

Robert Sarvey
501 W. Grantline Rd
Tracy, Ca. 95376
(209) 835-7162

DOCKET 06-AFC-6
DATE <u>DEC 07 2007</u>
RECD. <u>DEC 07 2007</u>

STATE OF CALIFORNIA
State Energy Resources
Conservation and Development Commission

In the matter of
Eastshore Energy Center

)
)
)

Docket Number 06-AFC-6
Exhibit 804 Ammended)

12-7-07

Date



Signature



Exhibit 804
BAY AREA AIR QUALITY MANAGEMENT DISTRICT
 939 ELLIS STREET
 SAN FRANCISCO, CA. 94109

ATTENTION: ADMINISTRATIVE SERVICES DIVISION
 e-mail request to: publicrecords@baaqmd.gov

Office Use Only
P.R.R. NUMBER

--

Direct Dial: (415) 749-4761
 FAX: (415) 749-5111

PUBLIC RECORDS REQUEST FORM

ATTENTION REQUESTOR: To expedite your request for District records, please fill out this form completely. Specifically identify the type of records you are requesting from the list below. **NOTE:** There is a limit of one facility or one site address per request form.

REQUESTOR INFORMATION

NAME: Robert Sarvey			DATE: 11-27/07
COMPANY:			
MAILING ADDRESS: 501 W. Grantline Rd.			
CITY: Tracy	STATE: Ca.	ZIP CODE: 95376	PHONE NUMBER: 209 835-7162

REQUESTED FACILITY INFORMATION

FACILITY NAME: East Shore energy Center Plant ID # 8041		
FACILITY ADDRESS: 25101 Clawiter Rd		
CITY: Hayward	STATE: Ca	ZIP CODE: 95376
TIME PERIOD OF DOCUMENTS REQUESTED: 2007	From: 1/107	To: 11/27/07

REQUESTED RECORDS (Check no more than three applicable items)

Complaint Information <input type="checkbox"/> Complaint Printout <input checked="" type="checkbox"/> Specific Complaint #	Notice Of Violation Information <input type="checkbox"/> NOV Printout <input type="checkbox"/> Specific NOV #	OTHER: *** Please provide any comments received from the CEC, ARB, EPA on the PDOC for the Eastshore Project application number 15195. Please provide the BAAQMD responses to these comments. Please provide any other correspondence from these agencies. If possible please fax these documents to 209 835-7162. any electronic document can be emailed to Sarveybob@aol.com
Episode Information <input type="checkbox"/> Episode Printout <input type="checkbox"/> Specific Episode #	<input type="checkbox"/> AB2588 Inventory <input type="checkbox"/> Source Test Reports <input type="checkbox"/> Lab Report #	
Permit Application Information <input type="checkbox"/> Permit Application Printout <input type="checkbox"/> Specific Application # <input type="checkbox"/> Permit Conditions	<input type="checkbox"/> Review Permit Files * <input type="checkbox"/> Review Enforcement Files ** <input type="checkbox"/> Review Rule Development Files ** <input type="checkbox"/> Asbestos Notifications	

* Subject to facility review (i.e., trade secrets).
 ** You will be contacted to schedule an appointment date to review records.

October 17, 2007



**BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT
SINCE 1955**

**Mr. Paul Richins
Environmental Protection Office Manager
California Energy Commission
1516 Ninth Street
Sacramento CA 95814-5512**

**Re: Eastshore Energy Center
BAAQMD Application 15195**

Dear Mr. Richens:

The Bay Area Air Quality Management District (District) has received your comments regarding the District's Preliminary Determination of Compliance (PDOC) for the proposed project.

Comment 1 Recommendation that the District consider a lower PM10/PM2.5 permit limit.

The District appreciates your comment on the PM10/PM2.5 permit limit. The District did consider the 0.02 g/bhp-hr value shown in the CARB document, "Guidance for the Permitting of Electrical Generation Technologies" dated July 2002 when developing the permit limit for the project. After researching the basis of this value it was determined that this was a recommended value that was not based on any actual emissions testing. The value was published by the SJVAPCD in their BACT guidelines as an "achieved in practice" limit. The District contacted the SJVAPCD BACT coordinator and was unable to obtain any emissions data supporting the 0.02 g/bhp-hr value.

The District is aware of a permit issued by the SJVAPCD for a similar facility with smaller engines that has a permit limit corresponding to 0.029 g/bhp-hr. Initially, the District was unable to obtain emissions data demonstrating compliance with this limit. The CARB staff was able to obtain emissions testing data that demonstrated compliance with this limit. Two of fourteen engines were tested at startup for particulate matter and were in compliance with this permit limit. No further ongoing emissions testing was conducted at the facility. The District considered using a similar permit limit for this project, but based on a review of all available emissions data it was determined that the SJVAPCD permit limit did not have adequate compliance margin for this source category.

The PDOC did not set a numerical BACT permit limit for this source category. BACT for particulate matter was the use of PUC quality natural gas and good combustion practice. The District recognizes that a numerical BACT limit is not normally set for natural gas combustion sources. The District agrees that these are large engines with the potential to emit significant quantities of particulate matter and it is appropriate to set a reasonable BACT based permit limit for particulate

ALAMEDA COUNTY
Tom Bates
Scott Haggerty
Janet Lockhart
Nate Miley

CONTRA COSTA COUNTY
John Giola
Mark Ross
(Chair)
Michael Shlimansky
Gayle B. Ullkama

MARIN COUNTY
Harold C. Brown, Jr.

NAPA COUNTY
Brad Wagenknecht

SAN FRANCISCO COUNTY
Chris Daly
Jake McGoldrick
Gavin Newsom

SAN MATEO COUNTY
Jerry Hill
(Vice-Chair)
Carol Klatt

SANTA CLARA COUNTY
Erin Garner
Yoriko Kishimoto
Liz Knies
Patrick Kwok

SOLANO COUNTY
John F. Silva

SONOMA COUNTY
Tim Smith
Pamela Torliatt
(Secretary)

Jack P. Broadbent
EXECUTIVE OFFICER/APCD

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matter. The BACT permit limit should not apply to all lean burn natural gas fired engines, but only to large engines in a similar size range to these engines (11,660 hp).

Based on comments received from the CEC and the CARB, the District has reviewed all available emissions data and set an "achieved in practice" permit limit for these large engines. Particulate emissions are limited to 1.3 lb/hr per engine, with a provision allowing emissions from a particular engine to be as high as 1.9 lb/hr in certain cases as long as a facility-wide 1.3 lb/hr average is maintained. The 1.3 lb/hr average emissions limit will be reflected in a daily emissions cap of 461.65 lb/day for all engines combined, which corresponds to 1 cold start and an average emission rate during normal operation of 1.3 lb/hr. The District recognizes that there may be variability in particulate matter test results due to the source test method and the proposed permit language allows for an engine to emit up to 1.9 lb/hr as long as the daily emissions limit is not exceeded for all fourteen engines. The owner/operator must retest an engine if it exceeds 1.3 lb/hr and provide the District documentation that the high emitting engine has been installed, operated and maintained properly. Additional documentation of the particulate permit condition and its basis is available in the Final Determination of Compliance for the project.

If you have any questions regarding this matter, please contact Brian K. Lusher, Air Quality Engineer II, at (415) 749-4623.

Very truly yours,


Jack P. Broadbent For
Executive Officer/APCO

Enclosure
JPB:bk1

CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET
SACRAMENTO, CA 95814-5512



May 25, 2007

Mr. Jack P. Broadbent
Executive Officer/Air Pollution Control Officer
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

DOCKET	
06-AFC-6	
DATE	MAY 25 2007
RECD.	MAY 29 2007

Dear Mr. Broadbent

EASTSHORE ENERGY CENTER (06-AFC-06) PRELIMINARY DETERMINATION OF COMPLIANCE APPLICATION NO. 15195

Energy Commission staff appreciates the opportunity to provide written public comments on the Preliminary Determination of Compliance (PDOC) issued by the District on April 25, 2007 for the Eastshore Energy Center (EEC). We believe that impact avoidance (i.e., preventing emissions) is the preferred approach to mitigate impacts subject to the requirements of the California Environmental Quality Act.

The PDOC includes an ammonia slip emission limit of 10 parts per million by volume dry basis (ppmvd). Energy Commission staff supports this limit because it addresses one of staff's primary concerns with the project, as shown in our Issue Identification Report (December 28, 2006) and the proposed ammonia slip limit is consistent with guidance from the California Air Resources Board. The project had been proposed with an ammonia slip of 20 ppm.

Energy Commission staff recommends that the project be required to meet lower emissions limits for particulate matter less than 10 and 2.5 microns (PM10 and PM2.5). The Bay Area is designated as an area that does not attain the State Ambient Air Quality Standards for PM10 and PM2.5. The Energy Commission staff must determine whether the PM10 and PM2.5 emissions from EEC would significantly contribute to existing violations of the standards, and lower limits are one way of minimizing the contribution of EEC to the existing PM10 and PM2.5 problems of the area. Additionally, District Rule 2-2-301 requires that PM10 emissions be limited to the lowest achievable rate. The District proposes an hourly PM10/2.5 limit of 2.2 lb/hr, which would be roughly equivalent to 0.086 grams-per-brake horsepower-hour (g/bhp-hr).

Energy Commission staff believes that a much lower PM10 limit should be strongly considered for these natural gas-fired engines. A limit of 0.02 g/bhp-hr is shown in Table I-2 of the California Air Resources Board's (CARB) "Guidance for the Permitting of Electrical Generation Technologies" dated July 2002. The 0.02 g/bhp-hr recommendation is for natural gas-fueled reciprocating engine units under 50 megawatts (MW), such as those proposed for EEC. The 0.02 g/bhp-hr level is also

PROOF OF SERVICE (REVISED 5/1/07) FILED WITH
ORIGINAL MAILED FROM SACRAMENTO ON 5/29/07

ps

Mr. Broadbent
May 25, 2007
Page 2

considered "achieved in practice" according to written guidance from the San Joaquin Valley Air Pollution Control District.

Emission source tests at the Barrick Gold generating facility near Reno, Nevada and the NEO California Power facility in Chowchilla, California provide evidence that the 0.02 g/bhp-hr PM10 levels are achievable from natural gas-fired engines. The Barrick generating units are identical to EEC in size, manufacturer, model number and emissions controls, while the NEO facility in Chowchilla, and its sister facility in Redbluff, California use smaller 2.8 MW natural gas-fired engines. The District should work with CARB to determine lowest achievable rate and establish an hourly PM10 limit that is consistent with CARB guidance and the level of the limit should reflect how emissions of less than 0.6 lb/hr or 0.02 g/bhp-hr per engine are achievable.

We appreciate the District working with Energy Commission staff on this licensing case. If you have any questions regarding our comments, please contact Matt Layton at (916) 654-3868.

Sincerely,

Richard York for Paul Richins

PAUL RICHINS
Environmental Protection Office Manager

cc: Docket (01-AFC-07)
Proof of Service List
Agency List

Brian Lusher

From: Brian Lusher
Sent: Tuesday, September 11, 2007 5:53 PM
To: Agreenberg (E-mail)
Subject: RICE NESHAP

Alvin,

Page 33807 of fr12jn06.pdf states, "We have determined that it is appropriate to use NMHC and formaldehyde or CO emissions as a surrogate for HAP emissions."



emlsdbm7_RICE_NE SHAP_Backgroun...
fr12jn06.pdf

Here is the website,

<http://www.epa.gov/ttn/atw/rice/ricepg.html>

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

Brian Lusher

From: Brian Lusher
Sent: Tuesday, October 02, 2007 5:50 PM
To: 'agreenberg@risksci.com'
Subject: TAC testing

Contacts: Agreenberg

Dr. Greenburg,

Where are you going to end up on TAC testing?



Western 102
Source Test Result..

Check out Tab 4. There is one high emitting engine with a maximum individual run of 0.14 lb/hr. We used 0.2 lb/hr from each engine so we are conservative for this compound. Especially, since the majority of engines are an order of magnitude lower.

Enjoy,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

Eastshore Energy Center
Plant No. 18041
Application No. 15185
BAAQMD Rev 1, 6/4/07

Test Result from Barrick Goldstrike Mines-Western 102 Project AP4911-1364: Units 1-14

Source Test Dates: October 21-23, 2005, November 20-23, 2005
Testing Firm: Air Pollution Testing, Inc.

Unit	Run 1 (lb/hr)	Run 2 (lb/hr)	Run 3 (lb/hr)	Average (lb/hr)	Test Report Average (lb/hr)	Nevada Permit Limit (lb/hr)	Average Firing Rate (MMBtu/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
S2.001	0.0090	0.0089	0.0083	0.0087	0.0087	0.35	73.35	0.00012	0.00277
Pollutant									
HCHO									
Fuel Use (scfh)					71908	77000			
S2.002	0.0054	0.0092	0.0095	0.0080	0.0081	0.35	73.29	0.00011	0.00277
Pollutant									
HCHO									
Fuel Use (scfh)					71857	77000			
S2.003	0.0093	0.0010	0.0012	0.0038	0.0010	0.35	72.68	0.00001	0.00277
Pollutant									
HCHO									
Fuel Use (scfh)					71250	77000			
S2.004	0.0190	0.0240	0.0280	0.0237	0.0240	0.35	72.72	0.00033	0.00277
Pollutant									
HCHO									
Fuel Use (scfh)					71293	77000			
S2.005	0.0160	0.0220	0.0530	0.0303	0.0300	0.35	73.27	0.00041	0.00277
Pollutant									
HCHO									
Fuel Use (scfh)					71831	77000			
S2.006	0.0230	0.0240	0.0055	0.0175	0.0170	0.35	73.57	0.00023	0.00277
Pollutant									
HCHO									
Fuel Use (scfh)					72132	77000			
S2.007	0.0220	0.0140	0.0110	0.0157	0.0160	0.35	73.53	0.00022	0.00277
Pollutant									
HCHO									
Fuel Use (scfh)					72089	77000			
S2.008	0.0490	0.0210	0.0140	0.0280	0.0280	0.35	73.35	0.00038	0.00277
Pollutant									
HCHO									
Fuel Use (scfh)					71914	77000			
S2.009	0.0220	0.0220	0.0052	0.0164	0.0160	0.35	73.56	0.00022	0.00277
Pollutant									
HCHO									
Fuel Use (scfh)					72118	77000			
S2.010	0.0450	0.0780	0.1400	0.0877	0.0870	0.35	72.28	0.00120	0.00277
Pollutant									
HCHO									
Fuel Use (scfh)					70860	77000			
S2.011	0.0190	0.0180	0.0140	0.0170	0.0170	0.35	72.78	0.00023	0.00277
Pollutant									
HCHO									
Fuel Use (scfh)					71352	77000			

Unit S2.012		Run 1	Run 2	Run 3	Average	Test Report Average	Nevada Permit Limit	Average Firing Rate	Emission Factor	Eastshore Application
Pollutant	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(MMBtu/hr)	(lb/MMBtu)	(lb/MMBtu)
HCHO	0.0049	0.0046	0.0027	0.0041	0.0041	0.0041	0.35	73.22	0.00006	0.00277
Fuel Use (scfh)						71783	77000			

Unit S2.013		Run 1	Run 2	Run 3	Average	Test Report Average	Nevada Permit Limit	Average Firing Rate	Emission Factor	Eastshore Application
Pollutant	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(MMBtu/hr)	(lb/MMBtu)	(lb/MMBtu)
HCHO	0.0067	0.0057	0.0052	0.0059	0.0059	0.0059	0.35	73.60	0.00008	0.00277
Fuel Use (scfh)						72157	77000			

Unit S2.014		Run 1	Run 2	Run 3	Average	Test Report Average	Nevada Permit Limit	Average Firing Rate	Emission Factor	Eastshore Application
Pollutant	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(MMBtu/hr)	(lb/MMBtu)	(lb/MMBtu)
HCHO	0.0099	0.0120	0.0095	0.0105	0.0100	0.0100	0.35	72.54	0.00014	0.00277
Fuel Use (scfh)						71115	77000			

Average All Units		Test Report Average (lb/hr)	Nevada Permit Limit (lb/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
Pollutant		0.02	0.35	0.00027	0.00277
HCHO					
Maximum All Units		Test Report Maximum (lb/hr)	Nevada Permit Limit (lb/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
Pollutant		0.09	0.35	0.0012	0.00277
HCHO					
Maximum Test Run			Nevada Permit Limit (lb/hr)		
Pollutant	(lb/hr)		0.35		
HCHO	0.14				

Eastshore Energy Center
 Plant No. 18041
 Application No. 15185
 BAAQMD Rev 0, 1/25/07

Engine HP:
 Max Firing Rate:

11660
 72.8 MMBtu

	PM-10 (lb/hr)	PM-10 (lb/MMBtu)	PM-10 (g/bhp-hr)
Vendor Guarantee		2.2	0.0302
Average of All 14 Tests at Western 102		0.33	0.0045
Two Highest Engines		0.6	0.0082
1 lb/hr		1	0.0137
0.8 lb/hr		0.8	0.0110
AP-42, Total PM-10		0.73	0.0100
Tehama County Limit (No Source Test to Verify)		0.51	0.02
SJVAPCD Limit (No Source Test to Verify)		0.75	0.029
Western 102 located outside Reno (Identical Engine Model) Max Firing Rate 78.54 MMBtu/hr		2.59	0.0329

Unit S2.014	Nevada	Emission	Eastshore	Approximate		
Pollutant	Permit Limit	Firing Rate	Factor	Application	Approximate concentration	
	(lb/hr)	(MMBtu/hr)	(lb/MMBtu)	(lb/MMBtu)	(g/bhp-hr)	(ppm)
PM/PM10	2.59	78.54	0.0330	0.0337	0.101	
NOx	1.49	78.54	0.0190	0.01913		5.2
CO	2.42	78.54	0.0308	0.03026		13.7
POC	2.42	78.54	0.0308	0.03326		24.0
HCHO	0.35	78.54	0.0045	0.0027		1.850
Fuel Use (scfh)	77000					

Eastshore Energy Center
 Plant No. 18041
 Application No. 15185
 BAAQMD Rev 1, 10/1/07

Test Result from Barrick Goldstrike Mines-Western 102 Project AP4911-1364: Units 1-14

Source Test Dates: October 21-23, 2005, November 20-23, 2005
 Testing Firm: Air Pollution Testing, Inc.

HCHO Test Results

	Run 1 (lb/hr)	Run 2 (lb/hr)	Run 3 (lb/hr)	Average (lb/hr)
Unit S2.001	0.0090	0.0089	0.0083	0.0087
Unit S2.002	0.0054	0.0092	0.0095	0.0080
Unit S2.003	0.0093	0.0010	0.0012	0.0038
Unit S2.004	0.0190	0.0240	0.0280	0.0237
Unit S2.005	0.0160	0.0220	0.0530	0.0303
Unit S2.006	0.0230	0.0240	0.0055	0.0175
Unit S2.007	0.0220	0.0140	0.0110	0.0157
Unit S2.008	0.0490	0.0210	0.0140	0.0280
Unit S2.009	0.0220	0.0220	0.0052	0.0164
Unit S2.010	0.0450	0.0780	0.1400	0.0877
Unit S2.011	0.0190	0.0180	0.0140	0.0170
Unit S2.012	0.0049	0.0048	0.0027	0.0041
Unit S2.013	0.0067	0.0057	0.0052	0.0059
Unit S2.014	0.0099	0.0120	0.0095	0.0105
Average All Engines				0.0198
Standard Deviation of The Averages				0.0213
Maximum of The Averages				0.0877
Minimum of the Averages				0.0038
Confidence Interval 95% of The Averages				0.0111
Standard Deviation of All Test Runs				0.0244
Maximum Single Test Run				0.1400
Minimum Single Test Run				0.0010
Confidence Interval 95% All Test Runs				0.0074
Average of All Test Runs				0.0198

Eastshore Maximum lb/hr = 0.00277 lb/MMBtu x 72.8 MMBtu/hr (max. firing rate) = 0.2 lb/hr

Brian Lusher

From: Brian Lusher
Sent: Wednesday, July 25, 2007 8:54 AM
To: 'Brewster Birdsall'
Subject: RE: Draft Permit Conditions

Brewster,

We are still not sure how to address commissioning and startup emissions. After today's meeting I will know more information.

Commissioning Limits are primarily designed from running to many engines simultaneously with no controls.

#7 moved to #17

I will fix #21 as it also needs the averaging provision and the six weeks.

Additional toxics testing was added to get one initial test of all compounds, and to have the applicant rerun the health risk assessment with actual source test data to demonstrate that the facility clearly meets Regulation 2, Rule 5.

This language will continue to be refined...

Regards,

Brian Lusher

-----Original Message-----

From: Brewster Birdsall [mailto:BBirdsall@aspeneg.com]
Sent: Tuesday, July 24, 2007 5:20 PM
To: Brian Lusher
Cc: Keith Golden; Matthew Layton
Subject: RE: Draft Permit Conditions

Thank you Brian - minor questions:

- in condition #6, the PM limit during commissioning remains 757.8 lb/day. Do we want to tighten that to reflect the new MMBtu and hp-hr limits of condition #14(c)?
- did you eliminate a condition (old #7) to source test and determine startup/shutdown emissions (maybe it was moved into #17)?
- in condition #21, should the "all engines...within six weeks" language from #14(c) be there too?
- it looks like you added an additional toxics test in #24, right?

