

**DRAFT  
ENGINEERING EVALUATION REPORT**

<b>Plant Name:</b>	<b>El Camino Hospital</b>
<b>Application Number:</b>	<b>16736</b>
<b>Plant Number:</b>	<b>4272</b>

**BACKGROUND**

The applicant, El Camino Hospital, is in the process of upgrading its physical facilities at its hospital in Mountain View.

Under this application, the applicant is applying for Authorities to Construct for six new sources. These sources will replace six existing sources at the hospital.

The applicant is requesting ACs for the following equipment:

- S-12 SPACE HEAT BOILER, CLEAVER-BROOKS MODEL 4WI-NTI-400-150ST, 16.4 MMBTU/HR**
- S-13 SPACE HEAT BOILER, CLEAVER-BROOKS MODEL 4WI-NTI-400-150ST, 16.4 MMBTU/HR**
- S-14 SPACE HEAT BOILER, CLEAVER-BROOKS MODEL 4WI-NTI-400-150ST, 16.4 MMBTU/HR**
- S-15 EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLER MODEL 3516C, 2937 BHP  
ABATED BY**
- A-5 CATALYZED DIESEL PARTICULATE FILTER, SID-CHEMIE SENBI CAT-DPF**
- S-16 EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLER MODEL 3516C, 2937 BHP  
ABATED BY**
- A-6 CATALYZED DIESEL PARTICULATE FILTER, SID-CHEMIE SENBI CAT-DPF**
- S-17 EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLER MODEL 3516C, 2937 BHP  
ABATED BY**
- A-7 CATALYZED DIESEL PARTICULATE FILTER, SID-CHEMIE SENBI CAT-DPF**

## CUMULATIVE IMPACT

### Criteria Pollutants

Under Regulation 2, Rule 2, any new source which results in a significant increase of criteria pollutants must be evaluated for adherence to BACT control technologies. For compression ignition I.C. engines, this means the engines must be fired on “California Diesel Fuel” (fuel oil with less than 0.05% by weight sulfur content, and less than 20% by volume aromatic hydrocarbons). TBACT also requires that the engines emit no more than 0.15 g/bhp-hr of PM10 and 6.9 g/bhp-hr of NOx. The diesel engines proposed in this application meet BACT/TBACT requirements.

The three generators S-15, S-16, and S-17 are abated by catalyzed diesel particulate filters, and will be using ultra-low sulfur fuel. After abatement, the engines will have a PM10 emission factor of less than .01 g/bhp-hr. Under Section (2)(A)3 a II of the ATCM for Stationary Compression Ignition Engines, these engines may be permitted for up to 100 hours per year operation per engine.

Criteria emissions for the three standby generators were calculated using the CARB certified emission factors as abated by the catalyzed diesel particulate filters.

The three space heat boilers, S-12, S-13, and S-14, are water-tube forced-draft boilers with flue gas recirculation and low NOx burners. They are single fueled (natural gas).

Criteria pollutants for the boilers were calculated using the manufacturer's emission factors.

Based on operation of 100 hours per year per generator, and 8,760 hours per year per boiler, total criteria pollutants for this project are as follows:

SOURCE	DESCRIPTION	MM BTU/HR	PM10 LB/HR	ORG LB/HR	NOx LB/HR	SO2 LB/HR	CO LB/HR
S-12	STEAM BOILER	16.4	0.122	0.026	0.290	0.027	0.600
S-13	STEAM BOILER	16.4	0.122	0.026	0.290	0.027	0.600
S-14	STEAM BOILER	16.4	0.122	0.026	0.290	0.027	0.600

		BHP	PM10 LB/HR	ORG LB/HR	NOx LB/HR	SO2 LB/HR	CO LB/HR
S-15	GENERATOR	2937	0.048	0.384	24.311	0.029	1.304
S-16	GENERATOR	2937	0.048	0.384	24.311	0.029	1.304
S-17	GENERATOR	2937	0.048	0.384	24.311	0.029	1.304
<b>TOTAL LB/HR</b>			<b>0.51</b>	<b>1.23</b>	<b>73.80</b>	<b>0.17</b>	<b>5.71</b>
<b>TOTAL LB/YR</b>			<b>3,221</b>	<b>798</b>	<b>14,914</b>	<b>718</b>	<b>16,159</b>
<b>TPY</b>			<b>1.61</b>	<b>0.40</b>	<b>7.46</b>	<b>0.36</b>	<b>8.08</b>

Since the space heat boilers exceed a 10 lb/day emission rate for NO<sub>x</sub> and CO, the boilers must meet BACT limitations. At 25% ppmv at 3% O<sub>2</sub> for NO<sub>x</sub> and 50 ppmv at 3% O<sub>2</sub> for CO, the boilers meet BACT.

