



California Energy Commission

**DOCKETED**  
**12-AFC-02**

TN # 68848

DEC. 11 2012

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December 11, 2012

MELISSA A. FOSTER  
Direct (916) 319-4673  
mafoster@stoel.com

**VIA EMAIL**

Ms. Felicia Miller, Siting Project Manager  
California Energy Commission  
1516 Ninth Street  
Sacramento, CA 95814

**Re: Huntington Beach Energy Project (12-AFC-02)**  
**Applicant's Correspondence Related to Air Quality**

Dear Ms. Miller:

Applicant AES Southland Development, LLC and its consultant, CH2M Hill, Inc., has corresponded with the South Coast Air Quality Management District to resolve questions related to air quality emissions. Enclosed herein for docketing, please find such correspondence. These documents will be served to all parties pursuant to the enclosed Proof of Service.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Melissa A. Foster".

Melissa A. Foster

MAF:jmw

Enclosure

cc: Proof of Service List

**EMAIL CORRESPONDENCE AMONG AIR DISTRICT, CEC STAFF,  
AND APPLICANT REGARDING PM10 EMISSIONS**  
(DATED NOVEMBER 28 THROUGH DECEMBER 5, 2012)

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**From:** Salamy, Jerry/SAC  
**To:** "[Jiang, Tao@Energy](mailto:Jiang_Tao@Energy)"; [Chris Perri](mailto:Chris.Perri); [Stephen O'Kane](mailto:Stephen.O'Kane)  
**Cc:** [Mason, Robert/SCO](mailto:Mason_Robert@SCO); "[JAMCKINSEY@stoel.com](mailto:JAMCKINSEY@stoel.com)"; "[mafoster@stoel.com](mailto:mafoster@stoel.com)"; [Bemis, Gerry@Energy](mailto:Bemis_Gerry@Energy); [Hellywig, Kimberly J.](mailto:Hellywig_Kimberly_J)  
**Subject:** RE: HBEP PM10 emissions  
**Date:** Wednesday, November 28, 2012 4:10:00 PM

---

Hi Tao,

Your correct that the 624 shutdowns equate to 104 hours of shutdown emissions. The following table presents our calculation method for the annual HBEP PM10/2.5 emissions.

#### HBEP Shutdown Annual PM10/2.5 Emissions

Event	Number	Hours	Emission Rate (lb/hr)	Annual PM10/2.5 (lb)	Notes
Cold Start	24	1.5	4.5	162	
Warm/Hot	600	0.5417	4.5	1462.5	Hours = 32.5 min/60 min/hr
Shutdown	624	0.17	4.5	468	Hours = 10 min/60 min/hr
Unfired	1	5900	4.5	26550	
Fired	1	470	9.5	4465	
Total per CTG				33107.5	
Total Tons per CTG				16.6	
Total Tons per 6 CTG				99.3	

*Jerry Salamy*  
*Principal Project Manager*  
*CH2M HILL/Sacramento*  
*Phone 916-286-0207*  
*Fax 916-614-3407*  
*Cell Phone 916-769-8919*

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**Sent:** Wednesday, November 28, 2012 3:36 PM  
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**Cc:** Mason, Robert/SCO; Salamy, Jerry/SAC; 'JAMCKINSEY@stoel.com'; 'mafoster@stoel.com'; Bemis, Gerry@Energy  
**Subject:** RE: HBEP PM10 emissions

Stephen,

I just find a minor difference between Chris's data and the data response to CEC. In CEC data response Table DR12-1, the number of annual shutdown is 624, which is OK. However, the number of hours is 104, not 62.4. Please clarify. Thanks.

