

**Bay Area Air Quality Management District**

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

**MAJOR FACILITY REVIEW PERMIT**

for

**BAE Systems San Francisco Ship Repair, Inc.  
Facility #A3288**

**Facility Address:**

Foot of 20<sup>th</sup> Street

San Francisco CA 94120

**Mailing Address:**

PO Box 7644

San Francisco CA 94120

Application Engineer: Dennis Jang

Site Engineer: Dennis Jang

Application #27856

November 2, 2016

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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 volatile organic compounds, a regulated air pollutant.

Major Facility Review 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 last renewal Major Facility Review Permit. The review also included an assessment of all monitoring in the permit for sufficiency to determine compliance.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

Each facility located in the Bay Area Air Quality Management District 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 A3288.

This application is for the third permit renewal. Although their current Title V permit expired on May 9, 2016, it continues in force because BAE submitted a complete renewal Title V application on November 9, 2015, at least 6 months prior to the permit expiration date.

Since the Title V permit was last renewed on May 10, 2011, the standard sections of Title V permits issued by the District have been revised. Accordingly, these sections will be updated in the new renewal permit. The proposed permit shows all changes to the permit in ~~strikeout~~/underline format.

The engineering evaluation for application 22494 is attached as Appendix B. It is a change of permit conditions application that was issued on 12/23/10 prior to the issuance of the last renewal Title V permit on May 10, 2011. However, the changes evaluated under application 22494 were not reflected in the Title V renewal. Therefore, this renewal will reflect the changes made to S-13 covered by application 22494.

## **B. Facility Description**

BAE Systems San Francisco Ship Repair, Inc. is a marine repair facility located at the foot of 20<sup>th</sup> Street in San Francisco, California. The facility performs maintenance, alterations, repair, and modernization of ships, including cruise liners, tankers, bulk carriers and container ships, military vessels, and local ships. Their operations include cleaning, welding, abrasive blasting, coating, and hand lay-up of polyester resin for touch-up and repair. Emissions from this facility include particulate emissions from the blasting operations including lead from the removal of lead-based paint, volatile organic compound and volatile organic hazardous air pollutant emissions from the coating, polyester resin operations, and solvent cleaning operations, as well as combustion emissions from one prime diesel engine, and exempt natural gas combustion sources. There has been no significant change in emissions at this facility since the issuance of the second renewal Title V permit on May 10, 2011.

## **C. Permit Content**

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

### **I. Standard Conditions**

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

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

#### Changes to permit:

- The amendment dates of the regulations listed in section I.A. have been updated as necessary
- The District mailing address listed in section I.F. has been updated and an e-mail address for submitting monitoring reports has been added
- The EPA mailing address listed in section I.G. has been updated and an e-mail address for submitting the compliance certification has been added

### **II. Equipment**

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

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

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

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

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

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

The following are explanations of the differences in the equipment list between the time that the facility originally applied for this renewal Title V permit and the permit proposal date:

***Devices Permitted Since Renewal Application was submitted:***

None

***Devices with Changed Permit Status:***

None

***District permit applications not included in this proposed permit:***

None

***Corrections to Devices Shown in Renewal Application:***

None

**Changes to Permit:**

- S-15 Diesel Engine has been deleted from Table II A because it was removed from service

### 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:

- SIP Regulation 8, Rule 47, Air Stripping and Soil Vapor Extraction Operations
- California Health and Safety Code Title 17, Subchapter 10, Article 2, Sections 95100 through 95109, Mandatory Greenhouse Gas Emissions Reporting was deleted because it is not considered an applicable requirement for the purposes of Title V permitting per a determination of the District Legal division

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

### 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.

#### Changes to permit:

The following changes have been made to Table IV-A:

- The adoption date for 40 CFR 63, Subpart II has been updated
- 40 CFR 63.785(e) has been added per 11/21/11 amendments to the regulation
- 40 CFR 63.786(e) has been added per 11/21/11 amendments to the regulation

The following changes have been made to Table IV-C:

- The adoption date for 40 CFR 63, Subpart II has been updated
- 40 CFR 63.785(e) has been added per 11/21/11 amendments to the regulation
- 40 CFR 63.786(e) has been added per 11/21/11 amendments to the regulation

The following changes have been made to Table IV-E:

- The amendment date for BAAQMD Regulation 9, Rule 8 has been updated
- Regulation citation 9-8-111.3 has been added to clarify that S-13 is exempt from the emission limitations of the regulation due to low-usage because it is a prime engine and not an emergency standby engine
- 9-8-502.1 has been added since it applies to any engine exempt per 9-8-111.3

Table IV-F will be deleted because S-15 Diesel Engine has been removed from service.

Table IV-G has been relabeled as Table IV-F.

#### ***Complex applicability determinations:***

40 CFR Part 64, Compliance Assurance Monitoring (CAM) does not apply to the following sources at this facility since they do not exhaust to abatement devices.

S-1 Paint Spraying/Abrasive Blasting Operation  
S-2 Abrasive Blasting Operation  
S-10 Paint Spray Booth  
S-12 Polyester Resin Operation  
S-13 Auxiliary Harbor Craft Prime Diesel Engine on Dry Dock #2

S-16 Abrasive Blast Room is abated by S-16 Baghouse. However, the pre-abatement emissions for this source are less than 100 tons per year. Therefore, CAM does not apply to S-16. The maximum annual pre-abatement PM10 emissions for this source are:

$$\begin{aligned} (750,000 \text{ lb abrasive/yr})(\text{ton}/2000 \text{ lbs})(82 \text{ lbs PM10/ton abrasive}) &= 30,750 \text{ lbs PM10/yr} \\ &= 15.375 \text{ tons per year} \end{aligned}$$

S-1 Paint Spraying/Abrasive Blasting Operation and S-10 Paint Spray Booth continue to be subject to 40 CFR 63, Subpart II, National Emission Standards for Shipbuilding and Ship Repair (Surface Coating). This NESHAP was amended on November 21, 2011. The citations for this regulation have been revised to reflect the amendments. No new NESHAPs apply to this facility.

S-13 is located on a floating dry-dock that is permanently tied to a pier. It is not moved around the facility from one pier to another. It is only moved during dredging operations every three years. Therefore, it is, for all intents and purposes, a stationary source. Because S-13 is not used to propel the dry-dock, it is considered to be an auxiliary engine on a marine vessel as defined below.

S-13 Auxiliary Harbor Craft Prime Diesel Engine on Dry Dock #2 is subject to the Section 93118.5, title 17, chapter 1, subchapter 7.5, California Code of Regulations, entitled "Airborne Toxic Control Measure for Commercial Harbor Craft". The harbor craft ATCM does not address the issue of mobile versus stationary. S-15 meets the definition of Harbor craft as follows:

ATCM 93118.5(d)(36): "Harbor Craft" (also called "Commercial Harbor Craft") means any private, commercial, government, or military marine vessel including, but not limited to, passenger ferries, excursion vessels, tugboats, ocean-going tugboats, towboats, push-boats, crew and supply vessels, work boats, pilot vessels, supply boats, fishing vessels, research vessels, U.S. Coast Guard vessels, hovercraft, emergency response harbor craft, and barge vessels that do not otherwise meet the definition of ocean-going vessels or recreational vessels.

ATCM 93118.5(d)(84): "Vessel" or "Marine Vessel" means any tugboat, tanker, freighter, passenger ship, barge, or other boat, ship, or watercraft, except those used primarily for recreation.

ATCM 93118.5(5): "Auxiliary Engine" means an engine designed primarily to provide power for uses other than propulsion.

ATCM 93118.5(8): "Barge" means a vessel having a flat-bottomed rectangular hull with sloping ends and built with or without a propulsion engine.

Because S-13 is not used for the propulsion of the floating dry-dock, the only applicable requirements of the ATCM are the low-sulfur fuel usage requirement and the hour-meter installation requirement. The engine emission requirements of 93118.5(e)(6)(A)1. apply only to in-use ferry, excursion vessel, tugboat, towboat, push boat, or multipurpose harbor craft.