Cumulative impact for this project is summarized in Attachment 1.

### **Toxic Pollutants**

Toxic air pollutants are emitted by the combustion sources under consideration. Because several of the pollutants emitted by the generators and boilers exceed the trigger level set in Regulation 2, Rule 5 for such pollutants, a health risk assessment must be performed for the project. A summary of toxic pollutants and their emission factors is given in Attachment 2.

Boiler toxic pollutant emission factors from natural gas combustion were taken from CATEF. CARB certified emission factors for PM<sub>10</sub> were used for the generators.

None of the toxic emissions exceed the acute trigger levels for the pollutants of concern.

### **MODELING**

An ISCST3 risk screen for the 11 identified pollutants emitted by the boilers and generators emitted at their respective emission release points was run using both rural and urban terrain data, both with and without raincaps, using MOF met data. The applicant is requesting 100 hours per year operation of the generators.

There is a school located approximately 146 feet from the sources. Because a school is located less than 500 feet from the generators, the generators will be required to operate during non-school hours only.

A summary of the model ISCST3 inputs and results is attached as Attachment 3.

### **TOTAL RISK**

Health Risk Results		
Receptor	Maximum Cancer Risk	Chronic Hazard Index
Resident	1.6 chances in a million	0.004
Offsite Worker	0.3 chances in a million	0.002
Student (St. Francis)	0.001 chances in a million	0.0002

The maximum toxic risk from this project is 1.6 in a million, and so the application for an AC for the total project at 100 hours per year use for the generators, and 8,760 hours per year use of the boilers is acceptable under Regulation 2, Rule 5.

## **COMPLIANCE DETERMINATION**

These sources are covered under ministerial exemptions in the BAAQMD Permit Handbook, Chapter 2.3 for generators and Chapter 2.1 for small boilers. CEQA is not triggered for emergency stand-by generators or small boilers under these provision.

The boilers meet current District New Source Review requirements for boilers with rated firing rates of 5 MM BTU/HR to <33.5 MM BTU/hr as they have low NOx burners and flue gas recirculation (BAAQMD BACT Guidelines, August 12, 1994). The sources emit more than 10 lbs/day of NOx and CO, and thus must meet BACT limitations. Requirements to restrict NOx emissions to no more than 25 ppmv, dry, at 3% oxygen, dry, and to restrict CO emissions to no more than 50 ppmv at 3% oxygen, dry will be included in the sources' authority to construct/permit to operate conditions

These are new sources, and six sources are proposed to be closed in connection with this application. After start-up of these sources and shut-down of the sources to be replaced, the facility will have the potential to emit approximately 18.08 TPY of criteria pollutants. Since no source has the potential to emit more than 10 TPY of POCs or NOx, emission offsets are not required under Regulation 2-2-302. Since the facility is not a Major Facility under Regulation 2-1-204, PM10 and SO2 offsets are not required under Regulation 2-2-303. A summary of the facility's Potential to Emit is shown in Attachment 4.

## **CONDITIONS**

Condition #23830, setting out the operating conditions and recordkeeping requirements for operations at Sources S-12, S-13, and S-14, and Condition #23831, setting out the operating conditions and recordkeeping requirements for operations at Sources S-15, S-16, and S-17 shall be made part of the sources' Authority to Construct.