Thanks again for sharing.

- Brewster

-----Original Message-----

From: Brian Lusher [mailto:blusher@baaqmd.gov]
Sent: Tuesday, July 24, 2007 2:15 PM
To: Brewster Birdsall; mlayton@energy.state.ca.us
Subject: Draft Permit Conditions

BACT for PM would remain PUC natural gas and good combustion practice, not a numerical limit.

The average for engines tested must meet 0.03 g/bhp-hr, maximum any single engine 2.2 lb/hr.

<<Draft Eastshore Energy Center Permit Conditions 072407 1400.doc>>

804-15

Let me know if you have comments,

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

Brian Lusher

From: Brian Lusher
Sent: Monday, August 27, 2007 4:11 PM
To: 'Bpfanner (E-mail)
Subject: PSA Workshop on Sept. 6th

Bill,

I am requesting that you put Air Quality 1st on the Agenda for the Evening Session. That way I can escape earlier and not hear all of the other issues involved.

I will also be attending the RCEC proceeding on Sept. 5th.

Thanks,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

Brian Lusher

From: Brian Lusher
Sent: Wednesday, October 17, 2007 4:40 PM
To: 'Bpfanner (E-mail); Matthew Layton (E-mail)
Cc: Brian Bateman; Barry Young; Bob Nishimura
Subject: Eastshore Energy Center FDOC PDF

Bill,

Here is the FDOC in a PDF file. The CEC will also receive a hard copy via the mail.



A15185_FDOC_101
72007.pdf

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

804-18

Brian Lusher

From: Brian Lusher
Sent: Wednesday, October 24, 2007 2:17 PM
To: bpfanner@energy.state.ca.us
Subject: Typo in FDOC PDF

Bill,

CEC staff let me know of a typo in Condition 14 that inadvertently referenced Condition 18 when it should have been Condition 19.

The only change is the 18 now becoming a 19 in Condition 14.

Here is a revised pdf.

Sorry about this error.

Regards,

Brian Lusher

Brian Lusher

From: Brian Lusher
Sent: Thursday, September 27, 2007 2:34 PM
To: Brewster Birdsall (E-mail)
Subject: Condition Text



DRAFT Permit
Conditions 092607...

Brewster,

This has not been approved by District Management.

Please do not distribute.

Thanks,

Brian Lusher

V 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 O₂ content and the differing response times of the O₂ and NO_x monitors, then start-up and shutdown mass emission rates will be based upon annual source test results. Compliance with POC, SO₂, and PM₁₀ 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 6 apply to this commissioning period and are intended to minimize emissions during the commissioning period.

Eastshore Energy Center Permit Conditions**(A) Definitions:**

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 hours and minutes.
MM BTU:	Million British Thermal Units
Engine BHP during operation	(Electrical generator MW) x (1341 bhp/MW) x (1.0319 loss factor)
Engine Start-up:	An engine start-up that occurs when the SCR catalyst bed is below operating temperature as specified by the abatement device manufacturer. The maximum time for startup shall be 30 minutes.
Corrected Concentration:	The concentration of pollutants shall be corrected to a standard value of 15% O ₂ by volume on a dry basis. The following equation shall be used to calculate the corrected concentration. $X@15\%O_2 = (20.95 - 15)/(20.95 - \text{Stack } O_2\%) \times X@Stack \text{ } O_2\%$
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 an 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. The maximum time for a shutdown shall be 8.5 minutes.

Total Particulate Matter	Sum of the filterable and condensable fractions of an EPA Method 5/Method 202 (or other District approved method) sampling train. When using EPA Method 5/Method 202 to demonstrate compliance with these permit conditions, EPA Method 5/Method 202 shall be used to determine the stack gas concentration of particulate matter. The mass emission rate shall be calculated using EPA Method 19 to determine the stack gas flowrate during the source test run.
PM ₁₀	Particulate matter with an aerodynamic diameter of 10 microns or smaller. As applicable, source test methods (District approved) must include the condensable fraction when measuring the stack gas particulate concentration and mass emission rate.
PM _{2.5}	Particulate matter with an aerodynamic diameter of 2.5 microns or smaller. As applicable, source test methods (District approved) must include the condensable fraction when measuring the stack gas particulate concentration and mass emission rate.
SO ₂	Sulfur Dioxide (SO ₂)

(B) Applicability:

Conditions 1 through 6 shall only apply during the commissioning period as defined above. Unless otherwise indicated, Conditions 7 through 24 shall apply after the commissioning period has ended. Conditions 25 through 29 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.
(Basis: BACT, Offsets)
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 at P-1 through P-14
 - e. Stack gas oxygen concentrations at 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.

(Basis: BACT, Offsets)

3. The owner/operator shall install, calibrate, and make operational continuous emission monitors for NO_x, CO and O₂ 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.
(Basis: BACT, Offsets)
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 S-14 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.
(Basis: BACT, Offsets)
5. The owner/operator shall use District approved calculation methods to estimate the total mass emissions of NO_x (as NO₂), CO, POC, PM₁₀, and SO₂ 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.
(Basis: BACT, Offsets)
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
Total Particulate Matter	757.8 pounds per calendar day
PM ₁₀	757.8 pounds per calendar day
PM _{2.5}	757.8 pounds per calendar day
SO ₂	79.53 pounds per calendar day

(Basis: BACT, Offsets)

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

7. 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 SO₂)
8. 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, 72.08 MMBtu/hr for Annual Average), averaged over an hour period, including startup/shutdown periods. The owner shall obtain heating value data for the natural gas on a weekly basis from the gas supplier. The weekly heating value data shall be used to calculate a monthly average for heating value that may be used to demonstrate compliance with these conditions. (Basis: BACT, Cumulative Increase)
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 1730 MMBTU/day per calendar day, including startups/shutdowns. (Basis: Cumulative Increase)
10. 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)
11. The owner/operator shall limit the total annual operating hours for engines S-1 through S-14 to 56,000 hours. (Basis: Offsets, Cumulative Increase)
12. 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).
13. 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 NO₂) 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;
 - 40.31 tons of Total Particulate Matter per rolling 12 month period; and
 - 40.31 tons of PM₁₀ per rolling 12 month period; and
 - 40.31 tons of PM_{2.5} per rolling 12 month period; and
 - 6.63 tons of SO₂ per rolling 12 month period.
 (Basis: Offsets, Cumulative Increase)

14. The owner/operator shall comply with requirements (a) through (e) below under all operating scenarios, except during engine startup and shutdown (although startup and shutdown emissions shall be included in determining compliance with the facility-wide daily Total Particulate Matter emissions limit as set forth in subsection (c)).
- (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% O₂, 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% O₂, averaged over any 1-hour period. (Basis: BACT for CO)
 - (c) Total Particulate Matter, PM₁₀, and PM_{2.5} emissions from all fourteen engines shall not exceed 461.65 lb/day. Total Particulate Matter, PM₁₀, and PM_{2.5} emissions from all fourteen engines shall not exceed 40.31 tons/year. (Basis: BACT, 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% O₂, averaged over any 1-hour period. (Basis: BACT for POC)
 - (e) Ammonia (NH₃) emission concentrations at each point P-1 through P-14 shall not exceed 10 ppmv, on a dry basis, corrected to 15% O₂, averaged over any 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 an average calculated ammonia slip rate equal to or greater than 10 ppmvd corrected to 15% O₂ (in addition to any reporting required by District Regulation 1). The notification shall be provided to the District within one week of an engine operating at an average calculated slip rate equal to or greater than 10 ppmvd corrected to 15% O₂. If the parametric monitoring indicates a corresponding ammonia slip of 10 ppm corrected to 15% O₂ 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)
15. The owner/operator shall demonstrate compliance with Conditions 13 and 14 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 (CO₂) or Oxygen (O₂) 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
 - (d) Corrected NO_x concentrations, NO_x mass emissions (as NO₂), 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 NO₂) 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 SO₂ for each calendar day for each engine and for the previous twelve-month period using District approved emission factors.

The owner/operator shall record all of the parameters identified in (a) through (c) above 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 pursuant to (a) through (c) above and District approved calculation methods to calculate the parameters identified in (d) through (h) above for each engine:

(Basis: 1-520.1, 9-9-501, BACT (except for SO₂), Offsets, Cumulative Increase)

16. The owner/operator shall demonstrate compliance with the 1.3 lb/hr Total Particulate Matter emissions limit in Condition 14(c) by performing tests for Total Particulate Matter emissions as required by these conditions. If Total Particulate Matter emissions for an engine generator set exceed 1.9 lb/hr, then that engine generator set shall be deemed to be in violation of Condition 14(c). If Total Particulate Matter emissions for any engine generator set exceed 1.3 lb/hr, but do not exceed 1.9 lb/hr, then that engine generator set shall not be considered to be in violation of Condition 14(c) if the owner/operator can demonstrate, subject to approval by the APCO, that the engine has been installed, operated, and maintained properly in accordance with all manufacturer's specifications and instructions. The owner/operator shall so demonstrate by:
- (i) retesting emissions within 45 days after receiving the final test report from the initial test exceeding 1.3 lb/hr (in accordance with the source testing requirements set forth in Condition 20);
 - (ii) submitting to the APCO, within 30 days after receiving the final test report from the initial test exceeding 1.3 lb/hr, adequate documentation to verify that the engine has been installed, operated, and maintained properly in accordance with all manufacturers' specifications and instructions.

Within 30 days of receipt of the results of the retest and the documentation required by subsections (i) and (ii) above, the APCO shall make a determination whether the engine has been installed, operated, and maintained in accordance with manufacturers' specifications and instructions. If the APCO determines that the engine has been properly installed, operated, and maintained, then the engine shall be deemed not to be in violation of the single-engine hourly emission limit in Condition 14(c) (although emission from the engine will still be counted for purposes of the facility-wide limit). If the APCO determines that the given engine has not been properly installed, operated, and maintained, then the engine shall be deemed to be in violation of Condition 14(c). Engines that operate pursuant to the provisions of this Condition 16 shall continue to be tested on a regular basis according to these Conditions.

17. Within 136 days of the beginning of the commissioning period for each engine at EEC, the Owner/operator shall conduct a District-approved initial source test for Total 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 SO₂ 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. (Basis: 2-1-411).

18. 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 and shutdown. 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 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.
19. The owner/operator shall conduct an initial District-approved source test to determine the SCR System ammonia injection rate and the corresponding NH₃ emission concentration at two of the fourteen emission points P-1 through P-14. 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).
20. 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. Twenty (20) working days before the execution of source testing, the Owner/operator shall submit to the District and the CEC CPM a detailed source test plan designed to satisfy the requirements of any of these Conditions, 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: BACT)
21. The owner/operator shall conduct a District approved source test no later than 365 days after the initial Total Particulate Matter source test. The District approved source test shall determine the NH₃ 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 Total 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. 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 NH₃ 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 Total 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)
23. 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)

24. 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 23 and to demonstrate that the facility complies with Regulation 2, Rule 5. The initial District approved source test for toxic air contaminants shall quantify the emission rates from one engine of the following compounds: 1,3 Butadiene, Formaldehyde, Acetaldehyde, Benzene, Toluene, Xylene, and Polycyclic Aromatic Hydrocarbons. 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 use the results of the initial source test for toxic air contaminants to perform a health risk assessment to determine the total facility risk using District approved procedures and unit risk factors. (Basis: Regulation 2, Rule 5)

25. 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 23. 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

26. 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).)
27. 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).)
28. 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).)
29. 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.
- Hours of operation of S-15 for reliability-related activities (maintenance and testing).
 - Hours of operation of S-15 for emission testing to show compliance with emission limits.
 - Hours of emergency operation of S-15.
 - For each emergency, the nature of the emergency condition.
 - Fuel usage for S-15.
- (Basis: Stationary Diesel Engine ATCM, 17 C.C.R. § 93115(e)(4)(I).)
30. 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:
- Whenever a school-sponsored activity is taking place at the school (if the engine is located on school grounds).
 - 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).)

Brian Lusher

From: Brian Lusher
Sent: Tuesday, July 24, 2007 2:12 PM
To: Brewster Birdsall (E-mail); 'mlayton@energy.state.ca.us'
Subject: Draft Permit Conditions

BACT for PM would remain PUC natural gas and good combustion practice, not a numerical limit.

The average for engines tested must meet 0.03 g/bhp-hr, maximum any single engine 2.2 lb/hr.



Draft Eastshore
Energy Center ...

Let me know if you have comments,

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

Eastshore Energy Center Permit Conditions**(A) Definitions:**

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 hours and minutes.
MM BTU:	Million British Thermal Units
Engine BHP during operation	$(\text{Electrical generator MW}) \times (1341 \text{ bhp/MW}) \times (1.0319 \text{ loss factor})$
Engine Start-up:	An engine start-up that occurs when the SCR catalyst bed is below operating temperature as specified by the abatement device manufacturer. The maximum time for startup shall be 30 minutes.
Corrected Concentration:	The concentration of pollutants shall be corrected to a standard value of 15% O ₂ by volume on a dry basis. The following equation shall be used to calculate the corrected concentration. $X@15\%O_2 = (20.95 - 15)/(20.95 - \text{Stack } O_2\%) \times X@Stack \text{ } O_2\%$
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 an 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. The maximum time for a shutdown shall be 8.5 minutes.

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Total Particulate Matter	Sum of the filterable and condensable fractions of an EPA Method 5/Method 202 (or other District approved method) sampling train. When using EPA Method 5/Method 202 to demonstrate compliance with these permit conditions, EPA Method 5/Method 202 shall be used to determine the stack gas concentration of particulate matter. The mass emission rate shall be calculated using EPA Method 19 to determine the stack gas flowrate during the source test run.
PM ₁₀	Particulate matter with an aerodynamic diameter of 10 microns or smaller. As applicable, source test methods (District approved) must include the condensable fraction when measuring the stack gas particulate concentration and mass emission rate.
PM _{2.5}	Particulate matter with an aerodynamic diameter of 2.5 microns or smaller. As applicable, source test methods (District approved) must include the condensable fraction when measuring the stack gas particulate concentration and mass emission rate.
SO ₂	Sulfur Dioxide (SO ₂)

(B) Applicability:

Conditions 1 through 6 shall only apply during the commissioning period as defined above. Unless otherwise indicated, Conditions 7 through 24 shall apply after the commissioning period has ended. Conditions 25 through 29 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.
(Basis: BACT, Offsets)
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 at P-1 through P-14
 - e. Stack gas oxygen concentrations at P-1 through P-14

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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.

(Basis: BACT, Offsets)

3. The owner/operator shall install, calibrate, and make operational continuous emission monitors for NO_x, CO and O₂ 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.
(Basis: BACT, Offsets)
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 S-14 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.
(Basis: BACT, Offsets)
5. The owner/operator shall use District approved calculation methods to estimate the total mass emissions of NO_x (as NO₂), CO, POC, PM₁₀, and SO₂ 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.
(Basis: BACT, Offsets)
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
Total Particulate Matter	757.8 pounds per calendar day
PM ₁₀	757.8 pounds per calendar day
PM _{2.5}	757.8 pounds per calendar day
SO ₂	79.53 pounds per calendar day

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(Basis: BACT, Offsets)

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

7. The owner/operator shall ensure that S-1 through S-14 IC Engines are fired on PUC natural gas exclusively. (Basis: BACT for PM_{10} , Cumulative Increase for SO_2)
8. 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. The owner shall obtain heating value data for the natural gas on a weekly basis from the gas supplier. The weekly heating value data shall be used to calculate a monthly average for heating value that may be used to demonstrate compliance with these conditions. (Basis: BACT, Cumulative Increase)
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 1730 MMBTU/day per calendar day, including startups/shutdowns. (Basis: Cumulative Increase)
10. 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)
11. The owner/operator shall limit the total annual operating hours for engines S-1 through S-14 to 56,000 hours. (Basis: Offsets, Cumulative Increase)
12. 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).
13. 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 CH_4) per rolling 12 month period;
 - 21.40 tons of PM_{10} per rolling 12 month period; and
 - 21.40 tons of $PM_{2.5}$ per rolling 12 month period; and
 - 6.63 tons of SO_2 per rolling 12 month period.(Basis: Offsets, Cumulative Increase)

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14. The owner/operator shall comply with requirements (a) through (e) below under all operating scenarios, except 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% O₂, 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% O₂, averaged over any 1-hour period. (Basis: BACT for CO)
 - (c) Total Particulate Matter, PM₁₀, and PM_{2.5} emissions determined from the average of all engines tested shall not exceed 0.03 g/bhp-hr or 0.011 lb/MMBtu. Total Particulate Matter, PM₁₀ and PM_{2.5} emissions from each engine S-1 through S-14 shall not exceed 2.2 lb/hr. All engines subject to particulate source testing shall be tested within a six-week period from the completion of particulate testing on the first engine. The particulate test result for each engine shall be the average of three valid test runs. The particulate test results for all engines tested shall be averaged together and compared to the limit presented in this condition to determine compliance. (Basis: Voluntary Limit, 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% O₂, averaged over any 1-hour period. (Basis: BACT for POC)
 - (e) Ammonia (NH₃) emission concentrations at each point P-1 through P-14 shall not exceed 10 ppmv, on a dry basis, corrected to 15% O₂, averaged over any 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 an average calculated ammonia slip rate equal to or greater than 10 ppmvd corrected to 15% O₂ (in addition to any reporting required by District Regulation 1). The notification shall be provided to the District within one week of an engine operating at an average calculated slip rate equal to or greater than 10 ppmvd corrected to 15% O₂. If the parametric monitoring indicates a corresponding ammonia slip of 10 ppm corrected to 15% O₂ 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)
15. 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 (CO₂) or Oxygen (O₂) 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
 - (d) Corrected NO_x concentrations, NO_x mass emissions (as NO₂), corrected CO concentrations, and CO mass emissions at each emission point for every 1-hour period

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- (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_2 for each calendar day for each engine and for the previous twelve-month period using District approved emission factors.
- The owner/operator shall record all of the parameters identified in (a) through (c) above 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 pursuant to (a) through (c) above and District approved calculation methods to calculate the parameters identified in (d) through (h) above for each engine:
(Basis: 1-520.1, 9-9-501, BACT (except for SO_2), Offsets, Cumulative Increase)

16. Within 136 days of the beginning of the commissioning period for each engine at EEC, the Owner/operator shall conduct a District-approved initial source test for Total 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_2 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. (Basis: 2-1-411).
17. 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 and shutdown. The source test shall determine NO_x , CO, POC and PM_{10} 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 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.
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 P-1 through P-14. 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).

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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. Twenty (20) working days before the execution of source testing, the Owner/operator shall submit to the District and the CEC CPM a detailed source test plan designed to satisfy the requirements of any of these Conditions, 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: BACT)
20. The owner/operator shall conduct a District approved source test no later than 365 days after than the initial Total Particulate Matter source test. The District approved source test shall determine the NH₃ 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 Total 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 NH₃ 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 Total 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 and to demonstrate that the facility complies with Regulation 2, Rule 5. The initial District approved source test for toxic air contaminants shall quantify the emission rates from one engine of the following compounds: 1,3 Butadiene, Formaldehyde, Acetaldehyde, Benzene, Toluene, Xylene, and Polycyclic Aromatic Hydrocarbons. 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 use the results of the initial source test for toxic air contaminants to perform a health risk assessment to determine the total facility risk using District approved procedures and unit risk factors.
(Basis: Regulation 2, Rule 5)

24. 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

25. 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).)
26. 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).)
27. 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).)
28. 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).)
29. 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 at 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).)

Brian Lusher

From: Brian Lusher
Sent: Thursday, September 27, 2007 9:39 AM
To: 'Chris Gallenstein (E-mail)'
Subject: Eastshore Draft FDOC

Contacts: 'Chris Gallenstein (E-mail)'

Chris,

This has not been approved by District Management.

Please do not distribute.



Eastshore FDOC
DRAFT V0 092607...

Regards,

Brian Lusher

Brian Lusher

From: Brian Lusher
Sent: Tuesday, July 24, 2007 2:09 PM
To: 'Chris Gallenstein (E-mail) ' (E-mail)
Subject: Draft Permit Conditions for Eastshore Energy Center

Chris,

Here is the proposed language with the 0.03 g/bhp-hr average for all fourteen engines, and a maximum of 2.2 lb/hr for any individual engine. BACT would remain PUC natural gas and good combustion practice and not a numerical limit.



Draft Eastshore
Energy Center ...

Let me know if you have comments on this language.

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

Eastshore Energy Center Permit Conditions**(A) Definitions:**

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 hours and minutes.
MM BTU:	Million British Thermal Units
Engine BHP during operation	(Electrical generator MW) x (1341 bhp/MW) x (1.0319 loss factor)
Engine Start-up:	An engine start-up that occurs when the SCR catalyst bed is below operating temperature as specified by the abatement device manufacturer. The maximum time for startup shall be 30 minutes.
Corrected Concentration:	The concentration of pollutants shall be corrected to a standard value of 15% O ₂ by volume on a dry basis. The following equation shall be used to calculate the corrected concentration. $X@15\%O_2 = (20.95 - 15)/(20.95 - \text{Stack } O_2\%) \times X@\text{Stack } O_2\%$
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 an 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. The maximum time for a shutdown shall be 8.5 minutes.