S-13 is exempt from the ATCM for Stationary Compression Ignition Engines per 93115.2(a)(3) because it is an auxiliary engine used on a marine vessel. As discussed above, it is considered to be stationary because it meets the definition of "stationary CI engine" from the ATCM.

Per 93115.4 – ATCM for Stationary CI Engines – Definitions



(72) "Stationary CI Engine" means a CI engine that is designed to stay in one location, **or remains in one location**. A CI engine is stationary if any of the following are true:

(A) the engine or its replacement is attached to a foundation, or if not so attached, **resides at the same location for more than 12 consecutive months**. Any engine such as backup or standby engines, that replaces an engine at a location and is intended to perform the same or similar function as the engine(s) being replaced, shall be included in calculating the consecutive time period. The cumulative time of all engine(s), including the time between the removal of the original engine(s) and installation of the replacement engine(s), will be counted toward the consecutive time period; or

(B) the engine remains or will reside at a location for less than 12 consecutive months if the engine is located at a seasonal source and operates during the full annual operating period of the seasonal source, where a seasonal source is a stationary source that remains in a single location on a permanent basis (at least two years) and that operates at that single location at least three months each year; or

(C) the engine is moved from one location to another in an attempt to circumvent the 12 month residence time requirement. The period during which the engine is maintained at a storage facility shall be excluded from the residency time determination.

Where "location" is defined as:

(46) "Location" means any single site at a facility.

S-13 is subject to Regulation 6-1-303.1 because it has a displacement of less than 1500 cubic inches.

S-13 is subject to Regulation 9, Rule 8 because it meets the following definition:

*"9-8-204 Stationary Internal Combustion Engine (Engine): Any spark or compression ignited internal combustion engine that is operated, or intended to be operated, at a specific site for more than one year or is attached to a foundation at that site."*

S-13 is not subject to 40 CFR 63, Subpart ZZZZ because it is "mobile" and therefore does not meet the following definition of "Stationary reciprocating internal combustion engine (RICE)" from 40 CFR 63.6675. The NESHAP does not define mobile. However, according to Webster's Collegiate Dictionary, "mobile" is defined as "capable of moving or being moved". Because S-13 is located on a floating dry dock that can be moved, it is considered mobile.

*"Stationary reciprocating internal combustion engine (RICE) means any reciprocating internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition."*

S-13 is not subject to 40 CFR Part 94 Control of Emissions from Marine Compression-Ignition Engines because it was manufactured prior to January 1, 2004. S-13 was manufactured in 1965.

S-13 is not subject to 40 CFR Part 1042 Control of Emissions from New and In-use Marine Compression-Ignition Engines and Vessels because it is not a “new marine engine” as defined in 40 CFR 1042.901.

## V. Schedule of Compliance

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

“409.10 A schedule of compliance containing the following elements:

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

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

### Changes to permit:

None

## 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.

Additional monitoring has been added, where appropriate, to assure compliance with the applicable requirements.

#### Changes to permit:

Permit condition #24810 that applied to S-15 Diesel Engine will be deleted because S-15 has been removed from service.

### **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.

**SO<sub>2</sub> Sources**

<b>S# &amp; Description</b>	<b>Emission Limit Citation</b>	<b>Federally Enforceable Emission Limit</b>	<b>Monitoring</b>
S-13 Prime Diesel Engine, Dry Dock	BAAQMD 9-1-301	Ground level concentrations of SO <sub>2</sub> 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

**SO<sub>2</sub> Discussion:**

**BAAQMD Regulation 9-1-301**

Area monitoring to demonstrate compliance with the ground level SO<sub>2</sub> concentration requirements of Regulation 9-1-301 is at the discretion of the APCO (per BAAQMD Regulation 9-1-501). S-13 Prime Diesel Engine will be fired on low-sulfur California diesel fuel with a maximum sulfur content of 0.05% by weight and therefore will not emit large amounts of SO<sub>2</sub>. As a whole the facility will not emit large quantities of SO<sub>2</sub> and will not cause significant ground

level SO2 concentrations. Therefore, ground level monitoring will not be required by the APCO to determine compliance with Regulation 9-1-301.

