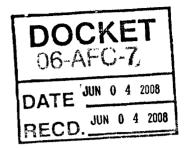


Plaza Towers
555 Capitol Avenue Suite 600
Sacramento CA 95814
Tel • 916.441.6575
Fax • 916.441.6553



June 4, 2008

Ms. Angela Hockaday Dockets Unit California Energy Commission 1516 9<sup>th</sup> Street Sacramento, CA 95814

SUBJECT: PG&E'S TESTIMONY FOR THE

**HUMBOLDT BAY REPOWERING PROJECT** 

DOCKET NO. (06-AFC-7)

Dear Ms. Hockaday:

Enclosed for filing with the California Energy Commission are one (1) original and twelve (12) copies of **Pacific Gas & Electric Company's (PG&E) Testimony**, for the Humboldt Bay Repowering Project (06-AFC-7).

Sincerely,

Marguerite Cosens

**Administrative Assistant** 

GalatiBlek

# BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE HUMBOLDT BAY REPOWERING PROJECT BY PACIFIC GAS AND ELECTRIC COMPANY

Docket No. 06-AFC-7 PROOF OF SERVICE (Revised 3/21/2008)

INSTRUCTIONS: All parties shall 1) send an original signed document plus 12 copies <u>OR</u> 2) mail one original signed copy AND e-mail the document to the web address below, AND 3) all parties shall also send a printed <u>OR</u> electronic copy of the documents that <u>shall include a proof of service declaration</u> to each of the individuals on the proof of service:

CALIFORNIA ENERGY COMMISSION Attn: Docket No. 06-AFC-07 1516 Ninth Street, MS-4 Sacramento, CA 95814-5512 docket@energy.state.ca.us

#### **APPLICANT**

Jon Maring
PGE
245 Market Street
San Francisco, CA 94105
J8m4@pge.com

#### <u>APPLICANT'S CONSULTANTS</u>

Gregory Lamberg
Project Manager,
Radback Energy
P.O. Box 1690
Danville, CA 94526
Greg.Lamberg@Radback.com

Douglas M. Davy, Ph.D. CH2M HILL Project Manager 2485 Natomas Park Drive, Suite 600 Sacramento, CA 95833 ddavy@ch2m.com Susan Strachan Environmental Manager Strachan Consulting P.O. Box 1049 Davis, CA 95617 strachan@dcn.org

#### COUNSEL FOR APPLICANT

Scott Galati, Project Attorney GALATI & BLEK, LLP 555 Capitol Mall, Suite 600 Sacramento, CA 95814 sgalati@gb-llp.com

#### INTERESTED AGENCIES

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

Paul Didsayabutra
Ca. Independent System Operator
151 Blue Ravine Road
Folsom, CA 95630
PDidsayabutra@caiso.com

Electricity Oversight Board 770 L Street, Suite 1250 Sacramento, CA 95814 esaltmarsh@eob.ca.gov

### **INTERVENORS**

## **ENERGY COMMISSION**

JEFFREY D. BYRON Commissioner and Presiding Member jbyron@energy.state.ca.us

KAREN DOUGLAS
Commissioner and Associate Merriber kldougla@energy.state.ca.us

Gary Fay Hearing Officer gfay@energy.state.ca.us

John Kessler Project Manager <u>ikessler@energy.state.ca.us</u>

Lisa DeCarlo Staff Counsel Idecarlo@energy.state.ca.us

Mike Monasmith
Public Adviser's Office
pao@energy.state.ca.us

## **DECLARATION OF SERVICE**

I, Marguerite Cosens, declare that on June 4, 2008, I deposited copies of the attached **Pacific Gas & Electric Company's Testimony** in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

#### OR

Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.

Marguerite Cosens



## **Project Description**

#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 06-AFC-7

Application For Certification for the Humboldt Bay Repowering Project

DECLARATION OF GREG LAMBERG

## I, Greg Lamberg, declare as follows:

- 1. I am presently employed by Radback Energy, as a Senior Vice President. I have been retained by PG&E to act as Project Manager for the permitting effort.
- 2. A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Project Description for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Contra Costa County, CA on June 3, 2008.

I. <u>Name</u>: Greg Lamberg

### II. Purpose:

My testimony addresses the subject of Project Description and need for the construction and operation of the Humboldt Bay Repowering Project (HBRP).

## III. Qualifications:

I am presently employed at Radback Energy for the past ten months and am presently a Senior Vice President with that organization. At time of filing the AFC I was employed by PG&E and PG&E retained my services to complete the permitting process once I joined Radback Energy. I have a Degree in Mechanical Engineering from the Rochester Institute of Technology and I have 19 years of experience in the power industry. I supervised the preparation of the Project Description section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

#### IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

- **Exhibit 1** Humboldt Bay Repowering Project AFC, Sections 1.0, 2.0, 3.0, 4.0, 6.0 and 7.0 and Appendices 1, 6, and 7
- Exhibit 13 Submittal of Pacific Gas and Electric Responses to Staff Data Requests, Data Responses 58 through 78 and
- Exhibit 21 Redwood Coast Energy Authority Support Letter for the Humboldt Bay Repowering Project, dated April 11, 2007
- Exhibit 24 Revised Humboldt Bay Power Plant Activities, dated May 4, 2007
- Exhibit 29 CDP Application #E-07-005 for Proposed Offices and Parking at Humboldt, dated October 12, 2007

Exhibit 34 Letter from Coastal Commission Regarding Review of Projects Subject to the Application for Certification,

dated October 16, 2007

Exhibit 40 Letter Regarding CDP #E07-005 for the SDPP, dated

November 11, 2007

Exhibit 44 Pacific Gas and Electric Pipeline Removal Project, dated

December 12, 2007

### V. <u>Testimony</u>

#### PROJECT OVERVIEW

PG&E proposes to construct, own, and operate a state-of-the-art, highly efficient and environmentally responsible electrical generating plant in Humboldt County, California at the site of PG&E's existing Humboldt Bay Power Plant. The Humboldt Bay Repowering Project (HBRP) project will be a natural gas-fired, reciprocating engine, electrical generating facility. The project will also be capable of running on liquid fuels (CARB Diesel) so it can assure local area reliability during instances of CPUC-required natural gas curtailment or unforeseen emergencies in the region. The project is proposed to be located within a 143-acre site at 1000 King Salmon Way, Eureka, California and will be sited within the boundaries of PG&E's existing Humboldt Bay Power Plant complex. PG&E filed for approval with the California Public Utilities Commission on April 11, 2006. The CPUC approval was received in December 2006.

The existing plant is 50 years old and is nearing the end of its useful life. It consists of three electrical generating elements: (1) a 105 MW natural gas- and oil-fired power plant consisting of two steam turbine-generators (Units 1 and 2) with capacities of 52 and 53 megawatts, and which began operation in 1956 and 1958 respectively; (2) a currently inoperable 63 MW nuclear-powered boiling water reactor generating unit (Unit 3); and (3) two mobile emergency power plant (MEPP) backup and peaking units of 15 MW each. The MEPPs run on liquid fuel only. Units 1 and 2 provide much of the electrical power for Humboldt County and northwestern California. Unit 3 has not operated since 1976. The MEPPs operate as backup units when either Unit 1 or 2 is out of operation for maintenance and also at times during the winter peak load period. The new power plant project is a repowering of the existing fossil-fired units (Units 1 and 2, and the MEPPs). The new plant will consist of ten Wärtsilä 18V50DF 16 MW dual-fuel reciprocating engine-generators for a total repowering capacity of 163 MW. Units 1 and 2 will cease operation after the new power plant has been commissioned. The new plant will only run on liquid fuel in the event of a natural gas curtailment or interruption in supply to assure local area electric reliability. PG&E will not operate on liquid fuels under economic dispatch conditions.

#### NEED FOR CONSTRUCTION TO BEGIN

It is critical that the HBRP receive its license as soon as feasible to allow construction during the dry season of 2008. The Section 404 permit requires certain activities to take place prior to construction during the wet season. Construction must begin during 2008 so that the HBRP can be in place to serve the 2010 peak and the many environmental improvements associated with replacing the existing facility can be realized. The environmental benefits directly associated with the construction and operation of the HBRP include:

- Enabling the shutdown of Units 1 and 2 and the Mobile Emergency Power Plants (MEPPS) which fire on oil fuel during emergencies, breakdowns and curtailments (the use of the MEPPS has been steadily increasing due to forced outages on units 1 and 2 which have been operating for over 50 years and are at the end of their useful life)
- Reducing NOx emissions by an average of over 25 tons per month (net of offsets)
- Reducing CO2 emissions by over 30%
- Reducing the use of ocean water for cooling by almost 2 billion gallons per month
- Making, additional natural gas capacity available for residential and other uses during times when the natural gas system is constrained, due to the superior efficiency of the HBRP units, thereby decreasing the frequency of gas curtailments in the region
- Provide a lower profile, more aesthetically pleasing design when compared to the existing plant
- Utilize an existing industrial site that is ideally suited for power generation, elirninating the need for offsite linear features
- Creating new high quality wetlands

In addition to the many environmental benefits to the region, it is critical to bring the HBRP on line as soon as possible because the existing Units 1 and 2 and the MEPPS are old and require ongoing substantial maintenance just to keep running. The Humboldt area depends almost entirely on the existing units for grid reliability, stability and the primary source of energy. While PG&E is cornmitted to supply power to the Humboldt area, the new facility will increase reliability, will require fewer outages for maintenance and will decrease the curtailments of natural gas to residential customers, thereby helping PG&E to fulfill its commitment.

#### **ACTIVITIES NOT PART OF THE HBRP**

There are several activities on the Humboldt Bay Power Plant site that are not part of the HBRP, but about which PG&E wanted to inform the Committee.

#### ISFISI

On April 4, 2007, PG&E commenced construction on its Independent Spent Fuel Storage Installation (ISFISI) Project. The ISFISI is an underground facility,

which will provide long-term, safe storage of the spent fuel rods currently stored within PG&E's retired nuclear unit (Unit 3).

## 115kV Transmission Tower

The existing115 kV Transmission Tower and associated gas circuit breaker which deliver power from the Mobile Emergency Power Plants (MEPPS) was denergized and removed in order to remove an unsafe condition that was identified relating to the disconnect switch on the MEPPS units. To eliminate this unsafe condition, the interconnection from the MEPPs to the transmission tower off site was reconfigured. This work was performed during the spring of 2008 in accordance with a scheduled MEPPS outage and was wholly unrelated to the HBRP. In order to facilitate the modification to the MEPPs interconnection to the 115 kV system, the Humboldt Bay Power Plant placed a temporary transformer and associated foundation near the MEPPs Units. This work was also performed during the spring of 2008 and is wholly unrelated to the HBRP. With the elimination of the 115 kV tower the 115 kV system needed two additional transmission towers and a dead end structure located outside the boundary of the Humboldt Bay Power Plant. The work was performed during the spring of 2008 and is wholly unrelated to the HBRP.