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Total Particulate Matter	Sum of the filterable and condensable fractions of an EPA Method 5/Method 202 (or other District approved method) sampling train. When using EPA Method 5/Method 202 to demonstrate compliance with these permit conditions, EPA Method 5/Method 202 shall be used to determine the stack gas concentration of particulate matter. The mass emission rate shall be calculated using EPA Method 19 to determine the stack gas flowrate during the source test run.
PM ₁₀	Particulate matter with an aerodynamic diameter of 10 microns or smaller. As applicable, source test methods (District approved) must include the condensable fraction when measuring the stack gas particulate concentration and mass emission rate.
PM _{2.5}	Particulate matter with an aerodynamic diameter of 2.5 microns or smaller. As applicable, source test methods (District approved) must include the condensable fraction when measuring the stack gas particulate concentration and mass emission rate.
SO ₂	Sulfur Dioxide (SO ₂)

(B) Applicability:

Conditions 1 through 6 shall only apply during the commissioning period as defined above. Unless otherwise indicated, Conditions 7 through 24 shall apply after the commissioning period has ended. Conditions 25 through 29 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.
(Basis: BACT, Offsets)
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 at P-1 through P-14
 - e. Stack gas oxygen concentrations at P-1 through P-14

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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.

(Basis: BACT, Offsets)

3. The owner/operator shall install, calibrate, and make operational continuous emission monitors for NO_x, CO and O₂ 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.
(Basis: BACT, Offsets)
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 S-14 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.
(Basis: BACT, Offsets)
5. The owner/operator shall use District approved calculation methods to estimate the total mass emissions of NO_x (as NO₂), CO, POC, PM₁₀, and SO₂ 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.
(Basis: BACT, Offsets)
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
Total Particulate Matter	757.8 pounds per calendar day
PM ₁₀	757.8 pounds per calendar day
PM _{2.5}	757.8 pounds per calendar day
SO ₂	79.53 pounds per calendar day

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(Basis: BACT, Offsets)

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

7. 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 SO₂)
8. 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. The owner shall obtain heating value data for the natural gas on a weekly basis from the gas supplier. The weekly heating value data shall be used to calculate a monthly average for heating value that may be used to demonstrate compliance with these conditions. (Basis: BACT, Cumulative Increase)
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 1730 MMBTU/day per calendar day, including startups/shutdowns. (Basis: Cumulative Increase)
10. 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)
11. The owner/operator shall limit the total annual operating hours for engines S-1 through S-14 to 56,000 hours. (Basis: Offsets, Cumulative Increase)
12. 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).
13. 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 NO₂) 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;
 - 21.40 tons of PM₁₀ per rolling 12 month period; and
 - 21.40 tons of PM_{2.5} per rolling 12 month period; and
 - 6.63 tons of SO₂ per rolling 12 month period.(Basis: Offsets, Cumulative Increase)

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14. The owner/operator shall comply with requirements (a) through (e) below under all operating scenarios, except 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% O₂, 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% O₂, averaged over any 1-hour period. (Basis: BACT for CO)
 - (c) Total Particulate Matter, PM₁₀, and PM_{2.5} emissions determined from the average of all engines tested shall not exceed 0.03 g/bhp-hr or 0.011 lb/MMBtu. Total Particulate Matter, PM₁₀ and PM_{2.5} emissions from each engine S-1 through S-14 shall not exceed 2.2 lb/hr. All engines subject to particulate source testing shall be tested within a six-week period from the completion of particulate testing on the first engine. The particulate test result for each engine shall be the average of three valid test runs. The particulate test results for all engines tested shall be averaged together and compared to the limit presented in this condition to determine compliance. (Basis: Voluntary Limit, 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% O₂, averaged over any 1-hour period. (Basis: BACT for POC)
 - (e) Ammonia (NH₃) emission concentrations at each point P-1 through P-14 shall not exceed 10 ppmv, on a dry basis, corrected to 15% O₂, averaged over any 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 an average calculated ammonia slip rate equal to or greater than 10 ppmvd corrected to 15% O₂ (in addition to any reporting required by District Regulation 1). The notification shall be provided to the District within one week of an engine operating at an average calculated slip rate equal to or greater than 10 ppmvd corrected to 15% O₂. If the parametric monitoring indicates a corresponding ammonia slip of 10 ppm corrected to 15% O₂ 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)
15. 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 (CO₂) or Oxygen (O₂) 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
 - (d) Corrected NO_x concentrations, NO_x mass emissions (as NO₂), corrected CO concentrations, and CO mass emissions at each emission point for every 1-hour period

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- (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_2 for each calendar day for each engine and for the previous twelve-month period using District approved emission factors.
- The owner/operator shall record all of the parameters identified in (a) through (c) above 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 pursuant to (a) through (c) above and District approved calculation methods to calculate the parameters identified in (d) through (h) above for each engine:
(Basis: 1-520.1, 9-9-501, BACT (except for SO_2), Offsets, Cumulative Increase)
16. Within 136 days of the beginning of the commissioning period for each engine at EEC, the Owner/operator shall conduct a District-approved initial source test for Total 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_2 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. (Basis: 2-1-411).
 17. 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 and shutdown. The source test shall determine NO_x , CO, POC and PM_{10} 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 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.
 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 P-1 through P-14. 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).

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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. Twenty (20) working days before the execution of source testing, the Owner/operator shall submit to the District and the CEC CPM a detailed source test plan designed to satisfy the requirements of any of these Conditions, 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: BACT)
20. The owner/operator shall conduct a District approved source test no later than 365 days after than the initial Total Particulate Matter source test. The District approved source test shall determine the NH₃ 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 Total 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 NH₃ 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 Total 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 and to demonstrate that the facility complies with Regulation 2, Rule 5. The initial District approved source test for toxic air contaminants shall quantify the emission rates from one engine of the following compounds: 1,3 Butadiene, Formaldehyde, Acetaldehyde, Benzene, Toluene, Xylene, and Polycyclic Aromatic Hydrocarbons. 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 use the results of the initial source test for toxic air contaminants to perform a health risk assessment to determine the total facility risk using District approved procedures and unit risk factors.
(Basis: Regulation 2, Rule 5)
24. 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

25. 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).)
26. 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).)
27. 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).)
28. 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).)
29. 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 at 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).)

Brian Lusher

From: Brian Lusher
Sent: Monday, July 16, 2007 9:28 AM
To: 'Chris Gallenstein (E-mail)' (E-mail)
Subject: Eastshore Permit Particulate Concepts

Chris,

Please give us your comments on the following concepts:

- 1) Is a numerical g/bhp-hr, lb/hr, lb/MMBtu BACT limit for particulate mandatory. Or can the applicant accept a more reasonable limit and have BACT remain PUC quality natural gas and good combustion practice.
- 2) What do you think about a lb/hr limit for particulate only for all fourteen engines combined (equivalent to 0.03 g/bhp-hr). Compliance would be demonstrated by testing all fourteen engines periodically with a condition that the engines need to be tested as close together as possible.
- 3) What do you think about the units of the permit limit (g/bhp-hr, lb/hr, lb/MMBtu) for particulate.

If you have questions, then give me a call.

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

Brian Lusher

From: Brian Lusher
Sent: Thursday, July 26, 2007 10:58 AM
To: 'Chris Gallenstein (E-mail)' (E-mail); Brewster Birdsall (E-mail)
Subject: Proposed Particulate Limit

Gentleman,

District staff had a meeting with the applicant and Wartsilla yesterday. Wartsilla presented data showing that some of their engines (16 and 20 cylinder models very similar to the Eastshore engines) would not be able to meet the proposed permit limit.

The District has requested as much of this data as the company can give us.

As for now we have no agreement on what a permit limit should be.

The numerical BACT argument does look weak for this source category.

The diesel engine comparison is also not entirely fair since the certifications for diesel engines are based on ISO 8178 methods which are comparable to M5 filterable data with no back half. In fact if M5 with backhalf was used to measure PM from diesel engines the results would be 2 to 4 times higher based on a study by CARB.

I have contacted Nevada and the Barrick site was scheduled to be tested in July, with data available 60 days later.

Wartsilla is claiming that the Nevada data is lower than other engine sites and has less variability. The Colorado data is much higher and this may be due to gas quality issues. I believe the Western 102 data is the most representative of a similar facility operating in CA. The company is also concerned about the precedence that our approach would set for single engine plants or facilities installing much less than 14 engines.

I will keep you posted on this issue...

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

804-57

Brian Lusher

From: Brian Lusher
Sent: Wednesday, October 10, 2007 5:33 PM
To: 'Dr. Alvin Greenberg'
Subject: RE: response to Toth -2

Dr. G,

Attached are my response to Mr. Toth and my response to the form letter. Neither has been mailed out and both are currently under management review.

As far as TAC testing goes. Keep in mind that PAH testing is the real burden. It requires 3 x 3 hour runs, and there is usually time needed to set up between runs.

I sent you the formaldehyde data with some statistical analysis and that data showed the mean and the std deviation were on the same order of magnitude. One engine was high and would cause problems since it is so different than the other engines and not within one std dev of the mean.

You may want to consider testing some number of engines and using that data to estimate cancer risk and hazard indices. If the results were not near the ten in a million or hazard indices near 1 level, then no more testing. You also could consider having statistical screening combined with some risk criteria.

I will keep thinking about this issue and let you know if I can come up with anything better.

I will definitely enjoy your response to Mr. Toth's comments.

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

-----Original Message-----

From: Dr. Alvin Greenberg [mailto:agreenberg@risksci.com]
Sent: Wednesday, October 10, 2007 5:22 PM
To: 'Matthew Layton'; 'Keith Golden'; bbirdsall@aspeneq.com; Brian Lusher
Subject: response to Toth -2

I have previously sent you my draft response 1 addressing the EFs and Acrolein. Here now is response 2 addressing PM2.5 and cancer.

I look forward to your comments and suggestions on both responses. (I have also attached response 1 for your convenience.)

Thanks,
Alvin

Dr. Alvin Greenberg
Risk Science Associates

11/30/2007

804-57

Brian Lusher

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I will definitely enjoy your response to Mr. Toth's comments.

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

-----Original Message-----

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Sent: Wednesday, October 10, 2007 5:22 PM
To: 'Matthew Layton'; 'Keith Golden'; bbirdsall@aspeneg.com; Brian Lusher
Subject: response to Toth -2

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I look forward to your comments and suggestions on both responses. (I have also attached response 1 for your convenience.)

Thanks,
Alvin

Dr. Alvin Greenberg
Risk Science Associates

11/30/2007

804-58

121 Paul Dr., Suite A
San Rafael, CA 94903
office 415-479-7560
cell 415-302-0438

October, 2007

Subject: **Preliminary Determination of Compliance
Eastshore Energy Center
Application No. 15195**

ALAMEDA COUNTY
Tom Bates
Scott Haggerty
Janet Lockhart
Nate Miley

CONTRA COSTA COUNTY
John Gioia
Mark Ross
(Chair)
Michael Shimansky
Gayle B. Uilkema

MARIN COUNTY
Harold C. Brown, Jr.

NAPA COUNTY
Brad Wagenknecht

SAN FRANCISCO COUNTY
Chris Daly
Jake McGoldrick
Gavin Newsom

SAN MATEO COUNTY
Jerry Hill
(Vice-Chair)
Carol Klatt

SANTA CLARA COUNTY
Erin Gamer
Yoriko Kishimoto
Liz Kniss
Patrick Kwok

SOLANO COUNTY
John F. Silva

SONOMA COUNTY
Tim Smith
Pamela Torliatt
(Secretary)

Jack P. Broadbent
EXECUTIVE OFFICER/APCO

Dear :

The Bay Area Air Quality Management District (District) has received your comments regarding the District's Preliminary Determination of Compliance (PDOC) for the proposed project.

The District has considered your comments, along with other comments that were submitted, and has made a final determination that the proposed project meets the requirements of the District's Risk Management Rule (Reg. 2 Rule 5) and meets all other applicable District Regulations as well as applicable State and Federal regulatory requirements. The District will continue to participate in the California Energy Commission licensing process to ensure that the project will have no significant air quality impact to Hayward or the Region.

The public comments received on the Preliminary Determination of Compliance are addressed below.

Comment Category 1: Proposed Project located in a non-attainment area.

Commenters stated that the Region is not in attainment of the State and Federal Ambient Air Quality Standards and that it would not be appropriate to add new sources of air pollution.

Response to Comment Category 1

Currently, the Bay Area is designated as "attainment" for CO, NO₂, SO₂, and lead, which means that the air quality in the Bay Area meets federal and state standards for those pollutants. The Bay Area is designated as "non-attainment" for the state and federal ozone standards and for the state standards for fine particulate matter (PM₁₀ and PM_{2.5}). New, more stringent federal standards for fine particulate matter have recently been adopted, but EPA has not yet made a designation for the Bay Area for those standards.

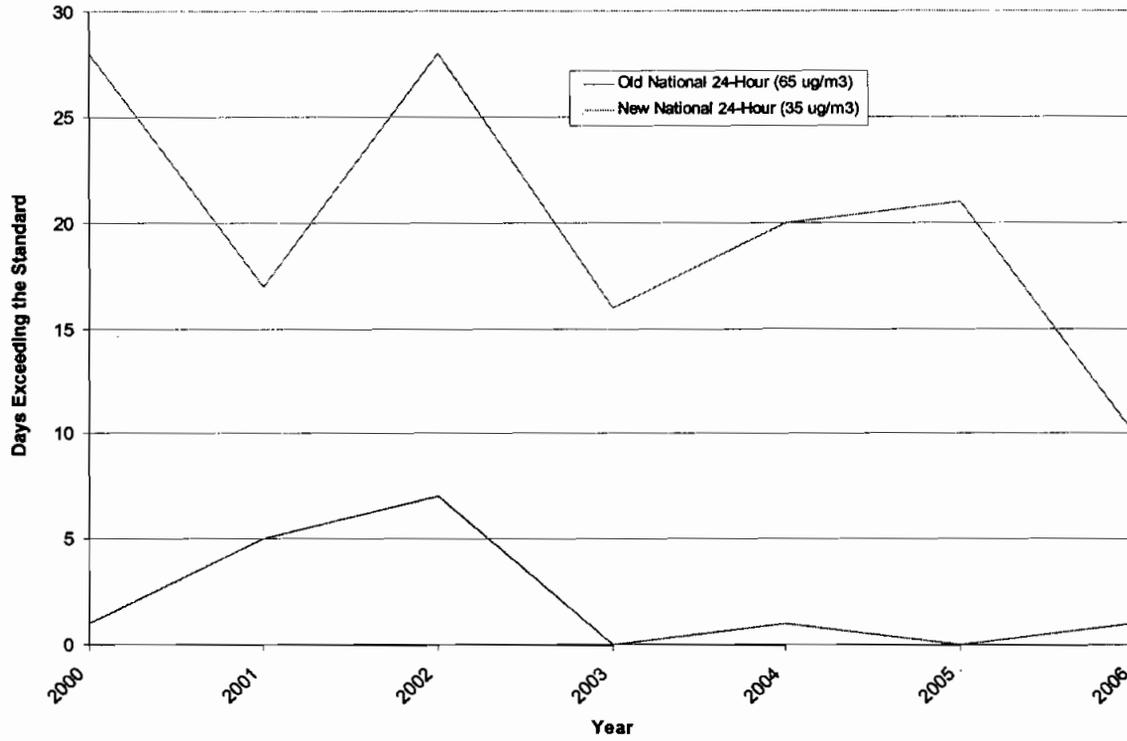
These air quality standards apply to the Bay Area as a whole. Thus, the fact that Hayward may be in an "attainment" area or a "non-attainment" area for a given pollutant does not mean that the air quality in Hayward is any better or worse than anywhere else in the Bay Area, and does not mean that the proposed project will have any greater or lesser impacts on air quality if it is operated in Hayward as opposed to any other location in the Bay Area.

The fact that the Bay Area is designated as "non-attainment" for certain pollutants does not mean that no new projects can be built. The District does not prohibit all new projects as a result of a "non-attainment" designation. Instead, the District requires new projects – including the proposed Eastshore Energy Center – to incorporate strict air pollution controls to ensure that emissions are minimized, and also requires new sources of emissions to be "offset" by shutting down older sources of emissions so that there is no net increase as a result of the new project. This process ensures that regional emissions will continually be reduced in order to bring the region into "attainment" for all regulated pollutants.

The District's regulatory system has a good track record in this regard. Air quality in the Bay Area has been improving over time as shown in Figures 1, 2 and 3. The region still faces challenges in meeting the air quality standards for ozone and fine particulate matter, and the District is continuing to develop strategies for the region to achieve compliance with these standards. The latest information is available on our website (www.baaqmd.gov) under the following topics:

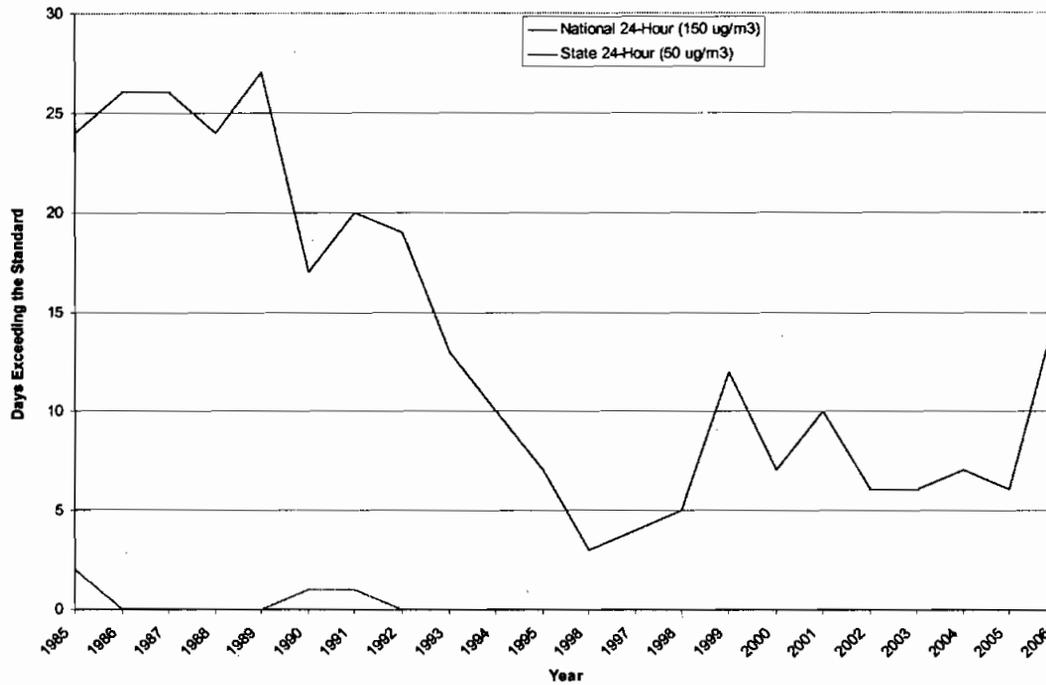
[BAAQMD - Bay Area Ozone Strategy](#)

[BAAQMD - Particulate Matter](#)

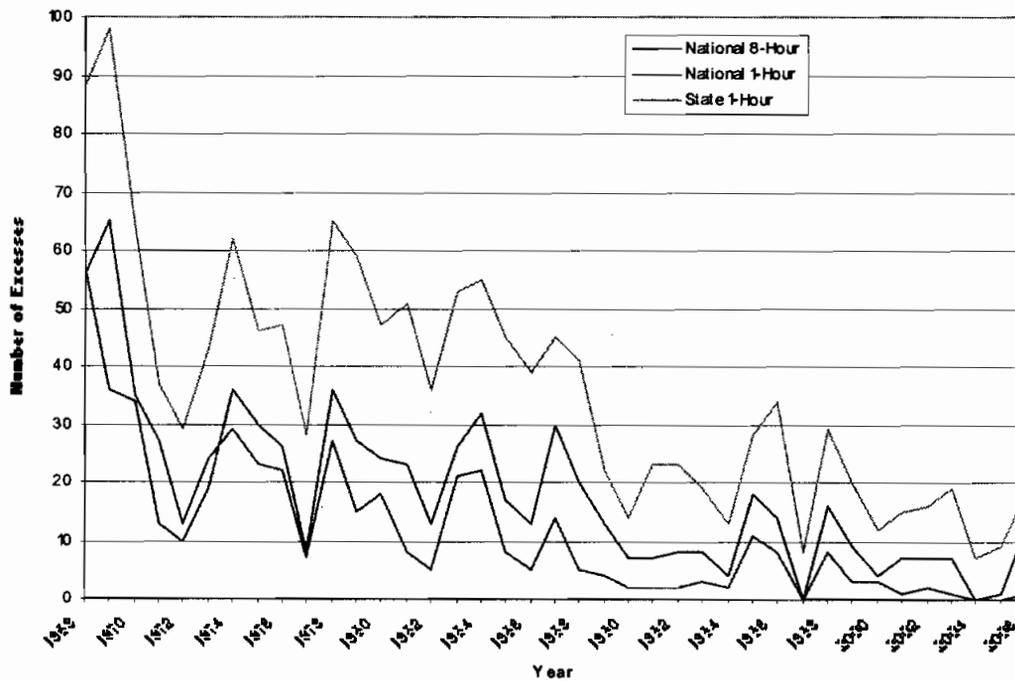
PM2.5 Particulate Matter Bay Area Historical Exceedances**Notes:**

On December 18, 2006, the USEPA lowered the national 24-hour PM2.5 standard to 35 micrograms per cubic meter.

