Preliminary
Determination of Compliance

Eastshore Energy Center

Bay Area Air Quality Management District
Application No. 15195
Site No. 18041

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Brian K. Lusher
Air Quality Engineer II

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I Background

On September 22, 2006, Eastshore Energy, LLC, a wholly owned subsidiary of Tierra Energy, submitted an Application for Certification (AFC) to construct and operate a simple-cycle (peaking) power plant, the Eastshore Energy Center (Eastshore), in the City of Hayward.

The proposed Eastshore site is located at 25101 Clawiter Road in the City of Hayward, Alameda County, in an area zoned for industrial uses. The proposed facility would be a nominal 115.5 megawatt (MW) simple cycle power plant consisting of 14 Wartsila 20V34SG natural gas-fired reciprocating engine generator sets and associated equipment including an emergency standby generator set (369 HP Diesel Engine). The Eastshore project is designed as a peaking facility to meet electric generation load during periods of high demand, which generally occur during daytime hours and more frequently during the summer than other portions of the year. The project is expected to have an annual capacity factor of approximately 45 percent, depending on weather-related customer demand, load growth, hydroelectric supplies, generating unit retirements and replacements, the level of generating unit and transmission outages, and other factors.

This is the Bay Area Air Quality Management District's (BAAQMD or District) Preliminary Determination of Compliance (PDOC) for the Eastshore Energy Center. Pursuant to District Regulation 2, Rule 3, Section 403, this document presents the District's preliminary determination that the proposed project will comply with applicable federal, state, and BAAQMD regulations, including the Best Available Control Technology (BACT) and emission offset requirements of the District's New Source Review regulation. Proposed permit conditions necessary to insure compliance with applicable rules and regulations and air pollutant emission calculations are also included. This document also includes a health risk assessment that estimates the impact of the project emissions on public health.

In accordance with BAAQMD Regulation 2, Rule 3, Section 404, this PDOC is subject to the public notice, public inspection, and public comment requirements of District Regulation 2, Rule 2, Sections 406 and 407. Notice is being given to the public of the availability of this PDOC, and the public will have 30 days from the date of the notice to comment on it. The District will review and consider all comments received from the public, and will then (as appropriate) make a Final Determination of Compliance (FDOC) pursuant to District Regulation 2, Rule 3, Section 405, which will be submitted to the California Energy Commission (CEC) for use during the certification process for this proposed facility.

The FDOC will also serve as the evaluation report for the BAAQMD Authority to Construct application number 15195. The Authority to Construct will be issued when and if the CEC certifies the project.

II Project Description

This section describes the equipment that would be installed at the proposed Eastshore Energy Center, the various operating scenarios that are anticipated, and what strategies and equipment will be used to control air emissions.

A. Permitted Equipment

Eastshore Energy, LLC is proposing a 115.5-MW, simple cycle power plant consisting of 14 Wartsila 20V34SG natural gas-fired reciprocating engine generator sets and associated equipment including an emergency standby generator set (369 HP Diesel Engine).

The proposed Eastshore Energy Center will consist of the following permitted equipment:

S-1 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-1 Selective Catalytic Reduction System and A-15 Oxidation Catalyst

S-2 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-2 Selective Catalytic Reduction System and A-16 Oxidation Catalyst

S-3 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-3 Selective Catalytic Reduction System and A-17 Oxidation Catalyst

S-4 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-4 Selective Catalytic Reduction System and A-18 Oxidation Catalyst

S-5 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-5 Selective Catalytic Reduction System and A-19 Oxidation Catalyst

S-6 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-6 Selective Catalytic Reduction System and A-20 Oxidation Catalyst

S-7 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-7 Selective Catalytic Reduction System and A-21 Oxidation Catalyst

S-8 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-8 Selective Catalytic Reduction System and A-22 Oxidation Catalyst

S-9 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-9 Selective Catalytic Reduction System and A-23 Oxidation Catalyst

S-10 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-10 Selective Catalytic Reduction System and A-24 Oxidation Catalyst

S-11 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-11 Selective Catalytic Reduction System and A-25 Oxidation Catalyst

S-12 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-12 Selective Catalytic Reduction System and A-26 Oxidation Catalyst

S-13 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-13 Selective Catalytic Reduction System and A-27 Oxidation Catalyst

S-14 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-14 Selective Catalytic Reduction System and A-28 Oxidation Catalyst

S-15 Emergency Standby Generator Set; Diesel Engine; Caterpillar Model C9ATAAC, 369 HP

The proposed Eastshore facility will also include the following equipment that is exempt from District permit requirements:

> Natural Gas Fired Heaters to Heat Incoming Natural Gas Feed to each Engine Generator Set, Max Firing Rate 2.0 MMBtu/hr.

The natural gas fired heaters are exempt from District permit requirements per Regulation 2, Rule 1, Section 114, which states:

> **2-1-114 Exemption, Combustion Equipment:** The following equipment is exempt from the requirements of Sections 2-1-301 and 302, only if the source does not emit pollutants other than combustion products, and those combustion products are not caused by the combustion of a pollutant generated from another source, and the source does not require permitting pursuant to Section 2-1-319.
>
> 114.1 Boilers, Heaters, Steam Generators, Duct Burners, and Similar Combustion Equipment:
>
> 1.1 Any of the above equipment with less than 1 million BTU per hour rated heat input.
>
> 1.2 Any of the above equipment with less than 10 million BTU per hour rated heat input if fired exclusively with natural gas (including compressed natural gas), liquefied petroleum gas (e.g. propane, butane, isobutane, propylene, butylenes, and their mixtures), or any combination thereof.

B. Equipment Operating Scenarios

1. 14 Natural Gas Fired Engine Generator Sets

The Eastshore project is designed as a peaking facility to meet electric generation load during periods of high demand, which generally occur during daytime hours and more frequently during the summer than other times of the year. The project is expected to have an annual capacity factor of approximately 45 percent, depending on weather-related customer demand, load growth, hydroelectric supplies, generating unit retirements and replacements, the level of generating unit and transmission outages, and other factors. The following operating scenarios are expected for the facility.

Base Load: Maximum continuous output

Load Following: Facility would be operated to meet contractual load and spot sale demand, with a total output less than the base load scenario

Partial Shutdown: Based upon contractual load and spot sale demand, it may be economically favorable to shutdown one or more engine generator sets; this would occur during periods of low overall demand such as late evening and early morning hours

Full Shutdown: May be caused by equipment malfunction, fuel supply interruption, or transmission line disconnect or if market price of electricity falls below cost of generation

The following projected operating scenario was utilized to estimate maximum annual air pollutant emissions from the 14 Engine Generator Sets.

- 4,000 hours of operation per year for each engine generator set
- 300 cold start-ups per engine generator set per year (30 minutes/start-up)
- 300 shut downs per engine generator set per year (8.5 minutes/shut down)

2. Emergency Standby Generator Set

The emergency standby diesel generator is intended for emergency use only, as defined by the California Air Resources Board at 17 C.C.R. section 93115(d)(25) (the Airborne Toxics Control Measure for stationary compression ignition engines). Such emergency conditions are not expected to be a common occurrence. In addition, the generator set will have to be operated occasionally on a short-term test basis for testing and in order to ensure operational reliability. This short-term operation will not exceed 50 hours per year.

C. Air Pollution Control Strategies and Equipment

The proposed Eastshore Energy Center includes sources that trigger the requirement to use Best Available Control Technology (BACT) in the District's New Source Review regulation (District Regulation 2, Rule 2, NSR) for emissions of nitrogen oxides (NO_x), carbon monoxide (CO), precursor organic compounds (POCs), and particulate matter of less than 10 microns in diameter

(PM_{10}). The control strategies and equipment that are being proposed to comply with BACT are as follows.

1. Selective Catalytic Reduction with Ammonia (NH_3) Injection for the Control of NO_x Emissions

Each engine generator set triggers BACT for NO_x emissions. The NO_x emissions from each engine generator set will be abated by selective catalytic reduction (SCR) systems with ammonia (NH_3) injection.

2. Oxidation Catalyst and Good Combustion Practices for the Control of CO Emissions

Each engine generator set triggers BACT for CO emissions. The engine generator sets will operate on a lean fuel mixture that minimizes incomplete combustion and CO emissions. The engine generator sets will be abated by oxidation catalysts, which oxidize the CO emissions and produce carbon dioxide (CO_2) and water.

3. Oxidation Catalyst and Good Combustion Practices for the Control of POC Emissions

Each engine generator set triggers BACT for POC emissions. The engine generator sets operate on a lean fuel mixture that minimizes incomplete combustion and POC emissions. The engine generator sets will be abated by oxidation catalysts, which also reduce POC emissions.

4. Exclusive Use of Clean-burning Natural Gas for the Control of SO_x and PM_{10} Emissions

Each generator set triggers BACT for SO_x and PM_{10} emissions. The engine generator sets will burn exclusively Public Utility Commission (PUC) regulated natural gas to minimize sulfur oxides (SO_x as sulfur dioxide, SO_2) and PM_{10} emissions. Because the SO_x emission rate is proportional to the sulfur content of the fuel burned and is not dependent upon other combustion characteristics, the use of "low sulfur content" natural gas will result in the lowest possible emission of SO_x. PM_{10} emissions are minimized through the use of best combustion practices and "clean burning" natural gas.

Table 1: Control Strategies and Emission Limits for Wartsila Engine Generator Sets

	Pollutant				
	NO_x	CO	POC	PM_{10}	SO_x
Control Technology	SCR	Oxidation Catalyst	Oxidation Catalyst	PUC-Regulated Natural Gas	PUC-Regulated Natural Gas
Emissions Limit[a]	5 ppmvd	13 ppmvd	25 ppmvd	2.2 lb/hr	0.237 lb/hr

[a]Concentrations in parts per million by volume dry (ppmvd) of NO_x, CO, and POC corrected to 15% oxygen (O_2) dry basis, and are averaged over a 1-hour period.