## <u>Demolition of Evaporation Ponds and Construction of Trailers</u>

There were two existing evaporation ponds located in the northwest portion of the Humboldt Bay Power Plant, outside the footprint of the new HBRP. These ponds were inactive and were no longer needed for operation of the Humboldt Bay Power Plant. The ponds were removed and the area was graded to support construction of new modular office trailers including utilities. In addition, 12kV primary power was extended to the area for the new office trailers. The existing Humboldt Bay Power Plant needed this additional office space to support staff necessary for Humboldt Bay Power Plant decornmissioning and special projects. This work is not part of the HBRP as it is outside the footprint and will support ongoing activities at the Humboldt Bay Power Plant. This work was authorized by permit through the California Coastal Commission, the County of Humboldt, and the North Coast Air Quality Management District.

#### **Demolition of Unit 3**

The demolition of the nuclear facility, Unit 3, is not part of the HBRP. It is subject to regulation by the Nuclear Regulatory Commission and its demolition is not necessary to construct or operate any portion of the HBRP. The demolition of Unit 3 is also not a consequence of the HBRP project and is entirely separate from it in both a regulatory and administrative sense. It is expected that the HBRP will be in operation at the time that demolition of Unit 3 begins, but the final schedule for Unit 3 demolition is not certain at this time.

#### Demolition of Units 1 and 2

Construction of the HBRP will directly result in the cessation of operation and surrendering the air permits for Units 1 and 2 and the MEPPs. However, the

HBRP will not directly result in the demolition of any of the structures and associated equipment that comprises Units 1 and 2 for the following reasons:

- Demolition of the structures and associated equipment is not necessary to construct the HBRP. In fact, Units 1 and 2 and the MEPPs need to be fully operational to serve the Humboldt load until the HBRP is constructed, commissioned, and fully operational.
- Some of the Unit 1 and 2 infrastructure is shared by Unit 3 and cannot be removed without approval of the decommissioning plans for Unit 3.
- The demolition of Units 1 and 2 has an identified separate and distinct source of funding approved by the CPUC in a separate proceeding from the current CPUC proceeding for HBRP under the Long-Term Request for Offers (LTRFO) process.

It is foreseeable that the structures and associated equipment of the Hurnboldt Bay Power Plant will eventually be demolished after the HBRP is constructed and operating. However, due to the speculative timing of demolition, the AFC environmental sections evaluated the potential effects of demolition in the Cumulative Impact sections of Chapter 8 in a general way as a future foreseeable project. The potential effects of cessation of operations of Units 1 and 2 and the MEPPs are evaluated as direct consequences of the HBRP.

## Gregory A. Lamberg

#### **Professional Outline**

Outstanding record of progressively challenging positions and accomplishments in marketing, sales, account management, business development, acquisitions and finance, project management and project development. Graduate of the General Electric Technical Sales Training Program.

#### Experience

September 2007 - Present: RadBack Energy Inc.

Senior Vice President and Managing Director, responsible for developing gas fired, renewable and other energy projects for utility, municipal, and private interests.

November 2005 - September 2007: Pacific Gas & Electric Co.

Manager, Project Development, responsible for negotiating the EPC contract and managing all project development and permitting activities for a new 165 mw dual fuel, reciprocating engine re-powering project. Project is within the California coastal zone and on a site regulated by the Nuclear Regulatory Commission. Authored and supported testimony as part of the CPUC filing to get the project approved. Managing all development and community outreach efforts for two emerging technology wave energy projects off of California's North Coast.

March 2005 - November 2005: RealEnergy, LLC

**Vice President, Business Development and Finance** responsible for helping to develop the business plan for this start-up company and manage the initial equity raise. Post opening, responsibilities included business development and structuring for small cogeneration and biofuels projects in the 500 kw to 5 mw range. Closed one 500kw project and created a considerable pipeline of viable opportunities.

March 2004 - March 2005: Marathon Capital, LLC

Vice President, responsible for new business in the Western United States. Reporting to the Managing Director responsible for origination, responsibilities included identification and securitization of opportunities to provide financial advisory and investment banking services to power industry clients. Primary focus was renewable energy. Acted as lead banker on the divestiture of a 30 mw gas fired facility in the Pacific Northwest and created a significant portfolio of wind, solar, and geothermal opportunities.

Sept. 1995 - March 2003: Calpine/Walsh Construction

July 2002 - March 2004: Calpine Power Services

**Director, Business Development** responsible for new business development for Calpine Power Services – a new business initiative for Calpine. Responsibilities included identification of service opportunities, relationship development and management, bid/proposal preparation, contract negotiations and deal closure. Accomplishments included the closure of 8 different services contracts totaling over \$60 million.

#### November 1998 - July 2002: Calpine Corporation - Western Region

**Director Business Development,** responsible for growing Calpine's generating portfolio through acquisitions and green field development. Lead multidisciplinary due-diligence teams in evaluating acquisitions and in developing new sites. Responsible for site control, electrical and gas interconnect studies, water infrastructure arrangements, community and government relations, permitting and assisting in the financing process. Accomplishments include: Project Coordinator on Calpine's strategic acquisition of the Geysers Geothermal Plants, Transaction lead for the acquisition of the 750mW Pastoria Energy Facility, and Development and Project Management of the 810 mw Inland Empire Energy Center. The Inland Empire Energy Center is the first North American installation of General Electric's state-of-the-art "H" technology platform.

#### September 1995 - November 1998: Walsh Construction Company

**Director, Business Development** responsible for developing and securing lump sum, tumkey engineering, procurement and construction (EPC) contracts, creating project specific joint ventures, cultivating key clients, identification and screening of opportunities, performing due diligence, leading contract negotiations and getting Walsh positioned to bid on projects ranging from \$3 million to \$200 million. Secured a turnkey contract for the installation of 4 x GE LM6000's.

#### May 1993 - September 1995: EBASCO Constructors

**Business Development Manager** responsible for the development and implementation of marketing and sales strategies for international lump sum, tumkey engineering, procurement and construction (EPC) services. Responsibilities included power project due diligence, definition of scope of services, overseeing proposal preparation, negotiation of contract terms and conditions on projects ranging from \$50 million. Secured an order for a 400 mw combined cycle project in Indonesia.

#### June 1989 - May 1993: GE Industrial and Power Systems

**1991-1993:** Turbine Sales Engineer for the greater New York Metropolitan Area. Developed and lead sales strategies, promoted new GE technologies and served as a consultant to GE customers in the early stages of projects. Named GE Industrial Sales Division Turbine Sales Engineer of the Year in 1992 after securing 5 key orders that year for a total of 16 turbines.

**1989 - 1991: Technical Sales Program -** various assignments in selected departments while receiving formal technical sales and marketing instruction through GE's Corporate Training Center.

#### Education

Rochester Institute of Technology, BS in Mechanical Engineering 1989 Honors: Pi Tau Sigma, Gleason Scholar, Dean's List (7 times)

#### Personal

Happily Married. Eagle Scout. Outside interests include fine wines, golf, hiking, cycling and music.



#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

**DOCKET NO. 06-AFC-7** 

Application For Certification for the Humboldt Bay Repowering Project DECLARATION OF GARY RUBENSTEIN

- I, Gary Rubenstein, declare as follows:
  - 1. I am presently employed by Sierra Research, as a Senior Partner.
  - A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
  - 3. I prepared the attached testimony relating to Air Quality for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
  - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
  - I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on June 3, 2008.

Coary Redunt

I. <u>Name</u>: Gary Rubenstein

## II. Purpose:

My testimony addresses the subject of Air Quality associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

## III. Qualifications:

I am presently employed at Sierra Research, and have been for the past 27 years and am presently a Senior Partner with that organization. I have a Bachelor of Science Degree in Engineering and I have over 35 years of experience in the field of air pollution research and control. I prepared the Air Quality section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

#### IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

Exhibit 1	Humboldt Bay Repowering Project AFC, Sections 8.1 and
	8.9, and Appendices 8.1 and 8.9

- Exhibit 2 Application for Determination of Compliance
- Exhibit 3 Request by North Coast Unified Air Quality Management District fulfilled by Sierra Research, dated October 13, 2006
- Exhibit 5 Cumulative Impacts Analysis Letter to Nancy Matthews, dated November 9, 2006
- Exhibit 6 Web Team, Nancy Matthews Responses to Air Resources Board Questions, dated January 11, 2007
- **Exhibit 7** Data Responses Set 1, Data Responses 1 through 18.
- Exhibit 9 Responses to Questions from Simona Altman by Nancy Matthews, dated January 17, 2007

Exhibit 10	Sierra Research's Responses to Emission Calculations from Nancy Matthews, dated January 18, 2007.
Exhibit 12	Additional Responses to Questions from Simona Altman of the Air Resources Board by Nancy Matthews of Sierra Research, dated February 2, 2007
Exhibit 13	Submittal of Pacific Gas and Electric Responses to Staff Data Requests, Workshop Queries 1 through 6
Exhibit 14	Response to Air Quality Workshop Query 1, dated March 2, 2007
Exhibit 15	Wartsila Emission Factor Guarantees for the Humboldt Bay Repowering Project, dated March 14, 2007
Exhibit 16	CH2M Hill Responses to Data Requests, Workshop Queries 5 and 6 and Data Request 79, dated March 16, 2008
Exhibit 17	Pacific Gas and Electric Responses to Workshop Queries, Workshop Queries 23 through 27, dated March 2007
Exhibit 18	Pacific Gas and Electric Responses to Workshop Queries and Data Requests, Workshop Query 3 and Data Request 11, dated March 30, 2007
Exhibit 19	Pacific Gas and Electric Revisions to the Air Quality Analysis Baseline Period and Emission Reduction Credits, dated April 4, 2007
Exhibit 20	Warsila Memo Confirming the Emission Values Contained in the AFC, April 11, 2007
Exhibit 22	Letter Report on Air Quality Modeling Methodology for the Humboldt Bay Repowering Project, Prepared by D. Bruce Turner, Trinity Consultants, dated April 18, 2007
Exhibit 27	Letter in Response to July 5, 2007 letter to Greg Lamberg/Pacific Gas and Electric Regarding Revised Modeling Protocol Submitted June 13. 2007, dated July 17, 2007
Exhibit 28	Modeling Protocol, Revised July 17, 2007
Exhibit 30	Memo Regarding PM Control Efficiency of Diesel Oxidation Catalysts, dated August 30, 2007
Exhibit 31	Revised Air Quality AnalysisSection 8.1A through 8.1G, dated September 12, 2007
Exhibit 32	Supplement to address Revised Air Quality Modeling and Increased Stack Height, dated September 28, 2007

Exhibit 33 Preliminary Determination of Compliance Permit to Construct Evaluation, dated October 15, 2007 Exhibit 35 Preliminary Determination of Compliance, dated October 22, 2007 Exhibit 36 Responses to CEC Staff Data Requests, Data Request 86 through 100, dated November 1, 2007 Exhibit 37 Applicant's Response to CEC Staff Data Request 100, dated November 2, 2007 Pacific Gas and Electric Comments on the Humboldt Exhibit 43 Bay Repowering Project Preliminary Determination of Compliance, dated November 20, 2007 Exhibit 45 Pacific Gas and Electric Company's Supplemental comments on the Preliminary Staff Assessment, Air Quality comments, dated January 2, 2007 Final Determination of Compliance Engineering Exhibit 51 Evaluation Package, dated March 31, 2008 Exhibit 52 Title V Federal Operating Permit North Coast Unified Air Quality Management District Permit to Operate and Final **Determination of Compliance**, dated April 14, 2008

## IV. Opinion and Conclusions

I have reviewed the Air Quality sections of the Final Staff Assessment and agree that with incorporation of the Conditions of Certification, as modified by the Joint Stipulation of the parties executed on June 1, 2008, the HBRP will not result in significant air quality impacts and will comply with all air quality related laws, ordinances, regulations and standards (LORS).

