

DOCKETED

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Project Title:	Huntington Beach Energy Project - Compliance
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**Declaration of
ELYSE ENGEL
Huntington Beach Energy Project
(12-AFC-02C)**

I, **Elyse Engel**, declare as follows:

1. I am presently employed by CH2M HILL, Inc., under contract with AES Huntington Beach Energy, LLC to provide environmental consulting services for the Huntington Beach Energy Project (“HBEP”).
2. A copy of my professional qualifications and experience is attached hereto as **Attachment A** and incorporated by reference herein.
3. I prepared or caused to be prepared information related to **Air Quality and Public Health** in support of the Petition to Amend for HBEP. Such information was either provided by me for incorporation of such data into documents or was based on my independent analysis of data from reliable documents and sources, as well as my professional experience and knowledge. Specifically, I prepared or caused to be prepared the following:
 - a. Petition to Amend, Sections 5.1 (Air Quality), 5.9 (Public Health), and the related Appendices (TN# 206087), docketed September 9, 2015
 - b. Petition to Amend, Air Quality and Health Dispersion Modeling Files (TN# 206092), docketed September 9, 2015
 - c. Petition to Amend, Appendix 5.1A – Demolition and Construction Emission Estimates (TN# 206137), docketed September 17, 2015
 - d. AES Huntington Beach, LLC’s Response to South Coast Air Quality Management District’s Request for Additional Information (TN# 206358), docketed October 14, 2015
 - e. Objections to Certain Data Responses Contained in CEC Staff’s Data Requests Set One (#A1-A74) (TN# 206807), docketed December 1, 2015
 - f. Data Responses, Set 1 (Responses to Data Requests 1-74) (TN# 206858), docketed December 7, 2015
 - g. AES Huntington Beach, LLC’s Response to South Coast Air Quality Management District’s Completeness Determination Letter (TN# 206936), docketed December 11, 2015
 - h. SCAQMD Emissions Response (TN# 206938), docketed December 11, 2015
 - i. Project Owner’s Follow-Up to Data Request Workshop 12.14.15 (TN# 207011), docketed December 14, 2015
 - j. DR Set 1 Figures A9-1 through A9-3 (TN# 207021), docketed December 15, 2015
 - k. Data Responses to Workshop Data Request (TN# 210250), docketed February 9, 2016
 - l. Huntington Beach Energy Project Data Requests [Responses] A75-A77 (TN# 210300), docketed February 12, 2016

- m. Huntington Beach Energy Project Petition to Amend Data Requests A75-A77 HARP Modeling Files (TN# 210360), docketed February 16, 2016
- n. Huntington Beach Energy Project Data Request A14, A16-A18 Air Quality Modeling files transmittal letter (TN# 210361), docketed February 16, 2016
- o. Resubmission of Data Responses Set 1, Updated Response to Data Requests 4-6, Part 1 (TN# 210620-1), docketed March 7, 2016
- p. Resubmission of Data Responses Set 1, Updated Response to Data Requests 4-6, Part 2 (TN# 210620-2), docketed March 7, 2016
- q. Resubmission of Data Responses Set 1, Updated Response to Data Requests 4-6, Part 3 (TN# 210620-3), docketed March 7, 2016
- r. Huntington Beach Energy Project's Revised Air Permit Application Documentation (TN# 210807), docketed March 22, 2016
- s. Petition to Amend Revised Air Quality and Public Health Assessment Sections (TN# 210969), docketed April 6, 2016
- t. Project Owner's Comments on the SCAQMD HBEP Preliminary Determination of Compliance (TN# 212278), docketed July 13, 2016
- u. Project Owner's Comments on the Preliminary Staff Assessment (TN# 212379), docketed July 21, 2016
- v. HBEP Data Responses Set 1-R2, Data Responses to A4-A6 (Air Quality) (TN# 212942), docketed August 25, 2016
- w. Data Responses, Set 1-R3 (TN# 213472), docketed September 1, 2016
- x. Determination of Compliance Revisions (TN# 214374), docketed November 4, 2016
- y. HBGS Units 3 and 4 Demolition Schedule (TN# 214577), docketed November 29, 2016
- z. Project Owner's Comments on the SCAQMD's Final Determination of Compliance (TN# 214709), docketed December 8, 2016
- aa. Project Owner's Opening Testimony (FSA Part 2) (TN# TBD), docketed December 12, 2016

4. It is my professional opinion that the information provided to the California Energy Commission related to the HBEP's Petition to Amend proceeding is valid and accurate with respect to the issues addressed herein.