Tao Jiang, Ph.D., P.E.  
Air Resources Engineer  
Siting, Transmission and Environmental Protection Division California Energy Commission  
1516 Ninth Street, MS 46  
Sacramento, CA 95814-5504  
Phone: (916) 654-3852

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**From:** Chris Perri [mailto:CPerri@aqmd.gov]  
**Sent:** Wednesday, November 28, 2012 3:22 PM  
**To:** Stephen O'Kane  
**Cc:** 'Robert.Mason@CH2M.com'; 'Jerry.Salamy@CH2M.com'; 'JAMCKINSEY@stoel.com'; 'mafoster@stoel.com'; Jiang, Tao@Energy; Bemis, Gerry@Energy  
**Subject:** RE: HBEP PM10 emissions

Can you please update Table 5.1-13 to reflect this?

*Chris Perri*  
Air Quality Engineer  
South Coast Air Quality Management District  
(909) 396-2696

---

**From:** Stephen O'Kane [<mailto:stephen.okane@AES.com>]  
**Sent:** Wednesday, November 28, 2012 3:17 PM  
**To:** Chris Perri  
**Cc:** 'Robert.Mason@CH2M.com'; 'Jerry.Salamy@CH2M.com'; 'JAMCKINSEY@stoel.com'; 'mafoster@stoel.com'; 'Tao.Jiang@energy.ca.gov'; 'Gerry.Bemis@energy.ca.gov'  
**Subject:** Re: HBEP PM10 emissions

Chris,

A turbine start would not employ duct burners under any circumstance. All start times would be at 4.5 lb/hr.

Sorry about the delay on the start emissions. I'll check with the vendor right away.

Stephen O'Kane  
Sent from my mobile device

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**Cc:** [Robert.Mason@CH2M.com](mailto:Robert.Mason@CH2M.com) <[Robert.Mason@CH2M.com](mailto:Robert.Mason@CH2M.com)>; 'Jerry.Salamy@CH2M.com' <[Jerry.Salamy@CH2M.com](mailto:Jerry.Salamy@CH2M.com)>; McKinsey, John A. <[JAMCKINSEY@stoel.com](mailto:JAMCKINSEY@stoel.com)>; Foster, Melissa A. <[mafoster@stoel.com](mailto:mafoster@stoel.com)>; Jiang, Tao@Energy <[Tao.Jiang@energy.ca.gov](mailto:Tao.Jiang@energy.ca.gov)>; Bemis, Gerry@Energy <[Gerry.Bemis@energy.ca.gov](mailto:Gerry.Bemis@energy.ca.gov)>  
**Subject:** HBEP PM10 emissions

Stephen,

In performing the calculation for annual PM10 emissions I found that the total I come up with is 103.8 tpy. I am using the following information:

5,900 hrs per year with no duct firing, 4.5 lbs/hr  
470 hrs per year with duct firing, 9.5 lbs/hr  
36 hrs per year cold start (24 starts @ 1.5 hrs each), 4.5 lbs/hr  
325 hrs per year warm + hot starts (600 starts @ 32.5 minutes each), 9.5 lbs/hr  
62.4 hrs per year shutdowns (624 shutdowns @ 10 minutes each), 4.5 lbs/hr

The emission factors for start ups and shutdowns come from Table 5.1-13.

Also, I'm still waiting for the start up emission breakdown for NOx.

Thank you,

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**Subject:** RE: HBEP PM10 emissions  
**Date:** Thursday, November 29, 2012 1:54:00 PM

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Chris,

Table 5.1-13 hot and warm start hourly PM10/2.5 emission rates include 32.5 minutes of start-up PM10/2.5 emissions (4.5 pounds) with the balance of the hour (27.5 minutes) of duct fired PM10/2.5 emissions which is why the value is presented as <9.5 lb/hr. Since Table 5.1-13 was not intended to be used in estimating annual emissions, I don't believe it requires correction.

To clarify the method used to calculate the annual PM10/2.5 emission rate, we calculated annual PM10/2.5 emissions based on start/shutdown hours only (465 hours/year per turbine) at an emission rate of 4.5 lb/hr as shown below.