#### Résumé

### Gary S. Rubenstein



1801 J Street Sacramento, CA 95811 Tel: (916) 444-6666 Fax: (916) 444-8373

Ann Arbor, MI Tel: (734) 761-6666 Fax: (734) 761-6755

## **Education**

1973, B.S., Engineering, California Institute of Technology

## **Professional Experience**

8/81 to present

Senior Partner Sierra Research

As one of the founding partners of Sierra Research, responsibilities include project management and technical and strategy analysis in all aspects of air quality planning and strategy development; project licensing and impact analysis; emission control system design and evaluation; rulemaking development and analysis; vehicle inspection and maintenance program design and analysis; and automotive emission control design, from the initial design of control systems to the development of methods to assess their performance in customer service. As the Partner principally responsible for Sierra Research's activities related to stationary sources, he has supervised the preparation of control technology assessments, environmental impact reports and permit applications for numerous industrial and other development projects, including over 17,000 megawatts of electrical generating capacity, throughout the United States.

While with Sierra, Mr. Rubenstein has managed and worked on numerous projects, including preparation of nonattainment plans; preparation and review of emission inventories and control strategies; preparation of the air quality portions of environmental review documents for controversial transportation, energy, mineral industry and landfill projects; preparation of screening health risk assessments and supporting analyses; and the development of air quality mitigation programs. Mr. Rubenstein has managed the preparation of air quality licensing applications for over 13,000 megawatts of generating capacity before the California Energy Commission, and has managed air quality analyses for over 21,000 megawatts of generating capacity in a variety of jurisdictions.

Mr. Rubenstein has presented testimony and served as a technical expert witness before numerous state and local regulatory agencies, including the U.S. Environmental Protection Agency, California State Legislative Committees, the California Air Resources Board, the California Energy Commission, the California Public Utilities Commission, numerous California air pollution control districts, the Connecticut Department of Environmental Protection, the Hawaii Department of Health, and the

Alabama Department of Environmental Management. Mr. Rubenstein has also served as a technical expert on behalf of the California Attorney General and Alaska Department of Law, and has provided expert witness testimony in a variety of administrative and judicial proceedings.

6/79 to 7/81 Deputy Executive Officer
California Air Resources Board

Responsibilities included policy management and oversight of the technical work of ARB divisions employing over 200 professional engineers and specialists; final review of technical reports and correspondence prepared by all ARB divisions prior to publication, covering such diverse areas as motor vehicle emission standards and test procedures, motor vehicle inspection and maintenance, and air pollution control techniques for sources such as oil refineries, power plants, gasoline service stations and dry cleaners; review of program budget and planning efforts of all technical divisions at ARB; policy-level negotiations with officials from other government agencies and private industry regarding technical, legal, and legislative issues before the Board; representing the California Air Resources Board in public meetings and hearings before the California State Legislature, the California Energy Commission, the California Public Utilities Commission, the Environmental Protection Agency, numerous local government agencies, and the news media on a broad range of technical and policy issues; and assisting in the supervision of over 500 full-time employees through the use of standard principles of personnel management and motivation, organization, and problem solving.

7/78 – 7/79 Chief, Energy Project Evaluation Branch Stationary Source Control Division California Air Resources Board

Responsibilities included supervision of ten professional engineers and specialists, including the use of personnel management and motivation techniques; preparation of a major overhaul of ARB's industrial source siting policy; conduct of negotiations with local officials and project proponents on requirements and conditions for siting such diverse projects as offshore oil production platforms, coal-fired power plants, marine terminal facilities, and almond-hull burning boilers.

During this period, Mr. Rubenstein was responsible for the successful negotiation of California's first air pollution permit agreements governing a liquefied natural gas terminal, coal-fired power plant, and several offshore oil production facilities.

-2-

10/73 to 7/78

Staff Engineer Vehicle Emissions Control Division California Air Resources Board

Responsibilities included design and execution of test programs to evaluate the deterioration of emissions on new and low-mileage vehicles; detailed analysis of the effect of California emission standards on model availability and fuel economy; analysis of proposed federal emission control regulations and California legislation; evaluation of the cost-effectiveness of vehicle emission control strategies; evaluation of vehicle inspection and maintenance programs, and preparation of associated legislation, regulations and budgets; and preparation of detailed legal and technical regulations regarding all aspects of motor vehicle pollution control. Further duties included preparation and presentation of testimony before the California Legislature and the U.S. Environmental Protection Agency; preparation of division and project budgets; and creation and supervision of the Special Projects Section, a small group of highly trained and motivated individuals responsible for policy proposals and support in both technical and administrative areas (May 1976 to July 1978).

## Credentials and Memberships

Air & Waste Management Association (Member, Board of Directors, Golden West Section; Member, Board of Directors, Mother Lode Chapter)

American Society of Mechanical Engineers

Qualified Environmental Professional, Institute of Professional Environmental Practice, 1994



#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

**DOCKET NO. 06-AFC-7** 

Application For Certification for the Humboldt Bay Repowering Project DECLARATION OF SUSAN STRACHAN

- I, Susan Strachan, declare as follows:
  - I am the owner of Strachan Consulting and have been retained by PG&E to be the permitting and compliance manager for the project.
  - A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
  - I prepared the attached testimony relating to Alternatives for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
  - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
  - I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Davis, CA on June 3, 2008.

#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 06-AFC-7

Application For Certification for the Humboldt Bay Repowering Project **DECLARATION OF DOUGLAS DAVY** 

## I. Douglas Davy, declare as follows:

- I am employed by CH2M HILL as a Program Manager and have been retained by PG&E to be the AFC Project Manager for the project.
- A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
- I prepared the attached testimony relating to Alternatives for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
- It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on June 3, 2008.

- No ho thy

I. Name:

Susan Strachan Douglas Davy

#### II. Purpose:

Our testimony addresses the subject of Alternatives for the construction and operation of the Humboldt Bay Repowering Project (HBRP).

## III. Qualifications:

#### Susan Strachan

I am the owner of Strachan Consulting am presently engaged by PG&E to assist and supervise the permitting and compliance of the HBRP. I have a Degree in Political Science and I have 18 years of experience in environmental project management and compliance. I assisted in the preparation of the Alternatives section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

#### **Douglas Davy**

I am presently employed at CH2M HILL for the past 4 years and am presently a Program Manager with that organization. I have a Degree in Anthropology and I have 24 years of experience in environmental siting, licensing, and permitting. I assisted in the preparation of the Alternatives section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

#### IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

Exhibit 1 Humboldt Bay Repowering Project AFC, Section 9.0

Exhibit 13 Submittal of Pacific Gas and Electric Responses to Staff Data Requests, Data Response 58

## V. <u>Testimony</u>

We have reviewed the FSA and agree with the conclusion that there are no environmentally preferable alternatives to the HBRP.

## SUSAN STRACHAN

Susan Strachan has 20 years of project management experience in the permitting and compliance activities associated with large industrial projects. She has extensive experience managing the environmental permitting of power plant, transmission, and pipeline projects. Her experience includes preparing permit applications and other project environmental documentation, negotiating permit conditions and other project related issues with regulatory agencies, conducting public outreach, developing compliance plans, and managing compliance activities.

# PROFESSIONAL HISTORY

Strachan Consulting

Principal, June 1998-Present

Sacramento Municipal Utility District

Mgr., Project Permitting and Licensing - March 1992-May 1998

Assemblymember Lloyd Connelly Senior Assistant - 1990 to 1992

Santa Barbara County
Hazardous Materials Section Manager - 1987 to 1990
Environmental Planner 1985 to 1987

# PROFESSIONAL EXPERIENCE

Pacific Gas & Electric – Ms. Strachan is currently serving as Environmental Project Manager for the Humboldt Bay Repowering Project (HBRP). The HBRP is a 163 MW power plant located in Humboldt Co. Her responsibilities include: overseeing the preparation of the application to the California Energy Commission (CEC); responding to Data Requests; interfacing with the regulatory agencies, reviewing the Preliminary and Final Staff Assessments; preparing for and participating in Evidentiary Hearings; and managing compliance activities.

Turlock Irrigation District – Ms. Strachan provided Environmental Project Management Services to the Turlock Irrigation District for its Walnut Energy Center, a 250 MW power plant, located in Stanislaus Co. (2002). Her responsibilities included: assisting in site selection, overseeing the preparation of the application to the CEC; participating in public outreach activities; responding to Data Requests; interfacing with the regulatory agencies, reviewing the Preliminary and Final Staff Assessments; and preparing for and participating in Evidentiary Hearings.

Resume of Susan Strachan Page 1

Ms. Strachan also served as Environmental Compliance Manager for the Walnut Energy Center Project. Her responsibilities included: ensuring compliance with all environmental regulatory requirements; managing the activities of the environmental monitors; and maintaining communication with the environmental regulatory agencies.

Modesto Irrigation District - Ms. Strachan provided Environmental Project Management services to the Modesto Irrigation District for the Woodland 2 Generation Station, an 80 MW combined cycle power plan, located in San Joaquin Co., 2001). She also prepared CEC amendments for the Woodland 2 project (2002). Ms. Strachan also managed the permitting of the Modesto Irrigation District Electric Generation Station Ripon project, a 95 MW simple-cycle power plant, located in San Joaquin Co. (2003). Her responsibilities included: managing the preparation of the application, providing project coordination with regulatory agencies, and resolving issues/concerns of the agencies.

**Calpine Corporation** – Ms. Strachan served as the Environmental Project Manager for several natural gas-fired power plants developed by Calpine Corporation. These include the following:

- Delta Energy Center Contra Costa Co., 1998
- King City LM600 Project Montercy Co., 2001
- Gilroy City Phase I LM6000 Project Santa Clara Co., 2001
- East Altamont Energy Center Alameda Co., 2001

Her responsibilities included obtaining the CEC licenses for the projects and obtaining permits from other regulatory agencies such as the U.S. Fish and Wildlife Service, California Department of Fish and Game, State Lands Commission and U.S. Bureau of Reclamation. She has also provided permitting assistance to Calpine on its Sutter and Metcalf Energy Center projects.