PM Sources

<b>S# &amp; Description</b>	<b>Emission Limit Citation</b>	<b>Federally Enforceable Emission Limit</b>	<b>Monitoring</b>
S-13 Prime Diesel Engine, Dry Dock	BAAQMD Regulation 6-1-303.1	Ringelmann 2.0	None
S-13 Prime Diesel Engine, Dry Dock	BAAQMD Regulation 6-1-310	0.15 gr/dscf	None

**PM Discussion:**BAAQMD Regulation 6, Rule 1 “Particulate Matter, General Requirements”Visible Emissions

BAAQMD Regulation 6-1-303.1 limits visible emissions from internal combustion engines with a displacement of less than 1500 cubic inches to no darker than 2.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour). Because the S-13 Prime Diesel Engine 15 will be fired exclusively on California low-sulfur diesel fuel, visible emissions are not expected. In addition, the engines are only operated on a limited basis while ships are being moved into or out of the associated dry dock. Therefore, no monitoring will be required to verify compliance with Regulation 6-1-303.1.

Particulate Weight Limitation

BAAQMD Regulation 6-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Section 310.3 limits filterable particulate emissions from “heat transfer operations” to 0.15 gr/dscf @ 6% O<sub>2</sub>. These are the “grain loading” standards.

S-13 Prime Diesel Engine particulate emissions are calculated as follows:

$$(0.998 \text{ g PM/bhp-hr})(320 \text{ bhp})(\text{lb}/453.6 \text{ g})(7000 \text{ gr/lb})(\text{hr}/60 \text{ min})/(720 \text{ dscfm}) \\ = 0.11 \text{ gr/dscf}$$

The source complies with the grain loading standard in Regulation 6, Section 310.

Changes to permit:

Table VII-F for S-15 Prime Diesel Generator Engine will be deleted because S-15 has been removed from service.

Table VII-G for S-16 Abrasive Blast Room will be relabeled as Table VII-F.

**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.

This permit has no streamlining.

### Changes to permit:

None

## **X. Revision History**

### Changes to permit:

The revision history will be updated.

## **XI. Glossary**

### Changes to permit:

The glossary was updated.

**D. Alternate Operating Scenarios:**

No alternate operating scenario has been requested for this facility.

**E. Compliance Status:**

The responsible official for BAE Systems San Francisco Ship Repair, Inc. submitted a signed Certification Statement form dated October 3, 2016. On this form, the responsible official certified that the following four statements are true:

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

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

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

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

**F. Differences between the Application and the Proposed Permit:**

The Title V permit application was originally submitted on November 9, 2015. This version is the basis for constructing the proposed Title V permit.



**APPENDIX A**

**GLOSSARY**

**ACT**

Federal Clean Air Act

**APCO**

Air Pollution Control Officer

**ARB**

Air Resources Board

**BAAQMD**

Bay Area Air Quality Management District

**BACT**

Best Available Control Technology

**Basis**

The underlying authority which allows the District to impose requirements.

**CAA**

The federal Clean Air Act

**CAAQS**

California Ambient Air Quality Standards

**CAM**

Compliance Assurance Monitoring per 40 CFR Part 64

**CAPCOA**

California Air Pollution Control Officers Association

**CEM**

Continuous Emission Monitor

**CEQA**

California Environmental Quality Act

**CFR**

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

**CO**

Carbon Monoxide

**Cumulative Increase**

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

**District**

The Bay Area Air Quality Management District

**EPA**

The federal Environmental Protection Agency.

**Excluded**

Not subject to any District regulations.

**Federally Enforceable, FE**

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

**FP**

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

**HAP**

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

**Major Facility**

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

**MFR**

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

**MOP**

The District's Manual of Procedures.