PM10 Particulate Matter Bay Area Historical Exceedances



O3 Ozone Bay Area Historical Exceedances



Notes:

National 1-hour ozone standard was revoked on June 15, 2005.
 On May 17, 2005, the California Air Resources Board implemented a new 8-hour ozone standard of 0.070 ppm, which was exceeded on 22 days in 2006 in the Bay Area.

Comment Category 2: Public Health Impacts due to proposed facility.

Commenters stated concerns over emissions of Toxic Air Contaminants from the proposed project and the Russell City Energy Center. Commenters were also concerned regarding proposed project impacts on asthma and health for nearby members of the community.

Response to Comment Category 2

The District takes very seriously the health concerns raised by the commenters. There are a number of health problems that can be caused or exacerbated by air pollution, and the District is committed to improving air quality and public health in all communities throughout the Bay Area.

As shown in the FDOC the District performed a Health Risk Screening Assessment for the project and the results were in compliance with the District Rule 2, Regulation 5 requirements. The results of the Health Risk Assessment were below the significance criteria for cancer risk, chronic health impacts, and acute non-cancer health impacts. The District review shows that the emissions from the proposed facility will not cause a significant impact on public health in the community. The District also performed a Health Risk Screening Assessment for the Russell City Energy Center that shows that facility will not cause a significant impact on public health in the community.

Asthma and Health

With respect to asthma specifically, California Energy Commission staff examined the potential for asthma impacts in its Preliminary Staff Assessment and found that the proposed project would not cause a significant impact on asthma and public health in the community. The District reviewed this assessment and concurs in its conclusions. The Preliminary Staff Assessment is available at the Energy Commission website, and at the Hayward Public Library.

Comment Category 3: Cumulative Impact of proposed project, Russell City Energy Center and other existing sources of air pollution in the West Hayward area.

Commenters stated concerns regarding the cumulative impact of the proposed project, the Russell City Energy Center, and other existing air pollution sources in the surrounding community.

Response to Comment Category 3

The potential for cumulative impacts on air quality has been addressed through the CEC licensing process that is equivalent to the California Environmental Quality Act ("CEQA") environmental impact review process. Because the proposed project is a power plant that will be licensed by the CEC, the CEC has taken the lead for this project for purposes of conducting the environmental review. The CEC's staff has completed a detailed review of the potential impacts in its Preliminary Staff Assessment, and found that after mitigation measures are implemented there will be no significant cumulative impacts. The District supports the CEC's analysis and incorporates it by reference.

Comment Category 4: Proximity of the proposed project to nearby schools and residents.

Commenters expressed concern regarding the land use of the proposed site and its proximity to nearby schools and residents.

Response to Comment Category 4

Local land-use determinations and decisions about where to site power plants are made by the City of Hayward and the California Energy Commission, not by the District. The District's role is to evaluate the potential air quality impacts of a proposed project and determine whether the project will comply with air quality regulations. The District has done so and has determined that the proposed project will comply, as explained in the Determination of Compliance. In doing so, the District evaluated the potential for impacts on neighboring schools and residents.

Comment Category 5: Use of District Monitoring Network for Ambient Air Quality at Project Site.

Commenters stated a concern that the District does not currently have an ambient air monitoring station in the specific project area and the baseline ambient air quality data from the District air monitoring network may not be representative of air quality in the project area.

Response to Comment Category 5

The District's extensive air monitoring network provides a very good picture of ambient air quality conditions at the proposed project's location. The District currently operates 30 air monitoring stations throughout the 9 Bay Area counties, and meets or exceeds all monitoring requirements established by the California Air Resources Board and the US Environmental Protection Agency. The data produced by the District's air monitoring network and meteorological monitoring network is representative of the conditions in Hayward and the East Bay area.

The District does not place an air monitoring station in every single community throughout the Bay Area because to do so would be very costly and is not necessary to measure ambient air quality accurately. Monitoring stations have expensive capital costs and the equipment requires a specialist to operate and maintain the station. There is no need for additional stations beyond what the District already has in its extensive monitoring network in order obtain a representative picture of ambient air quality for a given area, and the costs of doing so would not be justified.

Comment Category 6: Use of Emission Reduction Credits to comply with District Rules and Regulations and to mitigate project impacts.

Commenters stated a concern that Emission Reduction Credits allow the facility to violate or bypass Air Quality Rules and Regulations, and that the use of Credits was not appropriate, nor an effective form of mitigation.

Response to Comment Category 6

The commenters are incorrect that the use of Emission Reduction Credits allows a facility to violate or bypass Air Quality rules and regulations.

The use of Emission Reduction Credits is the second step in a two-step process to ensure that air pollution is minimized and reduced in the Bay Area. The first step requires that all new projects meet strict regulations to minimize emissions. All new projects that will emit over 10 pounds per highest day of NO_x, POC, CO, PM₁₀, or SO_x must use the Best Available Control Technology ("BACT") to reduce emissions to the maximum feasible extent. Then, once a project has minimized its emissions as much as feasible, the second step requires that any remaining emissions that cannot be minimized must be "offset" by the use of Emission Reduction Credits to ensure that there is no net emissions increase overall as a result of the new project. Thus, the use of Emission Reduction Credits does not circumvent air quality regulations, it is an integral part of the air quality regulations. In fact, this system is required by the California Clean Air Act.

The use of Emission Reduction Credits – also known as "Emissions Banking" – has worked to improve air quality in the Bay Area, in other parts of California, and on a national level. In California, ozone levels have been reduced in many areas in part because of Emissions Banking. On a national and international level, Emissions Banking has helped to reduce acid rain in the Northeast and in Canada.

Emissions Reduction Credits are generated by closing sources down or by reducing emissions from sources beyond what air quality regulations require. The District maintains a "bank" of Emissions Reductions Credits generated by such reductions, from which new projects must obtain Credits to offset their emissions. A facility wanting to bank its emissions reductions must submit a Banking Application to the District. The Application is evaluated by an engineer to determine the quantity of emissions reductions that may become Emission Reduction Credits. The total emissions reductions from the closure of a facility may be significantly higher than the quantity that may become Emissions Reduction Credits.

District regulations require the proposed project to obtain offsets for its NO_x and POC emissions because the facility will emit greater than 35 tons per year of those pollutants. The proposed facility will be required to offset its NO_x and POC emissions at a ratio of 1 to 1.15, meaning that for every ton emitted the facility will have to provide 1.15 tons of Emissions Reduction Credits. NO_x and POC are both ozone precursors, and District regulations allow POC offsets to be used interchangeably for NO_x. The proposed facility will be required to provide the Emissions Reduction Credits before the District issues the Authority to Construct for the project.

Additional information on Emissions Banking and Emission Reduction Credits may be found on the District website (www.baaqmd.gov) under the following topic: [BAAQMD - Emissions Banking](#)

Comment Category 7: Adequacy of Emissions Estimates for Wartsila Engines.

Commenters stated that Wartsila emissions information was used by the District to estimate emissions from the engines, and this was not appropriate since the company would benefit from the sale of these proposed engines. Commenters stated that adequate independent emissions testing had not been conducted for this specific Wartsila engine. Commenters stated that Wartsila emissions information was not compared to independently gathered emissions data. Commenters stated that emissions factors for Toxic Air Contaminants were not representative of the Wartsila engines proposed for use at the Eastshore Energy Center.

Response to Comment Category 7

The District based its estimates of emissions from the proposed project on reliable data from the testing of similar engines to the ones that will be used at the proposed project. The first section below outlines the data the District relied on for emissions of "criteria pollutants", which are pollutants that are not normally significant when emitted by a single facility, but which may become significant when emitted by a large number of sources and combine to impact ambient air quality over a large area. The second section outlines the data the District relied on for Toxic Air Contaminants ("TACs").

Criteria Pollutants

For criteria pollutants, the District relied primarily on independent testing conducted on similar engines at six other facilities, as explained in the FDOC. These tests were conducted by EPA-certified independent testing contractors to demonstrate that each engine could meet its permit limits. The data from these tests provide a good basis from which to estimate emissions from the proposed project.

The District considers all available information about emissions, and did review data supplied by Wartsila, the manufacturer of the engines. This was not the only information the District considered, as noted above. But even so, the District does not simply rely on the emissions estimates it develops for a proposed project, it incorporates them into the permits it issues as enforceable conditions. Here, the proposed project will be required to demonstrate that its emissions are no more than the estimated amounts, and will be subject to enforcement action if it exceeds the limits.

Toxic Air Contaminants

To estimate emissions of TACs from the proposed project, the District used published emission factors from the California Air Resources Board, called CATEF factors. These emissions factors are based on source testing conducted in the early 1990s on two natural gas fired engines similar to the ones that will be used at the proposed project. The CATEF factors provide a conservative estimate of emissions from the proposed project for several reasons. First, emissions from newer engines are typically much lower than for the older models used in determining the CATEF factors. Second, the engines used in determining CATEF factors were not equipped with an oxidation catalyst, which reduces emissions of organic TACs. The engines at the proposed project will be equipped with an oxidation catalyst.

To confirm further that the CATEF factors provide a conservative estimate of emissions from this project, the District compared the CATEF factors with data from tests on existing Wartsila

engines for emissions of formaldehyde. Formaldehyde is one of the most important TACs from the proposed project because it is the second-highest cancer risk driver. Together with 1,3-Butadiene, these TACs account for over 90% of the total calculated cancer risk from the proposed facility. All 14 engines at the Nevada facility that uses Wartsila engines were tested for formaldehyde emissions, and in every case emissions were well below the CATEF factors. As shown below, the highest test result was less than half of the CATEF factor (adjusted for a 40% abatement efficiency) and the average result was an order of magnitude less than the CATEF factor (adjusted for a 40% abatement efficiency). These results further confirm that the CATEF factors provide conservative estimates of emissions from the proposed facility and are appropriate for use in evaluating TAC emissions and associated impacts.

Source	Emission Factor lb/MMBtu
CATEF	0.00462 No Oxidation Catalyst
Emission Factor for Health Risk Assessment	$0.00462 \times 0.6 = 0.00277$
Nevada AVG	0.000277
Nevada MAX	0.0012

Notes: Oxidation Catalyst Reduction Efficiency = 40%

Nevada AVG = Average of all 14 Engines

Nevada MAX = Maximum Engine

Finally, the District will require the applicant to test an engine for all TACs of concern once the project is built, and to use the results to rerun the Health Risk Screening Assessment to demonstrate that the facility complies with the District's Risk Management Rule. This requirement will alleviate any potential concerns about whether the estimates the District used are sufficiently accurate.

In addition, each Wartsila engine will be equipped with a Continuous Emission Monitor for Carbon Monoxide. Carbon Monoxide and Organics are formed in the combustion process due to incomplete combustion. An engine with high carbon monoxide emissions would also have high organic emissions and a portion of the organic emissions are TAC. The Environmental Protection Agency is currently promulgating a regulation to reduce Hazardous Air Pollutants from large internal combustion engines. The EPA background information supporting this draft rule states that the agency has determined that Non Methane Hydrocarbons, carbon monoxide, and formaldehyde are good surrogates for all Hazardous Air Pollutant emissions from internal combustion engines. The continuous monitoring for carbon monoxide allows the District to determine if an engine is emitting high quantities of incomplete combustion products and whether the oxidation catalyst is working correctly.

Comment Category 8: Global Warming Impacts.

Commenters were concerned that the plant would emit green house gases that contribute to global warming.

Response to Comment Category 8

The proposed facility will burn fossil fuel and therefore will emit greenhouse gases that contribute to global climate change. The facility will burn natural gas, however, which is the cleanest burning and least carbon-intensive fossil fuel. In addition, a significant number of California's electric generating stations are over 30 years old, and a new facility is much more efficient than these older units. New facilities require less fuel per Megawatt of energy produced. The California Air Resources Board is developing an implementation strategy for Assembly Bill 32, which the governor signed into law last year. District staff will be working with the Air Resources Board in reducing emissions of green house gases in the Bay Area to meet the requirements of Assembly Bill 32. Additional information regarding greenhouse gas emissions from the proposed facility may be found in the California Energy Commissions Preliminary Staff Assessment.

Comment Category 9: Potential Environmental Justice Impacts.

Commenters raised issues relating to environmental justice due to the proposed project and the Russell City Energy Center.

Response to Comment Category 9

The District is committed to implementing its permitting programs in a manner that is fair and equitable to all Bay Area residents regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location in order to protect against the health effects of air pollution. The District has worked to fulfill this commitment in making its Determination of Compliance for the proposed project.

The District and the CEC have undertaken a detailed review of the potential public health impacts of the emissions associated with the proposed facility, and have found that after mitigation measures are implemented the project emissions will not have a significant impact on public health or air quality in the community. Since there will be no significant air-quality related impact, by definition there cannot be a significant impact on an environmental justice community.¹

If you have any additional questions, please contact Mr. Brian Lusher at blusher@baaqmd.gov or (415) 749-4623.

Thank you for your comments.

Very truly yours,



Brian F. Bateman
Director of Engineering
Engineering Division

BFB:BKL

¹ The commenters did not provide any specific information about any racial, ethnic, or economic characteristics about the area in which the proposed project would be located, which would be needed to determine whether the area is an environmental justice community. Because the District has determined that the proposed project would not have any significant adverse impacts, it necessarily follows that there can be no significant environmental justice impacts no matter what the exact characteristics of the area are. The District has therefore concluded that the proposed project does not implicate environmental justice concerns without adopting a position on whether the project is located in an environmental justice community.

October 4, 2007

Mr. Michael Toth
2511 Bradford Avenue
Hayward, CA, 94545

**Subject: Preliminary Determination of Compliance
Eastshore Energy Center
Application No. 15195**

ALAMEDA COUNTY

Tom Bates
Scott Haggerty
Janet Lockhart
Nate Miley

Dear: Mr. Toth

CONTRA COSTA COUNTY

John Gioia
Mark Ross
(Chair)
Michael Shimansky
Gayle B. Uilkema

The Bay Area Air Quality Management District (District) has received your comments regarding the District's Preliminary Determination of Compliance (PDOC) for the proposed project.

MARIN COUNTY
Harold C. Brown, Jr.

NAPA COUNTY
Brad Wagenknecht

The District has considered your comments, along with other comments that were submitted, and has made a final determination that the proposed project meets the requirements of the District's Risk Management Rule (Reg. 2 Rule 5) and meets all other applicable District Regulations as well as applicable State and Federal regulatory requirements. The District is therefore issuing its Final Determination of Compliance (FDOC) and submitting it to the California Energy Commission (CEC) for use in its licensing process. The FDOC will be available on the CEC website. The District will continue to participate in that process to ensure that the project will have no significant air quality impact to Hayward or the Region.

SAN FRANCISCO COUNTY

Chris Daly
Jake McGoldrick
Gavin Newsom

In your email dated June 1, 2007 you stated numerous concerns regarding data quality issues and documentation of the CATEF emission factors used to estimate emissions from the project.

SAN MATEO COUNTY

Jerry Hill
(Vice-Chair)
Carol Klatt

In order to estimate emissions from the project the District reviewed the available emissions data for this source category. The CATEF emission factors were the best and most representative emissions data available for this source category. The database states that they are for natural gas fired lean burn engines over 650 hp. The District requested the original test reports from a source test of a 1000 hp engine and a source test of a 5,500 hp engine that are the basis of the CATEF database and was not able to obtain this information.

SANTA CLARA COUNTY

Erin Garner
Yoriko Kishimoto
Liz Kniss
Patrick Kwok

SOLANO COUNTY

John F. Silva

SONOMA COUNTY

Tim Smith
Pamela Torliatt
(Secretary)

The District also reviewed the Ratings for the CATEF emission factors. The Code 3 Rating indicates that the documentation in the original test report was not adequate to validate the test results. It is unknown exactly what was missing from the final test report that would cause a low rating of the data.

Jack P. Broadbent
EXECUTIVE OFFICER/APCO

The District agrees the data set for certain compounds shows significant variation. This could be caused by one of the engines being tested being older than the other engine being tested. In addition, when testing for toxic air contaminants the measurements may be near the analytical detection limit and you may have a single test run below the detection limit and a run above the detection limit. The District does not have the original report to make a conclusion about some of the causes of the variation. The result of the source test is the average of three valid test runs. The maximum presented in the CATEF database is the highest test run from either engine tested.

The District considers the CATEF mean emission rate to be conservative since the engines tested were older than brand new engines. The engines tested were most likely built in the 1970's, 1980's, or 1990's, as the tests were conducted in the early 1990's, and the engines from this era had much higher emissions of criteria pollutants and toxic air contaminants. Carbon monoxide emissions and organic emissions from older engines are considerably higher than new engines equipped with Best Available Control Technology. Carbon Monoxide and organic emissions from older engines could be well over 100 ppm and often into the hundreds of ppm. The concentration limits for carbon monoxide and precursor organic compounds from the Wartsila engines are significantly lower. High toxic air contaminant emission rates typically correspond to high organic and carbon monoxide emission rates. In addition, the Wartsila engines are controlled by Toxics Best Available Control Technology for the source category. The oxidation catalyst on each engine will reduce the amount of organic based toxic air contaminants emitted from each engine.

The District attempted to obtain toxic air contaminant emissions data from similar facilities located in California and particularly the twin facility in Nevada. The only data available was for the twin facility in Reno, Nevada. The data was only for formaldehyde which is the second highest cancer risk driver based on the CATEF emission factor data and the health risk screening assessment results. The Nevada data shows that for formaldehyde the emission factor used by the District for each engine is conservative. The District used the CATEF formaldehyde factor and assumed an abatement efficiency of 45%. The resulting emission rate from each engine is 0.2 lb/hr of formaldehyde. The average from all fourteen Reno engines was 0.0198 lb/hr. The maximum average of three runs from one higher emitting engine was 0.0877 lb/hr. The data further suggests that Wartsila engines actually emit lower levels of toxic air contaminants than that predicted by the conservative CATEF emission factors.

In addition, each Wartsila engine will be equipped with a Continuous Emission Monitor for Carbon Monoxide. Carbon Monoxide and Organics are formed in the combustion process due to incomplete combustion. An engine with high carbon monoxide emissions would also have high organic emissions and a portion of the organic emissions are TAC. The Environmental Protection Agency is currently promulgating a regulation to reduce Hazardous Air Pollutants from large internal combustion engines. The EPA background information supporting this draft rule states that the agency has determined that Non Methane Hydrocarbons, carbon monoxide, and formaldehyde are good surrogates for all Hazardous Air Pollutant emissions from internal combustion engines. The continuous monitoring for carbon monoxide allows the District to determine if an engine is emitting high quantities of incomplete combustion products and whether the oxidation catalyst is working correctly.

The District and CEC will require toxics air contaminant testing if the proposed facility is licensed by the CEC. The results of the testing will be used to perform a new health risk screening assessment for the facility that must continue to comply with Regulation 2, Rule 5 requirements.

The District considers the health risk screening assessment prepared for the project to be representative of the potential air toxic related impacts due to this project. The results for cancer risk are significantly less than the 10 in a million significance threshold. Emissions of the risk drivers would need to increase by a factor of two to move the cancer risk towards the ten in a million significance threshold.

In CEC proceedings, questions regarding the PDOC, and in your comment email you mentioned the 2002 Pope study showing fine particulate matter causing potential cancer impacts due to relatively low concentrations of fine particulate matter. The health risk screening assessment does consider particulate matter compounds such as polycyclic aromatic hydrocarbons that have cancer potency values and reference exposure levels. At the present time there are no generic cancer potency values and reference exposure levels for fine particulate matter so there is no way to include it in the health risk assessment. The health risk assessment prepared for this project was conducted in accordance with all District requirements.

Thank you for your comments.

Sincerely,

Brian K. Lusher
Air Quality Engineer II

BKL:BKL

Brian Lusher

From: Brian Lusher
Sent: Wednesday, June 13, 2007 3:50 PM
To: 'Dr. Alvin Greenberg'
Subject: RE: Condition of Certification

Alvin,

Looks good.

Only one comment. Does propylene require an additional test or can the lab measure it with one of the other methods?

I have several years stack testing experience, but do not recall.

Brian

-----Original Message-----

From: Dr. Alvin Greenberg [mailto:agreenberg@risksci.com]
Sent: Wednesday, June 13, 2007 3:37 PM
To: Brian Lusher
Subject: RE: Condition of Certification

Brian,

Thanks so much for the quick turnaround. I have limited the testing of TACs to those included in the HRA plus the criteria pollutants. Take a quick look at this version.