Calpine Corporation – Compliance Ms. Strachan also assisted Calpine Corporation in compliance activities associated with projects licensed before the CEC. Her activities have included the preparation of several amendments to the project licenses for the Delta Energy Center and Los Medanos Energy Center (Contra Costa Co., 1999)

**Calpine Corporation – Due Diligence** Ms. Strachan conducted the environmental due diligence investigation for Calpine's

Resume of Susan Strachan Page 2

acquisition of the Los Medanos Energy Center (1999) and Otay Mesa projects (San Diego Co., 2000)

**Sacramento Municipal Utility District** Ms. Strachan served as the Manager, Project Permitting and Licensing, responsible for overseeing permitting activities before the California Energy Commission (CEC) for the following projects:

- Sacramento Cogeneration Authority at Procter & Gamble Sacramento, Co., 1993
- Sacramento Power Authority at Campbell Soup Sacramento Co., 1993
- Carson Ice-Gen Sacramento Co., 1992
- SEPCO Sacramento Co., 1993
- SMUD Cogeneration Pipeline Sacramento Co., and Yolo Co., 1993

In this position, Ms. Strachan worked closely with the CEC while the projects moved through the licensing process. Her responsibilities included preparation of the Applications for Certification, responding to data requests, negotiating permit conditions, working with members of the public, and participating in hearings.

Ms. Strachan was also responsible for acquiring permits from other agencies including the Sacramento Metropolitan Air Quality Management District, Regional Water Quality Control Board, U.S. Fish and Wildlife Service, and Army Corps of Engineers.

Construction Compliance As project manager for Sacramento Power Authority at Campbell Soup project, Ms. Strachan managed the compliance activities associated with the CEC's conditions of certification for the project. This included interface with the CEC during construction of the project, preparation of submittals to the CEC in compliance with permit conditions, and preparation of amendments for proposed changes to conditions of certification. Ms. Strachan was also responsible for responding to and addressing local community concerns associated with the project.

Cosumnes Power Plant – Ms. Strachan provided environmental project management support/advice to SMUD for the CEC licensing of the Cosumnes Power Plant project, located in Sacramento Co. (2002).

**EDUCATION** 

B.A., Political Science, University of California, Santa Barbara

Resume of Susan Strachan Page 3

# Douglas Davy, Ph.D.

# **Project Manager**

## Education

Ph.D., Archaeology, Southern Illinois University M.A., Anthropology, Southern Illinois University B.A., Anthropology, University of California

## Relevant Experience

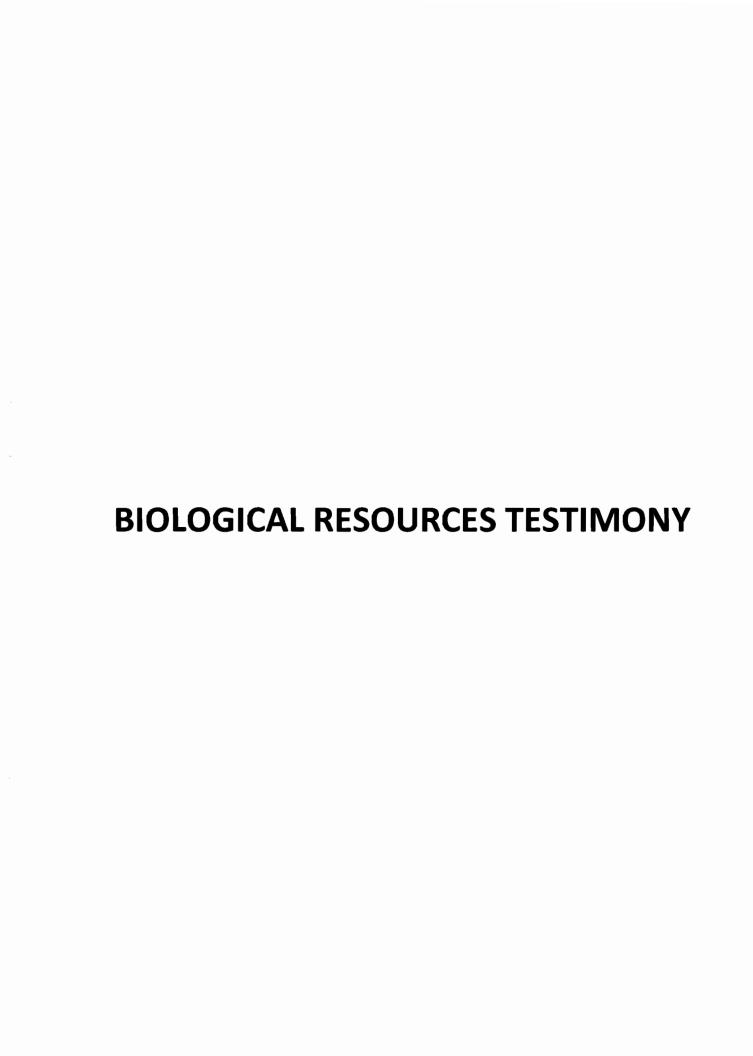
Dr. Davy has 24 years of experience providing regulatory compliance and project management support for infrastructure development projects. He has served as project manager for numerous environmental licensing and permitting projects, directing multidisciplinary teams of planners, engineers, and scientists in helping to resolve complex environmental regulatory issues. Dr. Davy has served as project manager for ten Applications for Certification (AFCs). His California Energy Commission (CEC) licensing experience includes project management on seven 12-month AFCs, two 6-month AFCs, one relicense and combined-cycle conversion AFC, several AFC and permit amendments, and three emergency peaker applications. Dr. Davy has also prepared critical project development and permitting reviews for more than 15 prospective power plant development sites in California.

## Representative Projects

- Project Manager, Humboldt Bay Repowering Project AFC, Pacific Gas and Electric Company, Eureka, California. Project manager for AFC before the CEC for the 163-MW natural gas-fired power plant using 10 Wärtsilä 18V50DF dual-fuel turbine-generators. Directed multidisciplinary team of scientists and engineers in preparing testimony for licensing.
- Project Manager, Russell City Energy Center, Calpine/Bechtel Joint Development, Hayward, California. Project manager for the preparation of an AFC before the CEC for a 600-MW natural gas-fired power plant and appurtenant facilities including natural gas, water supply, and electrical transmission lines. Prepared environmental assessment associated with reconductoring 14 miles of 230 kV transmission line. Project qualified for an expedited 6-month licensing process under the Governor's emergency power plant licensing executive order. Also served as project manager for an amendment to the project license involving movement of the project configuration.
- Project Manager, Walnut Creek Energy Park, Sun Valley Energy Center AFCs, Edison
  Mission Energy, City of Industry and Romoland, California. Project manager for AFCs
  before the CEC for two 500 MW natural gas-fired peaking power plants using GE Energy
  LMS100 technology. Directed multidisciplinary team of scientists and engineers in preparing
  testimony for licensing.

# Douglas Davy, Ph.D.

- Project Manager, Chula Vista Energy Upgrade Project, MMC Energy, Incorporated. San Diego County, California. Project manager for an AFC before the CEC for a 100-MW natural gas-fired power plant and appurtenant facilities. Coordinated a multidisciplinary team during the Discovery and Decision phases of licensing. Key analyses included analysis of noise and biological resource effects in an urban area adjacent to an open space and nature reserve area.
- Project Manager, Inland Empire Energy Center, Calpine Corporation, Riverside,
   California. Project manager for AFC before the CEC for the 810-MW natural gas-fired power
   plant. Directed multidisciplinary team of scientists and engineers in preparing testimony for
   licensing. Managed preparation of license amendments, including conversion of the turbine
   technology to the GE Energy S107H System and for a rerouting of the natural gas pipeline.
   Coordinated consultations with CEC staff and other regulatory agencies.
- Project Manager, Roseville Energy Park, Roseville Electric, Roseville, California. Project manager for AFC before the CEC for a 160-MW natural gas-fired power plant. Directed a multidisciplinary team of scientists and engineers in providing project development support and preparing application document, responding to data requests. Participated in consultations with CEC staff and other regulatory agencies including the Placer County Air Pollution Control District and the U.S. Army Corps of Engineers (USACE).
- Project Manager, Donald Von Raesfeld Power Plant/Pico Power Project, Silicon Valley Power, Santa Clara, California. Project manager for AFC before the CEC for a 123-MW natural gas-fired power plant. Directed a multidisciplinary team of scientists and engineers in providing project development support and preparing application document, responding to data requests, and providing expert testimony. Participated in consultations with CEC staff and other regulatory agencies. Project challenges included developing a mitigation plan for air emissions deposition effects on the Bay checkerspot butterfly, rezoning of the project site, negotiating Best Available Control Technology standards, and Federal Aviation Administration (FAA) air navigation hazard clearance.
- Project Manager, Los Esteros Critical Energy Facility Phase 1 Relicense and Phase 2
   Combined-Cycle Conversion, Calpine Corporation, San Jose, California. Project manager
   for AFC before the CEC that included relicensing a 180-MW simple-cycle power plant and a
   conversion to combined-cycle operation that would increase the nominal plant output to
   320-MW.
- Project Manager, Sutter Energy Center, Calpine Corporation. Sutter County, California.
   Project manager for an AFC before the CEC for a 600-MW natural gas-fired power plant and appurtenant facilities including 12 miles of natural gas and 4 miles of electrical transmission lines. Coordinated a multidisciplinary team during the Discovery and Decision phases of licensing. Key analyses included preparing water temperature and water quality models, identifying emission reduction credits, and assessing potential impacts along an electrical transmission route.



#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the Humboldt Bay Repowering Project **DOCKET NO. 06-AFC-7** 

**DECLARATION OF DEBRA CROWE** 

### I. Debra Crowe, declare as follows:

- 1. I am presently employed by CH2M Hill as an Environmental Scientist/Biologist.
- A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Biological Resources for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

Melia I howe

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on June 4, 2008.

I. Name: Debra Crowe

### II. <u>Purpose</u>:

My testimony addresses the subject of Biological Resources associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

## III. Qualifications:

I am presently employed at CH2M Hill for the past 10 years and am presently a biologist with that organization. I have a Degree in Environmental Biology and I have 16 years of experience in conducting biological resource evaluations and mitigation plans. I prepared the Biological Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings and related permit applications. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

#### IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

- **Exhibit 1** Humboldt Bay Repowering Project AFC, Section 8.2 and Appendix 8.2.
- **Exhibit 7** Data Responses Set 1, Data Response 19.
- Exhibit 11 Transmittal of Electronic Copy of Draft Wetland Delineation Report, dated January 19, 2007
- Exhibit 13 Submittal of Pacific Gas and Electric Responses to Staff Data Requests, Workshop Queries 7 through 10
- Exhibit 16 CH2M Hill Responses to Data Requests 79 through 85 and Workshop Queries, Workshop Queries 8 through 10 and Data Response 80 and 81, dated March 16, 2008
- Exhibit 17 Pacific Gas and Electric Responses to Workshop Queries, Workshop Query 8, dated March 23, 2007

- Exhibit 25 U.S. Army Corps of Engineers Wetland Delineation Verification Letter and Map Dated April 23, 2007 (06-AFC-7) 05/29/07
- Exhibit 26 Buhne Point Wetlands Preserve Mitigation and Monitoring Plan; and Coastal Access Enhancement Proposal (06-AFC-7) 07/06/07
- Exhibit 54 Clean Water Action Section 404 Permit, dated October 16, 2007

## V. Opinion and Conclusions

I have reviewed the Biological Resources section of the Final Staff Assessment and agree that with incorporation of the Conditions of Certification, as modified by the Joint Stipulation of the parties executed on June 1, 2008, the HBRP will not result in significant biological impacts and will comply with all biological resources related laws, ordinances, regulations and standards (LORS).