5. I am personally familiar with the facts and conclusions related in the testimony presented by me and, if called as a witness, could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 12/12/16

Elyse Jay Engel
Elyse Engel

ATTACHMENT A

Elyse Joy Engel

Chemical Process Engineer 4

Education

B.S., Chemical Engineering, Massachusetts Institute of Technology (MIT), 2007

Professional Registrations

Engineer in Training, California

Distinguishing Qualifications

- Works efficiently with an eye for perfection
- Succeeds in leadership roles with a large degree of responsibility; collegiate roles include Executive Vice President of a sorority and President of MIT's Habitat for Humanity chapter
- Works well in a team environment, respecting the ideas of others while being vocal about alternatives

Relevant Experience

Ms. Engel is a chemical process engineer in the Environment & Nuclear Services Business Group, specializing in air quality. Ms. Engel works from CH2M's San Jose, California office. She is experienced in air quality compliance, including preparing greenhouse gas (GHG) emissions inventories, construction and operational air emissions estimates in support of California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) evaluations, air dispersion modeling, human health risk assessments, and risk management plans. She has more than 8 years of engineering experience and has taken graduate-level courses in Chemical Engineering and Air Pollution Chemistry.

Representative Projects and Dates of Involvement

Project Manager; Compliance Assistance; City of Vernon; 2008 to Present; Vernon, California

- Collected site data and prepared a GHG emissions inventory for the City of Vernon, including emissions from fleet vehicles, city offices and buildings, the power plant, and transmission lines. Performed emissions calculations according to the California Climate Action Registry (CCAR), The Climate Registry (TCR), the California Air Resources Board (ARB), and the U.S. Environmental Protection Agency (EPA) protocols. Provided verification assistance, which included site visits and communication with a third party verifier.
- Established a compliance calendar to capture the City of Vernon's air quality, industrial wastewater and storm water, hazardous materials, and GHG reporting requirements under various agencies. Managed a team, including CH2M and City of Vernon personnel, to implement the compliance calendar.
- Coordinated preparation and submittal of various compliance reports, including Quarterly Certification of Emissions Reports and Annual Permit Emissions Program Reports for the South Coast Air Quality Management District (SCAQMD).
- Prepared a Title V Permit Renewal Application for the City of Vernon, which was submitted to the SCAQMD.
- Researched developments to the ARB's Cap-and-Trade Program for relevance to the City of Vernon and provided assistance in preparing for the first allowance auction, held on November 14, 2012.

Elyse Joy Engel

Project Manager; Bay Area Clean Water Agencies (BACWA) Air Issues and Regulations (AIR) Committee; 2013 to 2016; Oakland, California

- Managed regulatory services to BACWA's AIR Committee, which includes several agencies which own and operate publicly-owned treatment works (POTWs) in the San Francisco Bay Area.
- Conducted bi-monthly meetings to inform member agencies of local, state, and federal air quality and climate change regulations and issues that may impact POTWs.
- Advocated on behalf of member agencies to the ARB, Bay Area Air Quality Management District (BAAQMD), and other regulatory agencies. Prepared a comment letter on behalf of member agencies to encourage the BAAQMD to consider cross-media regulatory issues in their proposed Climate Protection Strategy (e.g., nutrient removal's impact to GHG emissions and air toxics regulations that discourage the use of renewable biogas).