-Alvin

Dr. Alvin Greenberg
Risk Science Associates
121 Paul Dr., Suite A
San Rafael, CA 94903
office 415-479-7560
cell 415-302-0438

PROPOSED CONDITIONS OF CERTIFICATION

PUBLIC HEALTH-1

The project owner shall, within one year of starting commercial operations, provide the results of a source test and human health risk assessment (HRA) to the Compliance Project Manager (CPM). The source test and human health risk assessment shall be conducted according to protocols reviewed and commented on by the Bay Area Air Quality Management District and reviewed and approved by the CPM, and shall be submitted to the CPM not less than 120 days prior to the one-year anniversary of starting commercial operations. The source test and HRA shall include the quantitative analysis and assessment of all criteria air pollutants and all toxic air contaminants assessed in the AFC's and staff's health risk assessments, including speciation of all PAHs emitted in the gaseous and particulate phases. The source test results and human health risk assessment shall confirm that the theoretical maximum cancer risk at the point of maximum impact is less

than 10 in one million.

Verification: At least 120 days prior to the one-year anniversary of starting commercial operations, the project owner shall provide a copy of the source test and human health risk assessment protocols to the BAAQMD for review and comment and to the CPM for review and approval. Not less than thirty (30) days after the source test has been completed or not later than one year after the date of starting commercial operations, whichever is sooner, the project owner shall provide the final source test results and the human health risk assessment to the BAAQMD for review and comment and to the CPM for approval.

From: Brian Lusher [mailto:blusher@baaqmd.gov]

Sent: Wednesday, June 13, 2007 3:05 PM

To: Dr. Alvin Greenberg

Subject: RE: Condition of Certification

Alvin,

Attached is an initial proposed source test matrix that will be the basis for my revised conditions. The District is looking at a more extensive initial test and then testing for the risk drivers on an ongoing basis.

The condition for certification should narrow down the list of toxics to be tested for otherwise (metals might need to be included or any of the 189 HAPs).

On the verification wording I would recommend that protocols need to be submitted within 120 days of the year anniversary to allow time for review, the testing, and the risk screen.

Otherwise looks good.

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623

Fax (415) 749-5030

Brian Lusher

From: Brian Lusher
Sent: Wednesday, June 13, 2007 3:05 PM
To: 'Dr. Alvin Greenberg'
Subject: RE: Condition of Certification

Alvin,

Attached is an initial proposed source test matrix that will be the basis for my revised conditions. The District is looking at a more extensive initial test and then testing for the risk drivers on an ongoing basis.

The condition for certification should narrow down the list of toxics to be tested for otherwise (metals might need to be included or any of the 189 HAPs).

On the verification wording I would recommend that protocols need to be submitted within 120 days of the year anniversary to allow time for review, the testing, and the risk screen.

Otherwise looks good.

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

-----Original Message-----

From: Dr. Alvin Greenberg [mailto:agreenberg@risksci.com]
Sent: Wednesday, June 13, 2007 2:46 PM
To: Brian Lusher
Subject: Condition of Certification
Importance: High

Brian,
Can you review this language and get back to me today with your input?
Thanks,
Alvin

Dr. Alvin Greenberg
Risk Science Associates
121 Paul Dr., Suite A
San Rafael, CA 94903
office 415-479-7560
cell 415-302-0438

PROPOSED CONDITIONS OF CERTIFICATION

PUBLIC HEALTH-1 The project owner shall, within one year of starting commercial operations, provide the results of a source test and human health risk assessment (HRA) to the Compliance Project Manager (CPM). The source test and human health risk assessment shall be conducted according to protocols reviewed and commented on by the Bay Area Air Quality Management District and reviewed and approved by the CPM. The source test and HRA shall include the quantitative analysis and assessment of all criteria air pollutants and toxic air contaminants, including speciation of all PAHs emitted in the gaseous and particulate phases. The source test results and human health risk assessment shall confirm that the theoretical maximum cancer risk at the point of maximum impact is less than 10 in one million.

Verification: At least 60 days prior to the one-year anniversary of starting commercial operations, the project owner shall provide a copy of the source test and human health risk assessment protocols to the BAAQMD for review and comment and to the CPM for review and approval. Not less than thirty (30) days after the source test has been completed or not later than one year after the date of starting commercial operations, whichever is sooner, the project owner shall provide the final source test results and the human health risk assessment to the BAAQMD for review and comment and to the CPM for approval.

Toxic Air Contaminant Test Matrix for Eastshore Energy Center (Initial Test)

Compound	Method	Cancer Risk at Worker
1,3 Butadiene	ARB 422	2.2 E-6
Formaldehyde	ARB 430	1.0 E-6
Acetaldehyde	ARB 430	5.3 E-8
Benzene	ARB 410A	2.2 E-7
Toluene		Not Identified as a Carcinogen
Xylene		Not Identified as a Carcinogen
Polycyclic Aromatic Hydrocarbons	ARB 429	1.0 E-8 (as Benzo(a)pyrene) 3.0 E-8 (Naphthalene)
Sum Cancer Risk in Table		3.51 E-6
Total Cancer Risk All Compounds		3.54 E-6

Notes: Propylene included in CATEF list of compounds and based on the CATEF factor the facility emissions are 1.28 E 4 lb/yr compared to a Chronic Trigger Level of 1.2 E 5 lb/yr. Since the emissions estimate is significantly lower than the trigger level no additional testing for propylene will be required.

804-78

Brian Lusher

From: Brian Lusher
Sent: Thursday, October 18, 2007 3:03 PM
To: Matthew Layton (E-mail)
Subject: HCHO



Western 102
Source Test Result..

Eastshore Energy Center
Plant No. 18041
Application No. 15185
BAAQMD Rev 1, 6/4/07

Test Result from Barrick Goldstrike Mines-Western 102 Project AP4911-1364: Units 1-14

Source Test Dates: October 21-23, 2005, November 20-23, 2005
Testing Firm: Air Pollution Testing, Inc.

Unit S2.001	Run 1 (lb/hr)	Run 2 (lb/hr)	Run 3 (lb/hr)	Average (lb/hr)	Test	Nevada Permit Limit (lb/hr)	Average Firing Rate (MMBtu/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
					Report Average (lb/hr)				
Pollutant HCHO	0.0090	0.0089	0.0083	0.0087	0.0087	0.35	73.35	0.00012	0.00277
Fuel Use (scfh)					71908		77000		
Unit S2.002	Run 1 (lb/hr)	Run 2 (lb/hr)	Run 3 (lb/hr)	Average (lb/hr)	Test	Nevada Permit Limit (lb/hr)	Average Firing Rate (MMBtu/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
Pollutant					Report Average (lb/hr)				
HCHO	0.0054	0.0092	0.0095	0.0080	0.0081	0.35	73.29	0.00011	0.00277
Fuel Use (scfh)					71857		77000		
Unit S2.003	Run 1 (lb/hr)	Run 2 (lb/hr)	Run 3 (lb/hr)	Average (lb/hr)	Test	Nevada Permit Limit (lb/hr)	Average Firing Rate (MMBtu/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
Pollutant					Report Average (lb/hr)				
HCHO	0.0093	0.0010	0.0012	0.0038	0.0010	0.35	72.68	0.00001	0.00277
Fuel Use (scfh)					71250		77000		
Unit S2.004	Run 1 (lb/hr)	Run 2 (lb/hr)	Run 3 (lb/hr)	Average (lb/hr)	Test	Nevada Permit Limit (lb/hr)	Average Firing Rate (MMBtu/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
Pollutant					Report Average (lb/hr)				
HCHO	0.0190	0.0240	0.0280	0.0237	0.0240	0.35	72.72	0.00033	0.00277
Fuel Use (scfh)					71293		77000		
Unit S2.005	Run 1 (lb/hr)	Run 2 (lb/hr)	Run 3 (lb/hr)	Average (lb/hr)	Test	Nevada Permit Limit (lb/hr)	Average Firing Rate (MMBtu/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
Pollutant					Report Average (lb/hr)				
HCHO	0.0160	0.0220	0.0530	0.0303	0.0300	0.35	73.27	0.00041	0.00277
Fuel Use (scfh)					71831		77000		
Unit S2.006	Run 1 (lb/hr)	Run 2 (lb/hr)	Run 3 (lb/hr)	Average (lb/hr)	Test	Nevada Permit Limit (lb/hr)	Average Firing Rate (MMBtu/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
Pollutant					Report Average (lb/hr)				
HCHO	0.0230	0.0240	0.0055	0.0175	0.0170	0.35	73.57	0.00023	0.00277
Fuel Use (scfh)					72132		77000		
Unit S2.007	Run 1 (lb/hr)	Run 2 (lb/hr)	Run 3 (lb/hr)	Average (lb/hr)	Test	Nevada Permit Limit (lb/hr)	Average Firing Rate (MMBtu/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
Pollutant					Report Average (lb/hr)				
HCHO	0.0220	0.0140	0.0110	0.0157	0.0160	0.35	73.53	0.00022	0.00277
Fuel Use (scfh)					72089		77000		
Unit S2.008	Run 1 (lb/hr)	Run 2 (lb/hr)	Run 3 (lb/hr)	Average (lb/hr)	Test	Nevada Permit Limit (lb/hr)	Average Firing Rate (MMBtu/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
Pollutant					Report Average (lb/hr)				
HCHO	0.0490	0.0210	0.0140	0.0280	0.0280	0.35	73.35	0.00038	0.00277
Fuel Use (scfh)					71914		77000		
Unit S2.009	Run 1 (lb/hr)	Run 2 (lb/hr)	Run 3 (lb/hr)	Average (lb/hr)	Test	Nevada Permit Limit (lb/hr)	Average Firing Rate (MMBtu/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
Pollutant					Report Average (lb/hr)				
HCHO	0.0220	0.0220	0.0052	0.0164	0.0160	0.35	73.56	0.00022	0.00277
Fuel Use (scfh)					72118		77000		
Unit S2.010	Run 1 (lb/hr)	Run 2 (lb/hr)	Run 3 (lb/hr)	Average (lb/hr)	Test	Nevada Permit Limit (lb/hr)	Average Firing Rate (MMBtu/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
Pollutant					Report Average (lb/hr)				
HCHO	0.0450	0.0780	0.1400	0.0877	0.0870	0.35	72.28	0.00120	0.00277
Fuel Use (scfh)					70860		77000		
Unit S2.011	Run 1 (lb/hr)	Run 2 (lb/hr)	Run 3 (lb/hr)	Average (lb/hr)	Test	Nevada Permit Limit (lb/hr)	Average Firing Rate (MMBtu/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
Pollutant					Report Average (lb/hr)				
HCHO	0.0190	0.0180	0.0140	0.0170	0.0170	0.35	72.78	0.00023	0.00277
Fuel Use (scfh)					71352		77000		

Unit S2.012		Run 1	Run 2	Run 3	Average	Test Report Average	Nevada Permit Limit	Average Firing Rate	Emission Factor	Eastshore Application
Pollutant	Fuel Use (scfh)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(MMBtu/hr)	(lb/MMBtu)	(lb/MMBtu)
HCHO		0.0049	0.0048	0.0027	0.0041	0.0041	0.35	73.22	0.00006	0.00277
						71783	77000			

Unit S2.013		Run 1	Run 2	Run 3	Average	Test Report Average	Nevada Permit Limit	Average Firing Rate	Emission Factor	Eastshore Application
Pollutant	Fuel Use (scfh)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(MMBtu/hr)	(lb/MMBtu)	(lb/MMBtu)
HCHO		0.0067	0.0057	0.0052	0.0059	0.0059	0.35	73.80	0.00008	0.00277
						72157	77000			

Unit S2.014		Run 1	Run 2	Run 3	Average	Test Report Average	Nevada Permit Limit	Average Firing Rate	Emission Factor	Eastshore Application
Pollutant	Fuel Use (scfh)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(MMBtu/hr)	(lb/MMBtu)	(lb/MMBtu)
HCHO		0.0099	0.0120	0.0095	0.0105	0.0100	0.35	72.54	0.00014	0.00277
						71115	77000			

Average All Units		Test Report Average (lb/hr)	Nevada Permit Limit (lb/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
Pollutant		0.02	0.35	0.00027	0.00277
HCHO					
Maximum All Units		Test Report Maximum (lb/hr)	Nevada Permit Limit (lb/hr)	Emission Factor (lb/MMBtu)	Eastshore Application (lb/MMBtu)
Pollutant		0.09	0.35	0.0012	0.00277
HCHO					
Maximum Test Run			Nevada Permit Limit (lb/hr)		
Pollutant	(lb/hr)		0.35		
HCHO	0.14				

Eastshore Energy Center
 Plant No. 18041
 Application No. 15185
 BAAQMD Rev 0, 1/25/07

Engine HP:
 Max Firing Rate:

11660
 72.8 MMBtu

Vendor Guarantee
 Average of All 14 Tests at Western 102
 Two Highest Engines

1 lb/hr
 0.8 lb/hr

AP-42, Total PM-10

Tehama County Limit (No Source Test to Verify)
 SJVAPCD Limit (No Source Test to Verify)
 Western 102 located outside Reno (Identical Engine Model) Max Firing Rate 78.54 MMBtu/hr

PM-10 (lb/hr)	PM-10 (lb/MMBtu)	PM-10 (g/bhp-hr)	
2.2	0.0302	0.086	
0.33	0.0045	0.013	
0.6	0.0082	0.023	
1	0.0137	0.039	
0.8	0.0110	0.031	
0.73	0.0100		
0.51		0.02	
0.75		0.029	
2.59	0.0329	0.101	

Unit S2.014	Nevada	Emission	Eastshore	Approximate	
Pollutant	Permit Limit	Firing Rate	Factor	Application	
	(lb/hr)	(MMBtu/hr)	(lb/MMBtu)	(lb/MMBtu)	
				Approximate	
				Concentration	
				(g/bhp-hr)	
				(ppm)	
PM/PM10	2.59	78.54	0.0330	0.0337	0.101
NOx	1.49	78.54	0.0190	0.01913	5.2
CO	2.42	78.54	0.0308	0.03026	13.7
POC	2.42	78.54	0.0308	0.03326	24.0
HCHO	0.35	78.54	0.0045	0.0027	1.850
Fuel Use (scfh)	77000				

Eastshore Energy Center
 Plant No. 18041
 Application No. 15185
 BAAQMD Rev 1, 10/1/07

Test Result from Barrick Goldstrike Mines-Western 102 Project AP4911-1364: Units 1-14

Source Test Dates: October 21-23, 2005, November 20-23, 2005
 Testing Firm: Air Pollution Testing, Inc.

HCHO Test Results

	Run 1 (lb/hr)	Run 2 (lb/hr)	Run 3 (lb/hr)	Average (lb/hr)
Unit S2.001	0.0090	0.0089	0.0083	0.0087
Unit S2.002	0.0054	0.0092	0.0095	0.0080
Unit S2.003	0.0093	0.0010	0.0012	0.0038
Unit S2.004	0.0190	0.0240	0.0280	0.0237
Unit S2.005	0.0160	0.0220	0.0530	0.0303
Unit S2.006	0.0230	0.0240	0.0055	0.0175
Unit S2.007	0.0220	0.0140	0.0110	0.0157
Unit S2.008	0.0490	0.0210	0.0140	0.0280
Unit S2.009	0.0220	0.0220	0.0052	0.0164
Unit S2.010	0.0450	0.0780	0.1400	0.0877
Unit S2.011	0.0190	0.0180	0.0140	0.0170
Unit S2.012	0.0049	0.0048	0.0027	0.0041
Unit S2.013	0.0067	0.0057	0.0052	0.0059
Unit S2.014	0.0099	0.0120	0.0095	0.0105
Average All Engines				0.0198
Standard Deviation of The Averages				0.0213
Maximum of The Averages				0.0877
Minimum of the Averages				0.0038
Confidence Interval 95% of The Averages				0.0111
Standard Deviation of All Test Runs				0.0244
Maximum Single Test Run				0.1400
Minimum Single Test Run				0.0010
Confidence Interval 95% All Test Runs				0.0074
Average of All Test Runs				0.0198

Eastshore Maximum lb/hr = 0.00277 lb/MMBtu x 72.8 MMBtu/hr (max. firing rate) = 0.2 lb/hr

Brian Lusher

From: Brian Lusher
Sent: Wednesday, October 17, 2007 4:42 PM
To: Matthew Layton (E-mail); Brewster Birdsall (E-mail)
Subject: FDOC Word File

Matt and Brewster,

Here is a word version of the FDOC.



A15185_FDOC_101
72007.pdf

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

Brian Lusher

From: Brian Lusher
Sent: Wednesday, October 17, 2007 5:03 PM
To: 'Matthew Layton'; Brewster Birdsall (E-mail)
Subject: RE: FDOC Word File

Matt,

See if this works.

Brian Lusher

-----Original Message-----

From: Matthew Layton [mailto:MLayton@energy.state.ca.us]
Sent: Wednesday, October 17, 2007 5:00 PM
To: Brian Lusher
Subject: Re: FDOC Word File

Brian,

It is still a pdf, not a word file.

matt

>>> "Brian Lusher" <blusher@baaqmd.gov> 10/17/2007 4:41 PM >>>
Matt and Brewster,

Here is a word version of the FDOC.

<<A15185_FDOC_10172007.pdf>>

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

Brian Lusher

From: Brian Lusher
Sent: Monday, October 15, 2007 1:02 PM
To: 'mlayton@energy.state.ca.us'
Subject: FW: Community Meeting

FYI

-----Original Message-----

From: Barry Young
Sent: Monday, October 15, 2007 12:56 PM
To: Weyman Lee; Brian Lusher; Bob Nishimura
Subject: FW: Community Meeting

Weyman, Brian, and Bob,

Today, let me know if you are available to attend this public meeting next Wednesday evening.

Thanks,
--Barry

-----Original Message-----

From: Brian Bateman
Sent: Monday, October 15, 2007 12:52 PM
To: Barry Young
Subject: Community Meeting

Hi Barry:

Alameda County Supervisor Gail Steele has requested that District staff attend a public meeting concerning the Russell City and Eastshore power plants at Chabot College next Wed. evening (Oct. 24). CEC staff are also being invited. The primary purpose of the meeting is to let interested members of the public have an opportunity to provide comments.

This is a meeting we should have the appropriate technical staff attend (Wayman and Brian?). I'll provide additional information when available.

- Brian



804-88

April 25, 2007

BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT
SINCE 1955

Dr. Deborah Jordan
Director, Air Division
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco CA 94105

Re: Proposed Eastshore Energy Facility
BAAQMD Application 15195

ALAMEDA COUNTY
Tom Bates
Scott Haggerty
Janet Lockhart
Nate Miley

Dear Dr. Jordan:

CONTRA COSTA
COUNTY
John Gioia
Mark Ross
(Chair)
Michael Shimansky
Gayle B. Uilkema

This is to advise you that the BAAQMD has completed the preliminary determination of compliance review for the proposed Eastshore Energy Center (EEC). The proposed **Eastshore Energy Center** would be 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. The Eastshore Energy Center 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.

MARIN COUNTY
Harold C. Brown, Jr.

The enclosed Preliminary Determination of Compliance (PDOC) summarizes how the proposed Eastshore Energy Center will comply with applicable District regulations, including BACT and emission offset requirements. The PDOC is subject to the public notice and 30-day public comment requirements of District Regulations 2-2-405 and 406.

NAPA COUNTY
Brad Wagenknecht

Enclosed is a copy of the Preliminary Determination of Compliance for this application and a copy of the Notice Inviting Written Public Comment. Please submit any written comments on the intended action to the APCO by June 1, 2007.

SAN FRANCISCO
COUNTY
Chris Daly
Jake McGoldrick
Gavin Newsom

If you have any questions regarding this matter, please contact Brian K. Lusher, Air Quality Engineer II, at (415) 749-4623.

SAN MATEO COUNTY
Jerry Hill
(Vice-Chair)
Carol Klatt

Sincerely,

SANTA CLARA COUNTY
Erin Garner
Yoriko Kishimoto
Liz Kniss
Patrick Kwok


Jack P. Broadbent
Executive Officer/APCO

SOLANO COUNTY
John F. Silva

SONOMA COUNTY
Tim Smith
Pamela Toriatt
(Secretary)

Enclosure
JPB:bkl

Jack P. Broadbent
EXECUTIVE
OFFICER/APCO

Save the Air



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT
SINCE 1955

October 17, 2007

Dr. Deborah Jordan
Director, Air Division
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco CA 94105

ALAMEDA COUNTY
Tom Bates
Scott Haggerty
Janet Lockhart
Nate Miley

Re: Eastshore Energy Center
BAAQMD Application 15195

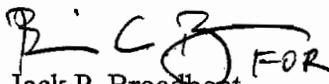
Dear Ms. Jordan:

This is to advise you that the BAAQMD has issued the Final Determination of Compliance (FDOC) for the proposed Eastshore Energy Center (EEC). The facility would be 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-MW peaker plant, utilizing fourteen natural-gas fired engine generator sets, and a 367 hp diesel powered emergency standby generator.

The enclosed revised FDOC summarizes how the EEC will comply with applicable District regulations, including BACT and emission offset requirements. The FDOC has satisfied the public notice and 30-day public comment requirements of District Regulations 2-2-405 and 406. A copy of the FDOC is enclosed.

If you have any questions regarding this matter, please contact Brian K. Lusher, Air Quality Engineer II, at (415) 749-4623.