## Debra J Crowe

## **Education**

B.S., Environmental Biology and Management (Honors), University of California, Davis Veterinary Technician Certification Program, Western Career College, Sacramento, California

## **Professional Registrations**

Endangered Species Act (ESA) Section 10 Scientific Take Permit for California Threatened and Endangered Fairy Shrimp and Tadpole Shrimp (Permit #TE004824-0) California Department of Fish and Game Scientific Collector's Permit Certified Veterinary Technician

## **Distinguishing Qualifications**

- Experienced in California Energy Commission power plant licensing procedures
- Expert witness for biological resource evaluations on power plant projects
- Experienced in Section 7 of Endangered Species Act (ESA) consultations and mitigation plans
- Expertise in biological resource construction mitigation monitoring
- Routinely consults with natural resource agencies on project permitting, mitigation measures, and construction monitoring

## Relevant Experience

Ms. Crowe is a wildlife and wetlands biologist who analyzes potential project impacts on biological resources, including wetlands and threatened or endangered species and Species of Concern. She has been an expert witness in several power plant licensing projects under the California Energy Commission regulations and prepared biological resource analyses, mitigation, monitoring, and resources management plans, and monitored construction and operations for compliance with Conditions of Certification. She conducts wetland delineations, biological resource surveys, timber stand exams, and wetland creation/preservation monitoring.

She has 16 years of field experience in surveys and identification of wildlife and plants, wetland delineations, field sampling, vernal pool crustacean surveys, and threatened and endangered wildlife surveys in California, Alaska, Washington, Oregon, and Nevada. Ms. Crowe is experienced in Section 7 of the ESA consultations, Biological Assessments, and mitigation negotiations, as well as in fresh and salt marsh wetland delineations using U.S. Army Corps of Engineers methods and obtaining CWA Section 404 and 401 permits, California Coastal Commission wetland permitting, CDFG Consultations and Streambed Alteration Agreements. Her expertise includes NEPA and CEQA regulations, procedures, and documentation production. She certified in identification of California fairy shrimp and tadpole shrimp to species and has a ESA Section 10 permit. Ms. Crowe is familiar with California floristics, GIS, habitat modeling, environmental law, and report preparation and is certified in Hazardous Waste Operations and Emergency Response. She has 15 years experience in handling injured and diseased animals as a licensed Veterinary Technician and is a member of the Sacramento Wildlife Care Association.

## Representative Projects

- Application for Certification (AFC) of Humboldt Bay Repowering Project, Pacific Gas and Electric, Eureka, California. Task Manager for biological resource impact analysis and document section of AFC. Performed threatened and endangered species surveys, literature search, and wildlife impact evaluation for proposed electric power plant and linear features. Evaluated project effects on jurisdictional California Coastal Commission wetland habitat, Northern red-legged frog, and migratory birds. Obtained USACE permit and prepared Biological Resources Mitigation Implementation and Monitoring Plan.
- Biological Resources Evaluation for Contra Costa Pipeline Project, Praxair, Inc., Contra Costa County, California. Performed threatened and endangered species surveys, literature search, and wildlife impact evaluation for proposed electric power plant and linear features. Prepared Technical Memorandum for inclusion in EIR. Initiated consultations for sensitive biological resources with U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. National Marine Fisheries Service, California Regional Water Quality Control Board, California Department of Fish and Game. Prepared Biological Assessment for impacts to California red-legged frog and Alameda whipsnake habitat along the pipeline alignment. Prepared mitigation plans for wetland enhancement, habitat restoration, and habitat compensation.
- Application for Certification (AFC) of Metcalf Energy Center, Calpine Corporation, San Jose, California. Task Manager for biological resource impact analysis and document section of AFC. Performed threatened and endangered species surveys, literature search, and wildlife impact evaluation for proposed electric power plant, recycled water supply line, natural gas pipeline route, and electric transmission line connection. Prepared the biological resources section of the AFC and initiated consultations for sensitive biological resources with U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. National Marine Fisheries Service, California Regional Water Quality Control Board, California Department of Fish and Game, City of San Jose, Santa Clara Valley Water District, and California Energy Commission. Consulted with local experts and USFWS on potential impacts to serpentine habitat on Tulare Hill and with Santa Clara Valley Water District on potential impacts within the Fisher Creek Riparian Corridor. Prepared Management Plan for the MEC Ecological Preserve and Fisher Creek Riparian Corridor Enhancement Plan. As the CEC qualified Designated Biologist prepared and implemented a mitigation implementation and monitoring plan for sensitive biological resources during construction and operation of the project.
- Application for Certification (AFC) of Sutter Power Plant, Calpine Corporation, Yuba City, California. Task Manager for biological resource impact analysis and document section of AFC. Performed threatened and endangered species surveys, literature search, and wildlife impact evaluation for proposed electric power plant, natural gas pipeline route, and electric transmission line route. Conducted wet season and dry season surveys for listed vernal pool branchiopod species. Conducted wetland delineation, prepared wetland delineation report, biological assessment, and mitigation plans for U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, California Department of Fish and Game, and California Energy Commission. Consulted with above-mentioned agencies and the California Regional

Water Quality Control Board for Clean Water Act Section 404 permit and Section 401 water quality certification to fill seasonal wetlands and construct gas pipeline through Sutter National Wildlife Refuge. Conducted stream geometry surveys and water quality analysis for irrigation canals, Sutter Bypass, and Sacramento River. As the CEC qualified Designated Biologist prepared and implemented a mitigation implementation and monitoring plan for sensitive biological resources during construction and operation of the project.

Application for Certification (AFC) of Delta Energy Center, Calpine Corporation, Pittsburg, California. Task Manager for biological resource impact analysis and document section of AFC. Performed threatened and endangered species surveys, literature search, and wildlife impact evaluation for proposed electric power plant, natural gas pipeline route, and electric transmission line route. Conducted wet season and dry season surveys for listed vernal pool branchiopod species. Currently preparing wetland delineation report, biological assessment, and mitigation plans for U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. National Marine Fisheries Service, California Department of Fish and Game, and California Energy Commission. Consulted with above-mentioned agencies and the California Regional Water Quality Control Board for Clean Water Act Section 404 permit, Section 10 Rivers and Harbors Act, and Section 401 water quality certification to construct in areas of coastal wetlands with special-status species such as California clapper rail, salt-marsh harvest mouse, species occurring within the Antioch Dunes National Wildlife Refuge. As the CEC qualified Designated Biologist prepared and implemented a mitigation implementation and monitoring plan for sensitive biological resources during construction and operation of the project.



#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 06-AFC-7

Application For Certification for the Humboldt Bay Repowering Project DECLARATION OF JESSICA B. FELDMAN

- I, Jessica Feldman, declare as follows:
  - 1. I am employed by CH2M Hill as a Cultural Resource Specialist.
  - A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
  - I prepared the attached testimony relating to Cultural Resources for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
  - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
  - I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Los Angeles, CA on June 4, 2008.

#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

**DOCKET NO. 06-AFC-7** 

Application For Certification for the Humboldt Bay Repowering Project **DECLARATION OF DOUGLAS DAVY** 

#### I, Douglas Davy, declare as follows:

- I am employed by CH2M Hill as a Program Manager and have been retained by PG&E to be the AFC Project Manager for the project.
- A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
- I prepared the attached testimony relating to Cultural Resources for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on June 4, 2008.

h 5 h km

I. <u>Name</u>: Jessica B. Feldman Doug Davy

#### II. Purpose:

Our testimony addresses the subject of Cultural Resources for the construction and operation of the Humboldt Bay Repowering Project (HBRP).

#### III. Qualifications:

#### Jessica Feldman

I am presently employed at CH2M Hill for the past 2 years and am presently a Cultural Resource Specialist with that organization. I have a Degree in Historic Preservation Planning and I have 11 years of experience in cultural resource investigations in compliance with NEPA, the National Historic Preservation Act (NHPA), and a variety of other federal, state, and local cultural resource regulations. I assisted in the preparation of the Cultural Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume

#### **Doug Davy**

I am presently employed at CH2M HILL for the past 4 years and am presently a Program Manager with that organization. I have a Degree in Anthropology and I have 24 years of experience in environmental siting, permitting, and licensing. I assisted in the preparation of the Cultural Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

#### IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

Exhibit 1 Humboldt Bay Repowering Project AFC, Sections 8.3

Data Responses to Data Requests 1 through 57, Response to Exhibit 7 Data Requests 20 through 27, dated January 12, 2007 Submittal of Pacific Gas and Electric Responses to Staff Exhibit 13 Data Requests 58 through 78 and Workshop Query 1 through 22, Response to Workshop Query 11, dated February 13, 2007 CH2M Hill Responses to Data Requests 79 through 85 and Exhibit 16 Workshop Queries, Response to Data Request 82 and Workshop Query 11, dated March 16, 2007 Pacific Gas and Electric Responses to Workshop Exhibit 17 Queries 8 and 23 through 27, Response to Workshop Queries 11 and Data Request 82 (06-AFC-7) dated March 23, 2007 Exhibit 18 Pacific Gas and Electric Responses to Workshop Queries 3, 11, 14, and 15 and Data Requests 11, 55, 82 and 83, Responses to Data Request 82 and Workshop Query 11 Exhibit 36 Responses to CEC Staff Requests 86 through 105, Response to Data Requests 101 through 103, dated November 1, 2007 Exhibit 41 Applicant's Responses to CEC Staff Data Request 103 dated November 16, 2007 Exhibit 45 Pacific Gas and Electric Company's Supplemental Comments on the Preliminary Staff Assessment, page numbers 4 through 6, dated January 2, 2008 Exhibit 48 Applicant's Responses to CEC Staff Workshop Queries 16 and 17, Response to Workshop Queries 16 and 17, dated February 21, 2008 Post-Shutdown Decommissioning Activities Report, Exhibit 49 Humboldt Bay Power Plant Unit 3, dated April 2, 2008 Exhibit 53 Applicant's Supplemental Information in Responses to

Bay Repowering Project, dated April 17, 2008

Workshop Queries Historical Resources Evaluation of the Humboldt Bay Power Plant Units 1 and 2 Humboldt

#### V. <u>Testimony</u>

We have reviewed the FSA and disagree with the conclusions reached by Staff for the following reasons.

Staff and PG&E are in fundamental disagreement regarding the historical significance of the Humboldt Bay Power Plant Units #1 and #2. The Staff maintains that Units 1 and 2 combine with Unit 3 to form a historic district that meets criteria for listing in the National Register of Historic Places. PG&E's conclusion is that the properties are not significant as a district, that Units 1 and 2 are not individually significant, and that Unit 3 is individually significant. The reasons for these conclusions have been expressed elsewhere in PG&E's filing and in comments on the Preliminary Staff Assessment and need not be repeated here. Below are specific comments regarding statements in the Final Staff Assessment. In addition to the comments provided here regarding historical significance evaluation, PG&E will provide a legal brief regarding Staff's assertion that the demolition of Units 1 and 2 would be an indirect impact of the construction of the HBRP. In PG&E's view, the demolition of Units 1 and 2 is properly seen as a foreseeable future project that must be considered in terms of cumulative effects, rather than being seen as an indirect impact of HBRP construction.