**NAAQS**

National Ambient Air Quality Standards

**NESHAPS**

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

**NMHC**

Non-methane Hydrocarbons (Same as NMOC)

**NMOC**

Non-methane Organic Compounds (Same as NMHC)

**NO<sub>x</sub>**

Oxides of nitrogen.

**NSPS**

Standards of Performance for New Stationary Sources. Federal standards for emissions from

new stationary sources. Mandated by Title I, Section 111 of the Federal Clean Air Act, and implemented by 40 CFR Part 60 and District Regulation 10.

**NSR**

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

**Offset Requirement**

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

**Phase II Acid Rain Facility**

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

**POC**

Precursor Organic Compounds

**PM**

Particulate Matter

**PM10**

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

**PSD**

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

**PTE**

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

**SIP**

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

**SO2**

Sulfur dioxide

**THC**

Total Hydrocarbons (NMHC + Methane)

**Title V**

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

**TOC**

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

**TPH**

Total Petroleum Hydrocarbons

**TSP**

Total Suspended Particulate

**VOC**

Volatile Organic Compounds

**Units of Measure:**

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

**APPENDIX B**

**Application 22494**

**Engineering Evaluation**

**ENGINEERING EVALUATION**  
**BAE Systems San Francisco Ship Repair Inc**  
**Plant: 3288**  
**Application: 22494**

**BACKGROUND**

**BAE Systems San Francisco Ship Repair Inc has applied to change the conditions for the following equipments:**

- S-13 Auxiliary Harbor Craft Engine on Dry dock #2  
Caterpillar, Model D336, Model Year: 1965  
320 BHP, 1.92 MMBTU/hr**
- S-15 Diesel Generator for Eureka Dry dock  
Komatsu, Model 56D105, Model Year: 1965  
154.8 BHP, 1.01 MMBTU/hr**

Located at Foot of 20<sup>th</sup> Street, San Francisco, CA 94120

S-13 and S-15 have been in operation since 1965 and were thus installed before May 17, 2000 when Regulations 1 and 2 were modified to require engines at or greater than 50 HP to require a Permit to Operate. Consequently, S-13 and S-15 were “Loss-Of-Exclusion” (LOE) sources i.e., a source that was previously excluded from permitting per section 1-110.2, which was later deleted on May 17, 2000. S-13 and S-15 are not subject to the New Source Review Requirements (i.e. NSPS, BACT, cumulative increase, offsets, toxic review, public notification requirements triggered by proximity to a K-12 school), but they are subject to the Airborne Toxic Control Measure (ATCM).

S-13 and S-15 were previous permitted in the District as Emergency Standby generators which were later found out not to be the case since both S-13 and S-15 are performing non-emergency operations (ballasting and deballasting in the drydocks and/or shipyards). The applicant decided to apply for Administrative Condition Changes after discussion with the staffs of the Engineering Division. Conditions for S-13 are to be changed to reflect requirements in the ATCM for Harbor Craft and District Regulations. Conditions of S-15 are to be changed to “Low-use” prime engine to reflect the requirements in the ATCM for Stationary Compression Ignition Engines and the District Regulations. There will be no emission increase due to the condition changes.

S-13 is an auxiliary engine on a floating dry-dock, which is considered to be a Harbor Craft under the definition in ATCM Section 93118.5. Airborne Toxic Control Measure for Commercial Harbor Craft  
ATCM 93118.5(d)(36)

“Harbor Craft” (also called “Commercial Harbor Craft”) means any private, commercial, government, or military marine vessel including, but not limited to, passenger ferries, excursion vessels, tugboats, ocean-going tugboats, towboats, push-boats, crew and supply vessels, work boats, pilot vessels, supply boats, fishing vessels, research vessels, U.S. Coast Guard vessels, hovercraft, emergency response harbor craft, and barge vessels that do not otherwise meet the definition of ocean-going vessels or recreational vessels.

ATCM 93118.5(d)(84)

“Vessel” or “Marine Vessel” means any tugboat, tanker, freighter, passenger ship, barge, or other boat, ship, or watercraft, except those used primarily for recreation.

