 and are not fire pump engines [60.4200(a)(2)(i)] or are manufactured as certified NFPA fire pump engines after July 1, 2006 [60.4200(a)(2)(ii)].

None of the engines at this facility are fire pumps. Furthermore, only four engines, S-680, S-690, S-700 and S-710 commenced construction after July 11, 2005. The applicable standards of the engines subject to Subpart III are determined based on whether the engine model year is earlier than 2007 or if the engine model year is 2007 or later. All four of the engines subject to Subpart III are model year 2009. Furthermore, the standards applicable to these engines depends on whether the engine displacement is less than 30 liters per cylinder or if the engine displacement is equal to or greater than 30 liters per cylinder. All four of the engines subject to Subpart III have total displacements less than 30 liters per cylinder. Therefore, the standards applicable to these engines are included in § 60.4205(b):

§ 60.4205 What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(b) Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.

The emission standards of 60.4202 depend on the horsepower and the displacement of the engine. For the engines in this facility, where the horsepower is between 50 hp and 3000 hp, and the displacement is less than 10 liters per cylinder (all engines are assumed to have 4 or more cylinders), the emission standards applicable to these engines are included in § 60.4202(a)(2):

§ 60.4202 What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (a)(1) through (2) of this section.

(2) For engines with a maximum engine power greater than or equal to 37 KW (50 HP), the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants beginning in model year 2007.

The exhaust emissions standards in § 89.112 are as follows:

§ 89.112 Oxides of nitrogen, carbon monoxide, hydrocarbon, and particulate matter exhaust emission standards.

(a) Exhaust emission from nonroad engines to which this subpart is applicable shall not exceed the applicable exhaust emission standards contained in Table 1, as follows:

Table 1.—Emission Standards (g/kW-hr)

Rated Power (kW)	Tier	Model Year ¹	Emission Standards (g/kW-hr)				
			NOx	HC	NMHC + NOx	CO	PM
kW<8	Tier 1	2000	—	—	10.5	8.0	1.0
	Tier 2	2005	—	—	7.5	8.0	0.80
8≤kW<19	Tier 1	2000	—	—	9.5	6.6	0.80
	Tier 2	2005	—	—	7.5	6.6	0.80
19≤kW<37	Tier 1	1999	—	—	9.5	5.5	0.80
	Tier 2	2004	—	—	7.5	5.5	0.60
37≤kW<75	Tier 1	1998	9.2	—	—	—	—
	Tier 2	2004	—	—	7.5	5.0	0.40
	Tier 3	2008	—	—	4.7	5.0	
75≤kW<130	Tier 1	1997	9.2	—	—	—	—
	Tier 2	2003	—	—	6.6	5.0	0.30
	Tier 3	2007	—	—	4.0	5.0	
130≤kW<225	Tier 1	1996	9.2	1.3	—	11.4	0.54
	Tier 2	2003	—	—	6.6	3.5	0.20
	Tier 3	2006	—	—	4.0	3.5	
225≤kW<450	Tier 1	1996	9.2	1.3	—	11.4	0.54
	Tier 2	2001	—	—	6.4	3.5	0.20
	Tier 3	2006	—	—	4.0	3.5	
450≤kW≤560	Tier 1	1996	9.2	1.3	—	11.4	0.54
	Tier 2	2002	—	—	6.4	3.5	0.20
	Tier 3	2006	—	—	4.0	3.5	
kW>560	Tier 1	2000	9.2	1.3	—	11.4	0.54
	Tier 2	2006	—	—	6.4	3.5	0.20

¹ The model years listed indicate the model years for which the specified tier of standards take effect.

All four engines subject to Subpart III are greater than 560 kW and are Model Year 2009. Therefore, the following Tier 2 emission standards apply:

Pollutant	Emission Standard	
	g/kW-hr	g/bhp-hr
NMHC+NOx	6.4	4.8
CO	3.5	2.6
PM	0.20	0.15

The smoke emissions standards in § 89.113 are as follows:

§ 89.113 Smoke emission standard.

(a) Exhaust opacity from compression-ignition nonroad engines for which this subpart is applicable must not exceed:

- (1) 20 percent during the acceleration mode;
- (2) 15 percent during the lugging mode; and
- (3) 50 percent during the peaks in either the acceleration or lugging modes.

All four engines subject to Subpart III are expected to comply with the smoke standards because of the use of CARB Diesel fuel.

C. NESHAPS

40CFR63 Subpart ZZZZ applies to any RICE (Reciprocating Internal Combustion Engines) in a major or area source of HAP emissions. This facility is not a major source of HAPS, so according to § 63.6585(c), this facility is an area source of HAPS. For an area source, existing engines are those that commenced construction before June 12, 2006 [§ 63.6590(a)(1)(iii)] and new engines are those that commenced construction after June 12, 2006 [§ 63.6590(a)(2)(iii)].

All engines at this facility are existing engines except S-680, S-690, S-700 and S-710.

All existing engines are not subject to the requirements of Subpart ZZZZ pursuant to §63.6590(b)(3)(vii) or (viii):

§ 63.6590 What parts of my plant does this subpart cover?

(b) Stationary RICE subject to limited requirements.

(3) The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:

- (vii) Existing commercial emergency stationary RICE located at an area source of HAP emissions; or
- (viii) Existing institutional emergency stationary RICE located at an area source of HAP emissions.

For S-680, S-690, S-700 and S-710 new engines, the of Subpart ZZZZ are satisfied by complying with the requirements of 40 CFR 60 Subpart III, pursuant to § 63.6590(c)(1):

§ 63.6590 What parts of my plant does this subpart cover?

(c) Stationary RICE subject to Regulations under 40 CFR Part 60. An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart III, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

- (1) A new or reconstructed stationary RICE located at an area source;

The following table summarizes the applicable requirements for the engines at this facility.

San Francisco International Airport Facility A1784 Diesel Engine Regulatory Summary

Source	BAAQMD Reg 6 Rule 1 Reg 9 Rule 1 Reg 9 Rule 8	ATCM	NSPS 40CFR60 Subpart III	NESHAPS 40CFR63 Subpart ZZZZ	Permit Condition and Non-Emergency Hours Limit
270*	Yes	Yes, In-Use	No	No	18324-2a 200hrs
290	Yes	Yes, In-Use	No	No	18666-2a 100hrs
320	Yes	Yes, In-Use	No	No	18666-2a 100hrs
330	Yes	Yes, In-Use	No	No	18666-2a 100hrs
340	Yes	Yes, In-Use	No	No	18666-2a 100hrs
360	Yes	Yes, In-Use	No	No	18666-2a 100hrs
380	Yes	Yes, In-Use	No	No	18666-2a 100hrs
390	Yes	Yes, In-Use	No	No	18666-2a 100hrs
400	Yes	Yes, In-Use	No	No	18666-2a 100hrs
410	Yes	Yes, In-Use	No	No	18666-2a 100hrs
420	Yes	Yes, In-Use	No	No	18666-2a 100hrs
430	Yes	Yes, In-Use	No	No	18666-2a 100hrs
440	Yes	Yes, In-Use	No	No	18666-2a 100hrs
450	Yes	Yes, In-Use	No	No	18666-2a 100hrs
460	Yes	Yes, In-Use	No	No	18666-2a 100hrs
470	Yes	Yes, In-Use	No	No	18666-2a 100hrs
480	Yes	Yes, In-Use	No	No	18666-2a 100hrs
490	Yes	Yes, In-Use	No	No	18666-2a 100hrs
500	Yes	Yes, In-Use	No	No	18666-2a 100hrs
510	Yes	Yes, In-Use	No	No	18666-2a 100hrs
520	Yes	Yes, In-Use	No	No	18666-2a 100hrs
530	Yes	Yes, In-Use	No	No	18666-2a 100hrs
540	Yes	Yes, In-Use	No	No	18666-2a 100hrs
550	Yes	Yes, In-Use	No	No	18666-2a 100hrs
640	Yes	Yes, In-Use	No	No	22356-2 50hrs
650	Yes	Yes, In-Use	No	No	22357-2 30hrs
660	Yes	Yes, In-Use	No	No	22336-2 30hrs
670	Yes	Yes, In-Use	No	No	22850-1 50hrs
680	Yes	Yes, New	Yes, Tier 2	Yes, by NSPS	22820-1 20hrs
690	Yes	Yes, New	Yes, Tier 2	Yes, by NSPS	22825-1 25hrs
700	Yes	Yes, New	Yes, Tier 2	Yes, by NSPS	22825-1 25hrs
710	Yes	Yes, New	Yes, Tier 2	Yes, by NSPS	22820-1 20hrs

* S-270 was permitted via Application 2286 in 2001 as a Loss of Exemption and qualifies for essential public service (emergency power for runway lights).

The following table summarizes the actual emissions and compliance for the engines at this facility.

San Francisco International Airport Facility A1784 Diesel Engine Compliance Summary

Standards, g/hp-hr						
Pollutant	NOx	Organic	NMHC + NOx	CO	PM	Comments Reference
Tier 2 HP>300	4.56*	0.24*	4.8	2.6	0.15	
Tier 2 175<HP<300	4.66*	0.24*	4.9	2.6	0.15	
Former BACT	6.9	1.5	N/A	2.75	0.10	Effective prior to 12/22/2010
BACT (effective 12/22/2010)	95% of NMHC + NOx *	5% of NMHC + NOx *	3.0 (4.8 for HP> 750)	2.6 (3.7 for HP<175)	0.15	

San Francisco International Airport Facility A1784 Diesel Engine Compliance Summary

Pollutant	NOx	Organic	NMHC + NOx	CO	PM	Comments Reference
Source	Actual Emissions, g/hp-hr					
270	N/A	N/A	N/A	N/A	>0.40	LOE
290	N/A	N/A	N/A	N/A	>0.40	LOE
320	N/A	N/A	N/A	N/A	>0.40	LOE
330	N/A	N/A	N/A	N/A	>0.40	LOE
340	N/A	N/A	N/A	N/A	>0.40	LOE
360	N/A	N/A	N/A	N/A	>0.40	LOE
380	N/A	N/A	N/A	N/A	>0.40	LOE
390	N/A	N/A	N/A	N/A	>0.40	LOE
400	N/A	N/A	N/A	N/A	>0.40	LOE
410	N/A	N/A	N/A	N/A	>0.40	LOE
420	N/A	N/A	N/A	N/A	>0.40	LOE
430	N/A	N/A	N/A	N/A	>0.40	LOE
440	N/A	N/A	N/A	N/A	>0.40	LOE
450	N/A	N/A	N/A	N/A	>0.40	LOE
460	N/A	N/A	N/A	N/A	>0.40	LOE
470	N/A	N/A	N/A	N/A	>0.40	LOE
480	N/A	N/A	N/A	N/A	>0.40	LOE
490	N/A	N/A	N/A	N/A	>0.40	LOE
500	N/A	N/A	N/A	N/A	>0.40	LOE
510	N/A	N/A	N/A	N/A	>0.40	LOE

San Francisco International Airport Facility A1784 Diesel Engine Compliance Summary						
Pollutant	NOx	Organic	NMHC + NOx	CO	PM	Comments Reference
Source	Actual Emissions, g/hp-hr					
520	N/A	N/A	N/A	N/A	>0.40	LOE
530	N/A	N/A	N/A	N/A	>0.40	LOE
540	N/A	N/A	N/A	N/A	>0.40	LOE
550	N/A	N/A	N/A	N/A	>0.40	LOE
640	3.95**	0.40**	3.95	0.75	0.10	Application 11596
650	11.0	0.68	N/A	2.40	0.24	Application 11596
660	5.37	0.30	N/A	0.97	0.19	Application 12555
670	N/A	N/A	N/A	N/A	>0.40	LOE (Singapore Airlines)
680	4.32*	0.23*	4.55	1.19	0.12	Application 21458
690	3.83*	0.20*	4.03	0.52	0.07	Application 21514
700	3.83*	0.20*	4.03	0.52	0.07	Application 21514
710	4.32*	0.23*	4.55	1.19	0.12	Application 21458

* NMHC + NOx standards are assumed to be 95% NOx and 5% Organic per District Policy.