Page 4.3-18, first bullet -"The HBPPHD is likely to be significant (eligible for the NRHP) under Criterion A (associated with events that have made a significant contribution to the broad patterns of our history), at the national level, because HBPP was the first and only conventional-plus-nuclear-configured power plant in the country in the pioneer commercial nuclear power period. Units 1, 2, and 3 combined conventional thermal and nuclear thermal technology to cost-effectively provide commercial electrical power to a transportation-challenged region, exemplifying a technological solution applicable to other geographically isolated parts of the country and providing an early illustration of the idea of economy of scale applied to nuclear power generation (see more on this below)."

**Comment**: The development of nuclear power technology and electrical generating technology in general would qualify as a "broad pattern of our history." However, co-locating a nuclear plant with an existing thermal one to take advantage of the cooling water infrastructure and benefits of unified operation and management and economies of scale should not be considered an innovation of historic proportions.

Page 4.3-18 second bullet – "The HBPPHD is also likely to be significant (eligible for the NRHP) under Criterion A at the national level because of Unit 3's distinction as the first economically viable commercial nuclear power plant in the nation."

**Comment**: PG&E acknowledges that the historical significance of Unit 3 is well founded, both on historical patterns and events, but also its on engineering innovations. Staff seems to be arguing, however, that Units 1 and 2 gain significance solely by their association with Unit 3.

Page 4.3-18 third bullet —"The HBPPHD is likely to be significant (eligible for the NRHP) under Criterion A at the state level because it was the first and only combined conventional and nuclear power plant in California."

Comment: Identifying a "first" is different than defining the reasons why achieving this first was historically important. In this case, Unit 3 was historically important and the combination of Unit 3 with Units 1 and 2 was not.

Page 4.3-18 fourth bullet – "The HBPPHD is likely to be significant (eligible for the NRHP) under Criterion C (embodying the distinctive characteristics of a type, period, or method of construction, or representing the work of a master, or possessing high artistic values) at the national level because in one facility it exemplifies the conventional fossil-fueled and nuclear-fueled, electricity-generating power plants of the 1950-1970 era."

**Comment**: While the previous bullet assigns significance on the basis that the combination of a conventional fossil-fueled and a nuclear-fueled power plant was singular and unique, this one assigns significance on the basis that this combination is typical and identifies a type. By applying the National Register criteria in this way, almost any property that is not unique could be found to be significant as an example of its type. The purpose of historic significance evaluation, however, is to identify properties that have special significance or that are outstanding examples of a particular type that is important in history.

Page 4.3-19, second paragraph - "In the Preliminary Staff Assessment (PSA), staff stated the opinion that the appropriate period of significance for the HBPPHD was 1956-1988 (pp. 4.3-19), beginning with the completion of Units 1 and 2 and encompassing the technological innovations of Unit 3 in on-site spent fuel storage. As a result of additional research on the early period of nuclear power plant development, staff now believes that the appropriate period of significance for the HBPPHD is 1954-1963, beginning with the construction of Unit 1 and ending with Unit 3 coming on-line in August, 1963. Staff's additional research made it clear that while developments associated with the decommissioning of Unit 3 were technologically distinguished, they were of secondary importance to the HBPPHD as a whole, and so did not need to be included in defining the period of significance for the HBPPHD."

Comment: The 2003 report by PAR Environmental Services defined the period of significance for Unit 3 as 1961 to 1988. This included the period of construction for Unit 3 and also the period of operation and the period when it was determined, in the aftermath of public opposition to the Bodega Bay site and the Three-Mile Island accident, that it would be uneconomical to retrofit Unit 3 to meet the NRC's new seismic standards. Yet this period is arguably of historic importance, reflecting as it does the nation's turn away from nuclear power at this time. Staff, furthermore, does not say why the decommissioning of Unit 3 was of

secondary importance to the district as a whole, to the extent that the time of decommissioning should be excluded from the period of significance. Furthermore, if the Staff feels that the district is historically significant because of its combination of fossil-thermal and nuclear-thermal power, why wouldn't the period of significance include the span of time between 1963 and 1976 when all three plants generated electricity?

Page 4.3-20, third paragraph"...but neither the PAR report nor the applicant addressed the integrity of any other components of the HBPPHD."

**Comment**: If a property is evaluated as historically not significant, there is no need to consider its integrity.

Page 4.3-21, third paragraph – "Additionally, staff points to the supportive conclusions of David Byrd of the State Historic Preservation Office's (SHPO) 106 Review Section. During the PSA public review period, as a courtesy peer review, Mr. Byrd read and commented on staff's analysis of the significance of the HBPPHD and staff's recommendations for mitigation."

**Comment**: While Mr. Byrd's comments are interesting, it is misleading to present them in the FSA as if they were an opinion by the State Historic Preservation Officer (SHPO), which they are not. In fact if, as Mr. Byrd's comment indicates, the SHPO might request additional justification for a finding of no significance by PG&E, it is possible that the SHPO would agree with PG&E when additional justification were presented. The review therefore is simply the opinion of one person and represents an argument to authority based on a review that was conducted outside of the context of a real federal Section 106 review and should be considered no more than that.

Page 4.3-33, last sentence – "Additionally, the applicant seems to ignore the logical interpretation of "standard design and engineering" as making Units 1 and 2 representative and typical, and thus capable of "embody[ing] the distinctive characteristics of type."

**Comment**: Being "representative and typical" does not convey historical significance; otherwise, nearly any infrastructure property could be found historically significant as a representative of its type. Being a particularly outstanding example of a historically important type could do so.

**Page 4.3-34, second full paragraph** – "The applicant provided no supporting evidence for the stated opinion that combining conventional thermal and nuclear thermal power in one power plant is not a significant event..."

**Comment**: This paragraph goes on to cite the economies of scale afforded by co-locating the fossil and nuclear generating units that convinced other utilities to site power plants in clusters. While it is true that the co-locating of Unit 3 with Units 1 and 2 led to economies associated with the shared use of a cooling water source and shared administration and maintenance, it is difficult to agree that this was a ground breaking development, a historic one deserving of the special recognition of NRHP significance.

**Page 4.3-37, paragraph 5** – "Staff accepts the applicant's February 21, 2008, offer to conduct HAER-level recordation of the transmission line tower, rail spur, and storage building."

**Comment:** Because of their association with Unit 3 and because they would be demolished by the HBRP, PG&E has recorded the transmission line tower, rail spur, and storage building to the standards of the HAER. The transmission tower was recorded before it was removed.

Therefore we disagree with the inclusion of the 115kv Transmission Tower in Staff Proposed Conditions of Certification CUL-8 and CUL-9 and disagree with Staff that CUL-10, CUL-11 and CUL-12 are necessary mitigation and request they not be included in the Final Decision.

### Jessica B. Feldman

#### **Architectural Historian**

#### Education

M.A., Historic Preservation Planning, Cornell University, 2001 B.A., History, Minor in Art History, William Smith College, 1993

#### **Distinguishing Qualifications**

- Qualified as a historian, an architectural historian, and a historic preservationist under the Secretary of the Interior's Historic Preservation Professional Qualification Standards, as defined in 36 Code of Federal Regulations (CFR) 61.
- Experienced in cultural resource investigations in compliance with the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), and a variety of other federal cultural resource regulations.
- Specializes in the analysis and preservation of historic bridges.

#### Relevant Experience

Ms. Feldman is a cultural resource specialist with more than 11 years of experience in compliance with federal, state, and local laws relating to cultural and community resources and land use planning. Ms. Feldman has been extensively involved in the management of and participation in cultural resource investigations in compliance with the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), and a variety of other federal, state, and local cultural resource regulations.

#### Representative Projects and Dates of Involvement

Cultural Resource Specialist, Post Office Plaza Project, City of Reno, Washoe County, May 2008 to present. The City of Reno has a Memorandum of Understanding with the United States Postal Service to purchase the USPS building located at 50 S. Virginia Street in downtown Reno (Washoe County). The Post Office is listed in the National Register of Historic Places. Upon purchasing the property, the City plans on redeveloping this building and its site with a two phased project approach. Phase 1 of this project consists of relocating the existing parking on the North side of the building to the South side of the building adjacent to Mill Street. In addition, the existing parking lot on the North side of the building will be converted into a terraced plaza that will provide access from the street level to the river level.

Cultural Resource Specialist; SW Gibbs Street Pedestrian Bridge over I-5, Oregon Department of Transportation, City of Portland, Multnomah County, February 2008 to present. The project is a new pedestrian and bicycle bridge over I-5 providing connections between the historic South Portland Neighborhood Association (formerly known as Corbett, Terwilliger and Lair Hill neighborhoods) and the new South Waterfront developments on the Willamette River. The west landing of the bridge is within the South Portland Historic District, which is listed in the National Register of Historic Places. Ms. Feldman will prepare a Cultural Resources Baseline Report, Determinations of Eligibility (DOE) forms, and Finding of Effect (FOE) forms.

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#### Jessica B. Feldman

Cultural Resource Specialist; Water Treatment Plant and Bicycle Lake Water Main Extension; U.S. Army and Fort Irwin DPW; Fort Irwin, California; January 2007 to May 2007. Prepared the cultural resources impacts section for an Environmental Assessment. The proposed project will construct a new water treatment plant and the associated infrastructure to provide potable water to existing and future populations at the facility.

Task Leader, Cultural Resources; Paducah GNEP Siting Study; Paducah Uranium Plant Asset Utilization, Inc.; vicinity of Paducah, Kentucky; February 2007 to May 2007. The final product is a site evaluation study or Detailed Site Report which would provide the applicable regulatory, permitting, and licensing requirements that are required or may be required to permit and license a GNEP facility, provide all relevant, readily available environmental regulatory and permitting information for the PGDP and surrounding area that is pertinent to siting a GNEP facility, identify data gaps that will need to be filled for siting a GNEP facility. Prepared relevant sections of the site report relating to cultural resources. This project had a short turn-around and limited hours, with specific protocols, milestones and deadlines that had to be met. In addition, supporting documentation was difficult to obtain but this was accomplished on time.

Cultural Resource Specialist; State Route 94 PSR-PDS; San Diego County, CA; October 2007 to present. On behalf of the SANDAG, CH2M HILL is preparing a Project Study Report-Project Development Support for the proposed State Route (SR) 94 Improvements Project (Caltrans). The project proposes to add two high occupancy vehicle (HOV) lanes along SR 94 from the I-805 interchange to downtown, and to direct HOV connectors from I-805 and I-15 to SR 94. Ms. Feldman conducted background research and a field review in preparation of a Preliminary Environmental Assessment Report (PEAR), a standard Caltrans report format. The highway is within one block of two locally significant historic districts and two locally significant cemeteries.

Cultural Resource Specialist; Sellwood Bridge NEPA-EIS; Multnomah County, vicinity of Portland, Oregon; February 2007 to present. The 1925 Sellwood Bridge is considered functionally obsolete and will be replaced or rehabilitated. The bridge is eligible for the National Register of Historic Places. The project area includes one National Register-listed church, as well as a National Register-eligible late 19th century cemetery and associated Superintendent's House, and interurban corridor. Prepared the existing setting discussion for historic resources discipline report and conducted effects analysis for the Draft Environmental Impact Statement (Draft EIS).

