



500 Capitol Mall, Suite 1600
Sacramento, CA 95814
main 916.447.0700
fax 916.447.4781
www.stoel.com

May 17, 2013

KIMBERLY J. HELLWIG
Direct (916) 319-4742
kjhellwig@stoel.com

VIA EMAIL

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

California Energy Commission

DOCKETED

12-AFC-02

TN 70865

MAY 17 2013

**Re: Huntington Beach Energy Project (12-AFC-02)
Applicant's Responses to Data Requests, Set 5, #107-109 (Public Health)**

Dear Ms. Miller:

On April 16, 2013, California Energy Commission Staff issued Data Requests, Set 5 (#107-109) ("Staff's Data Requests") related to public health. On May 15, 2013, Applicant's consultant, Robert Mason of CH2M Hill, Inc., informed you that delays with the modeling applications required Applicant to docket and serve responses to Staff's Data Requests on or before May 17, 2013. To that end, please find enclosed herein Applicant's responses to the aforementioned requests.

In addition, Applicant submits herein a disk containing modeling files as such relate to Applicant's responses to Data Requests, Set 5. However, due to the formatting of and software required to access the modeling files, Applicant will serve to the parties on the enclosed proof of service only the written responses. Should any party wish to obtain a copy of the modeling files, Applicant will provide such files upon request.

Very truly yours,

A handwritten signature in blue ink that reads "Kim Hellwig".

Kimberly J. Hellwig
Energy & Environmental Policies Specialist
KJH:jmw
Enclosures
cc: Proof of Service List



BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

**APPLICATION FOR CERTIFICATION FOR THE
HUNTINGTON BEACH ENERGY PROJECT**

Docket No. 12-AFC-02

**PROOF OF SERVICE
(Revised 03/26/2013)**

SERVICE LIST:

APPLICANT

AES Southland Development, LLC
Stephen O'Kane
Jennifer Didlo
690 Studebaker Road
Long Beach, CA 90803
stephen.okane@aes.com
jennifer.didlo@aes.com

APPLICANT'S CONSULTANTS

CH2M Hill
Robert Mason
Project Manager
6 Hutton Centre Drive, Suite 700
Santa Ana, CA 92707
robert.mason@CH2M.com

APPLICANT'S COUNSEL

Melissa A. Foster
Stoel Rives, LLP
500 Capitol Mall, Suite 1600
Sacramento, CA 95814
mafoster@stoel.com

INTERVENOR

Jason Pyle
9071 Kapaa Drive
Huntington Beach, CA 92646
jasonpyle@me.com

INTERESTED AGENCIES

California ISO
e-recipient@caiso.com

INTERESTED AGENCIES (Cont'd.)

California Coastal Commission
Tom Luster
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219
tluster@coastal.ca.gov

California State Parks
Huntington State Beach
Brian Ketterer
21601 Pacific Coast Highway
Huntington Beach, CA 92646
bketterer@parks.ca.gov

City of Huntington Beach
Planning & Building Department
Jane James
Scott Hess
Aaron Klemm
2000 Main Street, 3rd floor
Huntington Beach, CA 92648
jjames@surfcity-hb.org
shess@surfcity-hb.org
aaron.klemm@surfcity-hb.org

City of Huntington Beach
City Council
Cathy Fikes
Johanna Stephenson
2000 Main Street, 4th floor
Huntington Beach, CA 92648
cfikes@surfcity-hb.org
johanna.stephenson@surfcity-hb.org.

INTERESTED AGENCIES (Cont'd.)

Santa Ana Regional
Water Quality Board
Gary Stewart
3737 Main Street, Suite 500
Riverside, CA 92501-3339
gstewart@waterboards.ca.gov

Huntington Beach
Wetlands Conservancy
Jack Kirkom, Director
21900 Pacific Coast Highway
Huntington Beach, CA 92646
jfk0480@aol.com

ENERGY COMMISSION STAFF

Felicia Miller
Project Manager
felicia.miller@energy.ca.gov

Kevin W. Bell
Staff Counsel
kevin.w.bell@energy.ca.gov

**ENERGY COMMISSION –
PUBLIC ADVISER**

Blake Roberts
Assistant Public Adviser
publicadviser@energy.ca.gov

COMMISSION DOCKET UNIT

California Energy Commission –
Docket Unit
Attn: Docket No. 12-AFC-02
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.ca.gov

*indicates change

73587224.1 0043653-00005

**OTHER ENERGY COMMISSION
PARTICIPANTS (LISTED FOR
CONVENIENCE ONLY):**

After docketing, the Docket Unit will provide a copy to the persons listed below. Do not send copies of documents to these persons unless specifically directed to do so.