Very truly yours,


Jack P. Broadbent
Executive Officer/APCO

Enclosure
JPB:bk1

Jack P. Broadbent
EXECUTIVE OFFICER/APCO



Spare the Air

The Air District is a Certified Green Business

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804-90

Brian Lusher

From: Bill Pfanner [Bpfanner@energy.state.ca.us]
Sent: Tuesday, May 29, 2007 9:50 AM
To: Brian Lusher
Cc: Matthew Layton
Subject: Re: June 6 CEC Status Meeting

Brian. Thanks again for attending the Eastshore workshop last week. It was a big help having you there. To answer your questions: Yes, I think it would be very worthwhile to have you at the joint Russell City/Eastshore Status Conference on June 6th. I will talk with Matt Layton about coordinating with you. Thanks.

Bill

>>> "Brian Lusher" <blusher@baaqmd.gov> 5/29/2007 9:02 AM >>>

Hello Bill,

Do you think I need to attend this meeting?

Thanks,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

11/30/2007

804-91

Brian Lusher

From: Bill Pfanner [Bpfanner@energy.state.ca.us]
Sent: Monday, May 14, 2007 3:48 PM
To: Brian Lusher
Cc: BBirdsall@aspeneg.com
Subject: RE: FW: Eastshore Data Response Workshop on May 23, 2007

This work for me. Thanks Brian.

Bill Pfanner

>>> "Brian Lusher" <blusher@baaqmd.gov> 5/14/2007 3:43 PM >>>
Brewster and Bill,

I will be there and my supervisor Bob Nishimura will also attend. Please schedule air quality as the first portion of the evening session. We will not plan on attending the afternoon session and will be available for the evening session. Let me know if this causes you any problems.

Thanks,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

-----Original Message-----

From: Brewster Birdsall [mailto:BBirdsall@aspeneg.com]
Sent: Monday, May 14, 2007 3:35 PM
To: Brian Lusher
Subject: RE: FW: Eastshore Data Response Workshop on May 23, 2007

Brian - Can you respond to Bill's question below? (Bill is the new CEC Project Manager, taking over for Lorne.) Thanks very much.
- Brewster

From: Bill Pfanner [mailto:Bpfanner@energy.state.ca.us]
Sent: Monday, May 14, 2007 3:22 PM
To: Brewster Birdsall
Subject: Re: FW: Eastshore Data Response Workshop on May 23, 2007

Brewster: Will BAAQMD be there for both the afternoon and night sessions, and if so, should I include (him/her) in the dinner court? Also, by being at the beginning, do you mean you want to me early in the afternoon session or early on the night session. I've had a request from the applicant to have Air later in the afternoon session so their attorney can be there. Please clarify, and I'll see what I can do.

Bill

11/30/2007

804-92

>>> "Brewster Birdsall" <BBirdsall@aspeneg.com> 5/14/2007 3:11 PM >>>
 Bill - We will have the BAAQMD with us.
 - Brewster

From: Brian Lusher [mailto:blusher@baaqmd.gov]
Sent: Monday, May 14, 2007 2:46 PM
To: Brewster Birdsall
Subject: RE: Eastshore Data Response Workshop on May 23, 2007

Brewster,

I plan on attending. Having Air Quality at the beginning would be greatly appreciated.

Thanks,

Brian K Lusher
 Air Quality Engineer II
 Engineering Division
 Bay Area Air Quality Management District

Phone (415) 749-4623
 Fax (415) 749-5030

-----Original Message-----

From: Brewster Birdsall [mailto:BBirdsall@aspeneg.com]
Sent: Monday, May 14, 2007 2:44 PM
To: Brian Lusher
Subject: FW: Eastshore Data Response Workshop on May 23, 2007

Hello Brian -

You might be aware, the CEC is scheduling a workshop for 1 to 9 pm next Wednesday. I hope to have AQ early in both the 1pm and evening session. If you think you will attend, then please let Bill and me know. Thanks.

- Brewster

From: Bill Pfanner [mailto:Bpfanner@energy.state.ca.us]
Sent: Monday, May 14, 2007 2:36 PM
To: Brewster Birdsall; Matthew Layton; Shaelyn Strattan; agreenberg@risksci.com
Cc: dstein@ch2m.com; jscholl@ch2m.com; Eileen Allen
Subject: Eastshore Data Response Workshop on May 23, 2007

I have asked the Eastshore applicant to have their staff available to discuss the following issues at the May 23rd Data Response and Issue Resolution Workshop in Hayward:

- Visual Resources
- Hazardous Materials
- Traffic and Transportation
- Air Quality

Please let me know if you are planning to have any representatives from other agencies in

11/30/2007

804-93

Brian Lusher

From: Brewster Birdsall [BBirdsall@aspeneg.com]
Sent: Tuesday, July 31, 2007 11:05 AM
To: Brian Lusher
Subject: Draft / example GHG language

<<_EastshoreAirQuality_jbb wking 724.pdf>>

- Brewster Birdsall, P.E., QEP
Aspen Environmental Group
ph: 415-955-4775 x202

Greenhouse Gas Impacts

~~In addition to the criteria air pollutants,~~ The generation of electricity can produce air emissions known as greenhouse gases ~~in addition to the criteria air pollutants.~~ Greenhouse gases are known to contribute to the warming of the earth's atmosphere. They ~~se~~ include primarily carbon dioxide, nitrous oxide (N₂O), and methane (CH₄, unburned natural gas). Also included are sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs) from transformers and chillers.

Climate change from rising temperatures represents a risk to California's economy, public health, and environment (CEC 2003). In 1998, the Energy Commission identified a range of strategies to prepare for an uncertain climate future, including ~~thea~~ need to account for the environmental impacts associated with energy production, planning, and procurement (CEC 1998, p.5). In 2003, the Energy Commission recommended that the state ~~should~~ require reporting of greenhouse gas emissions as a condition of ~~the~~ state licensing of new electric generating facilities (CEC 2003, p. 42). ~~This~~ Such reporting would be ~~done~~ in accordance with reporting protocols currently in place or that will be adopted with the implementation of new laws.

The Intergovernmental Panel on Climate Change (IPCC), an international scientific body, has developed standard reporting protocols and methodologies for governments and agencies ~~whento follow in calculating~~ GHG inventories. The IPCC ~~intergovernmental Panel on Climate Change-approved~~ methodology for calculating the greenhouse gas emissions in an inventory is ~~specific~~ particular to the type of fossil fuel burned. In ~~its~~ their *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual*, the IPCC ~~intergovernmental Panel on Climate Change~~ established the factors for oxidation, fuel-based emissions, and global warming potential.

The California Global Warming Solutions Act of 2006 (AB32) requires ~~the~~ ARB to adopt a statewide greenhouse gas emissions limit equivalent to the statewide GHG emissions levels in 1990, to be achieved by 2020. To achieve this, ARB has a mandate to adopt rules and regulations ~~that will~~ to achieve ~~the~~ maximum technologically feasible and cost-effective GHG emission reductions.

The ARB is expected to adopt early ~~action~~ GHG reduction measures by July 2007 | [mgd12] and establish a statewide emissions cap by January 2008. By January 1, 2008, ARB is scheduled to adopt regulations requiring mandatory GHG emissions reporting, and ~~to~~ define the statewide GHG emissions cap for 2020. ~~The~~ ARB would ~~then~~ adopt a plan by January 1, 2009, that would indicate how ~~GHG~~ emission reductions would be achieved ~~through~~ from significant sources of GHGs via regulations, market mechanisms, and other actions. Then, during 2009, ARB staff would draft ~~rule~~ language to implement its plan and hold public workshops on each ~~of its~~ measures, including market mechanisms (ARB 2006b). Strategies that the state might pursue ~~to~~ for managing GHG emissions in California are identified in the California Climate Action Team's *Report to the Governor* (CalEPA 2006). Some strategies focus on reducing consumption of petroleum across all areas of the California economy. Improvements in transportation energy efficiency (fuel economy), ~~and~~ land use planning, and alternatives to petroleum-

based fuels are also expected to provide substantial reductions by 2020 (CalEPA, 2006).

The Electricity Greenhouse Gas Emission Standards Act (SB1368³) was also enacted in 2006, requiring that generation and contracts be subject to an GHG or Environmental Performance Standard. At its January 25, 2007 meeting, the California Public Utilities Commission (CPUC) adopted an Emissions Performance Standard for the state's investor-owned utilities of 1,100 pounds (or 0.5 metric tons) CO₂ per megawatt-hour (MWh) of electricity produced. The Emissions Performance Standard applies to base load power from new power plants, new investments in existing power plants, and new or renewed contracts with terms of five years or longer, including contracts with power plants located outside of California.⁴ A similar performance standard for the Publicly Owned Utilities was adopted by the Energy Commission in May 2007.⁵

Staff recommends Condition of Certification **AQ-SC11**, which requires the project owner to report the quantities of relevant emitted greenhouse gases from the Eastshore project electric power production. Staff believes that **AQ-SC11**, along with the reporting GHG emissions, will make the project consistent with the regulations and policies described above. The greenhouse gas emissions to be reported in Condition of Certification **AQ-SC11** are carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, and HFCs and PFCs emissions that are directly associated with the production and transmission of electricity power.

³ Public Utilities Code § 8340 et seq.

⁴ See Rule at http://www.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/64072.htm

⁵ See CEC Docket # 06-OIR-1, <http://www.energy.ca.gov/ghgstandards/documents>.

Brian Lusher

From: Brewster Birdsall [BBirdsall@aspeneg.com]
Sent: Tuesday, July 24, 2007 5:20 PM
To: Brian Lusher
Cc: Keith Golden; Matthew Layton
Subject: RE: Draft Permit Conditions

Thank you Brian - minor questions:

- in condition #6, the PM limit during commissioning remains 757.8 lb/day. Do we want to tighten that to reflect the new MMBtu and hp-hr limits of condition #14(c)?
 - did you eliminate a condition (old #7) to source test and determine startup/shutdown emissions (maybe it was moved into #17)?
 - in condition #21, should the "all engines...within six weeks" language from #14(c) be there too?
 - it looks like you added an additional toxics test in #24, right?
- Thanks again for sharing.
- Brewster

-----Original Message-----

From: Brian Lusher [mailto:blusher@baaqmd.gov]
Sent: Tuesday, July 24, 2007 2:15 PM
To: Brewster Birdsall; mlayton@energy.state.ca.us
Subject: Draft Permit Conditions

BACT for PM would remain PUC natural gas and good combustion practice, not a numerical limit.

The average for engines tested must meet 0.03 g/bhp-hr, maximum any single engine 2.2 lb/hr.

<<Draft Eastshore Energy Center Permit Conditions 072407 1400.doc>>

Let me know if you have comments,

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

804-97

Brian Lusher

From: Brewster Birdsall [BBirdsall@aspeneg.com]
Sent: Monday, June 11, 2007 10:27 AM
To: Brian Lusher
Subject: RCEC to EEC distance

The facilities are 1125 meters from center of HRSG stacks to center of 14 engine stacks, or about 3,700 feet.

- Brewster Birdsall, P.E., QEP
Aspen Environmental Group
ph: 415-955-4775 x202

Brian Lusher

From: Chris Halm [chalm@arb.ca.gov]
Sent: Tuesday, May 15, 2007 8:42 AM
To: Brian Lusher
Cc: eibweb
Subject: CATEF EF for Natural Gas Fired Engines, 4 Cycle, Lean Burn, greater than 650 HP

Brian,
It pains me to tell you this but we can't find those source test files.
I'm guessing they got archived and lost.
I'm really sorry. The CA-specific test data is extremely useful, but
some of the most important documentation has been misplaced. We can't
tell what type of engine was tested.
Feel free to call if you want to discuss,
Chris
(916) 323-4865

>
> Hello,
>
> I am a Air Quality Engineer at the BAAQMD. I would like to know the size in HP of the
> two engines tested for this source category.
>
> SCC 20200202 Natual Gas ICE, 4 Cycle, Lean Burn, >650 HP
>
> I have looked at the background info, but could not determine the HP rating of these
> engines.
>
> Thanks,
>
> Brian K Lusher
> Air Quality Engineer II
> Engineering Division
> Bay Area Air Quality Management District
>
> Phone (415) 749-4623
> Fax (415) 749-5030
>
>

--
C h r i s H a l m
(916) 323-4865
chalm@arb.ca.gov
California Air Resources Board
PO Box 2815
1001 I Street, Sacramento CA 95814

Brian Lusher

From: Dr. Alvin Greenberg [agreenberg@risksci.com]
Sent: Monday, October 29, 2007 1:44 PM
To: Brian Lusher
Subject: RE: General Version of Response to Comments Letter

Excellent responses! Thanks for sharing.
-Alvin

Dr. Alvin Greenberg
Risk Science Associates
121 Paul Dr., Suite A
San Rafael, CA 94903
office 415-479-7560
cell 415-302-0438

-----Original Message-----

From: Brian Lusher [mailto:blusher@baaqmd.gov]
Sent: Monday, October 29, 2007 1:14 PM
To: Agreenberg (E-mail)
Subject: General Version of Response to Comments Letter

<<Response to Comments 102307 Commenters No Address.pdf>>

Dr. Greenburg,

Here is a signed version of the Response to Comments Letter we sent out last week.

Enjoy,

Brian K. Lusher
Air Quality Engineer II
Bay Area Air Quality Management District
415 749-4623

804-100

Brian Lusher

From: Dr. Alvin Greenberg [agreenberg@risksci.com]
Sent: Thursday, October 18, 2007 11:39 AM
To: Brian Lusher
Subject: FW: Eastshore Public Health COC
Importance: High

Hi Brian,

We seem to have a bit of difference in our source testing requirements for the Eastshore project. Could you please take another look at this proposed COC and let me know how you would like me to "tweak" it?

Thanks,
Alvin

Dr. Alvin Greenberg
Risk Science Associates
121 Paul Dr., Suite A
San Rafael, CA 94903
office 415-479-7560
cell 415-302-0438

PUBLIC HEALTH-1 The project owner shall, within 270 days of starting commercial operations, provide the results of a source test on the number of engine exhaust stacks required below and a human health risk assessment (HRA) to the Compliance Project Manager (CPM). The source test and human health risk assessment shall be conducted according to protocols reviewed and commented on by the Bay Area Air Quality Management District and reviewed and approved by the CPM, and shall be submitted to the CPM not less than 120 days prior to the one-year anniversary of starting commercial operations. The source test and HRA shall include the quantitative analysis and assessment of all criteria air pollutants and all toxic air contaminants assessed in the AFC's and staff's health risk assessments, including speciation of all PAHs emitted in the gaseous and particulate phases. The source test results and human health risk assessment shall confirm that the theoretical maximum cancer risk at the point of maximum impact is less than 10 in one million and the acute and chronic Hazard Indices are less than 1.0. If the health risk assessment shows a cancer risk greater than 10 in one million or a Hazard Index greater than 1.0, operation of the power plant shall be restricted to the number of engines that the CPM determines will represent a risk of less than 10 in one million or a Hazard Index of less than 1.0 until the project owner can certify that the risk of operating all engines conforms to this Condition.

The number of engine exhaust stacks to be sampled shall be determined in the following manner:

1. Four (4) engines shall be randomly chosen by the owner for stack testing and reviewed and approved by the CPM. If stack testing results for each contaminant described above on all four engines falls within one standard deviation of the mean of each individual contaminant, no further engines need be tested.

804-0101

2. If any contaminants measured in the stack test fall outside one standard deviation of the mean for that contaminant, an additional four (4) engines, chosen at random by the owner and reviewed and approved by the CPM, shall be stack tested for all contaminants. If stack testing results for each contaminant described above on all eight engines tested fall within one standard deviation of the mean of each individual contaminant, no further engines need be tested.
3. This process shall be continued until either the results for all engines tested fall within one standard deviation of the mean of each individual contaminant for all engines tested or all fourteen (14) engines are tested.
4. The HRA described above shall be based on all data produced for all engines tested under this protocol.

1. At least 180 days prior to the one-year anniversary of starting commercial operations, the project owner shall provide a copy of the source test and human health risk assessment protocols to the BAAQMD for review and comment and to the CPM for review and approval. Included in the test protocol shall be the list of four (4) engines randomly chosen for the initial sampling. Subsequent to the initial testing, any additional engines chosen for testing shall be submitted to the CPM for review and approval. Not less than thirty (30) days after each group of source tests has been completed, the project owner shall provide the source test results to the BAAQMD and the CPM. If the source testing is consistent with item #2 above, the owner shall submit the HRA to the BAAQMD for review and comment and to the CPM for review and approval not later than sixty (60) days after the date of the test. If additional tests are required, the project owner shall submit in sequence the next set of randomly chosen engines for testing to the CPM for approval until either all testing conforms to the protocol described above or all 14 engines are tested. When the project owner has fulfilled the requirement for testing as described above, the project owner shall submit all test results and the HRA to the BAAQMD for review and comment and to the CPM for approval within sixty (60) days of the date of the last test or not later than 270 days after the date of starting commercial operations, whichever is sooner.

804-102

Brian Lusher

From: Dr. Alvin Greenberg [agreenberg@risksci.com]
Sent: Wednesday, October 10, 2007 5:22 PM
To: 'Matthew Layton'; 'Keith Golden'; bbirdsall@aspeneq.com; Brian Lusher
Subject: response to Toth -2

I have previously sent you my draft response 1 addressing the EFs and Acrolein. Here now is response 2 addressing PM2.5 and cancer.

I look forward to your comments and suggestions on both responses. (I have also attached response 1 for your convenience.)

Thanks,
Alvin

Dr. Alvin Greenberg
Risk Science Associates
121 Paul Dr., Suite A
San Rafael, CA 94903
office 415-479-7560
cell 415-302-0438

11/30/2007

804-103

attendance.

Thanks.

-Bill

804-104

Brian Lusher

From: Matthew Layton [Mlayton@energy.state.ca.us]
Sent: Friday, May 25, 2007 4:46 PM
To: BBirdsall@aspenerg.com; Brian Lusher
Cc: Nita McGlothin
Subject: Eastshore-PDOC ltr 5-25-07.doc

Brian,

This is the final version signed 5/25/07 of our letter on Eastshore PDOC. Please distribute as needed. I do not know how to make it a pdf file, but the signed hard copy to Mr Broadbent will go out in Tuesday's mail.

thanks,

matt

Matt Layton
Senior Mechanical Engineer
916.654.3868
916.651.8868 fax

CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET
SACRAMENTO, CA 95814-5512



May 25, 2007

Mr. Jack P. Broadbent
Executive Officer/Air Pollution Control Officer
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Dear Mr. Broadbent :

EASTSHORE ENERGY CENTER (06-AFC-06) PRELIMINARY DETERMINATION OF COMPLIANCE APPLICATION NO. 15195

Energy Commission staff appreciates the opportunity to provide written public comments on the Preliminary Determination of Compliance (PDOC) issued by the District on April 25, 2007 for the Eastshore Energy Center (EEC). We believe that impact avoidance (i.e., preventing emissions) is the preferred approach to mitigate impacts subject to the requirements of the California Environmental Quality Act.

The PDOC includes an ammonia slip emission limit of 10 parts per million by volume dry basis (ppmvd). Energy Commission staff supports this limit because it addresses one of staff's primary concerns with the project, as shown in our Issue Identification Report (December 28, 2006) and the proposed ammonia slip limit is consistent with guidance from the California Air Resources Board. The project had been proposed with an ammonia slip of 20 ppm.

Energy Commission staff recommends that the project be required to meet lower emissions limits for particulate matter less than 10 and 2.5 microns (PM10 and PM2.5). The Bay Area is designated as an area that does not attain the State Ambient Air Quality Standards for PM10 and PM2.5. The Energy Commission staff must determine whether the PM10 and PM2.5 emissions from EEC would significantly contribute to existing violations of the standards, and lower limits are one way of minimizing the contribution of EEC to the existing PM10 and PM2.5 problems of the area. Additionally, District Rule 2-2-301 requires that PM10 emissions be limited to the lowest achievable rate. The District proposes an hourly PM10/2.5 limit of 2.2 lb/hr, which would be roughly equivalent to 0.086 grams-per-brake horsepower-hour (g/bhp-hr).

Energy Commission staff believes that a much lower PM10 limit should be strongly considered for these natural gas-fired engines. A limit of 0.02 g/bhp-hr is shown in Table I-2 of the California Air Resources Board's (CARB) "*Guidance for the Permitting of Electrical Generation Technologies*" dated July 2002. The 0.02 g/bhp-hr

Brian Lusher

From: Brewster Birdsall [BBirdsall@aspeneg.com]
Sent: Thursday, November 29, 2007 9:49 AM
To: Brian Lusher
Subject: FW: [EASTSHORE-LIST] Agenda for the December 17-18, 2007 Evidentiary Hearing by Availability of Staff and Staff Witnesses

Brian - Welcome back from vacation. It looks like 12/17 is the day for the Eastshore AQ hearing. Hope you are well rested.
- Brewster

-----Original Message-----

From: owner-eastshore@energy.ca.gov [mailto:owner-eastshore@energy.ca.gov]
On Behalf Of energia@energy.ca.gov
Sent: Wednesday, November 28, 2007 3:34 PM
To: eastshore@energy.ca.gov
Subject: [EASTSHORE-LIST] Agenda for the December 17-18, 2007 Evidentiary Hearing by Availability of Staff and Staff Witnesses

Agenda for the December 17-18, 2007 Evidentiary Hearing by Availability of Staff and Staff Witnesses

For more information:
<http://www.energy.ca.gov/sitingcases/eastshore/documents/index.html>

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mediaoffice@energy.state.ca.us

* * * * *

Kevin Kidd
California Energy Commission
Web Team

// // // // // // // // // // // // // // // // //

Mr. Broadbent
May 25, 2007
Page 2

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recommendation is for natural gas-fueled reciprocating engine units under 50 megawatts (MW), such as those proposed for EEC. The 0.02 g/bhp-hr level is also considered "achieved in practice" according to written guidance from the San Joaquin Valley Air Pollution Control District.