** Conservative estimate.

All of the new engines comply with the emission standards of the ATCM, NSPS and NESHAPS by having actual emissions limits less than the Tier 2 standards.

The remaining engines are In-Use engines that are not subject to NSPS and NESHAPS, but subject to the ATCM. These engines were permitted as Loss of Exemption engines and Permit Condition 18666 was imposed limiting non-emergency operating hours to 100 hrs pursuant to the limit of then BAAQMD Regulation 9-8-330. S-270 was permitted via Application 2286 in 2001 as a Loss of Exemption and qualifies for essential public service (emergency power for runway lights). Condition 18324 was imposed limiting non-emergency operating hours to 200 hrs pursuant to the limit of then BAAQMD Regulation 9-8-331.

Since the ATCM limits non-emergency hours of operation to 20 hours for Diesel particulate emissions that exceed 0.40 g/hp-hr, Standard Condition 22820 will be imposed on these in-use engines:

Condition # 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 93115.6 (b)(3)(A)(1)(a)]
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 93115.6 (b)(3)(A)(1)(a)]
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 93115.10 (e)(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 93115.10 (g) (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 93115.6 (b)(2)]

The renewed permit includes Condition 22820 as an applicable requirement for these In-use engines.

40 CFR 64 Compliance Assurance Monitoring.

CAM: 40 CFR 64 Compliance Assurance Monitoring.

Flare S-1 abates S-170 Anaerobic Digesters. The primary purpose of S-1 is for odor control of S-170. However, S-1 will control organic emissions. The only federally enforceable limit for S-170 organic emissions is regulation 8-2-301 that limits emissions from miscellaneous operations. The limit of 15 lb/day is far below 100 tons/yr. Even if the emissions were an order of magnitude higher, or 150 lb/day, the emissions would be about 27 tons/yr. Therefore, CAM does not apply.

Changes to permit:

1. Table IV-A for S1 Sludge Gas Burner (Flare). Updated regulatory requirements to reflect the current rules. Revised Permit Condition 18329 to be consistent with the version in Section VI.
2. Deleted Table IV-B for S7, which is no longer in service.
3. Table IV-C for S8 and S9. Updated regulatory requirements to reflect the current rules.
4. Table IV-D for S11 and S12. Deleted Table. S11 and S12 are no longer in service, being replaced with S15 and S16.
5. Added a new Table IV-D for new boilers S-14, S-15, S-16 and S-17.
6. Table IV-E for S13. Deleted Table. S13 is no longer in service, replaced with S17.
7. Table IV-F for the Water Treatment Plant. Added Regulation 6, Rule 1 and SIP Regulation 6. Corrected titles for S120 and S150.
8. Table IV-G for the S170. Added Regulation 6, Rule 1 and SIP Regulation 6. Corrected Condition 18329 to be consistent with the language in Section VI.
9. Table IV-H for S270. Removed S-280 because it is no longer in service. Added Regulation 6, Rule 1 and SIP Regulation 6. Updated Regulation 9, Rule 8 to the amended rule adopted 7/25/2007. Added the ATCM for Stationary Compression Ignition Engines, CCR, Title 17, Section 93115 and Permit Condition 22820 consistent with the applicability determination above.
10. Table IV-I for S290, S320 through S340 and S360 through S550. Removed S560 through S630 portable engines that are exempt from Major Facility Review requirements per BAAQMD Regulation 2-6-114. Added Regulation 6, Rule 1 and SIP Regulation 6. Updated Regulation 9, Rule 8 to the amended rule adopted 7/25/2007. Added the ATCM for Stationary Compression Ignition Engines, CCR, Title 17, Section 93115 and Permit Condition 22820 consistent with the applicability determination above.
11. Added Table IV-J for Emergency Generators S640 through S710, consistent with the applicability determination above.

V. Schedule of Compliance

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

“409.10 A schedule of compliance containing the following elements:

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

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

The BAAQMD Compliance and Enforcement Division has conducted a review of compliance over the past year and has no records of compliance problems at this facility during the past year. The compliance report is contained in Appendix C of this permit evaluation and statement of basis.

VI. Permit Conditions

During the Title V permit development, the District has reviewed the existing permit conditions, deleted the obsolete conditions, and, as appropriate, revised the conditions for clarity and enforceability. Each permit condition is identified with a unique numerical identifier, up to five digits.

When necessary to meet Title V requirements, additional monitoring, recordkeeping, or reporting requirements have been added to the permit.

All changes to existing permit conditions are clearly shown in “strike-out/underline” format in the proposed permit. When the permit is issued, all “strike-out” language will be deleted and all “underline” language will be retained, subject to consideration of comments received.

The existing permit conditions are derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). Permit conditions may also be imposed or revised as part of the annual review of the facility by the District pursuant to California Health and Safety Code (H&SC) § 42301(e), through a variance pursuant to H&SC § 42350 *et seq.*, an order of abatement pursuant to H&SC § 42450 *et seq.*, or as an administrative revision initiated by

District staff. After issuance of the Title V permit, permit conditions will be revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

Conditions that are obsolete or that have no regulatory basis have been deleted from the permit.

Conditions have also been deleted due to the following:

- Redundancy in recordkeeping requirements.
- Redundancy in other conditions, regulations and rules.
- The condition has been superseded by other regulations and rules.
- The equipment has been taken out of service or is exempt.
- The event has already occurred (i.e. initial or start-up source tests).

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

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

Changes to permit:

1. Revised the language of the permit conditions to reflect the standard of "Owner/Operator" being obligated to meet permit conditions.
2. Permit Condition 7506 was deleted. S7 High Temperature Hot Water Boiler is no longer in service, replaced with S14.
3. Permit Condition 14614 was deleted. S13 High Temperature Hot Water Boiler is no longer in service, replaced with S17.
4. Permit Condition 18324 was revised to delete S-280 and Part 2a was revised to reflect the amendment to Regulation 9-8-331 that reduces the non-emergency limit from 200 hours to 100 hours effective 1/1/12.
5. Permit Condition 18328 was deleted. S11 and S12 High Temperature Hot Water Boilers are no longer in service, replaced with S15 and S16.
6. Permit Condition 18329 was revised to change the Sludge Gas Burner (Flare) that abates S-170 from A1 to S1, consistent with the designation in Tables IIA and IV-A. In addition, in Part 6 "hydrogen sulfur" was corrected to "hydrogen sulfide".
7. Permit Condition 18666 Part 2a was revised to reflect the amendment to Regulation 9-8-330 that reduces the non-emergency limit from 100 hours to 50 hours effective 1/1/12.
8. Added Permit Condition 22336 for S-660.
9. Added Permit Condition 22356 for S-640.

10. Added Permit Condition 22357 for S-650.
11. Added Permit Condition 22820 for S270, S290, S310 through S340, S360 through S550, S680, S710.
12. Added Permit Condition 22825 for S690 and S700.
13. Added Permit Condition 22850 for S640 and S670.
14. Added Permit Condition 24638 for S310, S370, S680 and S710.
15. Added Permit Condition 24716 for S14 and S15.
16. Added Permit Condition 25080 for S16 and S17.

VII. Applicable Limits and Compliance Monitoring Requirements

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

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

The tables below contain only the limits for which there is no monitoring or inadequate monitoring in the applicable requirements. The District has examined the monitoring for other limits and has determined that monitoring is adequate to provide a reasonable assurance of compliance. Calculations for potential to emit will be provided in the discussion when no monitoring is proposed due to the size of a source.

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

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

NOx Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S14, S15, S16, S17 High Temperature Hot Water Generators	SIP 9-7-301.1	30 ppmv @ 3% O ₂ , dry, 3-hr average	Annual Source Tests required for more stringent limit.
S14, S15 High Temperature Hot Water Generators	BAAQMD 9-7-113.2 SIP 9-7-305.1 & 9-7-306.1	150 ppmv @ 3%O ₂ , dry, 3-hr average	No monitoring because firing on liquid fuel occurs only during natural gas outage.

NOx Discussion:

S14, S15, S16, S17 High Temperature Hot Water Generators are limited to 9 ppmv @ 3% O₂, dry, 3-hr average by BAAQMD Regulation 9-7-307.5. BAAQMD Regulation 9-7-506 requires annual source tests.

S14 and S15 are permitted to fire liquid fuels in the event the normal fuel is not available. This outage is expected to be infrequent and of such a short duration, a source test would be impractical.

CO Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S14, S15, S16, S17 High Temperature Hot Water Generators	SIP 9-7-301.2, 9-7-305.2, 9-7-306.2	400 ppmv @ 3% O ₂ , dry, 3-hr average	Annual Source Tests required for more similar limit.
S14, S15 High Temperature Hot Water Generators	Condition 24716, Part 1	50 ppmv @ 3%O ₂ , dry, 3-hr average	Annual Source Tests required by BAAQMD 9-7-506.
	Condition 24716, Part 2	50 ppmv @ 3%O ₂ , dry, 3-hr average	No monitoring because firing on liquid fuel occurs only during natural gas outage.

CO Discussion:

S14, S15, S16, S17 High Temperature Hot Water Generators are limited to 50 ppmv @ 3% O₂, dry, 3-hr average by Conditions 24716, Part 1 and 25080, Part 5. For S16 and S17, Condition 25080, Part 8 requires compliance source tests for every two years. Condition 24716 does not require compliance source tests for S14 and S15. However, BAAQMD Regulation 9-7-506 requires annual compliance source tests for all four sources.

S14 and S15 are permitted to fire liquid fuels in the event the normal fuel is not available. This outage is expected to be infrequent and of such a short duration, a source test would be impractical.

SO₂ Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S1 -- Sludge Gas Flare, all combustion sources	BAAQMD 9-1-301	Ground level concentrations of SO ₂ shall not exceed: 0.5 ppm for 3 consecutive minutes AND 0.25 ppm averaged over 60 consecutive minutes AND 0.05 ppm averaged over 24 hours	None
	BAAQMD 9-1-302	300 ppm (dry)	S1: monitoring of digester gas hydrogen sulfide
All Diesel Emergency Generators	BAAQMD 9-1-304	Sulfur content of fuel < 0.5% by weight	Fuel Oil Certification

SO₂ Discussion:

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

All facility combustion sources are subject to the SO₂ emission limitations in District Regulation 9, Rule 1 (ground-level concentration and emission point concentration). In EPA's June 24, 1999 agreement with CAPCOA and ARB, "Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", EPA has agreed that natural-gas-fired combustion sources do not need additional monitoring to verify compliance with Regulation 9, Rule 1, since violations of the regulation are unlikely. Therefore, no monitoring is necessary for this requirement.

All facility internal combustion engines are subject to the SO₂ emission limitations in District Regulation 9, Rule 1 (ground-level concentration and emission point concentration), including Regulation 9-1-304, Sulfur Content of Fuel Oil < 0.5 wt%. These engines are required to be fueled with CARB Diesel, which is limited to 0.05 wt% sulfur. Fuel oil sulfur content certification is required. These combustion sources do not need additional monitoring to verify compliance with Regulation 9, Rule 1, since violations of the regulation are unlikely. Therefore, no additional monitoring is necessary for this requirement.

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
All sources except standby engines	BAAQMD Regulation 6-1-301	Ringelmann 1.0	Visible Emissions Check
All emergency standby engines	BAAQMD Regulation 6-1-303	Ringelmann 2.0	Visible Emissions Check
All sources except heat transfer operations	BAAQMD Regulation 6-1-310	0.15 gr/dscf	None
S14, S15, S16, S17 High Temperature Hot Water Generators	BAAQMD Regulation 6-1-310.3	0.15 gr/dscf at 6% O ₂	None

PM Discussion:

BAAQMD Regulation 6, Rule 1 “General Requirements”

Visible Emissions

BAAQMD Regulation 6-1-301 limits visible emissions to no darker than 1.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour). Visible emissions are normally not associated with combustion of gaseous fuels, such as natural gas. Sources S14 and S15 are permitted to burn natural gas except during periods of natural gas curtailment, and S16 and S17 are permitted to burn natural gas exclusively. Therefore, per the EPA's June 24, 1999 agreement with CAPCOA and ARB titled “Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP”, no monitoring is required to assure compliance with this limit for these sources.