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Commissioner and Presiding Member**

**KAREN DOUGLAS
Commissioner and Associate Member**

**Susan Cochran
Hearing Adviser**

**Hazel Miranda
Adviser to Commissioner McAllister**

**Patrick Saxton
Adviser to Commissioner McAllister**

**Galen Lemei
Adviser to Commissioner Douglas**

**Jennifer Nelson
Adviser to Commissioner Douglas**

**Eileen Allen
Commissioners' Technical
Adviser for Facility Siting**

DECLARATION OF SERVICE

I, Judith M. Warmuth, declare that on May 17, 2013, I served and filed copies of the attached Applicant's Responses to Data Requests, Set 5, #107-109 dated May 17, 2013. This document is accompanied by the most recent Proof of Service, which I copied from the web page for this project at:

http://www.energy.ca.gov/sitingcases/huntington_beach_energy/index.html.

The document has been sent to the other parties on the Service List above in the following manner:

(Check one)

For service to all other parties and filing with the Docket Unit at the Energy Commission:

- I e-mailed the document to all e-mail addresses on the Service List above and personally delivered it or deposited it in the US mail with first class postage to those parties noted above as "hard copy required"; **OR**
- Instead of e-mailing the document, I personally delivered it or deposited it in the US mail with first class postage to all of the persons on the Service List for whom a mailing address is given.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am over the age of 18 years.

Dated: May 17, 2013



Judith M. Warmuth

Huntington Beach Energy Project

(12-AFC-02)

Data Responses, Set 5 (Response to Data Requests 107 to 109)

Submitted to
California Energy Commission

Prepared by
AES Southland Development, LLC

With Assistance from

CH2MHILL®

2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833

May 17, 2013

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Introduction

Attached are AES Southland Development, LLC's (AES or the Applicant) responses to the California Energy Commission (CEC) Staff's Data Requests, Set 5 (Public Health, requests 107 through 109) regarding the Huntington Beach Energy Project (HBEP) (12-AFC-02) Application for Certification (AFC).

The responses are presented in the same order as CEC Staff presented them and are keyed to the Data Request numbers. New or revised graphics or tables are numbered in reference to the Data Request number. For example, the first table used in response to Data Request 107 would be numbered Table DR107-1. The first figure used in response to Data Request 107 would be Figure DR107-1, and so on.

Additional tables, figures, or documents submitted in response to a data request (for example, supporting data or stand-alone documents such as plans, folding graphics, etc.) are found at the end of the section and may not be sequentially numbered.

Public Health (107–109)

BACKGROUND

The applicant’s Health Risk Assessment (HRA) was prepared using the California Air Resources Board’s (ARB’s) HARP model, version 1.4f (ARB, 2011) and HARP On-ramp program (version 1.0). The HARP On-ramp tool was used to import the American Meteorological Society/U.S. Environmental Protection Agency (EPA) Regulatory Model (AERMOD) air dispersion modeling results into the HARP Risk Module. Emissions of non-criteria pollutants from the project were analyzed using emission factors obtained mainly from the ARB California Air Toxics Emission Factors (CATEF) emission database (ARB, 2012). Air dispersion modeling combined the emissions with site-specific terrain and meteorological conditions to analyze the mean short-term and long-term concentrations in air for use in the HRA. Ambient concentrations were used in conjunction with Reference Exposure Levels (RELs) and cancer unit risk factors to estimate the cancer and non-cancer risks from operations.

Air Quality staff submitted a data request to require the Applicant to update all the modeling submitted on the project to date using the new, 5-year meteorological dataset provided by the South Coast Air Quality Management District (SCAQMD). Since the results of the HRA are also subject to the results of air modeling, an updated HRA is necessary.

DATA REQUEST

107. After updating any air quality modeling using the new 5-year meteorological dataset provided by the SCAQMD, please provide updated information for the corresponding HRA for air toxics, for both construction and operation.

Response: All HRA modeling conducted to date for the CEC, both in the initial licensing application and in subsequent toxics modeling, has been updated to reflect the 5-year meteorological dataset for the Costa Mesa monitoring station, which was supplied to the Applicant on February 28, 2013 by the SCAQMD. The operational HRA modeling followed the methodology outlined in AFC Section 5.9.3.1, Air Toxics Exposure Assessment (Operation Impacts), which was submitted to the CEC in June 2012, and includes the use of the EPA’s AP-42 emission factors and the SCAQMD-recommended formaldehyde emission factor as described in Data Response 108 below. The construction HRA modeling followed the methodology outlined in Data Responses, Set 2A – 75, which was submitted to the CEC on February 22, 2013. Table DR107-1, which is a revision to AFC Table 5.9-4, summarizes the HRA results for facility-wide operation. Table DR107-2, which is a revision to AFC Table 5.9-3, summarizes HRA results for individual turbine operation. Table DR107-3, which is an update to the results presented in Data Responses, Set 2A – 75, summarizes the construction HRA results.