HBEP Shutdown Annual PM10/2.5 Emissions

Event	Number	Hours/Event	Annual Hours	Emission Rate (lb/hr)	Annual PM10/2.5 (lb)	Notes
Cold Start	24	1.5	36	4.5	162	Annual Hours = 1.5 hr * 24
Warm/Hot Shutdown	600	0.5417	325	4.5	1462.5	Annual Hours = 32.5 min/60 min/hr * 600
Unfired	624	0.17	104	4.5	468	Annual Hours = 10 min/60 min/hr * 624
Fired	5900	1	5900	4.5	26550	
	470	1	470	9.5	4465	
		Total Hrs	6835			
				Total per Turbine	33107.5	
				Total Tons per Turbine	16.6	
				Total Tons per 6 Turbines	99.3	

*Jerry Salamy*  
Principal Project Manager  
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Chris,

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**Cc:** [Robert.Mason@CH2M.com](mailto:Robert.Mason@CH2M.com) <[Robert.Mason@CH2M.com](mailto:Robert.Mason@CH2M.com)>; 'Jerry.Salamy@CH2M.com' <[Jerry.Salamy@CH2M.com](mailto:Jerry.Salamy@CH2M.com)>; McKinsey, John A. <[JAMCKINSEY@stoel.com](mailto:JAMCKINSEY@stoel.com)>; Foster, Melissa A. <[mafoster@stoel.com](mailto:mafoster@stoel.com)>; Jiang, Tao@Energy <[Tao.Jiang@energy.ca.gov](mailto:Tao.Jiang@energy.ca.gov)>; Bemis, Gerry@Energy <[Gerry.Bemis@energy.ca.gov](mailto:Gerry.Bemis@energy.ca.gov)>

**Subject:** HBEP PM10 emissions

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5,900 hrs per year with no duct firing, 4.5 lbs/hr

470 hrs per year with duct firing, 9.5 lbs/hr

36 hrs per year cold start (24 starts @ 1.5 hrs each), 4.5 lbs/hr

325 hrs per year warm + hot starts (600 starts @ 32.5 minutes each), 9.5 lbs/hr

62.4 hrs per year shutdowns (624 shutdowns @ 10 minutes each), 4.5 lbs/hr

The emission factors for start ups and shutdowns come from Table 5.1-13.

Also, I'm still waiting for the start up emission breakdown for NOx.

Thank you,

*Chris Perri*

Air Quality Engineer

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**Subject:** RE: HBEP PM10 emissions  
**Date:** Tuesday, December 04, 2012 3:44:00 PM

---

Hi Tao,

The NOx, CO, VOC, and SO2 emissions presented in Table 5-14 are based on an ambient air temperature of 32 F. We calculated the HBEP annual emissions based on the emission rates at the annual average ambient temperature of 65.8 F. AFC Appendix Table 5.1B.2 presents the operating parameters and emissions for 15 cases representing the range of operating loads and ambient conditions for the project. Cases 6 and 7 represent the annual average ambient conditions for fired and unfired conditions we used for the annual emission calculations. I have extracted the Case 6 and 7 emissions data from AFC Appendix Table 5.1B.2 and have presented it below. In calculating the annual start up/shutdown emissions, we used the pounds per event start up/shutdown emission rates and the number of events. The SO2 annual emissions were calculated using a fuel sulfur content of 0.25 grains/100 cubic feet of natural gas (or 2.37 lb SO2/hr fired and 1.71 lb SO2/hr unfired) recommended by the SCAQMD during a pre-application meeting. I revised your calculations to include our methodology (see below). Please let me know if you have any additional questions.

Annual Average Emission Rates (lb/hr)		
	Fired	Unfired
NOx	13.63	9.85
CO	8.30	5.99
VOC	2.37	1.71
SO2	0.84	0.62
PM	9.50	4.50

	hours	lbs/hr	annual
no duct	5900	5.99	35359
Duct	470	8.30	3900
cold starts	24	115.9	2782
warm starts	150	46	6900
hot starts	450	33.6	15120
Shutdowns	624	45.3	28267
		Total per CTG	92328
		Total tons per CTG	46.2
		Total tons of 6 CTGs	277.0