S-13 is not subject to ATCM section 93115. Airborne Toxic Control Measure for Stationary Compression Ignition (CI) Engines. Since S-13 is an auxiliary engine on a floating dry dock.

S-15 is a Prime Engine located on land and provides electric power to the Eureka dry-dock nearby, so S-15 is subject to ATCM for In-use Prime Stationary Compression Ignition Engines. (ATCM 93115.7(b))

S-15 will operate as a “Low-use” Engine, so it will operate for less than 20 hrs/yr and is thus exempt from the provision of ATCM 93115.7(b)(1) [Basis: ATCM 93115.3(j)]

**EMISSIONS**

There is no limit on operating hour0073 for S-13 since ATCM 93118.5(e)(6) does not apply to engines on dry-docks. The operation hours for S-13 will be assumed based on its regular operating schedule, which is about 80 hrs/yr max. S-15 can only be allowed the maximum of 20 hours per year to qualify for low usage.

Basis for S-13:

320 hp output rating  
80 hr/yr of operation  
14 gallons/hr max fuel use rate

Basis for S-15

154.8 hp output rating  
20 hr/yr operation  
7.4 gallons/hr max fuel use rate

For S-13 and S-15

Since no emission factors were provided and a CARB Executive order was not issued for this engine, the AP-42 emission factors were used:

NOx	14.07 g/bhp-hr
CO:	3.03 g/bhp-hr
THC (~POC):	1.12 g/bhp-hr
PM <sub>10</sub> :	1.00 g/bhp-hr)

***Annual Emissions:***

Annual emissions are calculated based on the number of hours per year of operation for testing and maintenance. See Table 1.

***Daily Emissions:***

Daily emissions are calculated based on 24-hr/day. See Table 1 and Table 2 for emissions detail.

Table 1 – Estimated Emissions from S-13

From CARB/EPA Certified Data Pollutant	Emission Factor (g/hp-hr)	Annual Emissions (lb/yr)	Annual Emissions (TPY)	Max. Daily (lb/day)
NOx	14.07	793.37	0.3967	238.01
POC	1.12	63.15	0.0316	18.95
CO	3.03	170.85	0.0854	51.26
PM10	1.00	56.39	0.0282	16.92
SO2*	0.001515	0.12	0.00006	0.04

Note: \* From Table 3.4-1 of AP-42 lb SO2/MMBTU  
15ppm ULSD

Table 2- Estimated Emissions from S-15

From CARB/EPA Certified Data Pollutant	Emission Factor (g/hp-hr)	Annual Emissions (lb/yr)	Annual Emissions (TPY)	Max. Daily (lb/day)
NOx	14.07	95.95	0.0480	115.14
POC	1.12	7.64	0.0038	9.17
CO	3.03	20.66	0.0103	24.80
PM10	1.00	6.82	0.0034	8.18
SO2*	0.001515	0.03	0.00002	0.04

Note: \* From Table 3.4-1 of AP-42 lb SO2/MMBTU  
15ppm ULSD

**PLANT CUMULATIVE INCREASE**



Emissions from S-13 and S-15 do not count towards the facility's cumulative increase since S-13 and S-15 is not defined as a new or modified source pursuant to Regulation 2-1.

### **TOXIC RISK SCREENING ANALYSIS**

S-13 and S-15 are not subject to any of the requirements in the District's Regulation 2, Rule 5. A Toxic Risk Screen Analysis was not required for this source since S-13 and S-15 are neither a new nor modified source, and are not subject to Regulation 2-1-316.

### **BACT and OFFSETS**

S-13 and S-15 are not subject to BACT requirements from Regulation 2-2 because they are a Loss-Of-Exemption source. Offsets are not required because S-13 and S-15 are neither a new nor modified source pursuant to Regulation 2-1 nor 2-2.

### **CARB Stationary Diesel Engine ATCM**

The State Office of Administrative Law approved the Airborne Toxic Control Measure (ATCM) on November 8, 2004. State law requires the local air districts to implement and enforce the requirements of the ATCM.