Cultural Resource Specialist; Tacoma/Pierce County HOV Project, POT (Port of Tacoma) to KCL (King County Line), Environmental Assessment, Washington Department of Transportation; Pierce County, Washington; September 2006 to present. Conducted field survey and research of historic resources, and will use this information to prepare the discipline report in support of the final environmental document. This is part of the larger Pierce County HOV project, which will widen 35 miles of Interstate 5 and introduce High Occupancy Vehicle lanes to decrease traffic congestion between the Pierce/King County line and State Route 16 in the Tacoma and Fife area.

Cultural Resources Specialist; Diestelhorst Bridge Preservation and Rehabilitation Plan; City of Redding; Redding, California; August to December 2006. Prepared the historic context and applied the Secretary of the Interior's Standards for Rehabilitation of Historic Structures for

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### Jessica B. Feldman

the Diestelhorst Bridge in Redding, California. The bridge, which was built in 1914, was the first reinforced concrete bridge over the Sacramento River, and its completion linked the Shasta and Siskiyou County seats. The Bridge is eligible for the National Register of Historic Places. The proposed project will convert the structure to a pedestrian facility.

#### Experience Prior to CH2M HILL

Architectural Historian; Jones & Stokes (formerly Myra L. Frank and Associates); November 2000 to June 2006. Preparation of Section 106 documents in support of the Environmental Impact Statement (EIS) for the Dallas Area Rapid Transit (DART) NW alignments and Mid-Jordan Light Rail (Salt Lake City, Utah); preparation of historic bridge evaluations for Caltrans in support of Historic Property Survey Reports and Finding of Effect Reports, used as basis for Environmental Impact Reports (EIRs), for Los Angeles, Riverside, San Bernardino and Madera Counties; preparation of National Register nominations for General Services Administration (GSA)-owned courthouses and post offices throughout the United States; preparation of Historic American Building Survey (HABS) and Historic American Engineering Record (HAER) level data forms for properties in the City of Long Beach.

Past responsibilities included directing a survey team for the Caltrans statewide historic bridge inventory update; leading an intensive architectural survey for the City of Riverside of more than 1,300 parcels in the downtown area, which led to the preparation of determinations of eligibility and historic property inventory forms; surveying proposed Historic Preservation Overlay Zones for the City of Los Angeles to determine contributing and non-contributing buildings; and conducting historical documentations and evaluations of state-owned buildings in Sacramento, Los Angeles, and Marysville, which resulted in environmental analyses of those structures in anticipation of seismic retrofitting, and/or other proposed alterations.

Architectural Historian/Lead List of Classified Structures (LCS) Historian; National Park Service, National Capital Region; February 1996 to July 1998 and May 1999 to August 1999. Was responsible for editing and maintaining regional historic structures database; identified, monitored and evaluated cultural resources at regional parks, including Rock Creek Park and Harpers Ferry National Historical Parks; advised park management on treatment of cultural resources; identified potential threats to structures; planned and conducted historical research to be used for park planning documents and Section 110 review; provided peer review for nonpoint source (NPS) and non-NPS historical studies; supervised seasonal employees and interns; made contributions to the preparation of historic preservation documentation; conducted intensive survey of and compiled background materials on 19th century homestead and cemetery sites at Prince William Forest Park; made presentations to park staff and public organizations on research results, and beta-tested new historic structures database for entire national park system.

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## Douglas M. Davy, Ph.D.

## **Consulting Archaeologist**

#### Education

Ph.D., Archaeology M.A., Anthropology B.A., Anthropology

#### Registrations

Registered Professional Archaeologist

#### Relevant Experience

Twenty-two years of experience in cultural resources management, including prehistoric and historic archaeology, and historic buildings and structures, and Native American consultation. Twenty years of experience as a manager of archaeological field projects in support of regulatory compliance programs for energy, transportation, mineral and water resources development, and hazardous materials management projects.

#### Representative Projects

North Area Right-of-Way Maintenance Environmental Assessment/California-Oregon Transmission Line; Western Area Power Administration. Project Manager for cultural resources inventories for 770 miles of 230 kV and 500 kV electrical transmission line rights-of-way and associated access roads in Northern California for transmission system operations and maintenance program. Coordinated teams of archaeologists conducting field inventories of the transmission line and access road rights-of-way for archaeological inventory. Field teams collected information using sub-meter accuracy global positioning system equipment and exported to a Geographic Information System. Field teams recorded more than 250 cultural resources sites. Created database of information that will serve as a basis for Western's environmental management system and an automatic cultural site record generation system.

Statewide Historic Buildings and Structures Inventory, DoD Installations, State of California; U.S. Army Corps of Engineers, Sacramento District. Project Manager for inventory and overview of buildings and structures surveys for 93 military bases in California. Prepared inventory and analysis of studies and coordinated with a team of Architectural Historians. Co-authored one of three report volumes. Project involved literature search and historic context development for California as a region and for the Cold War and Korean War periods. The resulting report serves as a guide for all future historic buildings and structures inventories in California. Project review committee included representatives of each of the four military service branches, State Historic Preservation Office, Advisory Council on Historic Preservation, and National Park Service. This project won the Governor's Historic Preservation Award for 2001.

Cultural Resources Testing and Evaluation for 30 sites in Management Region 5, Edwards Air Force Base, U.S. Army Corps of Engineers. Project Manager and co-Principal Investigator for archaeological testing and National Register of Historic Places evaluation of 30 prehistoric archaeological sites located in the Precision Impact Range Area at Edwards Air Force Base, western Mojave Desert, California. Prepared archaeological research design and work plan for test excavations and laboratory analysis and served as Project Director, coauthor, and general editor of final report. Project is part of a long-range sampling program for compliance with Section 106 of the National Historic Preservation Act.

Eastern Transportation Corridor; Transportation Corridor Agencies - Project Archaeologist/Principal Investigator for 24-mile-long multi-lane toll road in Orange County, California. Directed construction monitors, consulted with 5 Native American Tribes, prepared Archaeological Resources Management Plan, developed and managed test excavation and laboratory analysis program to determine National Register eligibility of 22 archaeological sites discovered during construction and authored survey and excavation reports. Directed data recovery excavations to mitigate impacts to prehistoric rockshelter site and three deeply buried, Early Holocene sites discovered during construction.

Integrated Cultural Resources Management Plans, U.S. Army Corps of Engineers. Project Manager for preparation, under separate task orders, of Integrated Cultural Resources Management Plans for four military installations: Sierra Army Depot, northern California; Deseret Chemical Depot, Utah; Naval Weapons Station, Seal Beach, southern California; and Naval Weapons Station, Fallbrook Detachment. Each of the plans involved an assessment of regulatory compliance plans and procedures for Section 106 of the National Historic Preservation Act and other regulations at each installation and development of recommendations for continued regulatory compliance and future work.

Vancouver to Sacramento Fiber Optic Conduit Installation Project, 360networks, Incorporated – Project Archaeologist for long-haul fiber optic conduit installation program between Vancouver, Washington, and Sacramento, California. Consulted with Federal agencies and Native American Tribes, prepared Archaeological Resources Treatment Plans, agreement documents, and heritage resources inventory reports; directed archaeological field survey and test excavations; and managed team or archaeologists and Native Americans monitoring construction. Coordinated with agencies in emergency discovery situations.

Northend Landfill Capping and Shoreline Protection Project; Naval Ordnance Center Pacific Division, U.S. Navy Engineering Field Activity Northwest - Project Archaeologist for landfill capping and shoreline protection project. Directed scientific data recovery excavation as a mitigation measure at buried site in tidal zone. Prepared Memorandum of Agreement between the Navy, State Historic Preservation Office, Native American Tribes, and Advisory Council on Historic Preservation.

Downtown-Natomas-Airport Corridor Environmental Impact Statement, Sacramento Regional Transit – Project Manager for archaeological and historic architectural surveys for light rail extension program in Sacramento, California. Coordinated archaeological inventory and architectural survey. Conducted backhoe testing to determine boundaries of prehistoric mound. Consulted with State Historic Preservation Officer for Section 106 compliance.

# FACILITY DESIGN, EFFICIENCY, RELIABILITY TESTIMONY

#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

**DOCKET NO. 06-AFC-7** 

Application For Certification for the Humboldt Bay Repowering Project **DECLARATION OF KEN HORN** 

- I, Ken Horn, declare as follows:
  - 1. I am sole proprietor of Kenneth F. Horn, P.E. and have been retained by PG&E as Project Development Engineer for the project.
  - A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
  - 3. I prepared the attached testimony relating to Facility Design Efficiency and Reliability for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
  - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
  - I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Contra Costa County, CA on June 3, 2008.

KFA

I. Name: Kenneth F. Horn

#### II. Purpose:

My testimony addresses the subject of Facility Design, Efficiency and Reliability associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

#### III. Qualifications:

I am sole proprietor of Kenneth F. Horn, P.E. and have been retained by PG&E as Project Development Engineer for the project. I have a Degree in Mechanical Engineering and I have 28years of experience in power plant operation and development design. I assisted in the preparation Engineering Sections of the AFC as well as the post-filing information, data responses, and supplemental filings and related permit applications. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

#### IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

- **Exhibit 1 Humboldt Bay Repowering Project AFC**, Section 10 and Appendix 10.
- Exhibit 45 Pacific Gas and Electric Company's Supplemental Comments on the Preliminary Staff Assessment, comments relating to GEN-1 modifications, dated 01/02/08

#### V. Opinion and Conclusions

I have reviewed the Facility Design, Efficiency and Reliability sections of the FSA and agree that with the Conditions of Certification contained in the FSA the project will comply with all applicable engineering -related laws, ordinances, regulations and standards (LORS). However, PG&E and Staff agreed to revisions to Condition of Certification GEN-1 that were

not included in the FSA. The agreed language for GEN-1 is provided below.

Page 5.1-6, Condition of Certification GEN-1, CBSC Version – The condition currently requires compliance with the 2001 California Building Standards Code (CBSC) or the CBSC in effect at the time initial design plans are submitted to the CBO for review and approval. For the reasons outlined by the applicants in the Panoche and Colusa Projects, PG&E requests similar relief. PG&E has already entered into a contract for the engineering, design and construction of the HBRP with Wärtsilä. The contract was approved by the CPUC in November 2006. Therefore, we request that **GEN-1** currently in the FSA be replaced with the version of **GEN-1** below.

**GEN-1** The project owner shall design, construct and inspect the project in accordance with the 2007 California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations), which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval, except that the CBSC applicable to the General Electric Wartsila supplied equipment shall be the 2001 CBSC. (The CBSC in effect is that edition that has been adopted by the California Building Standards Commission and published at least 180 days previously.) The project owner shall insure that all the provisions of the above applicable codes be enforced during any construction, addition, alteration, moving, demolition, repair, or 50 maintenance of the completed facility [2007 CBC, Section 101.3, Scope], All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the TRANSMISSION SYSTEM ENGINEERING section of this document. In the event that the initial engineering designs are submitted to the CBO when a successor to the 2007 CBSC is in effect, the 2007 CBSC provisions identified herein shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials. methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. The project owner shall insure that all contracts with contractors, subcontractors and suppliers shall clearly specify that

all work performed and materials supplied on this project comply with the codes listed above.