*Jerry Salamy*  
*Principal Project Manager*  
*CH2M HILL/Sacramento*  
*Phone 916-286-0207*  
*Fax 916-614-3407*  
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**From:** Jiang, Tao@Energy [mailto:Tao.Jiang@energy.ca.gov]  
**Sent:** Tuesday, December 04, 2012 2:33 PM  
**To:** Salamy, Jerry/SAC; CPerri@aqmd.gov; stephen.okane@AES.com  
**Cc:** Mason, Robert/SCO; JAMCKINSEY@stoel.com; mafoster@stoel.com; Bemis, Gerry@Energy; kjhellwig@stoel.com  
**Subject:** RE: HBEP PM10 emissions

Jerry,

In the data response to CEC, table DR12-2 presents the annual emissions based on the revised operation profile. I am only able to repeat the results for PM10/2.5. My calculations for NOx, CO, SOx and VOC all come up with different numbers. I am using the emission factors in AFC table 5.1-13 (startups and shutdowns) and table 5.1-14 (fired and unfired). For example, the calculation for CO annual emissions:

	hours	lbs/hr	annual
no duct	5900	6.4	37760
duct	470	8.7	4089
cold starts	36	115.3	4150.8
warm starts	81.3	50	4065
hot starts	243.8	37.6	9166.88
shutdowns	104	50.7	5272.8
		Total per CTG	64504.48
		Total tons per CTG	32.25224
		Total tons of 6 CTGs	193.5134

Please check if the emission factors need to be updated, or there are some errs in your calculations.

In addition, when transferring results from AFC table 5.1-13 to table 5.1-17, why the maximum emissions of CO and VOC do not reflect the cold startup emissions? Thanks.

Tao Jiang, Ph.D., P.E.  
 Air Resources Engineer  
 Siting, Transmission and Environmental Protection Division California Energy Commission  
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Your correct that the 624 shutdowns equate to 104 hours of shutdown emissions. The following table presents our calculation method for the annual HBEP PM10/2.5 emissions.

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62.4 hrs per year shutdowns (624 shutdowns @ 10 minutes each), 4.5 lbs/hr

The emission factors for start ups and shutdowns come from Table 5.1-13.

Also, I'm still waiting for the start up emission breakdown for NOx.

Thank you,

*Chris Perri*

**Air Quality Engineer**

**South Coast Air Quality Management District**

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**Subject:** RE: HBEP PM10 emissions  
**Date:** Wednesday, December 05, 2012 9:24:00 AM

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Tao,

Sorry I miss this question. Your correct that the maximum hourly CO and VOC emission rates in Table 5.1-17 should be the cold start hourly rates from Table 5.1-13.

Regarding your email questions on SO<sub>2</sub> emission rates (*Did you also revise the startup/shutdown SO<sub>2</sub> emission factors by assuming the sulfur content of 0.25 grains /100 cubic feet? So the emissions factors for cold start/warm start/hot start/shutdown should be 0.66/0.88/0.88/0.66, instead of 1.97/2.64/2.64/1.97 as reported in table 5.1-13.*), we used maximum allowable (SoCalGas Rule 30) natural gas sulfur content of 0.75 grains of total sulfur per 100 cubic feet of natural gas to estimate short term SO<sub>2</sub> emission rates (1-hour, 3-hour, and daily) as this represented the maximum possible SO<sub>2</sub> emissions on a short term basis. However, for calculating annual fuel sulfur levels, we used the 0.25 grains of sulfur /100 cubic feet of natural as suggested by the SCAQMD. To answer your question, the SO<sub>2</sub> emission rates shown in Table 5.1-13 are correct and are based on a 0.75 grains of sulfur per 100 cubic feet of natural gas. The cold start up and shutdown SO<sub>2</sub> emission rates presented in Table 5.1-13 are based on 1498 MMBtu/hr of fuel combustion (corresponding to base load operation at an ambient air temperature of 32F with no duct firing) with a 0.75 grains of sulfur per 100 cubic feet. The warm and hot start SO<sub>2</sub> emission rates in Table 5.1-13 are based on a 2005 MMBtu/hr of fuel combustion (corresponding to base load operation at 32 F with duct burners firing) with a 0.75 grains of sulfur per 100 cubic feet.