Effective January 1, 2005, in-use prime CI engines that are greater than 50 bhp and are not certified to any Tier level are required to meet the following PM limit

- 1) 85% reduction from baseline levels; or
- 2) 0.01g/hp-hr ; or
- 3) 30% reduction from baseline levels and 0.01 g/hp-hr by no later than July 1<sup>st</sup>, 2011.

(Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection 93115.7 (b)(1)).

ATCM 93115.3 (j) Request for Exemption for Low-Use Prime Engines Outside of School Boundaries:

The district APCO may approve a Request for Exemption from the provisions of section 93115.7(b)(1) for any in-use stationary diesel-fueled CI engine located beyond school boundaries, provided the approval is in writing, and the writing specifies all of the following conditions to be met by the owner or operator:

- (1) the engine is a prime engine;
- (2) the engine is located more than 500 feet from a school at all times;
- (3) the engine operates no more than 20 hours cumulatively per year.

(Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection 93115.3 (j)).

Note: the written approval from the District is attached to the engineering evaluation.

S-15 is an "in-use" prime engine, and the engine is located more than 500 feet from a school at all times; S-15 is allowed up to 20 hrs of operation and is exemption from the PM limit in ATCM 93115.7(b)(1)

### **CARB Commercial Harbor Craft ATCM**

"Commercial Harbor Craft ATCM" Section 93118.5(e)(6) In-Use Engines and Vessels – Schedules for Meeting Tier 2 or Tier 3 Standards.

Section 93118.5(e)(6)(A) For Pre-Tier 1 and Tier-1 Certified Engines on Ferries, Excursion Vessels, Tugboats, Towboats, Push Boats, and Multipurpose Harbor Craft Only.

Section 93118.5(e)(6)(A) (1). Applicability.

This subsection (e)(6) applies to any person who owns, operates, sells, purchases, offers for sale, leases, rents, imports, or otherwise acquires an in-use ferry, excursion vessel, tugboat, towboat, push boat, or multipurpose harbor craft with a pre-Tier 1 or Tier-1 certified engine for use in any of the Regulated California Waters. This subsection applies to all such engines on all such vessels.

S-13 is not subject to requirement for meeting Tier 2 or Tier 3 Standards since S-13 is not classified as an in-use ferry, excursion vessel, tugboat, towboat, push boat, or multipurpose harbor craft.

S-13 is subject to 93118.5(g) recordkeeping requirements.

**STATEMENT OF COMPLIANCE**

Source S-13 and S-15 are subject to and expected to be in compliance with the requirements of District Regulation 1-301 (Public Nuisance), Regulation 6-1-303 (Ringelmann No. 2 Limitation), Regulation 9-1 (Sulfur Dioxide) and Regulation 9-8 (NOx and CO from Stationary Internal Combustion Engines). In order to ensure compliance with the requirements of these regulations, the facility will be conditionally permitted to meet the requirements.

From Regulation 1-301, no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which causes, or has a natural tendency to cause, injury or damage to business or property. For purposes of this section, three or more violation notices validly issued in a 30 day period to a facility for public nuisance shall give rise to a rebuttable presumption that the violations resulted from negligent conduct.

S-13 and S-15 are subject to the limitations of Regulation 6-1-303 (Ringelmann No. 2 Limitation). Regulation 6, Rule 1, Section 303 states that a person shall not emit for a period or periods aggregating more than three minutes in any hour, a visible emission that is as dark or darker than No. 2 on the Ringelmann Chart, or of such opacity as to obscure an observer’s view to an equivalent or greater degree, nor shall said emission, as perceived by an opacity sensing device in good working order, where such device is required by District Regulations, be equal to or greater than 40% opacity. This low PM10 emitting engine is not expected to produce visible emissions or fallout in violation of this regulation, and it will be assumed to be in compliance with Regulation 6 pending a regular inspection