5. Use of CARB-Certified Engine and Limitation on Hours of Non-Emergency Use for the Control of Emergency Standby Generator Set Emissions.

The emergency standby generator set triggers BACT for NOx and CO. The generator set will be limited to 50 hours or less of non-emergency use per year, for testing and reliability purposes only, which will limit the emissions from this source. In addition, the emergency standby generator will be an engine certified by the California Air Resources Board as having air emissions that satisfy the District's BACT requirements.

III Facility Emissions

The facility regulated criteria air pollutant emissions and toxic air contaminant emissions are presented in the following tables. Detailed emission calculations, including the derivations of emission factors, are presented in the appendices.

A. Regulated Criteria Pollutants

Table 2 is a summary of the daily maximum regulated criteria air pollutant emissions for the permitted sources at the proposed Eastshore Energy Center. These emission rates are used to determine if the BACT requirements of the District New Source Review Regulation (NSR; Regulation 2, Rule 2) are triggered on a pollutant-specific basis. Pursuant to Regulation 2-2-301.1, any new source that has the potential to emit 10 pounds or more per highest day of POC, NPOC, NO_x (as nitrogen dioxide, NO_2), SO_x (as SO_2), PM_{10}, or CO is subject to the BACT requirement for that pollutant.

Table 2: Maximum Daily Regulated Criteria Air Pollutant Emissions for Each Proposed Source

Source	Pollutant, (lb/day) for each Engine				
	Nitrogen Oxides (as NO_2)	Carbon Monoxide	Precursor Organic Compounds	Particulate Matter (PM_{10})	Sulfur Dioxide
S-1 through S-14 Natural Gas Fired Engine Generator Set[a]	31.87	50.43	55.41	52.8	5.68
S-1 through S-14 Natural Gas Fired Engine Generator Set[b]	40.02	62.60	60.87	54.13	5.68
S-15 Emergency Standby Generator Set[c]	51.18	45.13	2.69	2.18	0.107

[a] All emission rates on this line are based upon 24 hours of Engine Generator Set full load operation.

[b] NO_x (as NO_2), CO, POC and PM_{10} emission rates on this line are based upon one cold start-up cycle, and 23.5 hours of Engine Generator Set full load operation. SO_x emission rates on this line are based upon 24 hours of Engine Generator Set full load operation.

[c] Emission rates on this line are based upon 24 hr/day operation at maximum emission rates.

Table 3 is a summary of the maximum annual regulated air pollutant emissions for the facility from proposed permitted sources. Pursuant to the Prevention of Significant Deterioration (PSD) requirements of New Source Review (Regulation 2-2-304.1 and 2-2-305.1), a new major facility with maximum annual pollutant emissions in excess of any of the trigger levels shown must perform modeling to assess the net air quality impact of the proposed facility. The emissions from the Eastshore Energy facility are below all PSD Trigger Levels.

Table 3: Maximum Annual Facility Regulated Criteria Air Pollutant Emissions

Pollutant	Permitted Source Emissions[a,b] (tons/year)	PSD Trigger[c] (tons/year)
Nitrogen Oxides (as NO_2)	54.35	100
Carbon Monoxide	84.45	100
Precursor Organic Compounds	76.11	N/A[d]
Particulate Matter (PM_{10})	64.39	100
Sulfur Dioxide	6.63	100

[a]Emission increases from proposed engine generator sets and emergency standby generator set; specified as permit condition limits and does not include emissions from exempt equipment.

[b]Includes start-up and shutdown emissions for proposed engine generator sets

[c]For a new major facility

[d]There is no PSD trigger level for POC

B. Toxic Air Contaminants

Table 4 is a summary of the maximum facility toxic air contaminant (TAC) emissions from new sources. These emissions are used as input data for air pollutant dispersion models used to assess the increased health risk to the public resulting from the project. The ammonia emissions shown are based on an ammonia emission concentration of 10 ppmvd @ 15% O_2 due to ammonia slip from the A-1 through A-14 SCR Systems. The risk screening trigger levels shown are per Regulation 2, Rule 5.

Table 4: Maximum Facility Toxic Air Contaminant (TAC) Emissions

Toxic Air Contaminant	Total Project Emissions[a] (lb/hr)	Acute 1-hr max. Trigger Level (lb/hr)	Total Project Emissions[a] (lb/yr)	Chronic Trigger Level (lb/yr)
1,3-Butadiene	2.20E-01	None	8.70E02	1.10E+00
Acetaldehyde	3.17E-01	None	1.25E03	6.40E+01
Acrolein	3.53E-02	4.2E-04	1.40E02	2.30E+00
Ammonia	1.39E+01	7.1E00	1.10E05	7.70E+03
Benzene	1.31E-01	2.9E00	5.17E02	6.40E+00
Benzo-a-anthracene	3.52E-05	None	1.39E-01	None
Benzo-a-pyrene	1.62E-06	None	6.40E-03	1.10E-02
Benzo-b-fluoranthene	2.45E-05	None	9.7E-02	None
Benzo-k-fluoranthene	4.70E-06	None	1.86E-02	None
Chrysene	8.56E-06	None	3.39E-02	None
Dibenz-ah-anthracene	1.62E-06	None	6.40E-03	None
Ethylbenzene	4.26E-02	None	1.69E02	7.70E+04
Formaldehyde	2.83E+00	2.1E-01	1.12E04	3.00E+01
Indeno-123cd-pyrene	4.30E-06	None	1.70E-02	None
Naphthalene	1.50E-02	None	5.95E01	None
Propylene	3.22E+00	None	1.28E04	1.20E+05
Toluene	1.43E-01	8.2E01	5.67E02	1.20E+04
Xylenes	3.87E-01	4.9E01	1.53E03	2.70E+04
Diesel Exhaust Particulate	9.10E-02	None	2.23E00	5.80E-01

[a]Total combined emissions for S-1 through S-14 Engine Generator Sets, and S-15 Emergency Standby Generator Set, Diesel Engine. In accordance with the Office of Environmental Health Hazard Assessment, Cal EPA, *Air Toxics Hot Spots Program Risk Assessment Guidelines* (August, 2003), diesel particulate matter is used as a surrogate for whole diesel exhaust and is the basis for the potential risk calculations.

IV Statement of Compliance

The following section summarizes the applicable District Rules and Regulations and describes how the proposed Eastshore Energy Center will comply with those requirements.

A. Regulation 2, Rule 2: New Source Review

The primary requirements of the District's New Source Review regulations that apply to the proposed Eastshore Energy Center are (i) Section 2-2-301, the "Best Available Control Technology" (BACT) requirement; (ii) Section 2-2-302, the "Offset" requirement; and (iii) Section 2-2-404 the "Prevention of Significant Deterioration" (PSD) air quality impact analysis requirement.

1. Best Available Control Technology (BACT) Determinations

District Regulation 2-2-301 requires that any source that has the potential to emit 10 pounds or more per day of regulated air pollutants must employ the "Best Available Control Technology" (BACT) to control emissions of these pollutants. Pursuant to Regulation 2-2-206, BACT is defined as the more stringent of:

(a) "The most effective control device or technique which has been successfully utilized for the type of equipment comprising such a source; or

(b) The most stringent emission limitation achieved by an emission control device or technique for the type of equipment comprising such a source: or

(c) Any emission control device or technique determined to be technologically feasible and cost-effective by the APCO, or

(d) The most effective emission control limitation for the type of equipment comprising such a source which the Environmental Protection Agency (EPA) states, prior to or during the public comment period, is contained in an approved implementation plan of any state, unless the applicant demonstrates to the satisfaction of the APCO that such limitations are not achievable. Under no circumstances shall the emission control required be less stringent than the emission control required by any applicable provision of federal, state or District laws, rules or regulations."

The type of BACT described in subsections (a) and (b) must have been demonstrated in practice at an actual facility and approved by a local Air Pollution Control District, California Air Resources Board (CARB), or the EPA. This type of BACT is referred to as "BACT 2" or "achieved in practice" BACT. The BACT category described in subsection (c) is referred to as "technologically feasible/cost-effective" and it must be commercially available, demonstrated to be effective and reliable on a full-scale unit, and shown to be cost-effective on the basis of dollars per ton of pollutant abated. This is referred to as "BACT 1".

BACT guidelines (for both the "achieved in practice" and "technologically feasible/cost-effective" categories) for various source categories have been compiled in the BAAQMD

BACT/Toxics Best Available Control Technology (TBACT) Workbook. The San Joaquin Valley Air Pollution Control District (SJVAPCD) and South Coast Air Quality Management District (SCAQMD) have also published BACT guidelines, and the ARB and EPA maintain BACT Clearinghouses that compile information on BACT determinations that have been made for past projects. Table 5 provides a comparison of the BACT emission limits for various pollutants in the guidelines published by the BAAQMD, SJVAPCD, and the SCAQMD.

Table 5: BACT Guidelines for Spark-Ignited Lean Burn Reciprocating Internal Combustion Engines

District	NO_x (ppmvd)	POC (ppmvd)	CO (ppmvd)	PM_{10} (g/bhp-hr)
BAAQMD Achieved in Practice	12	32	74	n/a
BAAQMD Technologically Feasible	6	n/a	12	n/a
SJVAPCD Achieved in Practice	9	25	56	0.02
SJVAPCD Technologically Feasible	5	n/a	n/a	n/a
SCAQMD Achieved in Practice	9	25	33	n/a

Notes: 1. All ppmvd values corrected to 15% O_2.

2. SJVAPCD PM_{10} BACT Guideline based on GUIDANCE FOR THE PERMITTING OF ELECTRICAL GENERATION TECHNOLOGIES (November 2001). No source test data has been found to demonstrate that this value is actually achieved in practice.