BAAQMD Regulation 6-1-303 limits visible emissions from standby engines to no darker than 2.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour). For the emergency standby engines, exceedances of the visible emission standards are not expected because the engines are required to burn only CARB specified fuel that contains less than 0.05 wt% sulfur.

Particulate Weight Limitation

BAAQMD Regulation 6-1-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Section 310.3 limits filterable particulate emissions from “heat transfer operations” to 0.15 gr/dscf @ 6% O₂. These are the “grain loading” standards.

Exceedances of the grain loading standards are normally not associated with combustion of gaseous fuels, such as natural gas. Sources S14 and S15 are permitted to burn natural gas except during periods of natural gas curtailment, and S16 and S17 are permitted to burn natural gas exclusively, therefore, per the EPA's July 2001 agreement with CAPCOA and ARB entitled "CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP: Combustion Sources: Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", no monitoring is required to assure compliance with this limit for these sources.

For the emergency standby engines, exceedances of the grain loading standards are not expected because the engines are required to burn only CARB specified fuel that contains less than 0.05 wt% sulfur.

POC Sources

# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S1 Sludge Gas Flare S100 through S260 Water Treatment	BAAQMD 8-2-301	15 lb/day and greater than 300 ppm total carbon	None

POC Discussion:

Miscellaneous Operations Standards

BAAQMD Regulation 8, Rule 2 Miscellaneous Operations is the 'back-stop' organic compound emission regulation in that if no other rule in Regulation 8 applies, Rule 2 does. S1 Sludge Gas Flare combusts the digester gas from the water treatment plant. Combustion is a very effective means of reducing organic emissions. The sanitary water treatment plant (S100 series) and the industrial water treatment plant (S200 series) are expected to be charged with feeds streams very low in organic material. Therefore, no monitoring is required to assure compliance with this limit for these sources.

Hydrogen Sulfide Sources

# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S170 Anaerobic Digesters	BAAQMD 9-2-301	0.06 ppm H ₂ S over 3 min or 0.03 ppm H ₂ S over 60 min	None

Discussion of Hydrogen Sulfide:

BAAQMD Regulation 9, Rule 2 “Hydrogen Sulfide”

Area monitoring to demonstrate compliance with the ground level H₂S concentration requirements of Regulation 9-2-301 is at the discretion of the APCO (per BAAQMD Regulation 9-2-501). The source of the H₂S at this facility is the digester gas from S170. Digester gas is abated by S1 Sludge Gas Flare, where the H₂S is efficiently destroyed by combustion. Permit Condition 18329, Part 6 limits the H₂S content of the digester gas to 2250 ppm and Part 7 requires weekly testing of the digester gas to ensure the H₂S content does not exceed this limit. Therefore, this facility does not have equipment that emits large amounts of H₂S and therefore is not required to have ground level monitoring by the APCO.

Changes to permit:

1. A note has been added at the beginning of the section to clarify that this section is a summary of the limits and monitoring, and that in the case of a conflict between Sections I-VI and Section VII, the preceding sections take precedence.
2. In Table VII-A for S1 Sludge Gas Burner (Flare), removed Condition 7506 and added BAAQMD 6-1-401 for Opacity and FP monitoring. Revised “Throughput” monitoring to “Hours of Operation” monitoring to be consistent with Condition 18329. Added 9-2-301 H₂S limit.
3. Deleted Table VII-B for S7, which is no longer in service.
4. Table VII-C for S8 and S9. Updated monitoring requirements to reflect the current rules.
5. Table VII-D for S11 and S12. Deleted Table. S11 and S12 are no longer in service, being replaced with S15 and S16.
6. Added a new Table VII -D for new boilers S-14, S-15, S-16 and S-17.
7. Table VII-E for S13. Deleted Table. S13 is no longer in service, replaced with S17.
8. Table VII-F for the Water Treatment Plant. Added Regulation 6, Rule 1 and SIP Regulation 6. Corrected titles for S120 and S150.
9. Table VII-G for the S170. Added Regulation 6, Rule 1 and SIP Regulation 6. Corrected Condition 18329 to be consistent with the language in Section VI.
10. Table VII-H for S270. Deleted S280 which is no longer in service. Added Regulation 6, Rule 1 and SIP Regulation 6. Updated Regulation 9, Rule 8 to the amended rule adopted 7/25/2007. Added the ATCM for Stationary Compression Ignition Engines, CCR, Title 17, Section 93115 and Permit Condition 22820.
11. Table VII-I for S290, S310 through S340 and S360 through S550. Removed S560 through S630 portable engines that are exempt from Major Facility Review requirements per BAAQMD Regulation 2-6-114. Added Regulation 6, Rule 1 and SIP Regulation 6. Updated Regulation 9, Rule 8 to the amended rule adopted 7/25/2007. Added the ATCM for Stationary Compression Ignition Engines, CCR, Title 17, Section 93115 and Permit Condition 22820
12. Added Table VII-J for Emergency Generators S640 through S710.

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not “applicable requirements” as defined by Regulation 2-6-202.

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

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

Changes to permit:

This section was added to the permit.

The glossary was updated.

XI. Glossary

Changes to permit:

The glossary was updated.

XI. State Implementation Plan

Changes to permit:

This section has been deleted. The address for EPA's website is now found in Sections III.

D. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility.

E. Compliance Status:

A March 20, 2012 office memorandum from the Director of Compliance and Enforcement, to the Director of Engineering, presents a review of the compliance record of San Francisco International Airport (Site #: A1784). The Compliance and Enforcement Division staff has reviewed the records for the period from April 14, 2004 through March 20, 2012. This review was initiated as part of the District evaluation of an application by San Francisco International Airport for a Title V permit. During the period subject to review, activities known to the District include:

- There were no Notices of Violation issued during this review period.
- The District received two alleged complaints during the review period but neither were confirmed.
- The facility is not operating under a Variance or an Order of Abatement from the District Board.
- The District did not receive any notifications for Reportable Compliance Activities.

The owner certified that all equipment was operating in compliance on February 12, 2010. No non-compliance issues have been identified to date.

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APPENDIX A ENGINEERING EVALUATIONS

ENGINEERING EVALUATIONS

Application 11596-Standby Diesel Generators S-640 & S-650 (2005)

Application 12555-Standby Diesel Generators S-660 (2005)

Application 15044-Gasoline Bulk Loading Operation (2006)

Application 21138-Boilers S-12, S-13, S-14, S-15 (2010)

Application 21458-Standby Diesel Generators S-680 & S-710. (2010)

Application 21514- Standby Diesel Generators S-690 & S-700. (2010)

Application 23441- Boilers S-16, S-17. (2011)

Application 11596-Standby Diesel Generators S-640 & S-650 (2005)

**EVALUATION REPORT
SAN FRANCISCO INTERNATIONAL AIRPORT
APPLICATION #11596
PLANT #1784**

BACKGROUND

San Francisco International Airport is applying for an A/C & P/O for the following equipment:

- S-640 Standby emergency diesel generator (SPOE), powered by Cummins diesel engine Model QSM11-G1, U.S. EPA Engine Family 2CEXL0661AAD, 395 brake horsepower capacity
- S-650 Standby emergency diesel generator (Concourse H), powered by Cummins diesel engine Model KTA50-G2, Engine serial number: 33145663, 1620 brake horsepower capacity

S-640 was installed in October 2002 and is subject to NSR rule and toxic risk screen.

S-650 is a loss of exempt engine because it was installed in December 1999. It had been excluded from permit requirements in accordance with Regulation 1-110.2, which was deleted on May 17, 2000.

Per Airborne Toxic Control Measure (ATCM), S-640 and S-650 will be limited to no more than 50 hr/yr and 20 hr/yr respectively for "reliability-related" (maintenance and testing) activities. The operations of these sources to provide power during emergencies will not be limited. S-650 will be limited to 20 hr/yr because no acceptable engine specific PM, HC, NOX and CO emission data are available. This determination is based on Health & Safety Code Section 93115 (h)(2), and (i)(1)(A) and (B), CARB Methods 5 and 100, ISO 8178-D2 cycle.

EMISSION CALCULATIONS

Basis:

For S-640

1. Emission calculation is based on certified emission factors extracted from CARB website.
2. Reliability-related activities are limited to 50 hr/yr.

	HC ⁽¹⁾	NOx ⁽²⁾	CO	PM	SO2
g/BHP-hr	0.40	3.95	0.75	0.10	0.13
Annual Average Daily Emissions (lb/day)	0.05	0.47	0.09	0.01	0.02
Plant Cumulative Increase (ton/yr)	0.01	0.09	0.02	0.00	0.00
Maximum Daily Emissions (lb/day)	8.34	82.38	15.64	2.09	2.71

- (1) There is no certified HC emission factor from the CARB website for the proposed engine. It is conservatively assumed to be 0.4 g/BHP-hr.
- (2) 3.95 g/BHP-hr is the emission factor for the combination of NOx and HC.

For S-650

1. Emission calculation is based on emission factors extracted from AP-42 Table AP-42 Ch 3.4
2. Reliability-related activities are limited to 30 hr/yr.

	HC	NOx	CO	PM	SO2
g/BHP-hr	0.68	11.00	2.40	0.24	1.36
Annual Average Daily Emissions (lb/day)	0.20	3.22	0.70	0.07	0.40
Plant Cumulative Increase, Loss of Exemption	N/A	N/A	N/A	N/A	N/A

PLANT CUMULATIVE INCREASE

	HC	NOx	CO	PM	SO2
Plant Cumulative Increase (ton/yr)	0.01	0.09	0.02	0.00	0.00

RISK SCREEN ANALYSIS

Risk screen analysis was performed on diesel exhaust particulate matter emissions from S-640. The risk will not exceed 10 in a million (TBACT level) for 50 hours reliability-related activities.

S-650 is a loss of exemption source, risk screen analysis is not required.

BACT DETERMINATION

S-640 triggers BACT since NOx and CO emissions can be greater than 10 lb/day potentially. However, BACT requirements are met because the emission factors of NOx and CO of the proposed engine are no greater than 6.9 g/BHP-hr and 2.75 g/BHP-hr (BACT's) respectively.

S-650 is a loss of exemption source and therefore is not subject to BACT requirement.

OFFSET REQUIREMENT

This application does not require offsets.

COMPLIANCE DETERMINATION

S-640 and S-650 are operating in compliance with Regulation 6-301 (Ringelmann No. 1 Limitation) and Regulation 6-303 (Ringelmann No. 2 Limitation) respectively. Both of the engines are operating in compliance with Regulation 6-310 (Particulate Weight Limitation, 0.15 gr/dscf), Regulation 9-1-304 Fuel Burning (<0.5% S by weight), Regulation 9-8-330 (Emergency Standby Engines, Hours of Operation) and ATCM requirements. Per Reg-9-8-110, the proposed engines are exempt from the requirements of Sections 301, 302 and 502 of Regulation 9-8.

S-640 triggers NSR rule. However, the requirements are met.

S-650 does not trigger NSR rule

NSPS rules and NESHAPS requirements are not applicable.