Please let me know if you have any additional questions.

*Jerry Salamy*  
*Principal Project Manager*  
*CH2M HILL/Sacramento*  
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**To:** Salamy, Jerry/SAC; [CPerri@aqmd.gov](mailto:CPerri@aqmd.gov); [stephen.okane@AES.com](mailto:stephen.okane@AES.com)  
**Cc:** [Mason, Robert@SCO](mailto:Mason_Robert@SCO); [JAMCKINSEY@stoel.com](mailto:JAMCKINSEY@stoel.com); [mafoster@stoel.com](mailto:mafoster@stoel.com); [Bemis, Gerry@Energy](mailto:Bemis_Gerry@Energy); [kjhellwig@stoel.com](mailto:kjhellwig@stoel.com)  
**Subject:** RE: HBEP PM10 emissions

Jerry,

Thanks for the clarification. I will redo the calculation.

You have not answered my second question: When transferring results from AFC table 5.1-13 to table 5.1-17, why the maximum emissions of CO and VOC do not reflect the cold startup emissions? Thanks.

Tao

---

**From:** [Jerry.Salamy@CH2M.com](mailto:Jerry.Salamy@CH2M.com) [mailto:Jerry.Salamy@CH2M.com]  
**Sent:** Tuesday, December 04, 2012 3:44 PM  
**To:** Jiang, Tao@Energy; [CPerri@aqmd.gov](mailto:CPerri@aqmd.gov); [stephen.okane@AES.com](mailto:stephen.okane@AES.com)  
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**Subject:** RE: HBEP PM10 emissions

Hi Tao,

The NO<sub>x</sub>, CO, VOC, and SO<sub>2</sub> emissions presented in Table 5-14 are based on an ambient air temperature of 32 F. We calculated the HBEP annual emissions based on the emission rates at the annual average ambient temperature of 65.8 F. AFC Appendix Table 5.1B.2 presents the operating parameters and emissions for 15 cases representing the range of operating loads and ambient conditions for the project. Cases 6 and 7 represent the annual average ambient conditions for fired and unfired conditions we used for the annual

emission calculations. I have extracted the Case 6 and 7 emissions data from AFC Appendix Table 5.1B.2 and have presented it below. In calculating the annual start up/shutdown emissions, we used the pounds per event start up/shutdown emission rates and the number of events. The SO2 annual emissions were calculated using a fuel sulfur content of 0.25 grains/100 cubic feet of natural gas (or 2.37 lb SO2/hr fired and 1.71 lb SO2/hr unfired) recommended by the SCAQMD during a pre-application meeting. I revised your calculations to include our methodology (see below). Please let me know if you have any additional questions.

Annual Average Emission Rates (lb/hr)		
	Fired	Unfired
NOx	13.63	9.85
CO	8.30	5.99
VOC	2.37	1.71
SO2	0.84	0.62
PM	9.50	4.50

	hours	lbs/hr	annual
no duct	5900	5.99	35359
Duct	470	8.30	3900
cold starts	24	115.9	2782
warm starts	150	46	6900
hot starts	450	33.6	15120
Shutdowns	624	45.3	28267
		Total per CTG	92328
		Total tons per CTG	46.2
		Total tons of 6 CTGs	277.0

*Jerry Salamy*  
*Principal Project Manager*  
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**Sent:** Tuesday, December 04, 2012 2:33 PM  
**To:** Salamy, Jerry/SAC; [CPerri@aqmd.gov](mailto:CPerri@aqmd.gov); [stephen.okane@AFES.com](mailto:stephen.okane@AFES.com)  
**Cc:** Mason, Robert/SCO; [JAMCKINSEY@stoel.com](mailto:JAMCKINSEY@stoel.com); [mafoster@stoel.com](mailto:mafoster@stoel.com); Bemis, Gerry@Energy; [kjhellwig@stoel.com](mailto:kjhellwig@stoel.com)  
**Subject:** RE: HBEP PM10 emissions