In determining what level of emissions control to require as BACT for the proposed Eastshore Energy Center, the District consulted these BACT guidelines and also looked at similar facilities that have recently been built in Tehama County and in the San Joaquin Valley. The Tehama County facility has achieved emissions limits of 9 ppmvd NO_x, 25 ppmvd NMHC, 56 ppmvd CO, and 10 ppmvd NH_3 slip. It also has a permit limit of 0.02 g/bhp-hr PM_{10}, but it has not been tested to demonstrate that it is actually meeting this limit. The San Joaquin Valley facility has achieved emissions limits of 9.0 ppmvd NO_x, 30 ppmvd VOC, 20 ppmvd CO, and 10 ppmvd NH_3 slip. It has a permit limit of 0.029 g/bhp-hr PM_{10}, but it has not been tested to demonstrate that it is actually meeting this limit. In addition, the District identified another similar facility, in Barrick, Nevada, which is permitted at 1.49 lb/hr NOx, 2.42 lb/hr NMEOC (VOC), 2.42 lb/hr CO, and 2.59 lb/hr PM_{10}. There has not been sufficient testing at the facility at this point to establish whether it will reliably be able to meet these limits, however.

a. BACT Determination for Natural Gas Fired Engine Generator Sets

The following discussion describes the District's BACT determinations by pollutant for the natural gas fired engine generator sets of the proposed East Shore Energy Center. In summary, the District's BACT determinations are as follows:

- For NO_x (as NO_2), BACT is an emission limit of 5 ppmvd @ 15% O_2. This is a technologically feasible/cost effective BACT emission limit based on SCR control technology.
- For CO, BACT is an emission limit of 13 ppmvd @ 15% O_2. This is a technologically feasible/cost effective BACT emission limit based on control with an Oxidation Catalyst.
- For POC, BACT is an emission limit of 25 ppmvd @ 15% O_2 at engine load greater than 75%. This is an achieved-in-practice BACT emission limit based on control using an Oxidation Catalyst.
- For PM_{10}, BACT is the use of PUC quality natural gas and good combustion practices.

The detailed BACT analysis for each pollutant is provided below.

Nitrogen Oxides (NO_x as NO_2)

NO_x (as NO_2) emissions from natural gas fired engines may be controlled using combustion controls and post-combustion controls. Combustion controls reduce the formation of NO_x during the combustion process. Post-combustion controls remove the NO_x from the engine exhaust.

Wartsila 20V34SG engines incorporate several combustion controls. Lean Burn Combustion utilizes more air in the cylinder than is required for complete combustion. Lean combustion reduces the peak temperature and less thermal NO_x is produced. Pre-Chamber Combustion Ignition (also known as Clean Burn Combustion, or Prestratified Charge) ignites a portion of the lean air-fuel mixture in a small prechamber above each cylinder. The prechamber combustion provides a high energy ignition source for the main fuel charge in the cylinder. These engines also utilize a turbocharging system.

The facility will also incorporate post-combustion control in the form of a Selective Catalytic Reduction (SCR) system, which controls NO_x emissions by reacting the NO_x with ammonia (NH_3) in the presence of a catalyst to form water and nitrogen. Estimated control efficiencies are greater than 90%. In order to provide effective NO_x control the ammonia injection rate is higher than the amount consumed in the NO_x removal reactions and a small amount is emitted at the stack. The amount of unreacted ammonia is known as the ammonia slip.

The BAAQMD BACT guidelines specify SCR for NO_x Control as the typical technology for BACT Level 1 (Technologically Feasible/Cost Effective) and for BACT Level 2 (Achieved in Practice) for this source category. The BACT guidelines state that Level 2 BACT for NO_x

emissions is 12 ppmvd @ 15 percent O_2. The BAAQMD BACT guidelines state that Level 1 BACT for NO_x emissions is 6 ppmvd @ 15 percent O_2. This level was based on a permit issued by the Tehama County Air Pollution Control District for a facility that operates natural gas fired engine generator sets located in Red Bluff, California. Subsequent operation of that facility demonstrated that it could not achieve a 6 ppmvd @ 15 percent O_2 limit, however, and so the NOx emissions limit was revised to 9 ppmvd @ 15% O_2. The District's BACT Level 1 guideline will be revised based on the latest information available for this source category.

District staff surveyed other similar facilities to determine what levels of NOx emissions have been achieved in practice. Both the Tehama County facility and the San Joaquin Valley facility are meeting permit limits of 9 ppmvd @ 15% O_2. Level 2 "achieved in practice" BACT is therefore 9 ppmvd @ 15% O_2.

District staff then determined whether a more stringent NO_x limit would be technologically feasible and cost-effective. The proposed facility is expected to be able to reliably achieve a limit of 5 ppmvd @ 15% O_2, and the applicant has no objection as to the cost-effectiveness of this limit. Level 1 BACT is therefore 5 ppm @15% O_2 for this proposed facility. This would be the most stringent NO_x emissions limit achieved by any facility of this type. After the facility demonstrates actual compliance with this limit over 6 months, the limit may be a new achieved in practice BACT for this source category.

Based on the information discussed above, the proposed permit limit for NO_x of 5 ppmvd @ 15 percent O_2 meets the BACT requirement for NO_x. The corresponding proposed permit limit for ammonia slip is 10 ppmvd @ 15% O_2.

Carbon Monoxide (CO)

Similar to NO_x control the emissions of CO from an internal combustion engine may be controlled using combustion controls and post-combustion controls. Combustion controls reduce incomplete combustion and minimize CO formation. Post-combustion controls remove CO in the exhaust by oxidizing the CO to CO_2.

CO emissions and NO_x emissions are related, and improved CO combustion control will adversely affect the NO_x control (e.g. higher combustion temperature leads to increased thermal NO_x). Combustion controls are usually optimized for NO_x emission control and then evaluated for CO emissions. The tuning process will evaluate the optimal NO_x emissions and also look at conditions where the CO emissions increase dramatically.

The BAAQMD BACT guidelines specify the use of an Oxidation Catalyst as the typical technology for BACT Level 1 (Technologically Feasible/Cost Effective) and BACT Level 2 (Achieved in Practice) for this source category. The guidelines specify a BACT Level 1 limit for CO of 12 ppmvd @ 15% O_2. As with the guidelines' limit for NOx, however, this CO limit was based on the initial permit limit for the Tehama County facility, which has shown not to be actually achievable by the facility and which has subsequently been revised to revised to 56 ppmvd @ 15% O_2. The District's BACT Level 1 guideline will be revised based on the latest information available for this source category.

To determine what level of CO emissions has actually been achieved in practice elsewhere, the District examined the current CO emission limits of the Tehama County and San Joaquin Valley facilities. The Tehama County facility is operating with a CO permit limit of 56 ppmvd @ 15% O_2, as noted above, and the San Joaquin Valley facility is operating with a CO permit limit of 20 ppmvd @ 15% O_2. Level 2 "achieved in practice" BACT is therefore no lower than 20 ppmvd @ 15% O_2.

The proposed facility is expected to be able to reliably achieve a limit of 13 ppmvd @15% O_2, and the applicant has no objection as to the cost-effectiveness of this limit. Level 2 BACT is therefore 13 ppmvd @ 15% O_2 for this proposed facility. This would be the most stringent CO emissions limit achieved by any facility of this type.

Based on the information discussed above, the proposed permit limit for CO of 13 ppmvd @ 15% O_2 meets the BACT requirement for CO. The proposed facility will also satisfy the BACT requirements of utilizing natural gas as fuel, good combustion practices, and abating each engine with an Oxidation Catalyst.

Precursor Organic Compounds (POC)

Control techniques that minimize CO emissions will also reduce the emission of POC from an internal combustion engine. Combustion controls ensure complete combustion and minimize POC formation. Post-combustion controls oxidize the POC in the exhaust to CO_2.

The BAAQMD BACT guidelines specify the use of an Oxidation Catalyst as the typical technology for BACT Level 1 and BACT Level 2 for this source category. The guidelines do not specify an emissions limit for BACT Level 1 for POC. They specify a BACT Level 2 limit for POC of 32 ppmvd @ 15 percent O_2, but again this level was based on the initial permit limits for the Tehama County facility, which have subsequently been revised. The District's BACT Level 1 guideline will be revised based on the latest information available for this source category.

To determine what level of POC emissions has actually been achieved in practice elsewhere, the District examined the current POC emission limits of the Tehama County and San Joaquin Valley facilities. The Tehama County facility is operating with a POC permit limit of 25 ppmvd @ 15% O_2, as noted above, and the San Joaquin Valley facility is operating with a POC permit limit of 30 ppmvd @ 15% O_2. Level 2 "achieved in practice" BACT is therefore no lower than 25 ppmvd @15% O_2.

The proposed facility is not expected to be able to reliably achieve a limit below 25 ppmvd @ 15% O_2 based on data supplied by the engine manufacturer. There is therefore no basis for establishing a Level 1 BACT level lower than 25 ppmvd @ 15% O_2 for this proposed facility. The facility is expected to be able to reliably achieve 25 ppmvd @ 15% O_2, however, which satisfies Level 2 BACT.

This 25 ppmvd @ 15% O_2 emissions performance is based on operating at 75% load or greater, which is reflected in the proposed permit condition. If these engine generator sets operate at lower load, the concentration of emissions (expressed as ppmvd) will be higher, up to 33 ppmvd @ 15% O_2. But even though the *concentration* of POC in the exhaust stream will be higher in this scenario, the *total mass* of POC that is emitted will be less, because there is less exhaust emitted during low-load operations. Note that the annual POC emissions used in this document were estimated assuming operation at 100% load at all times. This is a conservative approach because 100% load is the worst-case scenario for POC emissions.