Project Manager; GHG Emissions Inventory; Sempra Generation; 2008 to Present; Arizona, California, and Mexico

- Collected site data and prepared GHG emissions inventories for 3 power generation facilities in western North America. Performed emissions calculations according to the CCAR, ARB, and TCR protocols. Provided verification assistance for two facilities, which included site visits and communication with a third party verifier.
- Managed other team members who assisted with this effort and interfaced with the client regarding project delivery.

Project Manager; Risk Management Plan Updates; Various Clients; 2010 to Present; California and Arizona

- Participated in Process Hazard Analyses or Hazard Reviews for chlorine and ammonia processes used for wastewater treatment and/or emissions control.
- Audited facilities' Risk Management Programs and Process Safety Management Programs to ensure compliance with the California Accidental Release Prevention Program and Occupational Safety and Health Administration regulations.
- Assisted facilities with the creation and/or update of Risk Management Programs and documents, including performing offsite consequence analyses.

Task Lead; Application for Certification (AFC) Preparation; AES; 2012 to Present; California

- Estimated short- and long-term emissions associated with repowering a natural gas-fired power plant using CalEEMod, an air dispersion model, and emission factors from EMFAC. Estimated air quality impacts associated with short- and long-term emissions using AERMOD, an air dispersion model. Revised results quickly to incorporate new data or methodology to meet an accelerated schedule.
- Drafted and revised the Air Quality and Public Health sections of the AFC and the accompanying appendices, including evaluations of applicable federal, state, and local air and GHG regulations.
- Interfaced with client and regulatory agencies during this effort to resolve disagreements surrounding appropriate mitigation, potentially significant impacts, methodology, etc.
- Led team members to complete tasks for multiple sites simultaneously with very truncated delivery schedules.

Task Lead; GHG Emissions Inventory; Confidential Client; 2008 to 2011; Nationwide

- In 2008 and 2009, prepared GHG emissions inventories for California-operated petroleum refineries of a major petroleum industry client. Performed emission calculations according to the CCAR and ARB protocols. Provided verification assistance for one facility, which included a site visit and communication with a third party verifier.
- In 2010 and 2011, prepared a template by which each refinery belonging to this nationwide company could estimate and report GHG emissions according to the EPA's Mandatory Reporting Regulation, documented in 40 Code of Federal Regulations Part 98. Hosted two training sessions, guiding refinery personnel through the process of entering emissions data electronically for EPA reporting.

Task Lead; CEQA and NEPA Evaluations; California Department of Transportation; 2014 to Present; California

- Estimated short- and long-term emissions associated with modification of existing interstates and roadways within California using CalEEMod and emission factors from EMFAC and/or CT-EMFAC.
- Completed regional-level and project-level conformity analyses, including qualitative evaluations of mobile source air toxics and particulate matter hot-spots.
- Performed carbon monoxide hot-spots analyses using the CALINE4 air dispersion model and emission factors from EMFAC.
- Drafted and revised Environmental Impact Statements and the accompanying technical reports, including evaluations of applicable federal, state, and local air and GHG regulations.

Team Member; CEQA and NEPA Evaluations; Various Clients; 2011 to Present; California

- Estimated short- and long-term emissions associated with various remediation and new construction projects using CalEEMod and emission factors from EMFAC. Revised model runs quickly to incorporate new data or methodology to meet an accelerated schedule. Interfaced with client and contractors during this effort to discuss proposed construction schedules and equipment lists.
- Drafted and revised Environmental Impact Statements and the accompanying technical appendices, including evaluations of applicable federal, state, and local air and GHG regulations. Completed a general conformity analysis for several of these projects.

Team Member; California High Speed Train; Federal Rail Authority; 2010 to 2014; California

- Estimated construction and operational emissions associated with the High Speed Train using URBEMIS2007, an air dispersion model, and emission factors from EMFAC. Updated model runs frequently and quickly to incorporate new data or methodology to meet an accelerated schedule. Interfaced with external CH2M project teams during this effort to discuss methodology and proposed construction schedules.
- Helped draft and review the Environmental Impact Report and accompanying Technical Report for the Merced to Fresno segment of the High Speed Train, which were both up to 200 pages in size. Completed a general conformity analysis for this project.
- Performed a microscale carbon monoxide analysis using EMFAC emission factors and CALINE4 to estimate emissions from a parking structure. Reviewed these analyses using the CAL3QHC air dispersion model.