CEQA Compliance is attached

PSD, NSPS and NESHAPS are not applicable

CONDITIONS

S-640 Standby emergency diesel generator (SPOE), powered by Cummins diesel engine Model QSM11-G1, U.S. EPA Engine Family 2CEXL0661AAD, 395 brake horsepower capacity

1. Emergency standby diesel engine S-640 shall be fired exclusively on diesel fuel having a sulfur content no greater than 0.05% by weight. The sulfur content of the fuel oil shall be certified by the fuel oil vendor. [Basis: Cumulative Increase and BACT]
2. S-640 shall only be operated to mitigate emergency conditions or for reliability-related activities. Operation for reliability-related activities shall not exceed 50 hours in any calendar year. Operation while mitigating emergency conditions is unlimited. [Basis: Regulation 9-8-330, Cumulative Increase]
3. "Emergency Conditions" is defined as any of the following:
 - a. Failure of regular electric power supply.
 - b. Flood mitigation.
 - c. Sewage overflow mitigation.
 - d. Fire.
 - e. Failure of a primary motor, but only for such time as needed to repair or replace the primary motor.[Basis: Regulation 9-8-231]
4. "Reliability-related activities" is defined as any of the following:
 - a. Operation of an emergency standby engine to test its ability to perform for an emergency use.
 - b. Operation of an emergency standby engine during maintenance of a primary motor.
 - c. Operation of an emergency standby engine after notification by the utility that involuntary curtailment is imminent but before the actual curtailment.[Basis: Regulation 9-8-232]
5. The emergency standby engine S-640 shall be equipped with either:
 - a. A non-resettable totalizing meter that measures and records the hours of operation for the engine, or
 - b. A non-resettable fuel usage meter:[Basis: Regulation 9-8-530]
6. The following monthly records shall be maintained in a District-approved log for at least 2 years and shall be made available for District inspection upon request:
 - a. Total hours of operation.
 - b. Hours of operation under emergency conditions and a description of the nature of each emergency condition.
 - c. Fuel usage.[Basis: Regulations 9-8-530, 1-441]

S-650 Standby emergency diesel generator (Concourse H), powered by Cummins diesel engine Model KTA50-G2, Engine serial number: 33145663, 1620 brake horsepower capacity

Emergency standby diesel engine S-650 shall be fired exclusively on diesel fuel having a sulfur content no greater than 0.05% by weight. The sulfur content of the fuel oil shall be certified by the fuel oil vendor. [Basis: Cumulative Increase and BACT]

- 2 S-650 shall only be operated to mitigate emergency conditions or for reliability-related activities. Operation for reliability-related activities shall not exceed 20 hours in any calendar year. Operation while mitigating emergency conditions is unlimited. [Basis: Regulation 9-8-330, Cumulative Increase]
- 3 "Emergency Conditions" is defined as any of the following:
 - a. Failure of regular electric power supply.
 - b. Flood mitigation.
 - c. Sewage overflow mitigation.
 - d. Fire.
 - e. Failure of a primary motor, but only for such time as needed to repair or replace the primary motor.[Basis: Regulation 9-8-231]
- 4 "Reliability-related activities" is defined as any of the following:
 - a. Operation of an emergency standby engine to test its ability to perform for an emergency use.
 - b. Operation of an emergency standby engine during maintenance of a primary motor.
 - c. Operation of an emergency standby engine after notification by the utility that involuntary curtailment is imminent but before the actual curtailment.[Basis: Regulation 9-8-232]
- 5 The emergency standby engine S-650 shall be equipped with either:
 - a. A non-resettable totalizing meter that measures and records the hours of operation for the engine, or
 - b. A non-resettable fuel usage meter.[Basis: Regulation 9-8-530]
6. The following monthly records shall be maintained in a District-approved log for at least 2 years and shall be made available for District inspection upon request:
 - a. Total hours of operation.
 - b. Hours of operation under emergency conditions and a description of the nature of each emergency condition.
 - c. Fuel usage.[Basis: Regulations 9-8-530, 1-441]

RECOMMENDATION

I recommend that A/C's be waived and conditional P/O's be issued to San Francisco International Airport for the following equipment:

- S-640 Standby emergency diesel generator (SPOE), powered by Cummins diesel engine Model QSM11-G1, U.S. EPA Engine Family 2CEXL0661AAD, 395 brake horsepower capacity
- S-650 Standby emergency diesel generator (Concourse H), powered by Cummins diesel engine Model KTA50-G2, Engine serial number: 33145663, 1620 brake horsepower capacity

EXEMPTION

None.

Ho Man
Air Quality Engineer II
June 24, 2005

Application 12555-Standby Diesel Generators S-660 (2005)

**EVALUATION REPORT
SAN FRANCISCO INTERNATIONAL AIRPORT
APPLICATION #12555
PLANT #1784**

BACKGROUND

San Francisco International Airport is applying for an A/C & P/O for the following equipment:

S-660 Standby emergency diesel generator, powered by Cummins diesel engine Model KTA50-G9, U.S. EPA Nonroad Engine Family 5CEXL050.ABA, 2220 brake horsepower capacity.

The proposed engine has been in operation since 2/9/04. The maximum reliability-related activities are limited to 30 hr/yr per ATCM.

EMISSION CALCULATIONS

Basis:

1. Emission calculation is based on ^{certified} emission factors from the CARB website.
2. The engine has been in operation since 2/9/04, per ATCM, reliability-related activities are limited to 30 hr/yr.

	HC	NOx	CO	PM	SO2
g/BHP-hr	0.30	5.37	0.97	0.19	0.13
Annual Average Daily Emissions (lb/day)	0.12	2.16	0.39	0.08	0.05

PLANT CUMULATIVE INCREASE

	HC	NOx	CO	PM	SO2
Plant Cumulative Increase (ton/yr)	0.02	0.39	0.07	0.01	0.01

RISK SCREEN ANALYSIS

Risk screen analysis was performed on diesel exhaust particulate matter emissions. The increased cancer risk was found to be 0.14 in a million, which is less than 1 in a million (non TBACT level) for 30 hours reliability-related activities. Reference file from Ted Hull dated 5/19/05 is attached in the file.

BACT DETERMINATION

This application triggers BACT since NOx and CO emissions are greater than 10 lb/day potentially. However, the BACT requirements are met because the emission factors of NOX and CO of the proposed engine are no greater than 6.9 g/BHP-hr and 2.75 g/BHP-hr (BACT's) respectively.

OFFSET REQUIREMENT

This application does not require offsets.

COMPLIANCE DETERMINATION

The proposed generator is expected to operate in compliance with Regulation 6-301 (Ringelmann No. 1 Limitation), Regulation 6-310 (Particulate Weight Limitation, 0.15 gr/dscf), Regulation 9-1-304 Fuel Burning (<0.5% S by weight) and Regulation 9-8-330 (Emergency Standby Engines, Hours of Operation). Per Reg-9-8-110, the proposed generator is exempt from the requirements of Sections 301, 302 and 502 of Regulation 9-8.

This source triggers BACT's. However, BACT's are satisfied.

NSPS rules and NESHAPS requirements are not applicable.

This project is considered to be ministerial. The CEQA Checklist is checked and attached.

CONDITIONS

S-660 Standby emergency diesel generator, powered by Cummins diesel engine Model KTA50-G9, U.S. EPA Nonroad Engine Family 5CEXL050.ABA, 2220 brake horsepower capacity.

1. Emergency standby diesel engine S-660 shall be fired exclusively on diesel fuel having a sulfur content no greater than 0.05% by weight. The sulfur content of the fuel oil shall be certified by the fuel oil vendor. [Basis: Cumulative Increase]
2. S-660 shall only be operated to mitigate emergency conditions or for reliability-related activities. Operation for reliability-related activities shall not exceed 30 hours in any calendar year. Operation while mitigating emergency conditions is unlimited. [Basis: Regulation 9-8-330, Cumulative Increase]
3. "Emergency Conditions" is defined as any of the following:
 - a. Failure of regular electric power supply.
 - b. Flood mitigation.
 - c. Sewage overflow mitigation.
 - d. Fire.
 - e. Failure of a primary motor, but only for such time as needed to repair or replace the primary motor.[Basis: Regulation 9-8-231]
4. "Reliability-related activities" is defined as any of the following:
 - a. Operation of an emergency standby engine to test its ability to perform for an emergency use.
 - b. Operation of an emergency standby engine during maintenance of a primary motor.
 - c. Operation of an emergency standby engine after notification by the utility that involuntary curtailment is imminent but before the actual curtailment.[Basis: Regulation 9-8-232]
5. The emergency standby engine S-660 shall be equipped with either:
 - a. A non-resettable totalizing meter that measures and records the hours of operation for the engine, or
 - b. A non-resettable fuel usage meter.

[Basis: Regulation 9-8-530]

6. The following monthly records shall be maintained in a District-approved log for at least 2 years and shall be made available for District inspection upon request:
 - a. Total hours of operation.
 - b. Hours of operation under emergency conditions and a description of the nature of each emergency condition.
 - c. Fuel usage.

[Basis: Regulations 9-8-530, 1-441]

RECOMMENDATION

I recommend that an Authority to Construct be waived and a conditional P/O be issued to San Francisco International Airport for the following equipment:

S-660 Standby emergency diesel generator, powered by Cummins diesel engine Model KTA50-G9, U.S. EPA Nonroad Engine Family 5CEXL050.ABA, 2220 brake horsepower capacity.

EXEMPTION

None.

Hon-ting Man
Air Quality Engineer II
June 21, 2005

Application 15044-Gasoline Bulk Loading Operation (2006)

EVALUATION REPORT

San Francisco International Airport A/N 15044 Plant #1784 Bldg. 14 – SFO, San Francisco

1. Background:

This application is to permit an existing gasoline bulk loading operation at San Francisco International Airport. 91 octane gasoline is loaded from a 6K underground storage tank which is used to refuel the airport's fireboats. The tank is equipped with an EVR-certified Phase I system and a CARB-certified balance system (10/23/01 per E.O. G-70-125) on the loading arm. This tank is also part of the maintenance vehicle fueling station permitted as G#10606 under A/N 14863. This application is for the permitting of the following sources:

S-20 Gas Station G 10606

S-21 Underground Gasoline Tank – 91 Octane

S-22 Gasoline Dispensing Facility Storage Loading Arm, 1 loading arm for 91 Octane

A-1 CARB-Certified Bulk loading vapor balance system

G10606 is included in this application solely for the administrative reason of incorporating its permit as a source on P1784 and including the emissions in the plants RFP.

2. Emission Calculations:

Tank loading, breathing, and motor vehicle refueling/dispensing emission factors for this operation were obtained from Scenario 6B (underground tanks with Phase I, Phase II and vent valves) in the "CAPCOA Gasoline Service Station Industrywide Risk Assessment Guidelines" dated 12/97. Emissions from refueling of the fireboats from the tanker truck are uncontrolled and are taken from the same document. Truck loading emissions were assumed to be the maximum allowed by 8-5-39-302.

The relevant emission factors are shown below. Actual emissions may be lower.

<u>Underground Tank Process</u>	<u>Emission Factor in lb VOC/thousand gallons throughput</u>
Tank loading	0.42
Tank breathing	0.05
Vehicle refueling + spillage	1.16
Fireboat refueling + spillage	8.82

Truck loading 0.5

Using a throughput limit of 5,000 gal/yr, the following emissions are estimated for the bulk loading operation:

$$5 \text{ Mgal/yr}(0.42 + 0.05 + 8.82 + 0.5 \text{ lb/Mgal}) = 49.0 \text{ lbs/yr VOC}$$

G10606 is limited by condition to 940,000 gal/yr of gasoline. The following emissions are estimated for refueling operation:

$$940 \text{ Mgal/yr} (0.42+0.05 + 1.16 \text{ lb/Mgal}) = 1,532 \text{ lbs/yr VOC}$$

Total increase: 1,581 #VOC/yr

As the cumulative emission increase is less than 10# per day, New Source Review is not triggered. Neither BACT nor offsets are required.