Based on the information discussed above, the natural gas fired lean burn engine generator sets will meet the BACT requirements for POC. The use of an Oxidation Catalyst to control POC emissions is also considered to be TBACT for this source category. The CO CEM will be a good indicator of good combustion practice and Oxidation Catalyst condition at each engine generator set and is monitored on a continuous basis. Low CO emissions from the engine generator sets generally correspond to low POC emissions.

Particulate Matter (PM_{10})

The BAAQMD BACT guidelines do not specify a typical technology for BACT Level 1 and BACT Level 2 for this source category for PM_{10}. The guidelines do not specify emission limits for this pollutant for BACT Level 1 or BACT Level 2.

The District examined the current PM_{10} permit limits for the Tehama County, San Joaquin Valley, and Barrick, Nevada facilities in order to determine whether a Level 2 achieved in practice BACT limit could be based on them. The District found that although all three of those facilities have established permit limits for PM_{10}, there is insufficient testing and emissions data to confirm that these facilities are actually achieving those limits and therefore they cannot form the basis of an achieved-in-practice BACT determination.

Specifically, the Tehama County facility was permitted at an emission limit of 0.02 g/bhp-hr, based on a CARB document entitled *Guidance for the Permitting of Electrical Generation Technologies*, November 2001 (*see* Table V-4, pg. 34). That document indicates that the 0.02 g/bhp-hr limit is consistent with the technology requirements of the ARB diesel risk management guidance as set forth in an ARB report entitled *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines*, October 2002. Based on communication during late 2006 with the Tehama County Air Pollution Control District staff, the Tehama County facility has not been source tested to determine whether it is actually performing within the 0.02 g/bhp-hr limit. Source testing is expected sometime in 2007.

Similarly, the San Joaquin Valley facility was permitted with a PM_{10} emission limit of 0.029 g/bhp-hr, but the engines at this facility have never been tested for PM_{10} to determine compliance with this limit. Without test results demonstrating that these facilities are actually meeting these limits, the facilities cannot be considered to have achieved them in practice for purposes of establishing a BACT emissions limit.

The Barrick, Nevada, facility was permitted with a PM_{10} emission limit of 2.59 lb/hr. An initial source test was conducted in the Fall of 2005 using EPA Method 5 in conjunction with EPA Method 202. This source test method measures the total particulate matter emitted by a source and for this source category all particulate matter is assumed to be less than 10 microns in size. The results of the testing demonstrated compliance with the permit limit of 2.59 lb/hr. The average PM_{10} emission rate for all fourteen engines was 0.33 lb/hr with the two highest emitting engines at 0.6 lb/hr. These results indicate that the actual PM_{10} emissions may be significantly lower than the permit limit. The initial test is for a brand new engine with brand new catalyst beds, however, and PM_{10} emissions may vary with hours of engine operation and as the catalyst beds age. The District therefore does not consider these test results to demonstrate that the emissions levels have been achieved in practice. Further testing will be necessary to establish what emissions levels the facility can reliably achieve over time.

For these reasons, the District has determined that it cannot establish a level of PM_{10} emissions that has been reliably achieved in practice from any of the facilities. The District would anticipate that as additional data becomes available from the Nevada facility and other facilities that a new achieved in practice BACT level for PM_{10} can be developed for this source category.

Based on all of the information available at this time, the District has relied upon the engine manufacturer's guarantee on what level of emissions can feasibly be achieved. The manufacturer has guaranteed that the engines can achieve a PM_{10} emissions limit of 2.2 lb/hr. The District has determined that this limit is BACT Level 1 for these engines, and it is reflected in the proposed permit conditions.

Based on the information discussed above, the natural gas fired engine generator sets will meet BACT utilizing PUC quality natural gas and good combustion practices. The CO CEM will be a good indicator of good combustion practice at each engine generator set and is monitored on a continuous basis. Low CO emissions from the engine generator sets generally correspond to low PM-10 emissions since each are products of incomplete combustion.

b. BACT Determination For Emergency Standby Generator Set; Diesel Engine

Based upon 24 hour per day operation under emergency conditions, the proposed emergency standby generator set diesel engine triggers BACT for NO_x and CO, since its potential to emit for each of those pollutants exceeds 10 pounds per day. (Operation for a full day under emergency conditions is highly unlikely, but for purposes of the BACT analysis, the District utilizes a worst-case operating scenario.) The emergency standby generator will only be used when the proposed power plant has no natural gas fired engine generator sets operating and there is a power outage and no electricity is available to the facility. The emergency standby generator supplies the necessary power to start one of the natural gas fired engine generator sets and then is no longer necessary. It is not anticipated that the emergency standby generator would ever need to be operated for longer than one hour during an emergency.

The District has adopted BACT guidelines for internal combustion engines, which involve a two-step analysis. The first step determines what type of engine can be used. For most applications, the District requires internal combustion engines to be low emitting, spark-ignited,

gas-fueled engines with lean burn combustion, or with rich-burn combustion with non-selective catalytic reduction, or to be substituted with an electric motor. In certain limited instances where those other alternatives are not practicable, such as with engines used exclusively for emergency use during involuntary loss of power, the District allows the use of diesel engines. (*See* District BACT Workbook Document 96.1.2., reference note b.) The use of a diesel engine at the proposed Eastshore facility complies with this BACT requirement because it is for backup emergency use and will not be used for routine generating purposes.

The second step of the BACT analysis determines the amount of emissions that are allowed from the engine. In applications where diesel engines may be used, Level 2 achieved-in-practice BACT is based on the best performance of commercially available diesel engines in similar applications, as certified by the California Air Resources Board (CARB). These Level 2 BACT emission limits are set forth in Table 6. It is technically feasible to achieve lower emissions by installing add-on control devices such as catalytic oxidation or selective catalytic reduction systems, which are identified in the District's guidelines as Level 1 BACT. But such add-on control devices are not cost-effective for emergency standby engines due to the limited hours of operation for these engines. District regulations therefore do not require Level 1 BACT for the proposed emergency standby generator at the Eastshore facility, as long as Level 2 BACT is met.

The proposed Eastshore emergency standby diesel engine will meet or exceed the District's BACT Level 2 requirements. S-15 has an emission rate of diesel particulate matter that also complies with the District's TBACT guidelines. The current District BACT Level 2 limits and the specifications for the proposed engine are summarized in Table 6.

Table 6: District BACT Limits for Proposed Emergency Standby Generator Set, Diesel Engine

Pollutant	District BACT Guideline (g/bhp-hr)[a]	Engine[b] Specifications (g/bhp-hr)
NO_x (as NO_2)	6.9	2.62
CO	2.75	2.31
POC	1.5	0.14
PM_{10}	0.15	0.11

[a]BACT 2 ("achieved in practice") per District BACT Guideline 96.1.2, "IC Engine – Compression Ignition $\geq$ 275 hp output rating".

[b]California Air Resources Board Executive Order U-R-001-0287.

2. Emission Offsets

District regulations require that new facilities must provide Emission Reduction Credits (ERCs) to offset the increases in air emissions that they will cause. ERCs are generated when old facilities are shut down, or when sources are controlled below regulatory limits. The emissions reductions granted by the District are used to offset the increases from new facilities, so that there will be no overall increase in emissions from facilities subject to this offset program.

a. Offset Requirements For The Proposed Eastshore Energy Center

POC and NOx

District Regulation 2-2-302 requires that federally enforceable emission offsets must be provided for POC and NO_x (as NO_2) emission increases from permitted sources at facilities that will emit 10 tons per year or more on a pollutant-specific basis. For facilities that will emit more than 35 tons per year of NO_x (as NO_2), offsets must be provided by the applicant at a ratio of 1.15 to 1.0. The proposed Eastshore facility will emit more than 35 tons per year of both of those pollutants, and so it is required to offset all POC and NOx emissions at a ratio of 1.15 to 1.0. For NOx, the proposed facility will be permitted to emit 54.354 tons per year, which will require offsets of 62.507 tons per year. For POC, the proposed facility will be permitted to emit 76.112 tons per year, which will require offsets of 87.529 tons per year. The applicant has elected to provide POC emission reduction credits for all of the required offsets for POC and NOx, as provided for in District Regulation 2-2-302.2. In total, 150.036 tons per year of offsets will be required.

PM_{10} and SO_x

District Regulation 2-2-303 requires that emission offsets must be provided for PM_{10} and SO_x (as SO_2) emission increases at new facilities that will be permitted to emit more than 100 tons per year of PM_{10} or SO_x (as SO_2) on a pollutant-specific basis. The proposed Eastshore Energy Center will not emit more than 100 tons of either of these pollutants, and so it is not subject to this requirement. Regulation 2-2-303 does allow for the voluntary offsetting of SO_x emission increases of less than 100 tons per year, but the applicant has not opted to provide such voluntary emission offsets.

b. Timing for Provision of Offsets

Pursuant to District Regulation 2-2-311, the applicant must provide the required valid emission reduction credits to mitigate the emission increases for the facility prior to the issuance of the Authority to Construct. Pursuant to District Regulation 2, Rule 3, "Power Plants," the Authority to Construct will be issued if the California Energy Commission (CEC) certifies the proposed power plant.

c. Offset Package

Eastshore Energy, LLC currently is negotiating for sufficient valid emission reduction credits to offset the emission increases from the permitted sources proposed for the Eastshore Energy Center. **Table 7** below summarizes the current offset obligation of the Eastshore Energy Center and the quantity of valid emission reduction credits (ERCs) under negotiation by Eastshore Energy, LLC. The emission reduction credits presented in Table 7 exist as federally enforceable, banked emission reduction credits that have been reviewed for compliance with District Regulation 2, Rule 4, "Emissions Banking", and were subsequently issued as banking certificates by the BAAQMD. If the quantity of offsets issued under any certificate exceeded 35 tons per year for any pollutant, the application is required to fulfill the public notice and public comment requirements of District Regulation 2-4-405. Accordingly, such applications were reviewed by the California Air Resources Board, U.S. EPA, and adjacent air pollution control

districts to insure that all applicable federal, state, and local regulations were satisfied. Note that the specific offset package is still under negotiation and is subject to change, as the offset credits do not actually have to be provided until such time as the Authority to Construct is issued. The amount of credits that must be submitted will not change, however.