Emission source tests at the Barrick Gold generating facility near Reno, Nevada and the NEO California Power facility in Chowchilla, California provide evidence that the 0.02 g/bhp-hr PM10 levels are achievable from natural gas-fired engines. The Barrick generating units are identical to EEC in size, manufacturer, model number and emissions controls, while the NEO facility in Chowchilla, and its sister facility in Redbluff, California use smaller 2.8 MW natural gas-fired engines. The District should work with CARB to determine lowest achievable rate and establish an hourly PM10 limit that is consistent with CARB guidance and the level of the limit should reflect how emissions of less than 0.6 lb/hr or 0.02 g/bhp-hr per engine are achievable.

We appreciate the District working with Energy Commission staff on this licensing case. If you have any questions regarding our comments, please contact Matt Layton at (916) 654-3868.

Sincerely,

/s/

PAUL RICHINS
Environmental Protection Office Manager

cc: Docket (01-AFC-07)
Proof of Service List
Agency List

804-108

Brian Lusher

From: Alvin Greenberg [agreenberg@risksci.com]
Sent: Wednesday, October 10, 2007 8:18 PM
To: Brian Lusher
Subject: RE: response to Toth -2

Brian,
Thanks for sharing. These are great responses and together with mine, I think we have his issues covered.
Let me know when your responses become official as I want to include them in the FSA.
-Alvin

Dr. Alvin Greenberg
Risk Science Associates
121 Paul Dr., Suite A
San Rafael, CA 94903
415-479-7560
(cell 415-302-0438)

From: Brian Lusher [mailto:blusher@baaqmd.gov]
Sent: Wednesday, October 10, 2007 4:33 PM
To: Dr. Alvin Greenberg
Subject: RE: response to Toth -2

Dr. G,

Attached are my response to Mr. Toth and my response to the form letter. Neither has been mailed out and both are currently under management review.

As far as TAC testing goes. Keep in mind that PAH testing is the real burden. It requires 3 x 3 hour runs, and there is usually time needed to set up between runs.

I sent you the formaldehyde data with some statistical analysis and that data showed the mean and the std deviation were on the same order of magnitude. One engine was high and would cause problems since it is so different than the other engines and not within one std dev of the mean.

You may want to consider testing some number of engines and using that data to estimate cancer risk and hazard indices. If the results were not near the ten in a million or hazard indices near 1 level, then no more testing. You also could consider having statistical screening combined with some risk criteria.

I will keep thinking about this issue and let you know if I can come up with anything better.

I will definitely enjoy your response to Mr. Toth's comments.

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623

11/30/2007

804-109

Fax (415) 749-5030

-----Original Message-----

From: Dr. Alvin Greenberg [mailto:agreenberg@risksci.com]**Sent:** Wednesday, October 10, 2007 5:22 PM**To:** 'Matthew Layton'; 'Keith Golden'; bbirdsall@aspeneg.com; Brian Lusher**Subject:** response to Toth -2

I have previously sent you my draft response 1 addressing the EFs and Acrolein. Here now is response 2 addressing PM2.5 and cancer.

I look forward to your comments and suggestions on both responses. (I have also attached response 1 for your convenience.)

Thanks,

Alvin

Dr. Alvin Greenberg
Risk Science Associates
121 Paul Dr., Suite A
San Rafael, CA 94903
office 415-479-7560
cell 415-302-0438

11/30/2007

Response to Toth 2

Mr. Toth also requests that staff conduct a cancer risk assessment using an association found between an 8% increase in lung cancer for each 10 $\mu\text{g}/\text{m}^3$ increase in PM2.5 in ambient air as described in the 2002 Pope study.

First, staff wishes to note that one study does not make a scientific fact. The 2002 Pope study speaks to an association and staff is unaware that any regulatory agency word-wide has used this association as a basis for developing a risk assessment methodology to quantitatively estimate a cancer risk due to airborne PM2.5. Staff is aware, however, of other studies that support this association between airborne PM2.5 and lung cancer and they are referenced above. Staff believes that this association is real and despite the lack of regulatory agency guidelines that would allow a cancer risk assessment believes that PM2.5 is deleterious to a person's health. However, the basic toxicological principle of dose-response holds for exposure to all contaminants and exposure to PM2.5 is no exception. A review of three of the studies mentioned above demonstrates that the scientific studies available to date suggest that there would be no significant risk due to PM2.5 emitted from the proposed EEC facility.

The three studies include the 2006 Laden study, the 2002 Pope study, and the 1998 Beeson study. The Beeson study looked at PM10 airborne levels in numerous California cities. The average annual airborne concentrations ranged from 40 to 100 $\mu\text{g}/\text{m}^3$. Beeson found a positive association for increased lung cancer in females where annual levels of PM10 exceeded 50 $\mu\text{g}/\text{m}^3$. The 2002 Pope study examined long-term exposure to PM2.5 and looked at data from the American Cancer Society in cities in all 50 states. An association was found between increased lung cancer mortality and long-term PM2.5 airborne levels. The average annual PM2.5 levels ranged from 10-35 $\mu\text{g}/\text{m}^3$. The 2006 Laden study examined annual PM2.5 levels in 6 cities located in Massachusetts, Tennessee, Kansas, Missouri (St. Louis), Ohio, and Wisconsin. Annual airborne PM2.5 levels ranged from 12 – 40 $\mu\text{g}/\text{m}^3$. An association between cancer mortality and average annual PM2.5 levels was found.

It is important to note that the range of annual levels of particulate matter found in the cities in these three studies are higher than the levels that exist in the East Bay and much higher than the modeled maximum annual airborne levels of PM2.5 predicted to occur as a result of emissions from the proposed EEC. The table below summarizes these levels.

Beeson 1998	40-100 $\mu\text{g}/\text{m}^3$ PM10	average annual
Pope 2002	10-35 $\mu\text{g}/\text{m}^3$ PM2.5	average annual
Laden 2006	12-40 $\mu\text{g}/\text{m}^3$ PM2.5	average annual
Fremont (ARB monitor)	8.7-9.0 $\mu\text{g}/\text{m}^3$ PM2.5	highest annual
EEC (staff model)	4.9 $\mu\text{g}/\text{m}^3$ PM2.5	maximum annual

It is therefore apparent that the airborne concentrations of PM10 and PM2.5 that showed an association with increased lung cancer in the cities included in the three studies were significantly greater than the PM2.5 levels found in Hayward and those associated with the proposed power plant. The significance of this observation is important because even if a dose-response relationship has indeed been proven in the Pope study, the airborne levels that now exist in the Hayward area and that would be caused by the EEC are at the lower end of the dose-response relationship. In fact, they are below the levels examined in these studies and thus we could not apply the "8% for every 10 µg" relationship because we do not know the shape of the dose-response relationship (curve) at lower levels of exposure. There will be no "10 µg increase" caused by the proposed EEC. If the association is linear, then we could "guess" what the increase would be but if the association is not linear, we would be wrong. Therefore, even if the Pope study were correct and accurate, we still could not conduct the assessment Mr. Toth requests.

The second issue to note is equally important and that involves the "mechanism" or "causative agent" behind the association between PM2.5 and lung cancer. The Beeson study stated within the discussion of possible mechanisms that *"Respirable particles (PM10) may contain benzo(a)pyrene and other chemicals of carcinogenic potential"* thus indicating that a possible mechanism of PM10 carcinogenicity involved the chemicals adsorbed to the surface of the particulate, a view similarly expressed by Dr. Lipsett of the California Department of Public Health, and myself. In fact, when reviewing the PM2.5 data in many of the cities involved in these three studies, the PM2.5 levels track very well with the airborne concentrations of diesel particulate matter (DPM) in those cities, a substance known to the State of California to cause cancer and for which sufficient epidemiological evidence exists to calculate a cancer potency factor for use in quantitative human health risk assessments. Since none of the above-mentioned studies knows the source of the PM2.5 or PM10, it is very likely that DPM in the air plays a large, if not the major, role in causation. Indeed, DPM may very well be the causative agent within airborne PM2.5 along with particulate matter from other combustion sources that contains carcinogenic PAHs. Thus, it is simply not scientifically supportable to make the "leap" from the Pope study and claim that all the PM2.5 in the air in those cities studied contributes the same to the association with lung cancer. It may be due mostly to DPM and it is clear that DPM would not be emitted from the stacks of the Eastshore natural gas fired power plant.

Finally, it must be pointed out that the PM2.5 emitted from the proposed power plant will be off-set by reducing emissions or retiring emission reduction credits from other sources. That some of these reductions would occur in areas within the Bay Area air basin distant to Hayward is not relevant. The existing background airborne particulate levels are a regional issue and come from regional sources. Thus, the impact of PM2.5 emissions from this power plant would be mitigated and would approach zero net increase in PM2.5.

Mr. Toth appears confused about the purpose and methodology of a regulatory health risk assessment. A health risk assessment (HRA) for the purposes of licensing or permitting a stationary source of toxic air contaminants (TACs) is essentially a screening procedure that we use to ensure that the risk or hazard is not underestimated. If a facility emits TACs at levels that do not result in a significant risk at the Point of Maximum Impact (PMI) using this methodology, the regulatory agency is very confident that the actual risk and hazard are far below the levels predicted by the HRA. Many factors go into a HRA and were discussed in this staff assessment under the heading **Method and Threshold for Determining Significance**. These include:

1. The identity and amount of TACs emitted from the source
2. Toxicity values used and the safety factors applied to those toxicity factors
3. Air dispersion modeling
4. Meteorological data
5. Exposure factors
6. Use of the predicted risk and hazard at the Point of Maximum Impact (PMI) to determine regulatory compliance

The emission factors that Mr. Toth writes about are but one of the many variables that go into a HRA. Air dispersion modeling is another component of a HRA and the EPA-approved models tend to overestimate the ground level airborne concentrations of TACs, thus resulting an overestimation of risk and hazard. The meteorological data used in the air dispersion model assumes atmospheric conditions such as inversions and low wind speed that result in poor mixing and poor dispersion of TACs emitted from the stack, thus resulting in the highest possible predicted airborne levels. Exposure factors such as duration and frequency that a person would be in the area are unrealistically high in that they assume all people would be exposed every minute of every day for 70 years. The assumption that all people in the area would spend every minute of every day for 70 years at the PMI is also unrealistic.

Regulatory agencies use this methodology to estimate the theoretical upper-limit of risk and hazard and when using this methodology consistently state-wide, to ensure that all sources can be compared on an equal basis. Yet, it is recognized that if the HRA shows a hazard above the level of significance (Hazard Index of 1.0) it does not indicate that a hazard exists or that cancer will be caused by the facility. If this threshold level is exceeded, Cal-EPA guidance specifically states that a more refined approach can be used to more accurately estimate risk. This is not "cooking the books"; it is a valid and accepted scientific approach to risk assessment recognized by professional organizations, academia, and governmental agencies world-wide.

In specifically addressing Mr. Toth's evaluation of the hazard posed by the emissions of Acrolein, staff points to the guidance from Cal-EPA Office of Environmental Health hazard Assessment (OEHHA). According to OEHHA

guidance, "It should be noted that exceeding the acute or chronic REL does not necessarily indicate that an adverse health impact will occur. However, levels of exposure above the REL have an increasing but undefined probability of resulting in an adverse health impact, particularly in sensitive individuals (e.g., depending upon the toxicant, the very young, the elderly, pregnant women, and those with acute or chronic illnesses). The significance of exceeding the REL is dependant on the seriousness of the health endpoint, the strength and interpretation of the health studies, the magnitude of combined safety factors, and other considerations." (OEHHA 2003)

Staff has considered the argument and statistical analysis offered by Mr. Toth and greatly appreciates his participation in the process. Staff agrees with Mr. Toth that the best data to use in a HRA are the emissions from the Wartsila engines as determined by a source test on those engines. However, source test data for these engines are limited to confidential information provided by Wartsila and thus staff can only assure the public that the emissions of the limited number of contaminants tested are less than or equal to the emissions used in the HRA. Staff therefore used data from similar but not the same engines, a practice routinely used in California for regulatory purposes and supported by the Air Resources Board and local air districts. Staff has reviewed the data sets and Mr. Toth's analysis and feels that one data set is not significantly better than another data set. However, even if one were to selectively use the data suggested by Mr. Toth for Acrolein – and staff strongly discourages the use of selected hand-picked data for a HRA and wishes to note that if one wants to use data from the U.S. EPA, one should be consistent and use all data from the U.S. EPA, including all emission factors and toxicity values, many of which are less health-protective than Cal-EPA toxicity values – staff's opinion is that the probability of an adverse impact on the public due to Acrolein emissions would be insignificant. Staff has examined the basis of the acute REL for Acrolein and found that OEHHA based the acute REL on a single study of eye irritation in 36 volunteer adults whose eyes were exposed to Acrolein in the air for 5 minutes. The toxicological endpoint was not a serious health impact but rather the subjective report of mild eye irritation. In other words, no objective medical findings were made in this study; only the subjective opinion of 36 volunteers as to what constituted mild irritation of the eyes was considered. OEHHA then applied a safety factor of 60 times less to the lowest observable adverse effect level (LOAEL) to account for the uncertainties in the results. This resulted in an acute 1-hour exposure REL of 0.19 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$). It is staff's opinion that in following the above-stated guidance from OEHHA to consider health endpoint, the strength and interpretation of the health studies, and the magnitude of combined safety factors, that an exceedence of the acute REL for Acrolein will not result in a significant probability of an adverse health impact in the population. Indeed, staff feels that the acute REL for Acrolein should be adjusted by OEHHA by at least a factor of 10 to a more realistic level of approximately $2 \mu\text{g}/\text{m}^3$.

In summary, staff believes that the true emissions of Acrolein will be lower than that claimed by Mr. Toth, that the airborne concentrations at the PMI and at residences will be lower than what is predicted by the air dispersion models, and that the acute REL does not reflect actual and real adverse effects. Therefore, staff reiterates its previous statements found in the PSA that there is no significant probability of adverse health impacts as a result of emissions from the stacks of this power plant. And, to further ensure that the health of the public will not be impacted, staff is proposing that stack emissions be tested and a health risk assessment be conducted based upon those actual emissions. If the emissions show a significant risk or hazard, staff proposes that a number of engines be prohibited from operating until the project owner can demonstrate that the engines will meet with health-based emissions limitations.

804-115

Brian Lusher

From: Dr. Alvin Greenberg [agreenberg@risksci.com]
Sent: Monday, October 08, 2007 11:34 AM
To: 'Matthew Layton'; Brian Lusher
Subject: Eastshore Public Health COC
Importance: High

Matt and Brian,
What do you think of these revisions to the source testing requirement?
-Alvin

Dr. Alvin Greenberg
Risk Science Associates
121 Paul Dr., Suite A
San Rafael, CA 94903
office 415-479-7560
cell 415-302-0438

PUBLIC HEALTH-1 The project owner shall, within 270 days of starting commercial operations, provide the results of a source test on the number of engine exhaust stacks required below and a human health risk assessment (HRA) to the Compliance Project Manager (CPM). The source test and human health risk assessment shall be conducted according to protocols reviewed and commented on by the Bay Area Air Quality Management District and reviewed and approved by the CPM, and shall be submitted to the CPM not less than 120 days prior to the one-year anniversary of starting commercial operations. The source test and HRA shall include the quantitative analysis and assessment of all criteria air pollutants and all toxic air contaminants assessed in the AFC's and staff's health risk assessments, including speciation of all PAHs emitted in the gaseous and particulate phases. The source test results and human health risk assessment shall confirm that the theoretical maximum cancer risk at the point of maximum impact is less than 10 in one million and the acute and chronic Hazard Indices are less than 1.0. If the health risk assessment shows a cancer risk greater than 10 in one million or a Hazard Index greater than 1.0, operation of the power plant shall be restricted to the number of engines that the CPM determines will represent a risk of less than 10 in one million or a Hazard Index of less than 1.0 until the project owner can certify that the risk of operating all engines conforms to this Condition.

The number of engine exhaust stacks to be sampled shall be determined in the following manner:

1. Four (4) engines shall be randomly chosen by the owner for stack testing and reviewed and approved by the CPM. If stack testing results for each contaminant described above on all four engines falls within one standard deviation of the mean of each individual contaminant, no further engines need be tested.
2. If any contaminants measured in the stack test fall outside one standard deviation of the mean for that contaminant, an additional four (4) engines, chosen at random by the owner and reviewed and approved by the CPM, shall be stack tested for all contaminants. If stack testing results for each

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contaminant described above on all eight engines tested fall within one standard deviation of the mean of each individual contaminant, no further engines need be tested.

3. This process shall be continued until either the results for all engines tested fall within one standard deviation of the mean of each individual contaminant for all engines tested or all fourteen (14) engines are tested.
4. The HRA described above shall be based on all data produced for all engines tested under this protocol.

Verification: At least 180 days prior to the one-year anniversary of starting commercial operations, the project owner shall provide a copy of the source test and human health risk assessment protocols to the BAAQMD for review and comment and to the CPM for review and approval. Included in the test protocol shall be the list of four (4) engines randomly chosen for the initial sampling. Subsequent to the initial testing, any additional engines chosen for testing shall be submitted to the CPM for review and approval. Not less than thirty (30) days after each group of source tests has been completed, the project owner shall provide the source test results to the BAAQMD and the CPM. If the source testing is consistent with item #2 above, the owner shall submit the HRA to the BAAQMD for review and comment and to the CPM for review and approval not later than sixty (60) days after the date of the test. If additional tests are required, the project owner shall submit in sequence the next set of randomly chosen engines for testing to the CPM for approval until either all testing conforms to the protocol described above or all 14 engines are tested. When the project owner has fulfilled the requirement for testing as described above, the project owner shall submit all test results and the HRA to the BAAQMD for review and comment and to the CPM for approval within sixty (60) days of the date of the last test or not later than 270 days after the date of starting commercial operations, whichever is sooner.

Brian Lusher

From: Dr. Alvin Greenberg [agreenberg@risksci.com]
Sent: Wednesday, October 03, 2007 4:16 AM
To: Brian Lusher
Subject: RE: TAC testing

Brian,
I am at a conference in Baltimore and will return tonight. I will call you or e-mail you Friday to discuss this issue and how I propose to respond to Mr. Toth.
Thanks for the info,
Alvin

-----Original Message-----

From: Brian Lusher [mailto:blusher@baaqmd.gov]
Sent: Tuesday, October 02, 2007 5:50 PM
To: agreenberg@risksci.com
Subject: TAC testing

Dr. Greenburg,

Where are you going to end up on TAC testing?

<<Western 102 Source Test Results HCHO Only.xls>>

Check out Tab 4. There is one high emitting engine with a maximum individual run of 0.14 lb/hr. We used 0.2 lb/hr from each engine so we are conservative for this compound. Especially, since the majority of engines are an order of magnitude lower.

Enjoy,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

804-118

Brian Lusher

From: Dr. Alvin Greenberg [agreenberg@risksci.com]
Sent: Friday, September 28, 2007 9:51 AM
To: Brian Lusher
Subject: phone call

Sorry I missed your call; was in Sac at the CEC. I'm leaving for Baltimore this afternoon but you can try me on my cell Mon, Tues, or Wed.
-Alvin

Dr. Alvin Greenberg
Risk Science Associates
121 Paul Dr., Suite A
San Rafael, CA 94903
office 415-479-7560
cell 415-302-0438

804-119

Brian Lusher

From: Dr. Alvin Greenberg [agreenberg@risksci.com]
Sent: Tuesday, September 11, 2007 6:00 PM
To: Brian Lusher
Subject: RE: RICE NESHAP

Thanks Brian!

Dr. Alvin Greenberg
Risk Science Associates
121 Paul Dr., Suite A
San Rafael, CA 94903
office 415-479-7560
cell 415-302-0438

-----Original Message-----

From: Brian Lusher [mailto:blusher@baaqmd.gov]
Sent: Tuesday, September 11, 2007 5:53 PM
To: Agreenberg (E-mail)
Subject: RICE NESHAP

Alvin,

Page 33807 of fr12jn06.pdf states, "We have determined that it is appropriate to use NMHC and formaldehyde or CO emissions as a surrogate for HAP emissions."