3. Toxic Compounds

This facility emits benzene, a toxic air contaminant. Assuming a benzene content of 0.3 wt % in the avgas vapors, emissions are as follows:

<u>Underground Tank Process</u>	<u>Benzene Emission Factor in lb /million gallons throughput</u>
Tank loading	1.26
Tank breathing	0.15
Truck loading	1.50
Vehicle nozzle	6.42

$$(5 \text{ Kgal/yr}) (2.91 \text{ # benzene/Mmgal}) + (940\text{K}) (6.75) = \mathbf{6.35 \text{ # benzene/yr}}$$

Total benzene emissions are less than the risk screen trigger level of 6.71 #/yr. A risk screen is not required

4. Statement of Compliance:

The bulk loading sources (S-21 and S-22) should comply with Regulation 8-7 and 8-39 requirements. Compliance for S-20 was previously determined under A/N 14863

5. Conditions

I recommend the following conditions for S-21 and S-22:

1. The total gasoline loaded from tank S-21 with loading arm S-22 shall not exceed 5,000 gallons during any consecutive 12 month period. [basis: cumulative increase]

2. Only gasoline be shall stored in tank S-21 or loaded into mobile refueler(s) via loading arm S-22. If an alternate material is to be used, the owner/operator shall first apply for and receive from the District written approval for a change of conditions. [basis: cumulative increase]
3. In order to demonstrate compliance with the above conditions, the owner/operator of loading arm S-22 shall maintain monthly records of the amount of gasoline loaded into the mobile refuelers. These records shall be kept on site in a District approved log and available for District inspection for a period of 24 months from the date the record was made: [basis: Regulation 8-7-503.1]
4. The owner/operator of S-21 shall not transfer or allow the transfer of any gasoline into the stationary storage tank at the facility unless a Phase 1 vapor recovery system is properly connected and used. Such systems shall comply with the emission limit specified in Regulation 8-39-302. [basis: Regulation 8-7-301; 8-39-301; 8-39-302].
5. The owner/operator of S-21 and S-22 shall maintain monthly maintenance records detailing the nature and the date of all maintenance activities. These records shall be kept on site and made available for District inspection for a period of 24 months from the date the record was made. [basis: Regulation 8-7-503.2].

5. Authority to Construct:

I recommend that the Authority to Construct be waived, and a conditional Permit to Operate be issued for the following:

S-20 Gas Station G 10606

S-21 Underground Gasoline Tank – 91 Octane

S-22 Gasoline Dispensing Facility Storage Loading Arm, 1 loading arm for 91 Octane

A-1 CARB-Certified Bulk loading vapor balance system

By Scott Owen Date
Supervising Air Quality Engineer

Application 21138-Boilers S-12, S-13, S-14, S-15 (2010)

**EVALUATION REPORT
SAN FRANCISCO INTERNATIONAL AIRPORT
APPLICATION #21138
PLANT #1784**

BACKGROUND

San Francisco International Airport (SFO) is applying for an A/C & P/O for two new boilers (S-14 and S-15), and for permit condition modification of the permitted boilers (S-12 and S-13):

- S-12 High Temperature Hot Water Generator (IBW), 32 MM BTU/hr, Multi-fuel
- S-13 High Temperature Hot Water Generator, 62 MM BTU/hr, Multi-fuel
- S-14 High Temperature Hot Water Generator (Unit HG-4), Model: International-Lamont TJC-40, 42 MM BTU/hr, Multi-fuel
- S-15 High Temperature Hot Water Generator (Unit HG-1), Model: International-Lamont TJC-25, 24 MM BTU/hr, Multi-fuel

SFO has 4 boilers (S-7, S-11, S-12, and S-13). The two proposed new boilers (S-14 and S-15) will replace the existing boilers S-7 (63 MM BTU/hr) and S-11 (32 MM BTU/hr). S-7 and S-11 will shutdown. All boilers are water tube ones.

Under this application, the applicant also requests to modify the permit conditions of S-12 and S-13. They would like to combine all permit conditions including having one combined fuel usage limit for all 4 boilers for operational flexibility.

EMISSION CALCULATIONS

Basis:

1. Emission calculation is based on guaranteed emission factors provided by the boiler manufacturer for the proposed boilers (S-14 and S-15).
2. Proposed combined fuel usage limit is 4.5 million therms per year for 4 boilers (S-12, S-13, S-14, and S-15).
3. Diesel usage is limited to no more than 48 hr/yr/boiler for tests and/or 168 hr/yr/boiler in case of natural gas curtailment. Emissions from diesel firing are insignificant, and SFO did not fire diesel for the last several years.
4. Under the current permit conditions, there are no annual natural gas consumption limits for S-7 (to be replaced), S-11 (to be replaced), and S-12. Under Condition #14614, S-13 has the natural gas consumption limited to 2,184,375 therm/yr.
5. Contemporaneous emission reduction credits from the shutdown of S-7 and S-11 are calculated per Regulation 2-2-605 (3-yr average natural gas consumption: 68,706 MM MMBTU/yr/source).
6. For the emission reduction calculations from the boiler shutdown (S-7 and S-11) and from lowering the fuel usage of existing boilers (S-12 and S-13):
 - a. Emission factors of VOC, PM, and SO₂ from AP42 Table 1.4-2 are used
 - b. Emission factors of NO_x and CO from either regulatory limits or permit condition limits, whichever are lower, are used.

Existing emissions:

S-7 (to be replaced)					
MM BTU/hr	63	63	63	63	63
MMBtu/yr (3-yr average)	68,706	68,706	68,706	68,706	68,706
Pollutants	NOx	CO	VOC	PM	SO ₂
Emission factor (lb/10E+6 SCF)			5.5	7.6	0.6
Emission factor (ppmv @3% O ₂ , dry)	30	400			
Emission factor (lb/MMBTU)	0.037	0.296	0.0054	0.007	0.0006
Plant cumulative increase (ton/yr)	1.260	10.168	0.185	0.256	0.020
S-11 (to be replaced)					
MM BTU/hr	32	32	32	32	32
MMBtu/yr (3-yr average)	68,706	68,706	68,706	68,706	68,706
Pollutants	NOx	CO	VOC	PM	SO ₂
Emission factor (lb/10E+6 SCF)			5.5	7.6	0.6
Emission factor (ppmv @3% O ₂ , dry)	30	400			
Emission factor (lb/MMBTU)	0.037	0.296	0.0054	0.007	0.0006
Plant cumulative increase (ton/yr)	1.260	10.168	0.185	0.256	0.020
S-12 (annual fuel usage to be reduced)					
MM BTU/hr	32	32	32	32	32
Permitted MMBtu/yr	280,320	280,320	280,320	280,320	280,320
Pollutants	NOx	CO	VOC	PM	SO ₂
Emission factor (lb/10E+6 SCF)			5.5	7.6	0.6
Emission factor (ppmv @3% O ₂ , dry)	30	400			
Emission factor (lb/MMBTU)	0.037	0.296	0.0054	0.007	0.0006
Average Daily Emissions (lb/day)					
Maximum Daily Emissions (lb/day)	28.160	227.328	4.141	5.722	0.452
Plant cumulative increase (ton/yr)	5.139	41.487	0.756	1.044	0.082
S-13 (annual fuel usage to be reduced)					
MM BTU/hr	63	63	63	63	63
Permitted MMBtu/yr	218,438	218,438	218,438	218,438	218,438
Pollutants	NOx	CO	VOC	PM	SO ₂
Emission factor (lb/10E+6 SCF)			5.5	7.6	0.6
Emission factor (ppmv @3% O ₂ , dry)	25	100			
Emission factor (lb/MMBTU)	0.031	0.074	0.0054	0.007	0.0006
Average Daily Emissions (lb/day)					
Maximum Daily Emissions (lb/day)	46.20	111.89	8.15	11.27	0.89
Plant cumulative increase (ton/yr)	3.337	8.082	0.589	0.814	0.064
Total plant cumulative increase (ton/yr)	10.996	69.906	1.715	2.370	0.187

Emissions after the proposed project:

S-14 (new replacement boiler)					
MM BTU/hr	42	42	42	42	42
Permitted MM BTU/yr	112500	112500	112500	112500	112500
Pollutants	NOx	CO	VOC	PM	SO ₂
Emission factor (ppmv @3% O ₂ , dry)	9	50			
Emission factor (lb/MMBTU)	0.011	0.037	0.0012	0.005	0.0006

Average Daily Emissions (lb/day)	3.39	11.40	0.37	1.54	0.18
Maximum Daily Emissions (lb/day)	11.088	37.296	1.2096	5.04	0.6048
Plant cumulative increase (ton/yr)	0.619	2.081	0.068	0.281	0.034
S-15 (new replacement boiler)					
MM BTU/hr	24	24	24	24	24
Permitted MM BTU/yr	112500	112500	112500	112500	112500
Pollutants	NOx	CO	VOC	PM	SO ₂
Emission factor (ppmv @3% O ₂ , dry)	9	50			
Emission factor (lb/MMBTU)	0.011	0.037	0.0012	0.005	0.0006
Average Daily Emissions (lb/day)	3.39	11.40	0.37	1.54	0.18
Maximum Daily Emissions (lb/day)	6.336	21.312	0.6912	2.88	0.3456
Plant cumulative increase (ton/yr)	0.619	2.081	0.068	0.281	0.034
S-12 (annual fuel usage reduced)					
MM BTU/hr	32	32	32	32	32
Permitted MMBtu/yr	112500	112500	112500	112500	112500
Pollutants	NOx	CO	VOC	PM	SO ₂
Emission factor (lb/10E+6 SCF)			5.5	7.6	0.6
Emission factor (ppmv @3% O ₂ , dry)	30	400			
Emission factor (lb/MMBTU)	0.037	0.296	0.0054	0.007	0.0006
Average Daily Emissions (lb/day)	11.30	91.23	1.66	2.30	0.18
Maximum Daily Emissions (lb/day)	28.160	227.328	4.141	5.722	0.452
Plant cumulative increase (ton/yr)	2.063	16.650	0.303	0.419	0.033
S-13 (annual fuel usage reduced)					
MM BTU/hr	63	63	63	63	63
Permitted MMBtu/yr	112500	112500	112500	112500	112500
Pollutants	NOx	CO	VOC	PM	SO ₂
Emission factor (lb/10E+6 SCF)			5.5	7.6	0.6
Emission factor (ppmv @3% O ₂ , dry)	25	100			
Emission factor (lb/MMBTU)	0.031	0.074	0.0054	0.007	0.0006
Average Daily Emissions (lb/day)	9.42	22.81	1.66	2.30	0.18
Maximum Daily Emissions (lb/day)	46.20	111.89	8.15	11.27	0.89
Plant cumulative increase (ton/yr)	1.719	4.163	0.303	0.419	0.033
Total plant cumulative increase (ton/yr)	5.019	24.975	0.742	1.401	0.134

PLANT CUMULATIVE INCREASE

There will be no increase in plant cumulative increase under the proposed project:

	NOx	CO	VOC	PM	SO ₂
Plant cumulative increase from the existing 4 boilers (S-7, S-11, S-12, and S-13) (ton/yr)	10.996	69.906	1.715	2.370	0.187
Plant cumulative increase after the proposed 2 boiler replacements (S-14 & S-15) and fuel usage reductions (S-12 & S-13) (ton/yr)	5.019	24.975	0.742	1.401	0.134

RISK SCREEN ANALYSIS

No increase in toxic air contaminant emission is expected

BACT DETERMINATION

Since the emissions of NOx and CO of the proposed S-14 and S-15 can potentially exceed 10 lb per highest day, BACT is triggered per Regulation 2-2-301. However, BACT requirements are satisfied because the emission factors of NOx and CO of the proposed sources are less than the respective guidelines in the BACT Workbook:

Natural gas firing:		
S-14 (42 MMBtu/hr)	Guaranteed Emission Factor	BACT
NOx @ 3%O2 dry (ppmv)	9	9
CO @ 3%O2 dry (ppmv)	50	100
S-15 (24 MMBtu/hr)	Guaranteed Emission Factor	BACT
NOx @ 3%O2 dry (ppmv)	9	20
CO @ 3%O2 dry (ppmv)	50	50

Diesel oil firing:

Per District policy, BACT requirements are not applicable to the diesel oil firing during natural gas curtailment.