Table 7: Emission Reduction Credits Identified by Eastshore Energy, LLC as of April 2007 (tons of POC/yr)

Emission Reduction Credit Banking Certificate #	Tons of POC per year
823, Crown Cork & Seal Company[a], Union City	71.000
1015, Koch Supply and Trading LP[b], Fremont	22.778
1016, Koch Supply and Trading LP[c], San Leandro	15.518
1017, Koch Supply and Trading LP[d], San Leandro	4.4
1022, Koch Supply and Trading LP[e], Cupertino	19.718
1019, Koch Supply & Trading LP[f], Milipitas	15.856
1006, Koch Supply and Trading LP[g], Union City	23.4
Total ERCs Identified	172.67
Total Offsets Required	150.036
Surplus Offset Balance	**+22.634**

[a]original certificate #51, Application No. 30496, Continental Can Company, issued 10/21/86
[b]original certificate #234, Application No.9507 , Tri Valley Growers Container Division, Inc., issued 12/1/93.
[c]original certificate #484, Application No. 15482, Crown Cork & Seal Company, issued 3/12/96
[d]original certificate #56, Application No. 30949, International Paper Company, issued 10/7/85
[e]original certificate #136, Application No. 6202, Kaiser Aluminum & Chemical Company, issued 3/26/92
[f]original certificate #573, Application No. 18297, LSI Logic Corporation, issued 9/22/98
[g]original certificate #889, Application No. 6821, United States Pipe & Foundry Company, LLC, issued 6/6/03

It should be noted that in the case of POC and NO_x offsets, District regulations do not require consideration of the location of the source of the emission reduction credits relative to the location of the proposed emission increases that will be offset. This is because POC and NOx are ozone precursors, which are regulated as part of the District's efforts to control regional smog. Because ozone creation is a regional phenomenon, emissions decreases in one area of the region will be effective in offsetting emissions increases in other areas of the region. The location of the Emission Reduction Credits is provided for informational purposes.

3. PSD Air Quality Impact Analysis

BAAQMD Regulation 2-2-414.1 requires proposed permits for certain large facilities to undergo an emissions modeling analysis for purposes of the District's "Prevention of Significant Deterioration" (PSD) program. The categories of projects subject to this requirement are

outlined in District regulations 2-2-304, 305, 306, and 308. The proposed Eastshore facility does not fall into any of these categories, and therefore does not require a PSD modeling analysis.

B. Health Risk Assessment

Pursuant to the BAAQMD Regulation 2, Rule 5, a health risk screening must be conducted to determine the potential impact on public health resulting from the worst-case emissions of toxic air contaminants (TACs) from the Eastshore Energy Center. The potential TAC emissions (both carcinogenic and non-carcinogenic) from the Eastshore Energy Center are summarized in Table 4. The health risk screening analysis performed by the District Toxics Evaluation Section was prepared in accordance with guidelines adopted by Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA), the CARB, and the California Air Pollution Control Officers Association (CAPCOA). In accordance with the requirements of the BAAQMD Rule 2, Rule 5 and CAPCOA guidelines, the impact on public health due to the emission of these compounds was assessed utilizing approved air pollutant dispersion models.

Table 8: Health Risk Screening Analysis Results

Sources	Multi-pathway Carcinogenic Risk (risk in one million)	Chronic Hazard Index[a]	Acute Hazard Index[a]
Residential Receptor			
14 Natural Gas Engine Generator Sets	0.32	0.005	0.028
Emergency Standby Generator Set[b]	0.0113	0.0000068	ND
Worker Receptor			
14 Natural Gas Engine Generator Sets	3.54	0.065	0.066
Emergency Standby Generator Set[b]	0.63	0.00045	ND
Maximum Facility Risk:	3.856[b]	0.065	0.066

[a]Per BAAQMD Health Risk Screening Analysis Guidelines, acrolein is not included in these Health Risk Assessment Results. Currently, CARB does not have certified emission factors or an analytical test method for acrolein. Therefore, since the appropriate tools needed to implement and enforce acrolein emission limits are not available, the District does not conduct a HRSA for emissions of acrolein. In addition, due to the significant uncertainty in the derivation, OEHHA is currently re-evaluating the acute REL for acrolein. When the necessary tools are developed, the District will re-evaluate this specific evaluation procedure and the HRSA guidelines will be revised. For this project, however, the District did perform an analysis of acrolein impacts from the natural gas engine generator sets, and the results were in compliance with Regulation 2, Rule 5 requirements.

[b]Because the location of maximum impact for the diesel engine does not coincide with the locations of maximum impact for the other sources, the carcinogenic risk numbers do not add directly to determine the maximum facility cancer risk shown

Pursuant to the BAAQMD Regulation 2, Rule 5, the estimated potential increased carcinogenic risk attributed to this project is considered acceptable since it is less than 10 in one million and the Sources are in compliance with the current Toxics Best Available Control Technology (TBACT) requirements, as explained above. The chronic hazard index attributed to the emission of non-carcinogenic air contaminants is considered acceptable since it is less than 1.0. Therefore, the proposed Eastshore Energy Center is deemed to be in compliance with the BAAQMD Regulation 2, Rule 5. Please see the Appendices for further discussion.

C. Other Applicable District Rules and Regulations

Regulation 1, Section 301: Public Nuisance

None of the project's proposed sources of air contaminants are expected to cause a public nuisance as defined in District Regulation 1, Section 301 with respect to any impacts resulting from the emission of air contaminants regulated by the District.

Regulation 2, Rule 1, Sections 301 and 302: Authority to Construct and Permit to Operate

Pursuant to Regulation 2-1-301 and 2-1-302, the Eastshore Energy, LLC has submitted an application to the District to obtain an Authority to Construct and Permit to Operate for the proposed S-1 through S-14 Natural Gas Fired Engine Generator Sets, and S-15 Emergency Standby Generator Set; Diesel Engine.

Regulation 2, Rule 1, Sections 426: CEQA-Related Information Requirements

As the lead agency under CEQA for the proposed Eastshore Energy Center, the California Energy Commission (CEC) will satisfy the CEQA requirements of Regulation 2-1-426.2.1 by producing their Final Certification, which serves as an EIR-equivalent pursuant to the CEC's CEQA-certified regulatory program in accordance with CEQA Guidelines Section 15253(b) and Public Resource Code Sections 21080.5 and 25523. The District supports the CEC's certification process and is participating in it with respect to air quality issues.

Regulation 2, Rule 2: New Source Review

The Eastshore Energy Center Authority to Construct Permit Application/Determination of Compliance will comply with the requirements of Regulation 2, Rule 2. The applicable requirements of Regulation 2, Rule 2, are addressed in detail in Section A above.

Regulation 2, Rule 3: Power Plants

Pursuant to Regulation 2-3-405, this Preliminary Determination of Compliance (PDOC) serves as the APCO's Preliminary determination that the proposed power plant will meet the requirements of all applicable BAAQMD, state, and federal regulations. The PDOC contains proposed permit conditions to ensure compliance with those regulations. Pursuant to Regulation 2-3-404, this PDOC is subject to the public notice, public comment, and public inspection requirements contained in Regulation 2-2-406 and 407.

Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants

The Eastshore Energy Center Authority to Construct Permit Application/Determination of Compliance will comply with the requirements of Regulation 2, Rule 5. The natural gas fired engine generator sets S-1 through S-14 and the Emergency Standby Generator S-15 are considered to meet Toxics Best Available Control Technology (TBACT) requirements. S-1 through S-14 are abated by an Oxidation Catalyst that will reduce organic compound emissions. S-15 has an emission rate of diesel particulate matter that complies with the District's TBACT guidelines. The applicable requirements of Regulation 2, Rule 5, are addressed in more detail in Section B above.

Regulation 2, Rule 6: Major Facility Review

The owner/operator of the Eastshore Energy Center is not required to submit an application to the BAAQMD for a major facility review permit since the facility is not subject to Regulation 2, Rule 6 requirements.

Regulation 2, Rule 7: Acid Rain

The Eastshore Energy Center Engine Generator Sets are not subject to the permit program requirements of Title IV of the federal Clean Air Act. The requirements of the Acid Rain Program are outlined in 40 CFR Part 72. The Acid Rain program applies to sources with electrical generating units greater than 25 MW. Each engine generator set has a electrical generation capacity of 8.4 MW and therefore the units are not subject to the permit program portions of 40 CFR Part 72. The facility may be subject to portions of 40 CFR Part 72 (Provisions of §§72.2 through 72.6, and §§72.10 through 72.13 may apply to this facility). The facility is expected to comply with the applicable sections of 40 CFR Part 72.

Regulation 6: Particulate Matter and Visible Emissions

Through the use of proper combustion practices, the combustion of natural gas at the proposed natural gas fired engine generator sets, and the diesel fired emergency standby generator set is not expected to result in visible emissions. Specifically, the facility's combustion sources are expected to comply with Regulation 6, including sections 301 (Ringelmann No. 1 Limitation), 302 (Opacity Limitation) with visible emissions not to exceed 20% opacity, and 310 (Particulate Weight Limitation) with particulate matter emissions of less than 0.15 grains per dry standard cubic foot of exhaust gas volume. As calculated in accordance with Regulation 6-310.3, the grain loading resulting from the simultaneous operation of each engine generator set is 0.017 gr/dscf @ 6% O_2. See Appendices for grain loading calculations.

Particulate matter emissions associated with the construction of the facility are exempt from District permit requirements but are subject to Regulation 6. It is expected that the conditions of certification imposed by the CEC will include requirements for construction activities that will require the use of water and/or chemical dust suppressants to minimize PM_{10} emissions and prevent visible particulate emissions.