Elyse Joy Engel

Team Member; Air Dispersion Modeling; Various Clients; 2008 to Present

- Performed air quality impact analysis using the Open Burn/Open Detonation (OB/OD) air dispersion model. Developed testing scenarios and technical options to adequately characterize the disposal of spent propellants, as well as the testing of rocket motors.
- Performed air quality impact analyses using AERMOD for a variety of power plant facilities. Evaluated results and provided peer review.
- Performed air quality impact analyses using the CALPUFF air dispersion model to evaluate the potential migration of chemical constituents from a variety of sources, including the testing of rocket motors, electricity generating units, and demolition.
- Performed human health risk assessments using the ARB HARP model. Identified air toxics, conducted emission calculations, and performed scenario modeling to determine the potential cancer, chronic, and acute risks to surrounding workers and residents.
- Prepared modeling protocols, to document modeling parameters and methodology, and modeling reports, to present the modeling results and conclusions.

Experience Prior to CH2M

Technical Intern; Development of Decontamination Wipes; Department of Defense and Department of Energy; 2006; Woburn, Massachusetts

- Supported the development of self-detoxifying decontamination wipes for military purposes by preparing formulations, running experiments, and analyzing samples using gas chromatography. Research focused on understanding room temperature oxidation of mustard gas, catalyzed by vanadium tri-isopropoxide oxide.

Technical Intern; Methods for Reduction of Titanium Oxide for Titanium Metals Corp.; Defense Advanced Research Projects Agency; 2005; Henderson, Nevada

- Conducted experiments studying electrolytic reduction of titanium dioxide into pure titanium metal. Examined variables affecting electrolytic reduction of metal oxides. Achievements include the successful scale-up of a 50-pound electrolytic cell to a 500-pound electrolytic cell for reduction.

Honors and Awards (CAN employees: Honours and Awards)

Received written, positive feedback from the City of Vernon regarding successful management of and commitment to quality for the Compliance Assistance Project.

Specialized Computer Skills

- AERMOD, modeling tool for air dispersion
- CALPUFF, modeling tool for air dispersion
- OBODM, modeling tool for air dispersion resulting from OB/OD activities
- HARP, modeling tool for health risk analyses
- URBEMIS2007, modeling tool for air dispersion resulting from construction activities
- CalEEMod, modeling tool for air dispersion resulting from construction activities
- SAC Roadway Construction Emissions Model, modeling tool for air dispersion resulting from linear construction activities

- CAL3QHC, modeling tool for air dispersion resulting from vehicle movement
- CALINE4, modeling tool for air dispersion resulting from vehicle movement
- EMFAC, tool used to develop emission factors for on-road vehicles
- ALOHA, modeling tool for air dispersion for performing offsite consequence analyses
- BASTE, modeling tool for fugitive emissions from wastewater treatment processes
- MATLAB (R2007b), computing language for algorithm development, data visualization, data analysis, and numeric computation
- ABACUSS II, modeling tool and simulator for chemical processes
- AspenPlus, modeling tool for chemical process design, optimization, and performance

Professional Development

Graduate coursework completed in Chemical Engineering, University of Texas at Austin; 2007. Topics included Advanced Analysis for Chemical Engineers, Fluid Flow and Heat Transfer, and Air Pollution Chemistry.

Languages

Spanish (travelers' basics)

Additional Training

40-hour Hazardous Waste, January 2016

Supplemental Information

Years Experience Prior to CH2M: 2

CH2M Hire Date: February 18, 2008

Employment History

Entropic Systems, Inc., Technical Intern, 2006, detailed experience is described in the above section titled Experience Prior to CH2M.

Titanium Metals Corp., Technical Intern, 2005, detailed experience is described in the above section titled Experience Prior to CH2M.