Since S-12 and S-13 are not new, nor modified sources, BACT requirements are therefore not applicable.

OFFSET REQUIREMENT

This application does not require offsets because there is no net increase in emissions.

COMPLIANCE DETERMINATION

As shown in the following table, the proposed sources already meet Regulation 9-7-307 (Final Emission Limits) for natural gas firing which become effective on January 1, 2012:

S-14 (42 MMBtu/hr)	Guaranteed Emission Factor	Regulation 9-7-307 (final emission limits)
NOx @ 3%O2 dry (ppmv)	9	9
CO @ 3%O2 d	50	400
S-15 (24 MMBtu/hr)	Guaranteed Emission Factor	Regulation 9-7-307
NOx @ 3%O2	9	9
CO @ 3%O2 dry (ppmv)	50	400

For diesel oil firing during natural gas curtailment, the proposed sources are exempt from Regulation 9-7-307 (Final Emission Limits) per Regulation 9-7-113 (Limited Exemption, Natural Gas Curtailment and Testing). And the proposed sources meet all requirements of Regulation 9-7-113.

All boilers are expected to operate in compliance with Regulation 6-1-301 (Ringelmann No. 1 Limitation), Regulation 6-1-302 (Opacity Limitation), Regulation 9-7-307 (Final Emission Limits), and Regulation 9-1-304 (Fuel Burning: <0.5% S by weight).

S-14 and S-15 trigger NSR rule. However, BACT is met for natural gas firing.

This project is considered to be ministerial. The CEQA Checklist is attached.

These sources are not located within 1,000 feet of the outer boundary of the nearest school; therefore school notice is not required.

CONDITIONS

Per request of the applicant, one combined permit condition for all 4 boilers is recommended for providing operational flexibility. Existing Conditions #18328 and #14614 are replaced with Condition #24716 to be applied to all 4 boilers.

In addition to the requirements of Regulation 9, Rules 1 and 7, the owner/operator shall comply with the following:

1. When firing with natural gas, the owner/operator shall not exceed the following emissions limits of NOx and CO, in ppm_{dv} at 3% O₂:

	NOx	CO
S-12	30 or by rule*	400
S-13	25 or by rule*	100
S-14	9	50
S-15	9	50

* The NOx limit is the more stringent of the two.

[Basis: BACT]

2. When firing with fuel oil, the owner/operator shall not exceed the following NOx and CO emissions in ppm_{dv} at 3% O₂:

[Basis: BACT]

	NOx	CO
S-12	60	100
S-13	60	100
S-14	100	50
S-15	100	50

3. When firing with natural gas, the owner/operator shall not allow the total combined heat input of S-12, S-13, S-14, and S-15 to exceed 4,500,000 therms in any consecutive 12-month period. [Basis: Cumulative Increase]
4. The owner/operator shall record the combined usage of each fuel and total the monthly records for each fuel every rolling 12-month period. Records shall be kept at least 5 years from the date of entry and made available to the District staff upon request. [Basis: Cumulative Increase]

5. The owner/operator shall perform a District-approved source test on an annual basis for S-13 to verify compliance with the NO_x and CO emissions standards. [Basis: Regulation 2-6-409.2]
6. The owner/operator shall keep the certification records for the sulfur content of the fuel oil by the vendor. [Basis: Regulation 2-6-409.2]
7. The owner/operator shall check for visible emissions after the combined usage of 1000 gallons of fuel oil. The visible emissions check shall take place during daylight hours, while the equipment is operating. If any visible emissions are detected, the operator shall take corrective action within one week, and check for visible emissions after corrective action is taken. If no visible emissions are detected, the operator shall continue to check for visible emissions at the same frequency. All incidents of visible emissions monitoring and any resulting corrective actions shall be recorded in a District approved log and kept for a 5 years from the date of entry. [Basis: Regulation 2-6-409.2]
8. The owner/operator shall shutdown S-7 within 30 days of the start-up of S-14. [Basis: Cumulative Increase]
9. The owner/operator shall shutdown S-11 within 30 days of the start-up of S-15. [Basis: Cumulative Increase]

RECOMMENDATION

I recommend that conditional A/C's be issued to San Francisco International Airport for the following equipment:

- S-14 High Temperature Hot Water Generator (Unit HG-4), Model International-Lamont TJC-40, 42 MM BTU/hr, Multi-fuel
- S-15 High Temperature Hot Water Generator (Unit HG-1), Model International-Lamont TJC-25, 24 MM BTU/hr, Multi-fuel

I recommend that a Change of Condition be issued to San Francisco International Airport for the following equipment:

- S-12 High Temperature Hot Water Generator (IBW), 32 MM BTU/hr, Multi-fuel
- S-13 High Temperature Hot Water Generator, 62 MM BTU/hr, Multi-fuel

All sources are subject to Condition #24716.

Conditions #18328 and #14614 shall be archived.

EXEMPTION

No e

Hon
Air Quality Engineer II
July 12, 2010

Application 21458-Standby Diesel Generators S-680 & S-710. (2010)

**EVALUATION REPORT
SAN FRANCISCO INTERNATIONAL AIRPORT
APPLICATION #21458
PLANT #1784**

BACKGROUND

San Francisco International Airport (SFO) is applying for an A/C & P/O for the following equipment:

- S-680 Emergency standby diesel generator set: MTU Detroit Diesel engine, Model 12V2000G84, Model year: 2009, EPA/CARB Engine family name: 9MDDL31.8XRR, 1119 BHP capacity
- S-710 Emergency standby diesel generator set: MTU Detroit Diesel engine, Model 12V2000G84, Model year: 2009, EPA/CARB Engine family name: 9MDDL31.8XRR, 1119 BHP capacity

The proposed generator sets are new sources to replace existing S-310 and S-370:

- S-310 Emergency Generator Boarding Area D, 900 HP
- S-370 Emergency Generator Boarding Area D, 465 HP

Both of S-310 and S-370 are powered by pre-2000 diesel engines with actual non-emergency operating hour of 30 hr/yr/engine per applicant's email.

EMISSION CALCULATIONS

Basis:

1. Emission calculation is based on CARB certified emission factors for the two proposed new sources. For the S-310 and S-370 (to be replaced) contemporaneous emission reduction credit calculations, AP42 Table 3.4-1 and AP42 Table 3.3-1 emission factors are used respectively, except for PM (CARB default PM emission factor: 0.4 g/bhp-hr, ACTM non-emergency operating hour limit: 30 hr/yr.) Per the applicant's information, the reliability-related hours are 30 hr/yr for each of the S-310 and S-370.
2. Reliability-related activities for the two new proposed sources are limited to 20 hr/yr each in order pass the health risk screening analysis conducted by Toxics based on the stack configurations and exhaust gas flow rates submitted earlier and agreed stack heights of at least 30 feet above grade. The 20 hr/yr/engine limit is concurred by the applicant per their April 26, 2010 email. Then, the applicant informed the District that there would be two stacks per engine instead of one per engine, and with different stack configurations and exhaust flow rates. Risk analysis was conducted again, and it was confirmed that the project passes the analysis with the original reliability-related hours limited to 20 hr/yr/engine.

	HC*	NOx*	CO	PM	SO2
S-680					
g/BHP-hr	0.23	4.32	1.19	0.12	0.004
Annual Average Daily Emissions (lb/day)	0.03	0.58	0.16	0.02	0.00
Maximum Daily Emissions (lb/day)	13.44	255.32	70.49	7.05	0.23
Plant Cumulative Increase (ton/yr)	0.006	0.106	0.029	0.003	0.000
S-710					
g/BHP-hr	0.23	4.32	1.19	0.12	0.004

Annual Average Daily Emissions (lb/day)	0.03	0.58	0.16	0.02	0.00
Plant Cumulative Increase (ton/yr)	0.006	0.106	0.029	0.003	0.000
Maximum Daily Emissions (lb/day)	13.44	255.32	70.49	7.05	0.23

* The CARB certified combined NMHC+NOx emission rate is 4.03 g/BHP-hr. Following District policy, the estimated individual emission rates for NMHC and NOx are based on 5%/95% NMHC/NOx split.

PLANT CUMULATIVE INCREASE

Emission factors used for the following table are detailed in Emission Calculation Section:

Proposed Sources	HC*	NOx*	CO	PM	SO2
S-680 Plant Cumulative Increase (ton/yr)	0.006	0.106	0.029	0.003	0.000
S-710 Plant Cumulative Increase (ton/yr)	0.006	0.106	0.029	0.003	0.000
S-310 (To be replaced)	HC	NOx	CO	PM	SO2
lb/BHP-hr	0.000705	0.0240	0.0055	0.00088	0.000012
g/BHP-hr	0.320	10.89	2.49	0.40	0.006
S-310 Contemporaneous On-Site Credit from Shutdown (ton/yr)	-0.010	-0.324	-0.074	-0.012	0.000
S-370 (To be replaced)	HC	NOx	CO	PM	SO2
lb/BHP-hr	0.002514	0.031	0.00668	0.00088	0.000012
g/BHP-hr	1.140	14.06	3.03	0.40	0.006
S-370 Contemporaneous On-Site Credit from Shutdown (ton/yr)	-0.017	-0.214	-0.046	-0.006	0.000
Total change in Cumulative Increase Under This Project (ton/yr)	-0.015	-0.326	-0.062	-0.012	0.000

RISK SCREEN ANALYSIS

This application triggers health risk assessment per Regulation 2-5 (New Source Review of Toxic Air Contaminants) because the PM emissions of the proposed sources exceed 0.58 lb/yr each. Health risk assessment was performed by Ted Hull of Toxics. It was found that the proposed sources pass the assessment with reliability-related activities limited to no more than 20 hr/yr/engine (per applicant's request) provided that their stack heights have to be raised to at least 30 feet above grade. The applicant concurs both the annual hour limits and the stack heights by emails. Then, the applicant informed the District that there would be two stacks per engine instead of one per engine, and with different stack configurations and exhaust flow rates. Risk analysis was conducted again, and it was confirmed that the project, with the latest changes, passes the analysis with the original concurred reliability-related hour limit i.e. 20 hr/yr/engine.

BACT DETERMINATION

Since the emissions of CO, NMHC, and NOx can potentially exceed 10 lb per highest day, BACT is triggered per Regulation 2-1-301. However, BACT requirements are satisfied because the emission factors of CO and NOx+NMHC of the proposed sources are less than the respective 2.6 g/bhp-hr and 4.8 g/bhp-hr guidelines in the BACT Workbook.

OFFSET REQUIREMENT

This application does not require offset because there will be no net increase in emission, and no existing NOx or POC cumulative increase.

COMPLIANCE DETERMINATION

The proposed emergency standby generator engines are expected to operate in compliance with Regulation 6-303 (Ringelmann No. 2 Limitation), Regulation 6-310 (Particulate Weight Limitation, 0.15 gr/dscf), Regulation 9-1-304 Fuel Burning (<0.5% S by weight) and Regulation 9-8-330 (Emergency Standby Engines, Hours of Operation).

These sources trigger NSR rule. However, BACT's are met.

These sources comply with State ATCM for diesel particulate: CARB-certified emissions ≤ 0.15 g/bhp-hr and no more than 50 hr/yr of non-emergency use.

The engines comply with the federal non-road NSPS emission standards for model year 2009, as documented by CARB Executive Order U-R-052-0008.

This project is considered to be ministerial. The CEQA Checklist is checked and attached.

These sources are not located within 1,000 feet of the outer boundary of the nearest school, therefore school notice is not required.

CONDITIONS

S-680 Emergency standby diesel generator set; MTU Detroit Diesel engine, Model 12V2000G84, Model year: 2009, EPA/CARB Engine family name: 9MDDL31.8XRR, 1119 BHP capacity

S-710 Emergency standby diesel generator set; MTU Detroit Diesel engine, Model 12V2000G84, Model year: 2009, EPA/CARB Engine family name: 9MDDL31.8XRR, 1119 BHP capacity

1. Operating for reliability-related activities is limited to 20 hours per year per engine.
[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 or 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 hours 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 or 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)]

The following condition will also be linked to S-680 and S-710 to ensure that S-310 and S-370 will be shut down permanently within 90 days of startup of S-690 and S-700:

1. Within 90 days of startup of emergency standby diesel generator sets (S-680 and S-710), the owner/operator shall shut down and surrender the operating permits for Boarding Area D Generators (S-310 and S-370).