TABLE DR107-1

Operation: Health Risk Assessment Summary – Facility

Risk	Receptor Number	Value	Universal Transverse Mercator (NAD 83)
Cancer Risk at the PMI ^a	10638	6.46 per million	409.900, 3,723.450
Cancer Risk at the PMI ^b	10638	6.29 per million	409.900, 3,723.450
Cancer Risk at the MEIR ^b	9271	6.21 per million	410.000, 3,723.400
Highest Cancer Risk at a Sensitive Receptor ^b	3602	5.8 per million	410.02405, 3,723.14007
Cancer Risk at the MEIW	10638	1.14 per million	409.900, 3,723.450
Chronic Hazard Index at the PMI	10638	0.0198	409.900, 3,723.450
Resident Chronic Hazard Index	9244	0.0195	410.000, 3,723.350

TABLE DR107-1

Operation: Health Risk Assessment Summary – Facility

Risk	Receptor Number	Value	Universal Transverse Mercator (NAD 83)
Worker Chronic Hazard Index	10638	0.0198	409.900, 3,723.450
Chronic Hazard Index at Sensitive Receptor	3602	0.0183	410.02405, 3,723.14007
Acute Hazard Index at the PMI	8978	0.0491	409.1614, 3,723.3372
Resident Acute Hazard Index	2343	0.0346	409.0843594, 3,723.472645
Worker Acute Hazard Index	8978	0.0491	409.1614, 3,723.3372
Acute Hazard Index at Sensitive Receptor	3602	0.0212	410.02405, 3,723.14007

^a Cancer risk values represent the Office of Environmental Health Hazard Assessment (OEHHA) Derived Methodology.

^b Risk values represent the Derived Adjusted Methodology.

PMI = Point of Maximum Impact

MEIR = Maximally Exposed Individual Resident

MEIW = Maximally Exposed Individual Worker

TABLE DR107-2

Operation: Health Risk Assessment Summary – Individual Units

Risk	Turbine 1	Turbine 2	Turbine 3	Turbine 4	Turbine 5	Turbine 6
Cancer Risk at the PMI ^a (per million)	1.13	1.13	1.13	1.13	1.13	1.13
Cancer Risk at the PMI ^b (per million)	1.10	1.10	1.10	1.10	1.10	1.10
Cancer Risk at the MEIR ^b (per million)	0.968	0.975	0.992	1.10	1.10	1.09
Highest Cancer Risk at a Sensitive Receptor ^b (per million)	0.893	0.916	0.936	1.04	1.02	0.999
Cancer Risk at the MEIW (per million)	0.198	0.199	0.198	0.198	0.198	0.198
Chronic Hazard Index at the PMI	0.00346	0.00347	0.00346	0.00345	0.00345	0.00345
Resident Chronic Hazard Index	0.00305	0.00307	0.00312	0.00345	0.00345	0.00345
Worker Chronic Hazard Index	0.00346	0.00347	0.00346	0.00345	0.00345	0.00345
Chronic Hazard Index at a Sensitive Receptor	0.00281	0.00288	0.00295	0.00326	0.0032	0.00315
Acute Hazard Index at the PMI	0.0132	0.0237	0.0209	0.00455	0.00450	0.00557
Resident Acute Hazard Index	0.00894	0.0121	0.0045	0.00396	0.00399	0.00494
Worker Acute Hazard Index	0.0132	0.0237	0.0209	0.00455	0.00450	0.00557
Acute Hazard Index at Sensitive Receptor	0.00311	0.00352	0.00303	0.00385	0.00384	0.00382

^a Cancer risk values represent the OEHHA Derived Methodology.

^b Risk values represent the Derived Adjusted Methodology.

TABLE DR107-3

Construction: Health Risk Assessment Summary – Facility

Risk^a	Receptor Number	Value	Universal Transverse Mercator (NAD 83)
Cancer Risk at the PMI ^b	7708	11.1 per million	409.5671, 3723.225
Cancer Risk at the MEIR ^b	7759	5.4 per million	409.1, 3723.35
Highest Cancer Risk at a Sensitive Receptor ^b	3602	2.19 per million	410.02705, 3723.14007
Cancer Risk at the PMI ^c	7708	16.4 per million	409.5671, 3723.225
Cancer Risk at the MEIR ^c	7759	7.99 per million	409.1, 3723.35
Highest Cancer Risk at a Sensitive Receptor ^c	3602	3.24 per million	410.02705, 3723.14007
Cancer Risk at the MEIW ^d	7708	9.91 per million	409.5671, 3723.225
Chronic Hazard Index at the PMI	7708	0.0417	409.5671, 3723.225
Resident Chronic Hazard Index	7759	0.0203	409.1, 3723.35
Chronic Hazard Index at a Sensitive Receptor	3602	0.00821	410.02705, 3723.14007
Worker Chronic Hazard Index ^d	7708	0.14	409.5671, 3723.225

^a Values represent the OEHHA Derived Methodology.