Regulation 7: Odorous Substances

Regulation 7-302 prohibits the discharge of odorous substances, which remain odorous beyond the facility property line after dilution with four parts odor-free air. Regulation 7-302 limits ammonia emissions to 5000 ppmvd. Because the ammonia slip emissions from the proposed natural gas fired engine generator sets will each be limited by permit condition to 10 ppmvd @ 15% O_2, the facility is expected to comply with the requirements of Regulation 7.

Regulation 8: Organic Compounds

The natural gas fired engine generator sets are exempt from Regulation 8, Rule 2, "Miscellaneous Operations" per 8-2-110 since natural gas will be fired exclusively at those sources. The emergency standby generator set diesel engine will comply with Regulation 8-2-301 since its emissions will contain a total carbon concentration of less than 300 ppmvd.

The use of solvents for cleaning and maintenance at the Eastshore Energy Center is expected to comply with Regulation 8, Rule 4, "General Solvent and Surface Coating Operations" section 302.1 by emitting less than 5 tons per year of volatile organic compounds.

Regulation 9: Inorganic Gaseous Pollutants

Regulation 9, Rule 1, Sulfur Dioxide

This regulation establishes emission limits for sulfur dioxide from all sources and applies to the combustion sources at this facility. Section 301 (Limitations on Ground Level Concentrations) prohibits emissions which would result in ground level SO_2 concentrations in excess of 0.5 ppmvd continuously for 3 consecutive minutes, 0.25 ppmvd averaged over 60 consecutive minutes, or 0.05 ppmvd averaged over 24 hours. Section 302 (General Emission Limitation) prohibits SO_2 emissions in excess of 300 ppmvd. The natural gas fired engine generator sets and the emergency standby generator diesel engine are not expected to cause ground level SO_2 concentrations in excess of the limits specified in Regulation 9-1-301 and will comply with section 302. California law mandates the use of ultra-low sulfur diesel fuel having a sulfur content of 0.0015% by weight.

Regulation 9, Rule 8, Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines

The proposed natural gas fired engine generator sets will comply with the emission limits contained in Regulation 9-8-301 (For Lean Burn Engines 140 ppmvd NO_x, 2000 ppmvd CO).

The proposed 369 hp emergency standby generator set diesel engine is exempt from the emission limitations of Regulation 9, Rule 8 per Regulation 9-8-110.2, since it will be fired exclusively on diesel fuel.

Regulation 10: Standards of Performance for New Stationary Sources

Regulation 10 incorporates by reference the provisions of Title 40 CFR Part 60. The applicable subparts of 40 CFR Part 60 include Subpart A, "General Provisions", Subpart IIII "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines", and Subpart JJJJ "Standards of Performance for Stationary spark Ignition Internal Combustion Engines". Subpart IIII and Subpart JJJJ have not been incorporated into Regulation 10 at this time. The proposed natural gas engine generator sets and the emergency standby generator set diesel

engine comply with all applicable standards and limits defined in these regulations. The applicable emission limitations are summarized below:

Table 9: Applicable New Source Performance Standards

Source	Requirement	Emission Limitation	Compliance Verification
Emergency Standby Generator Set Diesel Engine	40 CFR 60, Subpart IIII	Requires diesel engines subject to this subpart to meet EPA Tier Emission Levels	Proposed Diesel Engine meets Tier 3 Requirements
Natural Gas Fired Engine Generator Sets	40 CFR 60, Subpart JJJJ	Proposed New NSPS. Future Applicable Requirement, NO_x Limit 2.0 g/bhp-hr, CO Limit 4.0 g/bhp-hr, NMHC Limit 1.0 g/bhp-hr	Proposed New NSPS. Future Applicable Requirement, Permit Conditions will specify source test frequency that meets the proposed regulations requirements.

The facility is expected to comply with the requirements in 40 CFR Part 60 Subpart IIII.

The facility is expected to comply with the requirements of 40 CFR Part 60 Subpart JJJJ. This NSPS will require performance testing for NO_x, CO, and NMHC. The performance testing results are required to be reported to the EPA or the delegated agency for this NSPS.

D. State Requirements

The facility is subject to the Air Toxic "Hot Spots" Program requirements contained in the California Health & Safety Code Section 44300 et seq. The facility will prepare inventory plans and reports as required.

The facility is subject to the Public Nuisance Provisions contained in the California Health & Safety Code Section 41700. The facility is expected to comply with these provisions.

The emergency standby generator set diesel engine is subject to the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engine contained in Title 17 of the California Code of Regulations Section 93115. S-15 will comply with the Airborne Toxics Control Measure for Stationary Compression Ignition Engines (ATCM). The allowable operating hours and recordkeeping requirements contained in the ATCM will be included in the Permit Conditions below.

E. Federal Requirements

The facility is not subject to the current version (March, 2007) of the National Emission Standards for HAPs for Stationary Reciprocating Internal Combustion Engines (RICE) contained in 40 CFR Part 63 Subpart ZZZZ. The facility is not a major source of HAPs.

The EPA is revising 40 CFR Part 63 Subpart ZZZZ and the exact promulgation date of the new regulation is not known at this time. Based on review of the draft regulation the facility will not

be subject to the revised 40 CFR Part 63 Subpart ZZZZ. The engines are not located at a facility that is considered an area source of HAPs. The facility may become subject to 40 CFR Part 63 Subpart ZZZZ requirements at a future date depending on the text in the final rule.

V Proposed Permit Conditions

The following permit conditions are proposed to ensure that the proposed project complies with all applicable District, State, and Federal Regulations. The conditions limit operational parameters such as fuel use, stack gas emission concentrations, and mass emission rates. The proposed permit conditions also specify abatement device operation and performance levels. To aid enforcement efforts, conditions specifying emission monitoring, source testing, and record keeping requirements are included. Furthermore, pollutant mass emission limits (in units of ton/yr) are proposed to insure that annual emission rate limitations are not exceeded.

To provide maximum operational flexibility, no limitations are proposed for the type, or quantity of engine generator set start-ups or shutdowns. Instead, the facility must comply with short term emission limits and annual (consecutive twelve-month) mass emission limits at all times. Compliance with CO and NO_x limitations will be verified by continuous emission monitors (CEMs) that will be in operation during all engine generator set operating modes, including start-up and shutdown. If the CO and NO_x CEMs are not capable of accurately assessing engine start-up and shutdown mass emission rates due to variable O_2 content and the differing response times of the O_2 and NO_x monitors, then start-up and shutdown mass emission rates will be based upon annual source test results. Compliance with POC, SO_x, and PM_{10} mass emission limits will be verified by using District approved emission factors developed or validated by site-specific source testing.

In addition to permit conditions that apply to steady-state operation of each natural gas fired engine generator set, conditions are being proposed that govern equipment operation during the initial commissioning period when the natural gas engine generator sets will operate without their SCR systems and/or oxidation catalysts in place. Commissioning activities include, but are not limited to the testing of the natural gas fired engines, and adjustment of control systems. Proposed permit conditions 1 through 7 apply to this commissioning period and are intended to minimize emissions during the commissioning period.

Eastshore Energy Center Permit Conditions

(A) Definitions:

Clock Hour:	Any continuous 60-minute period beginning on the hour
Calendar Day:	Any continuous 24-hour period beginning at 12:00 AM or 0000 hours
Year:	Any consecutive twelve-month period of time
Heat Input:	All heat inputs refer to the heat input at the higher heating value (HHV) of the fuel, in BTU/scf
Operating Hours:	Period of time during which fuel is flowing to a unit, measured in minutes
MM BTU:	Million British Thermal Units
Engine BHP during operation	(Electrical generator KW) x (1.341 bhp/KW) x (1.0319 loss factor)
Engine Cold Start-up:	An engine start-up that occurs when the SCR catalyst bed is below operating temperature as specified by the abatement device manufacturer.
Corrected Concentration:	The concentration of any pollutant (generally NO_x, CO, POC or NH_3) corrected to a standard stack gas oxygen concentration. For emission points P-1 through P-14 the standard stack gas oxygen concentration is 15% O_2 by volume on a dry basis
Commissioning Activities:	All testing, adjustment, tuning, and calibration activities during the commissioning period recommended by the equipment manufacturers and the Eastshore Energy Center construction contractor to insure safe and reliable steady state operation of the engines, abatement equipment, and associated electrical delivery systems
Commissioning Period:	The Period shall commence when all mechanical, electrical, and control systems are installed and individual system start-up has been completed, or when a engine is first fired, whichever occurs first. The period shall terminate when the source has completed performance testing, is available for commercial operation, and has initiated sales to the power exchange. The commissioning period shall not exceed 180 days under any circumstances. The period shall be determined separately for each engine generator set.
CEM	Continuous Emission Monitor
CEC CPM:	California Energy Commission Compliance Program Manager
Engine Shutdown:	The time period corresponding to the control system request to shutdown a specific engine until the engine generator set ceases operation (shutdown period approximately 8.5 minutes).

(B) Applicability:

Conditions 1 through 7 shall only apply during the commissioning period as defined above. Unless otherwise indicated, Conditions 8 through 23 shall apply after the commissioning period has ended. Conditions 24 through 28 shall apply at all times.