Jerry,

In the data response to CEC, table DR12-2 presents the annual emissions based on the revised operation profile. I am only able to repeat the results for PM10/2.5. My calculations for NOx, CO, SOx and VOC all come up with different numbers. I am using the emission factors in AFC table 5.1-13 (startups and shutdowns) and table 5.1-14 (fired and unfired). For example, the calculation for CO annual emissions:

	hours	lbs/hr	annual
no duct	5900	6.4	37760
duct	470	8.7	4089
cold starts	36	115.3	4150.8
warm starts	81.3	50	4065
hot starts	243.8	37.6	9166.88
shutdowns	104	50.7	5272.8

Total per CTG	64504.48
Total tons per CTG	32.25224
Total tons of 6 CTGs	193.5134

Please check if the emission factors need to be updated, or there are some errs in your calculations.

In addition, when transferring results from AFC table 5.1-13 to table 5.1-17, why the maximum emissions of CO and VOC do not reflect the cold startup emissions? Thanks.

Tao Jiang, Ph.D., P.E.  
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**From:** [Jerry.Salamy@CH2M.com](mailto:Jerry.Salamy@CH2M.com) [<mailto:Jerry.Salamy@CH2M.com>]  
**Sent:** Wednesday, November 28, 2012 4:11 PM  
**To:** Jiang, Tao@Energy; [CPerri@aqmd.gov](mailto:CPerri@aqmd.gov); [stephen.okane@AES.com](mailto:stephen.okane@AES.com)  
**Cc:** [Robert.Mason@CH2M.com](mailto:Robert.Mason@CH2M.com); [JAMCKINSEY@stoel.com](mailto:JAMCKINSEY@stoel.com); [mafoster@stoel.com](mailto:mafoster@stoel.com); Bemis, Gerry@Energy; [kjhellwig@stoel.com](mailto:kjhellwig@stoel.com)  
**Subject:** RE: HBEP PM10 emissions

Hi Tao,

Your correct that the 624 shutdowns equate to 104 hours of shutdown emissions. The following table presents our calculation method for the annual HBEP PM10/2.5 emissions.

HBEP Shutdown Annual PM10/2.5 Emissions

Event	Number	Hours	Emission Rate (lb/hr)	Annual PM10/2.5 (lb)	Notes
Cold Start	24	1.5	4.5	162	
Warm/Hot	600	0.5417	4.5	1462.5	Hours = 32.5 min/60 min/hr
Shutdown	624	0.17	4.5	468	Hours = 10 min/60 min/hr
Unfired	1	5900	4.5	26550	
Fired	1	470	9.5	4465	
Total per CTG				33107.5	
Total Tons per CTG				16.6	
Total Tons per 6 CTG				99.3	

*Jerry Salamy*  
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**From:** Jiang, Tao@Energy [<mailto:Tao.Jiang@energy.ca.gov>]  
**Sent:** Wednesday, November 28, 2012 3:36 PM  
**To:** Chris Perri; Stephen O'Kane  
**Cc:** Mason, Robert/SCO; Salamy, Jerry/SAC; 'JAMCKINSEY@stoel.com'; 'mafoster@stoel.com'; Bemis, Gerry@Energy  
**Subject:** RE: HBEP PM10 emissions

Stephen,

I just find a minor difference between Chris's data and the data response to CEC. In CEC data response Table DR12-1, the number of annual shutdown is 624, which is OK. However, the number of hours is 104, not 62.4. Please clarify. Thanks.

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**From:** Chris Perri [<mailto:CPerri@aqmd.gov>]  
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**Subject:** RE: HBEP PM10 emissions

Can you please update Table 5.1-13 to reflect this?