^b Based on an average breathing rate of 271 Liters/kilogram/day.

^c Based on an average breathing rate of 452 Liters/kilogram/day.

^d Cancer risk at the MEIW and Worker Chronic Hazard Index adjusted with 3.36 ground level concentration (GLC) factor and 9 years of exposure.

Based on the operational analysis, the predicted incremental increases in cancer risk at the Point of Maximum Impact (PMI) associated with operation activities is 6.46 per million; the predicted chronic and acute health indices at the PMI are 0.0198 and 0.0491, respectively. HBEP's design includes an oxidation catalyst system to reduce emissions of incomplete combustion products (carbon monoxide and volatile organic compounds). This system would be expected to also reduce HBEP emissions of toxic air contaminants and is considered the best available control technology for toxic organic compounds (T-BACT) from combustion turbines. The predicted incremental increase in cancer risk and chronic and acute health indices at the PMI are less than the California Environmental Quality Act (CEQA) significance thresholds of 10 in one million and 1.0, respectively. Therefore, impacts associated with operation activities are less than significant. Furthermore, the HBEP operational risk assessment conservatively does not include reductions in public health impacts associated with the permanent shutdown of the Huntington Beach Generation Station Units 1 and 2.

Based on the construction analysis, the predicted incremental increases in cancer risk at the PMI, Maximally Exposed Individual Resident (MEIR), and Maximally Exposed Individual Worker (MEIW) associated with construction activities are 16.4, 7.99, and 9.91 in one million, respectively.¹ The predicted chronic risks at the PMI, MEIR, and MEIW are 0.0417, 0.0203, and 0.14, respectively. Although the PMI excess cancer risk is greater than 10 in one million, the elevated risk only occurs in areas where public access is controlled (i.e., within the AES-controlled fence line) or in areas that are not considered residential, commercial, or habitable, as presented in Figure DR109-1. Additionally, any potential exposure would be sporadic and limited in length. Further, the predicted incremental increase in cancer risk at the MEIR and MEIW and chronic health index at the PMI, MEIR, and MEIW are less than the CEQA significance thresholds of 10 in one million and 1.0, respectively. Therefore, impacts associated with the finite construction activities are less than significant.

¹ Note that the PMI and MEIR values represent the cancer risk for a 9-year average breathing rate of 452 Liters/kilogram/day. The 70 average breathing rate of 271 Liters/kilogram/day led to lower cancer risks at the same locations.

The HARP report files have been separately prepared and are included with this submission on a DVD. Note that utilizing the revised 5-year meteorological dataset for this analysis resulted in construction HRA impacts similar to those submitted as part of Data Responses, Set 2A – 75. Operation HRA impacts, however, did increase from those originally presented in AFC Section 5.9.3.1, Toxics Exposure Assessment (Operation Impacts).

DATA REQUEST

108. Please provide updated information for the HRA using the SCAQMD's suggested formaldehyde emission factor, 3.6×10^{-4} pounds per million British thermal units (lbs/MMBtu).

Response: A revised human health risk assessment using the most recent 5-year Costa Mesa meteorological dataset supplied by the SCAQMD was conducted for the operational impacts (see the response to Data Request 107 above). This assessment used the SCAQMD-recommended formaldehyde emission factor of 3.6×10^{-4} lbs/MMBtu and the AP-42 emission factors, which were also recommended by the SCAQMD.

DATA REQUEST

109. If the results of any HRA results in a health risk of greater than 10 in a million, please provide a map containing health risk isopleths, including an isopleth showing the risk value of 10 in a million.

Response: Figure DR109-1 presents the isopleth showing the diesel particulate matter (DPM) excess cancer risks, resulting from HBEP construction activities, which are greater than 10 in one million. As explained in the response to Data Request 107 above, this risk only occurs in areas where public access is controlled (i.e., within the AES-controlled fence line) or in areas that are not considered residential, commercial, or habitable. Additionally, potential exposure would be sporadic and limited in length. Therefore, the PMI excess cancer risk represents an overestimate of the expected actual impacts to public health resulting from HBEP construction. Note that the excess cancer risk isopleth for locations greater than 10 in one million is similar to that submitted with Data Responses, Set 2A – 76, despite incorporation of the revised 5-year meteorological dataset.

FIGURE DR109-1

HBEP Construction Excess Cancer Risk Assessment Isopleth 10 in One Million – Child Exposure