(C) Conditions:

Conditions for the Engines S-1 through S-14 during the Commissioning Period

1. The owner/operator of the Eastshore Energy Center (EEC) shall minimize emissions of carbon monoxide and nitrogen oxides from S-1 through S-14 Lean Burn Internal Combustion Engines to the maximum extent possible during the commissioning period.

    a. At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the owner/operator shall tune each engine S-1 through S-14 after first fire to minimize the emissions of carbon monoxide and nitrogen oxides during commissioning.

    b. At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturers and the construction contractor, the owner/operator shall install, adjust, and operate A-1 through A-14, SCR Systems, and A-15 through A-28, Oxidation Catalyst systems, to minimize the emissions during commissioning.

    c. The owner/operator of the EEC shall submit a plan to the District Engineering Division and the CEC CPM prior to the firing of any of the engines that shall describe the process to be followed during the commissioning of each engine. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, engine tuning activities (such as air/fuel ratio settings, engine timing, turbocharger pressure), the installation, tuning, and operation of the SCR systems and oxidation catalysts; the installation, calibration, and testing of the CO and NO_x continuous emission monitors; and any activities requiring the firing of the IC engines without abatement by their respective abatement devices. None of the engines shall be fired sooner than 28 days after the District receives the commissioning plan.

2. During the commissioning period, the owner/operator of the EEC shall demonstrate compliance with Condition 6 through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters:
    a. Firing hours for each engine
    b. Fuel flow rates to each engine
    c. Stack gas nitrogen oxide emission concentrations at P-1 through P-14
    d. Stack gas carbon monoxide emission concentrations P-1 through P-14
    e. Stack gas oxygen concentrations P-1 through P-14

The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the engines. The owner/operator shall use District-approved methods to calculate heat input rates, NO_x mass emission rates, carbon monoxide mass emission rates, and NO_x and CO emission concentrations, summarized for each calendar day. All records shall be retained on site for at least 2 years from the date of entry and made available to District staff upon request.

3. The owner/operator shall install, calibrate, and make operational continuous emission monitors for NO_x, CO and O_2 for each engine prior to first firing of that engine. After first firing of an individual engine, the detection range of the continuous emission monitor for that engine shall be adjusted as necessary to accurately measure the resulting range of CO and NO_x emission concentrations. The type, specifications, and location of these monitors shall be subject to District review and approval.

4. The owner/operator shall operate the facility such that the total number of firing hours of each Engine S-1 through S-14 without abatement of nitrogen oxide and CO emissions by its SCR System and Oxidation Catalyst System shall not exceed 300 hours per engine during the commissioning period. Such operation of S-1 through S14 without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR or Oxidation Catalyst Systems fully operational. Upon completion of these activities, the owner/operator shall provide written notice to the District Engineering Division and Enforcement and Compliance Division and the unused balance of the 300 firing hours per engine without abatement shall expire.

5. The owner/operator shall use District approved calculation methods to estimate the total mass emissions of NO_x (as NO_2), CO, POC, PM_{10}, and SO_x (as SO_2) that are emitted by Engines S-1 through S-14 and S-15 during the commissioning and facility startup period. These emissions count towards the consecutive twelve-month emission limitations specified in Condition 14. Emission totals shall include emissions during the startup and shutdown of the engines.

6. The owner/operator shall not operate the engines S-1 through S-14 in a manner such that the combined pollutant emissions from these sources will exceed the following limits during the commissioning period. These emission limits shall include emissions resulting from the start-up and shutdown of the engines S-1 through S-14.

NO_x (as NO_2)	3058.4 pounds per calendar day
CO	4033.5 pounds per calendar day
POC (as CH_4)	975.1 pounds per calendar day
PM_{10}	757.8 pounds per calendar day
SO_x (as SO_2)	79.53 pounds per calendar day

7. Prior to the end of the commissioning period, the Owner/operator shall conduct a District and CEC CPM approved source test to establish emissions during startup (SU) and shutdown (SD). The source test shall determine NO_x, CO, POC and PM10 emissions during cold startup and shutdown of the engines. The POC emissions shall be analyzed for methane and ethane to account for the presence of unburned natural gas. Twenty (20) working days before the execution of the SU/SD source tests, the Owner/operator shall submit to the District and the CEC CPM a detailed source test plan designed to satisfy the requirements of this Condition, including specification of the number of tests. The Owner/operator shall notify the District and the CEC CPM at least seven (7) working days prior to the planned source testing date. Source test results shall be submitted to the District within 60 days of the date that source testing is completed at the facility.

Conditions for the Engines S-1 through S-14 Post Commissioning Period

8. The owner/operator shall ensure that S-1 through S-14 IC Engines are fired on PUC natural gas exclusively. (Basis: BACT for PM10, Cumulative Increase for SO_x)

9. The Owner/operator shall operate each engine such that the heat input rate for each engine S-1 through S-14 is less than or equal to 72.8 MMBtu/hr (HHV, 72.1 MMBtu/hr for Annual Average), averaged over an hour period, including startup/shutdown periods. (Basis: BACT, Cumulative Increase)

10. The Owner/operator shall operate each engine such that the heat input rate for each engine S-1 through S-14 is less than or equal to 1730 MMBTU/day per calendar day, including startups/shutdowns. (Basis: Cumulative Increase)

11. The Owner/operator shall operate each engine such that the heat input rate for all engines S-1 through S-14 combined is less than or equal to 4,036,480 MMBTU/yr on a rolling 12-month average basis, including startups/shutdowns. (Basis: Offsets)

12. The owner/operator shall limit the total annual fired hours for engines S-1 through S-14 to 56,000 hours. (Basis: Offsets, Cumulative Increase)

13. The owner/operator shall properly operate and maintain the A-1 to A-14 Selective Catalytic Reduction (SCR) Systems, except as provided during the Commissioning Period, whenever fuel is combusted at the corresponding source S-1 through S-14, respectively, and the individual catalyst bed has reached minimum operating temperature specified by the abatement device manufacturer. The owner/operator shall not inject ammonia into the SCR units (A-1 through A-14) until the catalyst bed reaches the minimum operating temperature specified by the abatement device manufacturer (Basis: BACT for NO_x).

14. The owner/operator shall ensure that the cumulative combined emissions from S-1 through S-14 Engines and S-15 do not exceed the following limits during any consecutive twelve-month period, including emissions generated during engine startups and shutdowns:
54.35 tons of NO_x (as NO_2) per rolling 12 month period;
84.45 tons of CO per rolling 12 month period;
76.11 tons of POC (as CH4) per rolling 12 month period;
64.39 tons of PM10 per rolling 12 month period; and
6.63 tons of SO_x (as SO_2) per rolling 12 month period.
(Basis: Offsets, Cumulative Increase)

15. The owner/operator shall comply with requirements (a) through (e) below under all operating scenarios, except requirements (a) through (e) do not apply during an engine start-up or shutdown. (Basis: BACT)

(a) The nitrogen oxide concentration at each point P-1 through P-14 shall not exceed 5 ppmv, on a dry basis, corrected to 15% O_2, averaged over any 1-hour period. (Basis: BACT for NO_x)
(b) The carbon monoxide concentration at each point P-1 through P-14 shall not exceed 13 ppmv, on a dry basis, corrected to 15% O_2, averaged over any 1-hour period. (Basis: BACT for CO)
(c) Total Particulate Matter emissions (including fractions greater than 10 microns) at each point P-1 through P-14 shall not exceed 2.2 lb/hr. PM-10 emissions at each point P-1 through P-14 shall not exceed 2.2 lb/hr. (Basis: Cumulative Increase)
(d) The POC concentration at each point P-1 through P-14 with the corresponding engine operating at 75% or more of full load shall not exceed 25 ppmv on a dry basis, corrected to 15% O_2, averaged over any 1-hour period. (Basis: BACT for POC)
(e) Ammonia (NH_3) emission concentrations at each point P-1 through P-14 shall not exceed 10 ppmv, on a dry basis, corrected to 15% O_2, averaged over any rolling 3-hour period. The owner/operator shall quantify, by continuous recording, the ammonia injection rate to A-1 through A-14 SCR Systems. The correlation between the engine heat input and the SCR System ammonia injection rates as determined in accordance with Condition 18 shall be used to calculate the corresponding ammonia emission concentration at emission points P-1 through P-14. The facility will notify the Engineering Division Permit Evaluation Manager in writing when any engine operates for 3 consecutive hours at a calculated ammonia slip rate equal to or greater than 10 ppmvd corrected to 15% O_2. The notification shall be provided to the District within one week of an engine operating at a calculated slip rate equal to or greater than 10 ppmvd corrected to 15% O_2. If the parametric monitoring indicates a corresponding ammonia slip of 10 ppm corrected to 15% O_2 for 3 consecutive hours, then the District may require a District approved source test for ammonia slip to demonstrate ongoing compliance and to update the parametric monitoring correlation as necessary. (Basis: Regulation 2, Rule 5)

16. The owner/operator shall demonstrate compliance with Conditions 14 and 15 by using properly operated and maintained continuous monitors during all hours of operation including equipment startup and shutdown periods for all of the following parameters:
(a) Firing Hours and Fuel Flow Rates for each source

(b) Carbon Dioxide (CO_2) or Oxygen (O_2) concentrations, Nitrogen Oxides (NO_x) concentrations, and Carbon Monoxide (CO) concentrations at emission points P-1 through P-14
(c) Ammonia injection rate at A-1 through A-14 SCR Systems

The owner/operator shall record all of the above parameters every fifteen (15) minutes (excluding normal calibration periods) and shall summarize all of the above parameters in accordance with the relevant permit limits. The owner/operator shall use the parameters measured above and District approved calculation methods to calculate the following parameters for each engine:

(d) Corrected NO_x concentrations, NO_x mass emissions (as NO_2), corrected CO concentrations, and CO mass emissions at each emission point for every 1-hour period
(e) Total Heat Input Rate for every clock hour
(f) The cumulative total Heat Input (MMBTU) for each calendar day for each engine
(g) Calculate NO_x mass emissions (as NO_2) and CO mass emissions, for each calendar day for each engine, and for the previous consecutive twelve-month period using CEM data.
(h) Calculate the mass emissions of PM-10, POC, and SO_x (as SO_2) for each calendar day for each engine and for the previous twelve-month period using District approved emission factors.
(Basis: 1-520.1, 9-9-501, BACT (except for SO_x), Offsets, Cumulative Increase)

17. Within 136 days of the beginning of the startup period (start of commissioning period for a given engine) for each engine at EEC, the Owner/operator shall conduct a District-approved initial source test for Particulate Matter, and POC on the corresponding emission point P-1 through P-14 with the corresponding source engine operating at least 80% of full load to determine compliance with these Permit Conditions. The Owner/operator shall conduct a District-approved initial source test for SO_x on one of the fourteen emission points with the corresponding source engine operating at least 80% of full load to determine compliance with these Permit Conditions. Twenty (20) working days before the execution of the source tests, the Owner/operator shall submit to the District and the CEC CPM a detailed source test plan designed to satisfy the requirements of this Condition, including specification of the number of tests. The Owner/operator shall notify the District at least seven (7) working days prior to the planned source test date. Source test results shall be submitted to the District and the CEC CPM within 60 days of completing the tests. (Basis: 2-1-411).