[Basis: Regulations 2-2-302 and 2-2-410]

RECOMMENDATION

I recommend that conditional A/C's be issued to San Francisco International Airport for the following equipment:

- | | |
|-------|---|
| S-680 | Emergency standby diesel generator set: MTU Detroit Diesel engine, Model 12V2000G84, Model year: 2009, EPA/CARB Engine family name: 9MDDL31.8XRR, 1119 BHP capacity |
| S-710 | Emergency standby diesel generator set: MTU Detroit Diesel engine, Model 12V2000G84, Model year: 2009, EPA/CARB Engine family name: 9MDDL31.8XRR, 1119 BHP capacity |

EXEMPTION

None.



Hon Man
Air Quality Engineer II
April 30, 2010

Application 21514- Standby Diesel Generators S-690 & S-700. (2010)

**EVALUATION REPORT
SAN FRANCISCO INTERNATIONAL AIRPORT
APPLICATION #21514
PLANT #1784**

BACKGROUND

San Francisco International Airport (SFO) is applying for an A/C & P/O for the following equipment:

S-690 Emergency standby diesel generator set: Volvo Diesel engine, Model TAD1641GE, Model year: 2009, EPA/CARB Engine family name: 9VPXL16.1ACB, 757 BHP capacity

S-700 Emergency standby diesel generator set: Volvo Diesel engine, Model TAD1641GE, Model year: 2009, EPA/CARB Engine family name: 9VPXL16.1ACB, 757 BHP capacity

These are new diesel generator sets to replace the existing permitted S-280 (with year 1986 diesel engine):

S-280 1135 HP Diesel Field Lighting Generator #2, Cummins KTA 38-GS1, 7.9 MMBTU/hr

EMISSION CALCULATIONS

Basis:

1. Emission calculation is based on CARB certified emission factors for the two proposed new sources. For the S-280 (to be replaced) contemporaneous emission reduction credit calculation, AP42 Table 3.4-1 emission factors are used except for PM (CARB default PM emission factor is used.) Per the applicant's information, the S-280 reliability-related hours are 20 hr/yr.
2. Reliability-related activities (non-emergency) for the two new proposed sources are limited to 25 hr/yr each in order to avoid the NOx offset requirement. The applicant concurs with the 25 hr/yr/engine limit.

S-690	HC*	NOx*	CO	PM	SO2
g/BHP-hr	0.20	3.83	0.52	0.07	0.003
Annual Average Daily Emissions (lb/day)	0.02	0.44	0.06	0.01	0.00
Maximum Daily Emissions (lb/day)	8.05	152.90	20.86	2.98	0.14
Plant Cumulative Increase (ton/yr)	0.004	0.080	0.011	0.002	0.000
S-700	HC*	NOx*	CO	PM	SO2
g/BHP-hr	0.20	3.83	0.52	0.07	0.003
Annual Average Daily Emissions (lb/day)	0.02	0.44	0.06	0.01	0.00
Maximum Daily Emissions (lb/day)	8.05	152.90	20.86	2.98	0.14
Plant Cumulative Increase (ton/yr)	0.004	0.080	0.011	0.002	0.000

* The CARB certified combined NMHC+NOx emission rate is 4.03 g/BHP-hr. Following District policy, the estimated individual emission rates for NMHC and NOx are based on 5%/95% NMHC/NOx split.

PLANT CUMULATIVE INCREASE

Emission factors used for the following table are detailed in Emission Calculation Section:

S-280 (to be replaced)	HC	NOx	CO	PM	SO2
lb/BHP-hr	0.000705	0.0240	0.0055	0.00	0.002
g/BHP-hr	0.320	10.89	2.49	0.63	0.687
Plant Cumulative Decrease (ton/yr)	0.008	0.272	0.062	0.016	0.017
S-690 Plant Cumulative Increase (ton/yr)	0.004	0.080	0.011	0.002	0.000
S-700 Plant Cumulative Increase (ton/yr)	0.004	0.080	0.011	0.002	0.000
Total Plant Cumulative Increase (ton/yr)	0.000	-0.113	-0.041	-0.013	-0.017

RISK SCREEN ANALYSIS

This application triggers health risk assessment per Regulation 2-5 (New Source Review of Toxic Air Contaminants) because the PM emissions of the proposed sources exceed 0.58 lb/yr. Health risk assessment was performed by Ted Hull of Toxics. It was found that the proposed sources pass the assessment because the maximum cancer risk for the project is estimated to be 0.6 in a million for both engines assuming 50 hr/yr/engine (reliability-related activities). Since the applicant concurs with the 25 hr/yr/engine limit for reliability-related activities, the maximum cancer risk is estimated to be 0.3 in a million for this project, and therefore complies with Regulation 2-5.

BACT DETERMINATION

Since the emissions of CO and NOx can potentially exceed 10 lb per highest day, BACT is triggered per Regulation 2-1-301. However, BACT requirements are satisfied because the emission factors of CO and NOx+NMHC of the proposed sources are less than the respective 2.6 g/bhp-hr and 4.8 g/bhp-hr guidelines in the BACT Workbook.

OFFSET REQUIREMENT

This application does not require offsets because there is no net increase of NOx emissions and no pre-existing cumulative increase.

COMPLIANCE DETERMINATION

The proposed emergency standby engines are expected to operate in compliance with Regulation 6-303 (Ringelmann No. 2 Limitation), Regulation 6-310 (Particulate Weight Limitation, 0.15 gr/dscf), Regulation 9-1-304 Fuel Burning (<0.5% S by weight) and Regulation 9-8-330 (Emergency Standby Engines, Hours of Operation).

These sources trigger NSR rule. However, BACT's are met.

These sources comply with State ATCM for diesel particulate: CARB-certified emissions \leq 0.15 g/bhp-hr and no more than 50 hr/yr of non-emergency use.

The engines comply with the federal non-road NSPS emission standards for model year 2009, as documented by CARB Executive Order U-R-014-0112.

This project is considered to be ministerial. The CEQA Checklist is checked and attached.

These sources are not located within 1,000 feet of the outer boundary of the nearest school, therefore school notice is not required.

CONDITIONS

S-690 Emergency standby diesel generator set: Volvo Diesel engine, Model TAD1641GE, Model year: 2009, EPA/CARB Engine family name: 9VPXL16.1ACB, 757 BHP capacity

S-700 Emergency standby diesel generator set: Volvo Diesel engine, Model TAD1641GE, Model year: 2009, EPA/CARB Engine family name: 9VPXL16.1ACB, 757 BHP capacity

1. Operating for reliability-related activities is limited to 25 hours per year per engine.
[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 or 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 hours 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 or 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)]

The following condition will also be linked to S-690 and S-700 to ensure that S-280 will be shut down permanently within 90 days of startup of S-690 and S-700:

1. Within 90 days of startup of emergency standby diesel generator sets (S-690 and S-700), the owner /operator shall shut down and surrender the operating permit for Diesel Field Lighting Generator #2 (S-280).

[Basis: Regulation 2-2-302 and 2-2-410]

RECOMMENDATION

I recommend that A/C's be waived and conditional P/O's be issued to San Francisco International Airport for the following equipment:

- S-690 Emergency standby diesel generator set: Volvo Diesel engine, Model TAD1641GE, Model year: 2009, EPA/CARB Engine family name: 9VPXL16.1ACB, 757 BHP capacity
- S-700 Emergency standby diesel generator set: Volvo Diesel engine, Model TAD1641GE, Model year: 2009, EPA/CARB Engine family name: 9VPXL16.1ACB, 757 BHP capacity

EXEMPTION

None.



Hon Man
Air Quality Engineer II
April 19, 2010

Application 23441- Boilers S-16, S-17. (2011)

ENGINEERING EVALUATION
SAN Francisco International Airport
PLANT NO. 1784
APPLICATION NO. 23441

BACKGROUND

San Francisco Airport Authority is applying for an Authority to Construct and/or Permit to Operate the following equipment:

S-16 Natural Gas Fired Hot Water Heater, International-Lamont TJW-C-25, 30.2 MM Btu/hr
S-17 Natural Gas Fired Hot Water Heater, International-Lamont TJW-C-50, 50.9 MM Btu/hr

The heaters are equipped with low-NO_x burners and flue gas recirculation. Sources S-16 and S-17 are replacing existing heaters S-12 and S-13. S-16 operates 4032 hours per year and S-17 operates 2016 hours per year.

EMISSION CALCULATION AND SUMMARY

The following furnishes the emission calculation basis. Table 1 furnishes the emission factors for the S-16 and S-17 and emissions in lb/yr, lb/highest day, t/yr and total annual emissions in t/yr.. Table 2 furnishes the Plant Cumulative Emissions.

Calculation Basis for Sources S-16 and S-17:

<u>Parameter</u>	<u>S-16</u>	<u>S-17</u>
Maximum heat input (MM Btu/hr)	30.2	59.9
Operation (Days per Year)	168	84
Operation (hours per year)	4032	2016
HHV of Natural gas (Btu/cu.ft)	1020	1020
Heat input per year:		
--- MM Btu/Year	121,726	120,839.04
--- Therms/Year	1,217,260	1,208,390.4
--- MM Cu.ft. per Year	119.3	118.5

Table 1: S-16 and S-17 Emission Factors and Emissions

Pollutant	Emission Factor lb/MM Btu	Source S-16			Source S-17			Total Annual emission t/yr
		lb/yr	lb/day	t/yr	Lb/yr	Lb/day	t/yr	
NO _x	0.011	1339	8	0.7	1329.2	15.8	0.7	1.4
CO	0.037	4503.9	26.8	2.3	4471	53.2	2.2	4.5
VOC	0.0012	146.1	0.9	0.1	145	1.7	0.1	0.2
PM ₁₀	0.005	608.6	3.6	0.3	604.2	7.2	0.3	0.6
SO ₂	0.0006	73.0	0.4	0.04	72.5	0.9	0.04	0.08

* Emission factors guaranteed by S-16 and S-17 water heater manufacturer

Table 2: Plant Cumulative Increase (since 4/5/91)

Pollutant	Existing (TPY)	New (TPY)	Total (TPY)
NO _x	0.0	1.4	1.4
CO	9.29	4.5	13.79
POC	0.03	0.2	0.23
PM ₁₀	1.32	0.6	1.92
SO ₂	0.01	0.08	0.09
NPOC	0	0	0

Toxic Risk Screening:

Emissions of toxic air contaminants from the natural gas fired water heaters S-16 and S-17 do not exceed any Toxic Air Contaminant trigger levels of Table 2-5-1 of Regulation 2-5.

Table 3 Toxic Air Contaminant Emission

Toxic Compound	Emission Factor lb/MM Btu	S-16		S-17		Trigger Levels	
		lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr
Benzene	2.06 E-6	0.00006	0.3	0.00012	0.25	2.9	6.4
Formaldehyde	7.35 E-5	0.002	9	0.004	8.88	0.21	30
Toluene	3.33 E-6	0.0001	0.4	0.0002	0.40	82	12

STATEMENT OF COMPLIANCE

The owner/operator of S-16 and S-17 Natural Gas Fired Water Heaters shall comply with Reg. 6-1 (Particulate Matter), Reg. 9-1-301 (Inorganic Gaseous Pollutants: Sulfur Dioxide for Limitations on Ground Level Concentrations), and Regulation 9-7. The owner/operator is expected to comply with Regulation 6-1 since the unit is fueled with natural gas. Thus for any period aggregating more than three minutes in any hour, there should be no visible emission as dark or darker than No. 1 on the Ringlemann Chart (Regulation 6-1-301) and no visible emission to exceed 20% opacity (Regulation 6-1-302). Sulfur oxides are also very low since natural gas is being used to fire the boiler. International Boiler Works guarantees NO_x emissions of 9 ppmvd at 3% O₂ and CO emissions of 50 ppmvd at 3% O₂ while firing natural gas. The sources meet the NO_x and CO limits of 30 ppmvd NO_x at 3% O₂ and 400 ppmvd CO at 3% O₂ of Regulations 9-7-301.1 and 9-7-301.2 (Gaseous Fuel Emission Limits). Further the 9 ppm NO_x emission guarantee by the boiler manufacturer also meets the standards that will be applicable from January 1, 2012.