*Chris Perri*  
Air Quality Engineer  
South Coast Air Quality Management District  
(909) 396-2696

---

**From:** Stephen O'Kane [<mailto:stephen.okane@AES.com>]  
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**Subject:** Re: HBEP PM10 emissions

Chris,

A turbine start would not employ duct burners under any circumstance. All start times would be at 4.5 lb/hr.

Sorry about the delay on the start emissions. I'll check with the vendor right away.

Stephen O'Kane  
Sent from my mobile device

---

**From:** Chris Perri [<mailto:CPerri@aqmd.gov>]  
**Sent:** Wednesday, November 28, 2012 04:59 PM  
**To:** Stephen O'Kane  
**Cc:** [Robert.Mason@CH2M.com](mailto:Robert.Mason@CH2M.com) <[Robert.Mason@CH2M.com](mailto:Robert.Mason@CH2M.com)>; 'Jerry.Salamy@CH2M.com' <[Jerry.Salamy@CH2M.com](mailto:Jerry.Salamy@CH2M.com)>; McKinsey, John A. <[JAMCKINSEY@stoel.com](mailto:JAMCKINSEY@stoel.com)>; Foster, Melissa A. <[mafoster@stoel.com](mailto:mafoster@stoel.com)>; Jiang, Tao@Energy <[Tao.Jiang@energy.ca.gov](mailto:Tao.Jiang@energy.ca.gov)>; Bemis, Gerry@Energy <[Gerry.Bemis@energy.ca.gov](mailto:Gerry.Bemis@energy.ca.gov)>  
**Subject:** HBEP PM10 emissions

Stephen,

In performing the calculation for annual PM10 emissions I found that the total I come up with is 103.8 tpy. I am using the following information:

5,900 hrs per year with no duct firing, 4.5 lbs/hr  
470 hrs per year with duct firing, 9.5 lbs/hr  
36 hrs per year cold start (24 starts @ 1.5 hrs each), 4.5 lbs/hr  
325 hrs per year warm + hot starts (600 starts @ 32.5 minutes each), 9.5 lbs/hr  
62.4 hrs per year shutdowns (624 shutdowns @ 10 minutes each), 4.5 lbs/hr

The emission factors for start ups and shutdowns come from Table 5.1-13.

Also, I'm still waiting for the start up emission breakdown for NOx.

Thank you,

*Chris Perri*

**Air Quality Engineer**

**South Coast Air Quality Management District**

*(909) 396-2696*

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BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT  
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**APPLICATION FOR CERTIFICATION FOR THE  
HUNTINGTON BEACH ENERGY PROJECT**

**Docket No. 12-AFC-02**  
**(Revised 10/08/12)**

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\*indicates change

72538013.1 0043653-00005



**DECLARATION OF SERVICE**

I, Judith M. Warmuth, declare that on December 11, 2012, I served and filed a copy of the attached Applicant's Correspondence Related to Air Quality dated December 11, 2012. This document is accompanied by the most recent Proof of Service list, located on the web page for this project at:

[http://www.energy.ca.gov/sitingcases/huntington\\_beach\\_energy/index.html](http://www.energy.ca.gov/sitingcases/huntington_beach_energy/index.html).

The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit or Chief Counsel, as appropriate, in the following manner:

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**AND**

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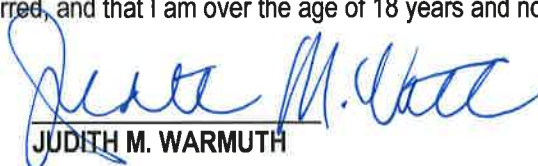
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1516 Ninth Street, MS-4  
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**OR, if filing a Petition for Reconsideration of Decision or Order pursuant to Title 20, § 1720:**

- Served by delivering on this date one electronic copy by e-mail, and an original paper copy to the Chief Counsel at the following address, either personally, or for mailing with the U.S. Postal Service with first class postage thereon fully prepaid:

California Energy Commission  
Michael J. Levy, Chief Counsel  
1516 Ninth Street MS-14  
Sacramento, CA 95814  
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I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

  
JUDITH M. WARMUTH