<<emisdbm7_RICE_NESHAP_Background.pdf>> <<ETDB9_01.MDB>> <<fr12jn06.pdf>>

Here is the website,

<http://www.epa.gov/ttn/atw/rice/ricepg.html>

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

11/30/2007

804-1120

Brian Lusher

From: Dr. Alvin Greenberg [agreenberg@risksci.com]
Sent: Wednesday, June 13, 2007 3:37 PM
To: Brian Lusher
Subject: RE: Condition of Certification

Brian,
Thanks so much for the quick turnaround. I have limited the testing of TACs to those included in the HRA plus the criteria pollutants. Take a quick look at this version.
-Alvin

Dr. Alvin Greenberg
Risk Science Associates
121 Paul Dr., Suite A
San Rafael, CA 94903
office 415-479-7560
cell 415-302-0438

PROPOSED CONDITIONS OF CERTIFICATION

PUBLIC HEALTH-1 The project owner shall, within one year of starting commercial operations, provide the results of a source test and human health risk assessment (HRA) to the Compliance Project Manager (CPM). The source test and human health risk assessment shall be conducted according to protocols reviewed and commented on by the Bay Area Air Quality Management District and reviewed and approved by the CPM, and shall be submitted to the CPM not less than 120 days prior to the one-year anniversary of starting commercial operations. The source test and HRA shall include the quantitative analysis and assessment of all criteria air pollutants and all toxic air contaminants assessed in the AFC's and staff's health risk assessments, including speciation of all PAHs emitted in the gaseous and particulate phases. The source test results and human health risk assessment shall confirm that the theoretical maximum cancer risk at the point of maximum impact is less than 10 in one million.

Verification: At least 120 days prior to the one-year anniversary of starting commercial operations, the project owner shall provide a copy of the source test and human health risk assessment protocols to the BAAQMD for review and comment and to the CPM for review and approval. Not less than thirty (30) days after the source test has been completed or not later than one year after the date of starting commercial operations, whichever is sooner, the project owner shall provide the final source test results and the human health risk assessment to the BAAQMD for review and comment and to the CPM for approval.

From: Brian Lusher [mailto:blusher@baaqmd.gov]
Sent: Wednesday, June 13, 2007 3:05 PM
To: Dr. Alvin Greenberg
Subject: RE: Condition of Certification

11/30/2007

804-121

Alvin,

Attached is an initial proposed source test matrix that will be the basis for my revised conditions. The District is looking at a more extensive initial test and then testing for the risk drivers on an ongoing basis.

The condition for certification should narrow down the list of toxics to be tested for otherwise (metals might need to be included or any of the 189 HAPs).

On the verification wording I would recommend that protocols need to be submitted within 120 days of the year anniversary to allow time for review, the testing, and the risk screen.

Otherwise looks good.

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

11/30/2007

Brian Lusher

From: Dr. Alvin Greenberg [agreenberg@risksci.com]
Sent: Wednesday, June 13, 2007 2:46 PM
To: Brian Lusher
Subject: Condition of Certification
Importance: High

Brian,
Can you review this language and get back to me today with your input?
Thanks,
Alvin

Dr. Alvin Greenberg
Risk Science Associates
121 Paul Dr., Suite A
San Rafael, CA 94903
office 415-479-7560
cell 415-302-0438

PROPOSED CONDITIONS OF CERTIFICATION

PUBLIC HEALTH-1 The project owner shall, within one year of starting commercial operations, provide the results of a source test and human health risk assessment (HRA) to the Compliance Project Manager (CPM). The source test and human health risk assessment shall be conducted according to protocols reviewed and commented on by the Bay Area Air Quality Management District and reviewed and approved by the CPM. The source test and HRA shall include the quantitative analysis and assessment of all criteria air pollutants and toxic air contaminants, including speciation of all PAHs emitted in the gaseous and particulate phases. The source test results and human health risk assessment shall confirm that the theoretical maximum cancer risk at the point of maximum impact is less than 10 in one million.

Verification: At least 60 days prior to the one-year anniversary of starting commercial operations, the project owner shall provide a copy of the source test and human health risk assessment protocols to the BAAQMD for review and comment and to the CPM for review and approval. Not less than thirty (30) days after the source test has been completed or not later than one year after the date of starting commercial operations, whichever is sooner, the project owner shall provide the final source test results and the human health risk assessment to the BAAQMD for review and comment and to the CPM for approval.

804-123

Brian Lusher

From: Matthew Layton [Mlayton@energy.state.ca.us]
Sent: Friday, November 09, 2007 11:38 AM
To: Brian Lusher; Bob Nishimura
Cc: BBirdsall@aspenerg.com; Bill Pfanner; Keith Golden; agreenberg@risksci.com
Subject: Fwd: Eastshore Prehearing Conference

Bob,

We understand that Brian is out of the office currently, but if you let us know before next Thursday, Nov 15 if you and/or Brian or other District staff will be attending the Eastshore Evidentiary Hearings Dec 17 and 18. We would like the District staff to attend one or both days, depending on the agenda and if AQ and PH discussions spill over to the second day. We do not need the District to come to the Prehearing Conference (PHC) on Nov 26. What will come out of the PHC on the 26th is an agenda and a list of witnesses from all parties, so after Nov 26 we will be better able to predict what issues will be contested, who should attend, and whether it will be one or both days in Dec.

Thanks,

>>> Bill Pfanner 11/9/2007 10:41 AM >>>
Eastshore Team:

The Eastshore Prehearing Conference (PHC) will be held on 11/26.07 in Hayward. Technical staff is not required at the PHC, because the discussion is procedural. But, before the PHC, we need to make sure that all Agencies we plan to have testify at the Evidentiary Hearings are available...(BAAQMD, FAA and CalTrans come to mind). The Committee will be interested in knowing about their participation.

So here is what I need from you:

- Identify any Agency you want to testify at the EH on behalf of your technical section.
- Contact Agency, let them know the EH will be on Dec. 17th and Dec. 18th from 10 AM to 5 PM at the Hayward City Hall.

11/30/2007

- Let me know by next Thursday (11/15) which Agency will be attending the EH, the name of the individual(s) planning to testify and their phone number/contact information.

I will schedule a team meeting after the PHC to discuss which staff needs to attend the EH and to plan an Evidentiary Hearing training session.

Please keep Dec. 17/18 available for attending the EH.

Thanks all...and great work on the FSA....it will be published today.

Bill

804-125

Brian Lusher

From: Matthew Layton [Mlayton@energy.state.ca.us]
Sent: Wednesday, October 17, 2007 5:30 PM
To: Brian Lusher
Subject: RE: FDOC Word File

thanks

>>> "Brian Lusher" <blusher@baaqmd.gov> 10/17/2007 5:02 PM >>>
Matt,

See if this works.

Brian Lusher

-----Original Message-----

From: Matthew Layton [mailto:Mlayton@energy.state.ca.us]
Sent: Wednesday, October 17, 2007 5:00 PM
To: Brian Lusher
Subject: Re: FDOC Word File

Brian,

It is still a pdf, not a word file.

matt

>>> "Brian Lusher" <blusher@baaqmd.gov> 10/17/2007 4:41 PM >>>
Matt and Brewster,

Here is a word version of the FDOC.

<<A15185_FDOC_10172007.pdf>>

Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

11/30/2007

Brian Lusher

From: Matthew Layton [Mlayton@energy.state.ca.us]
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Regards,

Brian K Lusher
Air Quality Engineer II
Engineering Division
Bay Area Air Quality Management District

Phone (415) 749-4623
Fax (415) 749-5030

Brian Lusher

From: Matthew Layton [Mlayton@energy.state.ca.us]
Sent: Tuesday, July 24, 2007 2:12 PM
To: Brian Lusher
Subject: Re:Draft Permit Conditions (vacation)

I am out of the office Jul 21 through Aug 6. Please contact Keith Golden at 916.653.1643 or kgolden@energy.state.ca.us if you have any questions.

thanks

Brian Lusher

From: Brian Lusher
Sent: Monday, October 29, 2007 1:14 PM
To: Agreenberg (E-mail)
Subject: General Version of Response to Comments Letter



Response to
Comments 102307 Co

Dr. Greenburg,

Here is a signed version of the Response to Comments Letter we sent out last week.

Enjoy,

Brian K. Lusher
Air Quality Engineer II
Bay Area Air Quality Management District
415 749-4623

October 24, 2007

**Subject: Preliminary Determination of Compliance
Eastshore Energy Center
Application No. 15195**

ALAMEDA COUNTY

Tom Bates
Scott Haggerty
Janet Lockhart
Nate Miley

CONTRA COSTA COUNTY

John Gioia
Mark Ross
(Chair)
Michael Shimansky
Gayle B. Uilkema

MARIN COUNTY

Harold C. Brown, Jr.

NAPA COUNTY

Brad Wagenknecht

SAN FRANCISCO COUNTY

Chris Daly
Jake McGoldrick
Gavin Newsom

SAN MATEO COUNTY

Jerry Hill
(Vice-Chair)
Carol Klatt

SANTA CLARA COUNTY

Erin Garner
Yoriko Kishimoto
Liz Kniss
Patrick Kwok

SOLANO COUNTY

John F. Silva

SONOMA COUNTY

Tim Smith
Pamela Torlatt
(Secretary)

Jack P. Broadbent
EXECUTIVE OFFICER/APCO

Dear Commenter:

The Bay Area Air Quality Management District (District) has received your comments regarding the District's Preliminary Determination of Compliance (PDOC) for the proposed project.

The District has considered your comments, along with other comments that were submitted, and has made a final determination that the proposed project meets the requirements of the District's Risk Management Rule (Reg. 2 Rule 5) and meets all other applicable District Regulations as well as applicable State and Federal regulatory requirements. The District will continue to participate in the California Energy Commission licensing process to ensure that the project will have no significant air quality impact to Hayward or the Region.

The public comments received on the Preliminary Determination of Compliance are addressed below.

Comment Category 1: Proposed Project located in a non-attainment area.

Commenters stated that the Region is not in attainment of the State and Federal Ambient Air Quality Standards and that it would not be appropriate to add new sources of air pollution.

Response to Comment Category 1

Currently, the Bay Area is designated as "attainment" for CO, NO₂, SO₂, and lead, which means that the air quality in the Bay Area meets federal and state standards for those pollutants. The Bay Area is designated as "non-attainment" for the state and federal ozone standards and for the state standards for fine particulate matter (PM₁₀ and PM_{2.5}). New, more stringent federal standards for fine particulate matter have recently been adopted, but EPA has not yet made a designation for the Bay Area for those standards.

These air quality standards apply to the Bay Area as a whole. Thus, the fact that Hayward may be in an "attainment" area or a "non-attainment" area for a given pollutant does not mean that the air quality in Hayward is any better or worse than anywhere else in the Bay Area, and does not mean that the proposed project will have any greater or lesser impacts on air quality if it is operated in Hayward as opposed to any other location in the Bay Area.

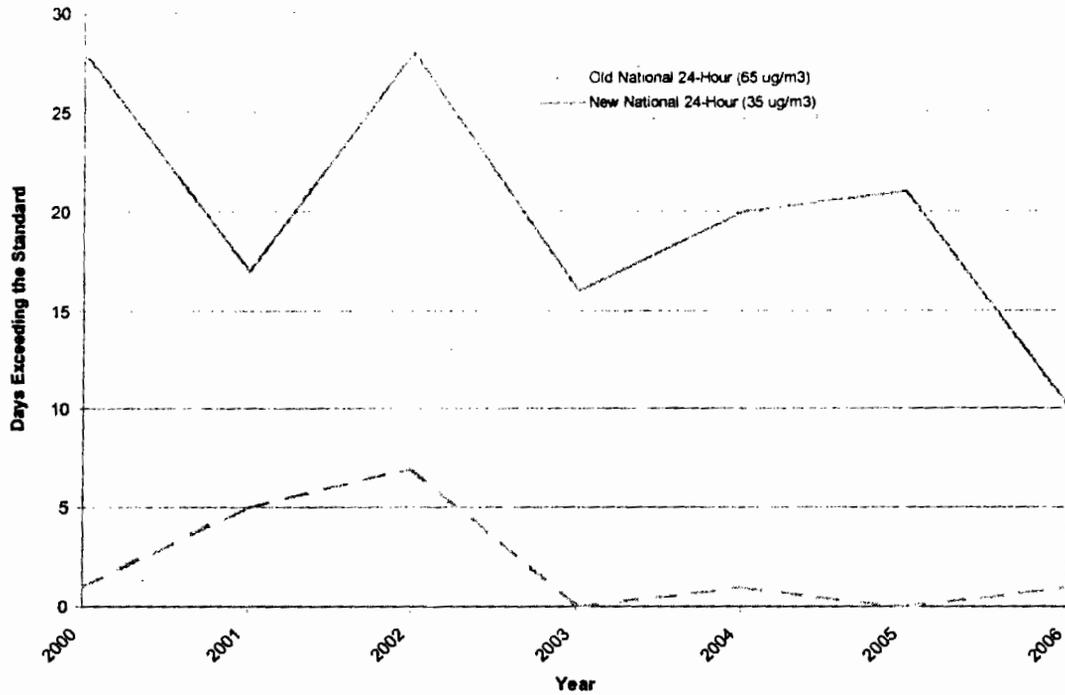
The fact that the Bay Area is designated as "non-attainment" for certain pollutants does not mean that no new projects can be built. The District does not prohibit all new projects as a result of a "non-attainment" designation. Instead, the District requires new projects – including the proposed Eastshore Energy Center – to incorporate strict air pollution controls to ensure that emissions are minimized, and also requires new sources of emissions to be "offset" by shutting down older sources of emissions so that there is no net increase as a result of the new project. This process ensures that regional emissions will continually be reduced in order to bring the region into "attainment" for all regulated pollutants.

The District's regulatory system has a good track record in this regard. Air quality in the Bay Area has been improving over time as shown in Figures 1, 2 and 3. The region still faces challenges in meeting the air quality standards for ozone and fine particulate matter, and the District is continuing to develop strategies for the region to achieve compliance with these standards. The latest information is available on our website (www.baaqmd.gov) under the following topics:

[BAAQMD - Bay Area Ozone Strategy](#)

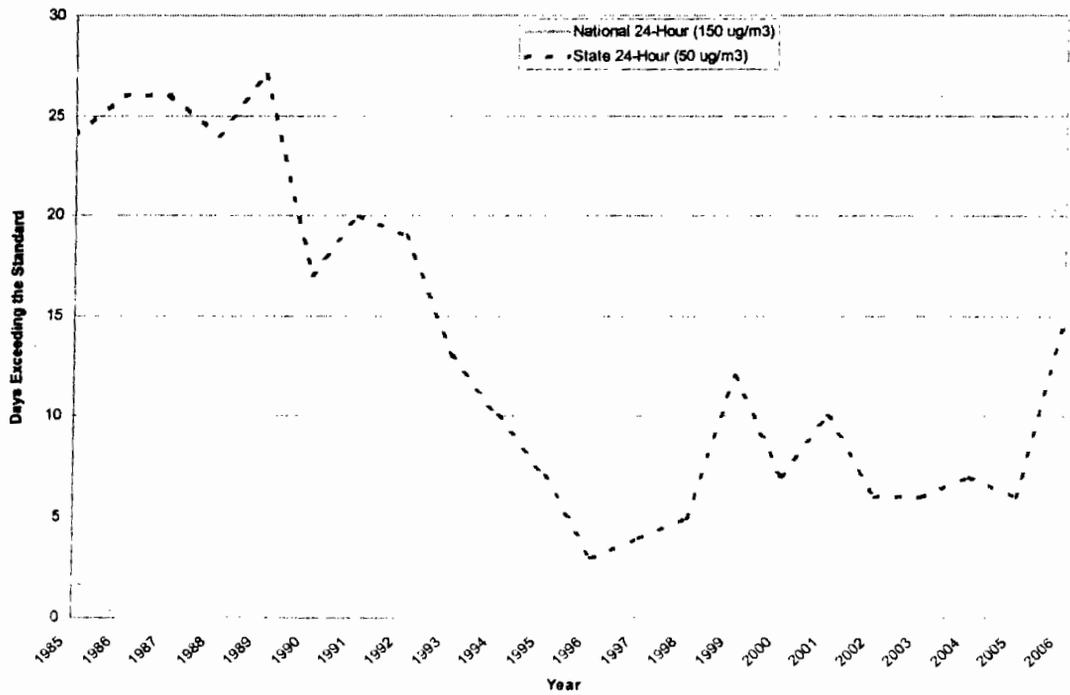
[BAAQMD - Particulate Matter](#)

PM2.5 Particulate Matter Bay Area Historical Exceedances

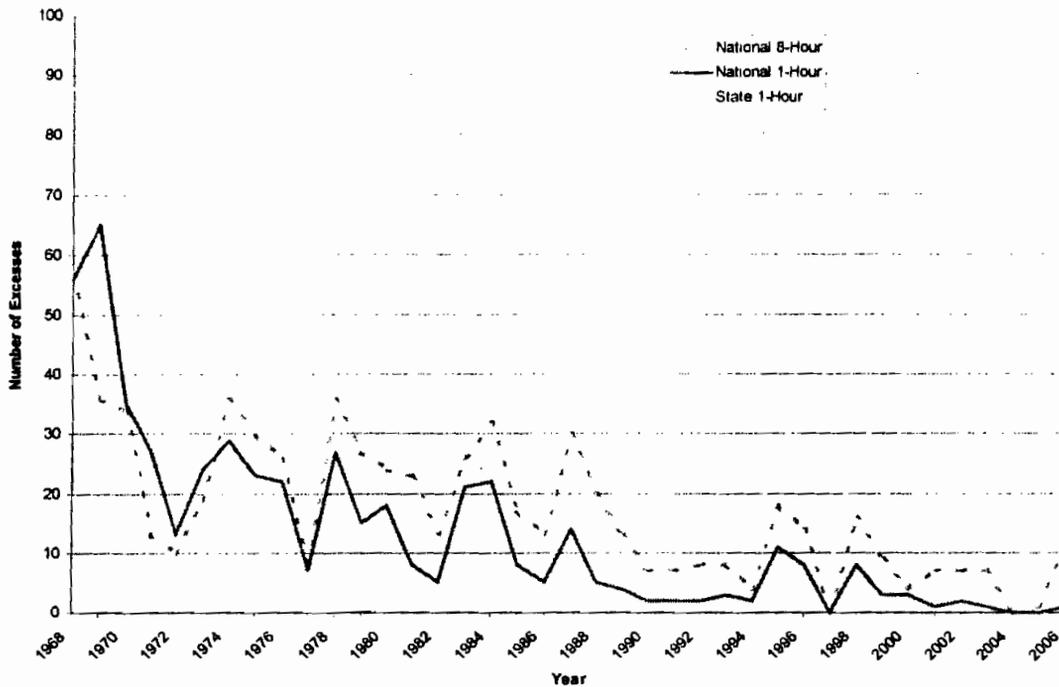


Notes: On December 18, 2006, the USEPA lowered the national 24-hour PM2.5 standard to 35 micrograms per cubic meter.

PM10 Particulate Matter Bay Area Historical Exceedances



O3 Ozone Bay Area Historical Exceedances



Notes:

National 1-hour ozone standard was revoked on June 15, 2005.

On May 17, 2005, the California Air Resources Board implemented a new 8-hour ozone standard of 0.070 ppm, which was exceeded on 22 days in 2006 in the Bay Area.

Comment Category 2: Public Health Impacts due to proposed facility.

Commenters stated concerns over emissions of Toxic Air Contaminants from the proposed project and the Russell City Energy Center. Commenters were also concerned regarding proposed project impacts on asthma and health for nearby members of the community.

Response to Comment Category 2

The District takes very seriously the health concerns raised by the commenters. There are a number of health problems that can be caused or exacerbated by air pollution, and the District is committed to improving air quality and public health in all communities throughout the Bay Area.

As shown in the FDOC the District performed a Health Risk Screening Assessment for the project and the results were in compliance with the District Rule 2, Regulation 5 requirements. The results of the Health Risk Assessment were below the significance criteria for cancer risk, chronic health impacts, and acute non-cancer health impacts. The District review shows that the emissions from the proposed facility will not cause a significant impact on public health in the community. The District also performed a Health Risk Screening Assessment for the Russell City Energy Center that shows that facility will not cause a significant impact on public health in the community.

Asthma and Health

With respect to asthma specifically, California Energy Commission staff examined the potential for asthma impacts in its Preliminary Staff Assessment and found that the proposed project would not cause a significant impact on asthma and public health in the community. The District reviewed this assessment and concurs in its conclusions. The Preliminary Staff Assessment is available at the Energy Commission website, and at the Hayward Public Library.

Comment Category 3: Cumulative Impact of proposed project, Russell City Energy Center and other existing sources of air pollution in the West Hayward area.

Commenters stated concerns regarding the cumulative impact of the proposed project, the Russell City Energy Center, and other existing air pollution sources in the surrounding community.

Response to Comment Category 3

The potential for cumulative impacts on air quality has been addressed through the CEC licensing process that is equivalent to the California Environmental Quality Act ("CEQA") environmental impact review process. Because the proposed project is a power plant that will be licensed by the CEC, the CEC has taken the lead for this project for purposes of conducting the environmental review. The CEC's staff has completed a detailed review of the potential impacts in its Preliminary Staff Assessment, and found that after mitigation measures are implemented there will be no significant cumulative impacts. The District supports the CEC's analysis and incorporates it by reference.