18. The owner/operator shall conduct an initial District-approved source test to determine the SCR System ammonia injection rate and the corresponding NH_3 emission concentration at two of the fourteen emission points. The source test shall be conducted over the expected operating load range of the engines (including, but not limited to, 75% and 100% load) to establish the ammonia injection rates necessary to achieve NO_x emission limits while maintaining ammonia slip levels. A correlation between NO_x ppmv stack exit concentration, ammonia injection rate, heat input, and ammonia exit concentration shall be established for the two engines that were source tested. The test data shall be used as input for the calculation for the remaining engines. Ongoing compliance shall be demonstrated through calculations of corrected ammonia concentrations based upon the source test correlation and continuous records of ammonia injection rate. (Basis: Regulation 2, Rule 5).

19. The owner/operator shall obtain approval for all source test procedures from the Technical Services Division prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements for continuous emission monitors as approved by the Technical Services Division. The owner/operator shall notify the Technical Services Division in writing of the source test protocols and projected test dates at least 7 days prior to the testing date(s). As indicated above, the owner/operator shall measure the contribution of condensable PM (back half) to the total PM10 emissions. However, the owner/operator may propose alternative measuring techniques to measure condensable PM such as the use of a dilution tunnel or other appropriate method used to capture semi-volatile organic compounds. (Basis: BACT)

20. The owner/operator shall conduct a District approved source test no later than 365 days after than the initial source test. The District approved source test shall determine the NH_3 emission concentration from two of the fourteen emission points to demonstrate ongoing compliance and to verify the parametric monitoring correlation. The District approved test shall measure the Particulate Matter mass emission rate and POC emission concentration at emission points P-1 through P-14 with the corresponding source engine operating at least 80% of full load to determine compliance with these Permit Conditions. (Basis: Cumulative Increase, BACT)

21. After completion of the initial source test and the first annual source test, the owner/operator shall conduct a District approved source test on each engine every 8,760 hours of operation or every 3 years whichever comes first. The District approved source test shall determine the NH_3 emission concentration from two of the fourteen emission points to demonstrate ongoing compliance and to verify the parametric monitoring correlation. The District approved source test shall measure the Particulate Matter mass emission rate and POC emission concentration at emission points P-1 through P-14 with the corresponding source engine operating at least 80% of full load to determine compliance with these Permit Conditions. (Basis: Cumulative Increase, BACT)

22. The owner/operator shall not allow the maximum projected annual toxic air contaminant emissions from all emission points P-1 through P-14 combined to exceed the following limits:

1,3-Butadiene	872 pounds per year
Formaldehyde	11,200 pounds per year

unless the following requirement is satisfied:

The owner/operator shall perform a health risk assessment to determine the total facility risk using the emission rates determined by source testing and the most current Bay Area Air Quality Management District approved procedures and unit risk factors in effect at the time of the analysis. The owner/operator shall submit the risk analysis to the District and the CEC CPM within 60 days of the source test date. The owner/operator may request that the District and the CEC CPM revise the carcinogenic compound emission limits specified above. If the owner/operator demonstrates to the satisfaction of the APCO that these revised emission limits will not result in a significant cancer risk, the District and the CEC CPM may administratively adjust the carcinogenic compound emission limits listed above. (Basis: Regulation 2, Rule 5)

23. Within 136 days of start-up of the facility, the owner/operator shall conduct an initial District-approved source test on one of the fourteen emission points P-1 through P-14 with the corresponding engine operating at least 80% of full load to demonstrate compliance with Condition 22. The toxic air contaminant source test results will be converted into emission factors in units of lb/MMBtu, and the annual firing rates for each of the fourteen engines will be used to calculate annual emissions of toxic air contaminants from the facility. The owner/operator shall conduct an additional District approved source test within 3 years of the initial test on one of the fourteen emission points P-1 through P-14 with the corresponding engine operating at least 80% of full load to demonstrate compliance with Condition 22. The toxic air contaminant source test results will be converted into emission factors in units of lb/MMBtu, and the annual firing rates for each of the fourteen engines will be used to calculate annual emissions of toxic air contaminants from the facility.
(Basis: Regulation 2, Rule 5)

Conditions for S-15 Emergency Standby Generator at all times

24. Operation of S-15 for reliability-related activities is limited to 50 hours per year. (Basis: Stationary Diesel Engine ATCM, 17 C.C.R. § 93115(e)(2)(A)(3).)

25. The owner/operator shall operate engine S-15 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, 17 C.C.R. § 93115(e)(2)(A)(3).)

26. The owner/operator shall operate engine S-15 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, 17 C.C.R. § (e)(4)(G)(1).)

27. 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. 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 of S-15 for reliability-related activities (maintenance and testing).
    b. Hours of operation of S-15 for emission testing to show compliance with emission limits.
    c. Hours of emergency operation of S-15.
    d. For each emergency, the nature of the emergency condition.
    e. Fuel usage for S-15.

    (Basis: Stationary Diesel Engine ATCM, 17 C.C.R. § 93115(e)(4)(I).)

28. At School and Near-School Operation: If S-15 is located on school grounds or within 500 feet of any school grounds, the owner/operator shall not operate it for non-emergency use, including maintenance and testing, during the following periods:
    a. Whenever a school-sponsored activity is taking place a the school (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, 17 C.C.R. § 93115(e)(2)(A)(1).)

VI Recommendation

The APCO has preliminarily concluded that the proposed Eastshore Energy Center power plant, which is composed of the proposed sources listed below, will comply with all applicable District rules and regulations. The following sources will be subject to the permit conditions and BACT and offset requirements discussed previously.

S-1 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-1 Selective Catalytic Reduction System and A-15 Oxidation Catalyst

S-2 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-2 Selective Catalytic Reduction System and A-16 Oxidation Catalyst

S-3 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-3 Selective Catalytic Reduction System and A-17 Oxidation Catalyst

S-4 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-4 Selective Catalytic Reduction System and A-18 Oxidation Catalyst

S-5 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-5 Selective Catalytic Reduction System and A-19 Oxidation Catalyst

S-6 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-6 Selective Catalytic Reduction System and A-20 Oxidation Catalyst

S-7 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-7 Selective Catalytic Reduction System and A-21 Oxidation Catalyst

S-8 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-8 Selective Catalytic Reduction System and A-22 Oxidation Catalyst

S-9 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-9 Selective Catalytic Reduction System and A-23 Oxidation Catalyst

S-10 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-10 Selective Catalytic Reduction System and A-24 Oxidation Catalyst

S-11 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-11 Selective Catalytic Reduction System and A-25 Oxidation Catalyst

S-12 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-12 Selective Catalytic Reduction System and A-26 Oxidation Catalyst

S-13 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-13 Selective Catalytic Reduction System and A-27 Oxidation Catalyst

S-14 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wartsila Model 20V34SG, abated by A-27 Selective Catalytic Reduction System and A-28 Oxidation Catalyst

S-15 Emergency Standby Generator Set; Diesel Engine; Caterpillar Model C9ATAAC, 369 HP

The proposed facility will also include the following exempt equipment:

Natural Gas Fired Heaters to Heat Incoming Natural Gas Feed to each Engine Generator Set, Max Firing Rate 2.0 MMBtu/hr.

The natural gas fired heaters are exempt from District permit requirements per Regulation 2, Rule 1, Section 114.

Pursuant to District Regulation 2-3-404, this document is subject to the public notice, public comment, and public inspection requirements of Regulation 2-2-406 and 2-2-407. Accordingly, a notice inviting written public comment will be published in a newspaper of general circulation in the area of the proposed Eastshore Energy Center. The public inspection and comment period will end 30 days after the date of such publication. Written comments on this document should be directed to:

Brian K. Lusher
Air Quality Engineer II
Bay Area Air Quality Management District
939 Ellis Street
San Francisco CA 94109
blusher@baaqmd.gov

VII Glossary

BTU	British Thermal Unit
AFC	Application for Certification
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
CARB	California Air Resources Board
CEC	California Energy Commission
CEC CPM	California Energy Commission, Compliance Program Manger
CO	Carbon Monoxide
EO/APCO	Executive Officer/Air Pollution Control Officer
NH_3	Ammonia
NMHC	Non-methane Hydrocarbons
NO_x	Nitrogen Oxides
O_2	Oxygen
PDOC	Preliminary Determination of Compliance
PM_{10}	Particulate Matter less than 10 Microns in Diameter
POC	Precursor Organic Compounds
ppmvd	Parts Per Million by Volume, Dry
PSD	Prevention of Significant Deterioration
PUC	Public Utilities Commission
SCAQMD	South Coast Air Quality Management District
SCR	Selective Catalytic Reduction
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxides
TAC	Toxic Air Contaminant
TBACT	Toxics Best Available Control Technology
VOC	Volatile Organic Compounds

APPENDIX A

Emission Calculations

APPENDIX B

Health Risk Screening Results