S-1 is also subject to the SO<sub>2</sub> limitations of Regulation 9-1-301 (*Limitation on Ground Level Concentrations of Sulfur Dioxide*), Regulation 9-1-302 (*General Emission Limitation*) and 9-1-304 (*Fuel Burning*). From Regulation 9-1-301, the ground level concentrations of SO<sub>2</sub> will not exceed 0.5 ppm continuously for 3 consecutive minutes or 0.25 ppm averaged over 60 consecutive minutes, or 0.05 ppm averaged over 24 hours. Per Regulation 9, Rule 1, Section 302, a person shall not emit from any source a gas stream containing sulfur dioxide in excess of 300 ppm (dry). And Regulation 9, Rule 1, Section 304, states that a person shall not burn any liquid fuel having sulfur content in excess of 0.5% by weight. Compliance with both Regulations 9-1-302 and 9-1-304 is likely since California law mandates using diesel fuel with a 0.015% by weight sulfur.

Regulation 9-8 “NOx and CO from Stationary Internal Combustion Engines.” From Regulation 9-8-110 and Regulation 9-8-111, this source is not subject to the requirements of Regulations 9-8-301 (Emission Limits on Fossil Derived Fuel Gas), 9-8-302 (Emission Limits on Waster Derived Fuel Gas), 9-8-304 (Emission Limits on Compression Ignited Engines), 9-8-501 (Initial Demonstration of Compliance), and 9-8-503 (Quarterly Demonstration of Compliance).

S-13 and S-15 are subject to Regulation 9-8-502.1 (*Recordkeeping*). The requirements of this Regulation are included in the permit conditions

This application is considered to be ministerial under the District's proposed CEQA guidelines, Regulation 2-1-311 (*Ministerial Projects*) and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emission factors in accordance with Permit Handbook Chapter 2.3.

S-13 and S-15 are not defined as a new or modified source and therefore not subject to the public notification requirements of Regulation 2-1-412 (*Public Notice and Schools*).

Offsets, PSD, NSPS, Toxic Risk Screening, and NESHAPS are not applicable.

**PERMIT CONDITIONS**

For S-13,  
COND# 24809 -----  
S-13 Auxiliary Harbor Craft Engine on Dry-dock #2  
BAE Systems San Francisco Ship Repair Inc (Oct 2010)

1. The total hours of operation for S-13 is limited to no more than 80 hrs per year.  
[Basis: ATCM 93118.5(e)(6)]

2. Visible particulate emissions from S-13 shall not be as dark as or darker than No. 2 on Ringlemann Chart for a period or periods aggregating more than three minutes in any hour.  
[Basis: District Regulation 6-301]
3. 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.
  - b. Fuel usage for each engine(s).[Basis: "Stationary Diesel Engine ATCM" section 93118.5(g), title 17, CA Code of Regulations]

***End of Conditions***

For S-15  
COND# 24810-----  
S-15 Diesel Generator for Eureka Dry-dock  
BAE Systems San Francisco Ship Repair Inc (Oct 2010)

1. Operating for S-15 is limited to no more than 20 hours per year.  
  
[Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection 93115.3(j)]
2. Visible particulate emissions from S-15 shall not be as dark as or darker than No. 2 on Ringlemann Chart for a period or periods aggregating more than three minutes in any hour.  
  
[Basis: District Regulation 6-301]
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 60 months if the facility has been issued a Title V Major Facility Review 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.
  - b. 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. The engine shall be located more than 500 feet from a school at all times  
"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 93115.3(j)]

*End of Conditions*

**RECOMMENDATION**

Perform a Change of Condition to **BAE Systems San Francisco Ship Repair Inc** for:

- S-13 Auxiliary Harbor Craft Engine on Dry dock #2  
Caterpillar, Model D336, Model Year: 1965  
320 BHP, 1.92 MMBTU/hr**
- S-15 Diesel Generator for Eureka Dry dock  
Komatsu, Model 56D105, Model Year: 1965  
154.8 BHP, 1.01 MMBTU/hr**

By: \_\_\_\_\_

Yu Zhang Liu  
**Air Quality Engineer Intern  
Engineering Division**

Attachment: written approval letter