CEQA:

The project is considered to be ministerial under the District's CEQA regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of

standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA. (Permit Handbook Chapter 2.1 for Boilers)

The project is over 1000 feet from the nearest school and therefore not subject to the public notification requirements of Reg. 2-1-412.

Best Available Control Technology: In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO_x, CO, SO₂ or PM₁₀. Based on the emissions calculations above, BACT is triggered for both sources S-16 and S-17. For S-16 BACT is triggered since the CO emission is 26.8 lb/day exceeding the 10 lb/day BACT trigger limit. For source S-17 BACT is triggered since CO and NO_x emission exceed 10 lb/day. For S-17 CO emission is 15.8 lb/day and NO_x emission is 53.2 lb/day. S-16 complies with BAAQMD BACT Guidelines for boilers rated at less than 33.5 MMBtu/hr. (CO emissions of 50 ppmvd at 3% O₂). For S-17 size boilers (59.9 MM Btu/hr) the NO_x emission achieved in practice is 5 ppm. These boilers are equipped with ultra-low NO_x burners. S-17 will be operating for 84 days in a year. The difference in the annual NO_x emission between 9 ppm and 5 ppm is 0.3021 tons for S-17. The ultra-low NO_x burners cost approximately \$200,000 more than the presently proposed low-NO_x burners. Further the low-NO_x burner emission of 9 ppmvd NO_x @3% O₂ complies with the new Regulation 8-7-307 that will be the standard from January 1, 2012. Thus no further control will be required for S-17. Proper monitoring and record keeping will be part of the condition to assure compliance to the NO_x and CO emission limits and annual throughput limit.

Offsets: Offsets must be provided for any new or modified source at a facility that emits more than 10 tons/yr of POC or NO_x per Regulation 2-2-302. The District may provide offsets from the Small Facility Banking Account for a facility with emissions between 10 and 35 tons/yr of POC or NO_x, provided that facility has no available offsets. The facility has triggered offsets in previous permit applications for NO_x. This offset requirement was met by the small facility bank. In this application also the offset requirement of 1.334 tons per year of NO_x and 0.176 ton per year of POC will be met by the small facility bank.

S-16 and S-17 are not subject to NSPS Subpart Dc—Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units—since they are exclusively fired on natural gas.

PSD and NESHAPS do not apply.

PERMIT CONDITIONS

The following condition applies to the following sources;

S-16 Natural Gas Fired Hot Water Heater, International-Lamont TJW-C-25, 30.19 MM Btu/hr
S-17 Natural Gas Fired Hot Water Heater, International-Lamont TJW-C-50, 50.94 MM Btu/hr

Condition # 25080

1. The owner/operator shall fire exclusively natural gas fuel at sources S-16 and S-17. (basis: Cumulative Increase).
2. The owner o/operator shall not exceed the total heat input of 1,217,260 therms at source S-16 and 1,208,390 therms at source S-17 during any consecutive 12 month period.
3. To determine compliance with the part 2, the owner/operator of S-16 and S-17 shall install a dedicated non-resettable totalizing natural gas meters for each source and shall maintain the monthly records of natural gas consumption in a District approved log. These logs shall be kept for at least 2 years and shall be made available to the District upon request (basis: Cumulative Increase)
4. The owner/operator of each source S-16 and S-17 shall not allow, NO_x emissions, calculated as NO₂, at the stack outlets to exceed 9 ppmvd @ 3% oxygen while operating at 25% to 100% full load range. [Basis: Cumulative Increase, BACT]

5. The owner/operator of each source S-16 and S-17 shall not allow CO emissions at the stack outlets to exceed 50 ppmvd @ 3% oxygen while operating at 25% to 100% full load range. [Basis: Cumulative Increase and BACT]
6. The owner/operator of S-16 and S-17 within 30 days of startup shall conduct a District approved source test in accordance with the District's Manual of Procedures to verify that it complies with Parts 4 and 5 as follows:
 - a. NO_x = 9 ppm @ 3% O₂
 - b. CO = 50 ppm @ 3% O₂

The permit holder shall notify the Manager of the District's Source Test Section at least seven (7) days prior to the test, to provide the District staff the option of observing the testing. Within 30 days of test completion, a comprehensive report of the test results shall be submitted to the Manager of the District's Source Test Section and the Manager of the Permit Evaluation Section for review and disposition.

(basis: Cumulative Increase; BACT; Regulation 2-1-403)

7. The owner/operator of S-16 and S-17 shall conduct source tests every two years to demonstrate compliance with Part 4 and Part 5. The results of these tests shall be submitted to the District Source Test Section for review and disposition.

RECOMMENDATION

Issue an Authority to Construct to San Francisco International Airport for the following sources subject to Condition #25080.

S-16 Natural Gas Fired Hot Water Heater, International-Lamont TJW-C-25, 30.19 MM Btu/hr
S-17 Natural Gas Fired Hot Water Heater, International-Lamont TJW-C-50, 50.94 MM Btu/hr

Hari Doss
Air Quality Engineer II

APPENDIX B GLOSSARY

APPENDIX B GLOSSARY

ACT

Federal Clean Air Act

APCO

Air Pollution Control Officer

ARB

Air Resources Board

BAAQMD

Bay Area Air Quality Management District

BACT

Best Available Control Technology

BARCT

Best Available Retrofit Control Technology

Basis

The underlying authority that allows the District to impose requirements.

CAA

The federal Clean Air Act

CAAQS

California Ambient Air Quality Standards

CAPCOA

California Air Pollution Control Officers Association

CCR

California Code of Regulations

CEC

California Energy Commission

CEQA

California Environmental Quality Act

CEM

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

CFR

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

CO

Carbon Monoxide

CO₂

Carbon Dioxide

Cumulative Increase

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

District

The Bay Area Air Quality Management District

dscf

Dry Standard Cubic Feet

dscm

Dry Standard Cubic Meter

E 6, E 9, E 12

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

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

GLM

Ground Level Monitor

grain

1/7000 of a pound

HAP

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

LOE

Loss of Exemption.

Major Facility

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

MFR

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

MOP

The District's Manual of Procedures.

MSDS

Material Safety Data Sheet

NA

Not Applicable

NAAQS

National Ambient Air Quality Standards

NESHAPS

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

NMHC

Non-methane Hydrocarbons (Same as NMOC)

NMOC

Non-methane Organic Compounds (Same as NMHC)

NO_x

Oxides of nitrogen.

NSPS

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

NSR

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

O₂

The chemical name for naturally-occurring oxygen gas.

Offset Requirement

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

Phase II Acid Rain Facility

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

POC

Precursor Organic Compounds

PM

Total Particulate Matter

PM₁₀

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.

SIP

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

SO₂

Sulfur dioxide

THC

Total Hydrocarbons (NMHC + Methane)

therm

100,000 British Thermal Units

Title V

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

TOC

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

TPH

Total Petroleum Hydrocarbons

TRMP

Toxic Risk Management Plan

TSP

Total Suspended Particulate

VOC

Volatile Organic Compounds

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
cfm	=	cubic feet per minute
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
gr	=	grain
hp	=	horsepower
hr	=	hour
lb=		pound
in=		inches
max	=	maximum
m ²	=	square meter
min	=	minute
M	=	thousand
MM	=	million
mm	=	millimeter
MMbtu	=	million btu
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scfm	=	standard cubic feet per minute

yr = year

Symbols:

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

APPENDIX C BAAQMD COMPLIANCE REPORT

BAAQMD COMPLIANCE REPORT

COMPLIANCE & ENFORCEMENT DIVISION

Inter-Office Memorandum

March 20, 2012

TO: JIM KARAS – ACTING DIRECTOR OF ENGINEERING *Ji Karas*
FROM: BRIAN BATEMAN – DIRECTOR OF ENFORCEMENT *BB*

SUBJECT: REVIEW OF COMPLIANCE RECORD OF:

SAN FRANCISCO INTERNATIONAL AIRPORT; SITE #A1784

Background

This review was initiated as part of the District evaluation of an application by SAN FRANCISCO INTERNATIONAL AIRPORT for a Title V Permit Renewal. It is standard practice of the Compliance and Enforcement Division to undertake a compliance record review in advance of a renewal of a Title V Permit. The purpose of this review is to assure that any non-compliance problems identified during the prior five-year permit term have been adequately addressed, or, if non-compliance persists, that a schedule of compliance is properly incorporated into the Title V permit compliance schedule. In addition, the review checks for patterns of recurring violation that may be addressed by additional permit terms. Finally, the review is intended to recommend, if necessary, any additional permit conditions and limitations to improve compliance.

SAN FRANCISCO INTERNATIONAL AIRPORT is an airport facility that operates a water quality control plant, multiple emergency generators for aircraft operations, a non-retail gas dispensing facility and coating operation.

Compliance Review

Compliance records were reviewed for the time period from April 14, 2004 through March 20, 2012. The results of this review are summarized as follows.

1. Violation History

Staff reviewed SAN FRANCISCO INTERNATIONAL AIRPORT Annual Compliance Certifications and found no ongoing non-compliance and no recurring pattern of violations.

REVIEW OF COMPLIANCE RECORD OF:
San Francisco International Airport – SITE # A1784
March 20, 2012
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Staff also reviewed the District compliance records for the review period. During this period SAN FRANCISCO INTERNATIONAL AIRPORT activities known to the District include:

District-issued no Notices of Violation.

2. Complaint History

The District received two air pollution complaint alleging SAN FRANCISCO INTERNATIONAL AIRPORT as the source. The first complaint alleged a fuel odor on April 26, 2008. The complaint was not confirmed. The second complaint alleged a jet exhaust odor on December 26, 2008. The complaint was not confirmed. No action was taken due to no public nuisance or other violation documented.

3. Reportable Compliance Activity

Reportable Compliance Activity (RCA), also known as "Episode" reporting, is the reporting of compliance activities involving a facility as outlined in District Regulations and State Law. Reporting covers breakdown requests, indicated monitor excesses, pressure relief device releases, inoperative monitor reports and flare monitoring.

Within the review period, the District did not receive a notification for an RCA.

4. Enforcement Agreements, Variances, or Abatement Orders

SAN FRANCISCO INTERNATIONAL AIRPORT applied for a variance from Regulation 6, Rule 1, Section 303.1 on February 20, 2008. Docket #03549 was assigned. The variance was for testing a specific engine that was suspected of potentially violating the visible emissions standard in Regulation 6, Rule 1. A source test was conducted during the engine test on March 28, 2008 verifying that Regulation 6, Rule 1, Section 303.1 was not violated. The variance was withdrawn on April 1, 2008. There were no enforcement agreements or abatement orders for SAN FRANCISCO INTERNATIONAL AIRPORT within the review period.

Conclusion

Following its review of all available facility and District compliance records from April 14, 2004 through March 20, 2012, the District's Compliance and Enforcement Division has determined that SAN FRANCISCO INTERNATIONAL AIRPORT was in continuous compliance. The SAN FRANCISCO INTERNATIONAL AIRPORT has demonstrated no evidence of ongoing noncompliance and no recurring pattern of violations that would warrant consideration of a Title V permit compliance schedule for this facility.

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Based on this review and analysis of all the violations for the review period, the District has concluded that no schedule of compliance or change in permit terms is necessary beyond what is already contained in the facility's current Title V permit.