## **RECOMMENDATION**

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

<b>S-12</b>	<b>SPACE HEAT BOILER, CLEAVER-BROOKS MODEL 4WI-NTI-400-150ST, 16.4 MMBTU/HR</b>
<b>S-13</b>	<b>SPACE HEAT BOILER, CLEAVER-BROOKS MODEL 4WI-NTI-400-150ST, 16.4 MMBTU/HR</b>
<b>S-14</b>	<b>SPACE HEAT BOILER, CLEAVER-BROOKS MODEL 4WI-NTI-400-150ST, 16.4 MMBTU/HR</b>

<b>S-15</b>	<b>EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLER MODEL 3516C DI ATAAC, 2937 BHP ABATED BY A-5 CATALYZED DIESEL PARTICULATE FILTER, SID-CHEMIE SENBI CAT-DPF</b>
<b>S-16</b>	<b>EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLER MODEL 3516C DI ATAAC, 2937 BHP ABATED BY A-6 CATALYZED DIESEL PARTICULATE FILTER, SID-CHEMIE SENBI CAT-DPF</b>
<b>S-17</b>	<b>EMERGENCY STANDBY DIESEL GENERATOR, CATERPILLER MODEL 3516C DI ATAAC, 2937 BHP ABATED BY A-7 CATALYZED DIESEL PARTICULATE FILTER, SID-CHEMIE SENBI CAT-DPF</b>

subject to Condition # for Sources S-12, S-13, and S-14, and Condition # for Sources S-15, S-16, and S-17.

By \_\_\_\_\_ Date 2/25/08  
*PSD Evaluator*

1. Sources S-12, S-13 and S-14 shall burn only natural gas. (Reg 9-7.306)
2. The total fuel usage at Sources S-12, S-13, and S-14 shall not exceed 4,309,920 therms per year in any 12-month consecutive period.
3. NOx emissions from any boiler shall not exceed 25 ppmv at 3% oxygen, dry at any firing rate when firing natural gas. (BACT; 8/12/94)
4. CO emissions from any boiler shall not exceed 100 ppmv at 3% oxygen, dry at any firing rate when firing natural gas. (BACT; 8/12/94)
5. The permit holder shall maintain records of total monthly natural gas usage, and dates and times of such usage for each boiler. Such records shall be retained for at least two years from date of entry and shall be made available to District staff upon request. (Reg 9-7-503)
6. In order to demonstrate compliance with the above provisions, within 60 days of start-up, the permit holder shall perform a District-approved source test, in accordance with the District's Manual of Procedures. The permit holder shall notify the Manager of the District's Source Test Section at least seven days prior to the scheduled source test, to provide District staff the opportunity to observe the test. Within 45 days of test completion, the permit holder shall submit a comprehensive report of the test results to the Manager of the District's Source Test Section for review and disposition. (Reg 9-7-403)
7. In order to demonstrate compliance with the above, the permit holder shall install and maintain a non-resettable totalizing fuel meter for each fuel type, unless the permit holder applies for and receives written approval from the District to use an alternative method for measuring the cumulative annual fuel usage.

1. The owner/operator shall not exceed 100 hours per year per engine for reliability-related testing. [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3)]
2. The owner/operator shall operate each emergency standby engine only for the following purposes: to mitigate emergency conditions, for emission testing to demonstrate compliance with a District, State or Federal emission limit, or for reliability-related activities (maintenance and other testing, but excluding emission testing). Operating while mitigating emergency conditions or while emission testing to show compliance with District, State or Federal emission limits is not limited. [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3)]
3. The owner/operator shall operate each emergency standby engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated and properly maintained. [Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection(e)(4)(G)(1)]
4. Records: The owner/operator shall maintain the following monthly records in a District-approved log for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit). Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.
  - a. Hours of operation for reliability-related activities maintenance and testing).
  - b. Hours of operation for emission testing to show compliance with emission limits.
  - c. Hours of operation (emergency).
  - d. For each emergency, the nature of the emergency condition.
  - e. Fuel usage for each engine(s).

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

5. At School and Near-School Operation: If the emergency standby engine is located on school grounds or within 500 feet of any school grounds, the following requirements shall apply:

The owner/operator shall not operate each stationary emergency standby diesel-fueled engine for non-emergency use, including maintenance and testing, during the following periods:

- a. Whenever there is a school sponsored activity (if the engine is located on school grounds)
- b. Between 7:30 a.m. and 3:30 p.m. on days when school in 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)]

End of Conditions