<u>Verification</u>: Within 30 days after receipt of the Certificate of Occupancy, the project owner shall submit to the Compliance Project Manager (CPM) a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation and inspection requirements of the applicable LORS and the Energy Commission's Decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [2007 CBC, Section 109 – Certificate of Occupancy]. Once the Certificate of Occupancy has been issued, the project owner shall inform the CPM at least 30 days prior to any construction, addition, alteration, moving, demolition, repair, or maintenance to be performed on any portion(s) of the completed facility which may require CBO approval for the purpose of complying with the above stated codes. The CPM will then determine the necessity of CBO approval on the work to be performed.

#### **RESUME**

#### KENNETH F. HORN, P.E.

6680 Alhambra Avenue, Martinez, CA 94553 Phone: (925) 890-7547 – FAX: (925) 370-0276 Email: kfhorn\_pe@sbcglobal.net

Education:

BSME, University of California, Berkeley, 1980

Professional:

Registered Engineer, California No. M024968

#### **SUMMARY**

Over twenty-eight years experience in electric power generation, project management, thermal performance, plant operations and engineering.

#### **Major Projects and Achievements**

- Currently providing technical support in the preparation of the Application for Certification and throughout the licensing process for the Humboldt Bay Repowering Project (163-MWe) and Carrizo Energy Solar Farm (177-MWe, on going).
- Currently Project Engineer for Balance of Plant engineering and design for Kimberlina Solar Demonstration Project (5-MWe, on-going).
- Technical support to preparation of the Application for Certification, negotiations for gas turbine procurement and throughout the licensing process. Provided support in bid evaluation and negotiation of award for EPC contract; provided Owner's Engineer support through sale of project for the Pittsburg District Energy Facility (500 MWe) and the Pastoria Energy Facility (750 MWe).
- Managed \$300 million capital program and four Project managers to reduce NOx on approximately 6,000 MWe of Power Generation fossil fired boilers. Established and managed partnering relationships with A&Es and manufacturers for project implementation.
- Managed NOx Retrofits to three gas/oil fired units at Pittsburg Power Plant (2,000 MWe); reducing NOx by 50% on all three units with combustion modifications only, avoiding major capital retrofits.
- Implemented Steam Turbine Performance Evaluations. Introduced and established steam path audits into normal overhaul routines to quantify as-found and as-left conditions. Documented turbine repair benefit to cost ratios of 3/1 using steam path audits.

#### PROFESSIONAL EXPERIENCE

#### Independent Consulting Engineer

1998 to Present

**Project Management:** Mr. Horn has provided project management of the preliminary engineering for development of power projects, NOx reduction programs and SCR retrofit projects, and other capital improvement projects.

<u>Siting and Licensing:</u> Mr. Horn has provided engineering and technical support to numerous power development projects. He has provided preliminary cycle design and performance estimates, emissions estimates, specified emissions reduction technologies and equipment, and written project facility descriptions.

Plant Performance: Mr. Horn has managed utility performance monitoring and improvement programs, developed and implemented performance standards, conducted unit and equipment performance tests, reduced and evaluated test results and implemented repairs/modifications to recover or enhance unit and equipment performance for geothermal, combustion turbine and fossil systems.

**Engineering:** Mr. Horn has prepared specifications and supported procurement of power plant equipment and services, conducted engineering studies and evaluations of emissions reduction technologies, power cycle design/optimization, etc.

#### Material Integrity Solutions, Inc.

#### SR. CONSULTANT, Berkeley, CA

2004 - 2005

Mr. Horn prepared proposals, conducted engineering studies and evaluations of distributed generation and cogeneration applications, power cycle design/simulation/optimization, and performed due diligence is support of MIS' clients.

#### Pacific Gas and Electric Company

#### PRINCIPAL PROJECT MANAGER, San Francisco

1994 - 1998

Managed Steam Generation Electric Restructuring Transition, NOx Program and Pittsburg 5, 6 and 7 NOx Retrofit Projects.

#### SENIOR STEAM GENERATION ENGINEER, San Francisco

1988 - 1994

Managed Steam Generation performance programs.

Promoted and facilitated the development and implementation of performance standards for one geothermal and six fossil power plants (8000 MWe of capacity) by influencing Plant Engineers.

Established and implemented work practices and standards for engineering functions.

Facilitated and monitored work management system programming changes to ensure accurate plant configuration and equipment data records.

#### PLANT ENGINEER, Pittsburg Power Plant

1986-1988

Managed technical department of a seven unit, 2000 MW fossil fired power plant.

Provided technical direction to a staff of 12 engineers, three chemists, two chemical technologists and an environmental coordinator in plant safety, chemical process control, availability, reliability, heat rate and environmental compliance. Managed \$1.4 million expense budget, and a capital budget of \$10 million to \$20 million.

# GEOLOGY AND PAELONTOLOGY TESTIMONY

#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the Humboldt Bay Repowering Project **DOCKET NO. 06-AFC-7** 

**DECLARATION OF DOUGLAS DAVY** 

#### I. Douglas Davy, declare as follows:

- I am employed by CH2M Hill as a Program Manager and have been retained by PG&E to be the AFC Project Manager for the project.
- A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
- I prepared the attached testimony relating to Geology and Paleontology for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on June 3, 2008.

membry

I. <u>Name</u>: Douglas Davy

#### II. Purpose:

My testimony addresses the subject of Geology and Paleontology associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

#### III. Qualifications:

I am presently employed at CH2M Hill for the past 4 years and am presently a Program Manager with that organization. I have a Degree in Anthropology and I have 24 years of experience in environmental siting, licensing, and permitting. I supervised the preparation of the Geology and Paleontology sections of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

#### IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

- **Exhibit 1** Humboldt Bay Repowering Project AFC, Sections 8.4 and 8.8.
- **Exhibit 16 CH2M Hill Responses to Data Requests,** Response to Data Request 83, dated March 16, 2007
- Exhibit 18 Pacific Gas and Electric Responses to CEC Staff Data Request, Response to Data Request 83, dated March 30, 2007
- Exhibit 45 Pacific Gas and Electric Company's Supplemental Comments on the Preliminary Staff Assessment, regarding PAL-4, dated January 2, 2008

#### IV. Opinion and Conclusions

I have reviewed the Geology and Paleontology sections of the FSA and agree that with the Conditions of Certification, as modified by the Joint Stipulation of the parties executed on June 1, 2008, the HBRP will not result in significant impacts to geological and paleontological resources and will comply with all laws, ordinances, regulations and standards (LORS).

# Douglas Davy, Ph.D.

## **Project Manager**

#### Education

Ph.D., Archaeology, Southern Illinois University M.A., Anthropology, Southern Illinois University B.A., Anthropology, University of California

## Relevant Experience

Dr. Davy has 24 years of experience providing regulatory compliance and project management support for infrastructure development projects. He has served as project manager for numerous environmental licensing and permitting projects, directing multidisciplinary teams of planners, engineers, and scientists in helping to resolve complex environmental regulatory issues. Dr. Davy has served as project manager for ten Applications for Certification (AFCs). His California Energy Commission (CEC) licensing experience includes project management on seven 12-month AFCs, two 6-month AFCs, one relicense and combined-cycle conversion AFC, several AFC and permit amendments, and three emergency peaker applications. Dr. Davy has also prepared critical project development and permitting reviews for more than 15 prospective power plant development sites in California.

#### Representative Projects

- Project Manager, Humboldt Bay Repowering Project AFC, Pacific Gas and Electric Company, Eureka, California. Project manager for AFC before the CEC for the 163-MW natural gas-fired power plant using 10 Wärtsilä 18V50DF dual-fuel turbine-generators. Directed multidisciplinary team of scientists and engineers in preparing testimony for licensing.
- Project Manager, Russell City Energy Center, Calpine/Bechtel Joint Development, Hayward, California. Project manager for the preparation of an AFC before the CEC for a 600-MW natural gas-fired power plant and appurtenant facilities including natural gas, water supply, and electrical transmission lines. Prepared environmental assessment associated with reconductoring 14 miles of 230 kV transmission line. Project qualified for an expedited 6-month licensing process under the Governor's emergency power plant licensing executive order. Also served as project manager for an amendment to the project license involving movement of the project configuration.
- Project Manager, Walnut Creek Energy Park, Sun Valley Energy Center AFCs, Edison
  Mission Energy, City of Industry and Romoland, California. Project manager for AFCs
  before the CEC for two 500 MW natural gas-fired peaking power plants using GE Energy
  LMS100 technology. Directed multidisciplinary team of scientists and engineers in preparing
  testimony for licensing.

## Douglas Davy, Ph.D.

- Project Manager, Chula Vista Energy Upgrade Project, MMC Energy, Incorporated. San Diego County, California. Project manager for an AFC before the CEC for a 100-MW natural gas-fired power plant and appurtenant facilities. Coordinated a multidisciplinary team during the Discovery and Decision phases of licensing. Key analyses included analysis of noise and biological resource effects in an urban area adjacent to an open space and nature reserve area.
- Project Manager, Inland Empire Energy Center, Calpine Corporation, Riverside,
   California. Project manager for AFC before the CEC for the 810-MW natural gas-fired power
   plant. Directed multidisciplinary team of scientists and engineers in preparing testimony for
   licensing. Managed preparation of license amendments, including conversion of the turbine
   technology to the GE Energy S107H System and for a rerouting of the natural gas pipeline.
   Coordinated consultations with CEC staff and other regulatory agencies.
- Project Manager, Roseville Energy Park, Roseville Electric, Roseville, California. Project
  manager for AFC before the CEC for a 160-MW natural gas-fired power plant. Directed a
  multidisciplinary team of scientists and engineers in providing project development support
  and preparing application document, responding to data requests. Participated in
  consultations with CEC staff and other regulatory agencies including the Placer County Air
  Pollution Control District and the U.S. Army Corps of Engineers (USACE).
- Project Manager, Donald Von Raesfeld Power Plant/Pico Power Project, Silicon Valley Power, Santa Clara, California. Project manager for AFC before the CEC for a 123-MW natural gas-fired power plant. Directed a multidisciplinary team of scientists and engineers in providing project development support and preparing application document, responding to data requests, and providing expert testimony. Participated in consultations with CEC staff and other regulatory agencies. Project challenges included developing a mitigation plan for air emissions deposition effects on the Bay checkerspot butterfly, rezoning of the project site, negotiating Best Available Control Technology standards, and Federal Aviation Administration (FAA) air navigation hazard clearance.
- Project Manager, Los Esteros Critical Energy Facility Phase 1 Relicense and Phase 2
  Combined-Cycle Conversion, Calpine Corporation, San Jose, California. Project manager
  for AFC before the CEC that included relicensing a 180-MW simple-cycle power plant and a
  conversion to combined-cycle operation that would increase the nominal plant output to
  320-MW.
- Project Manager, Sutter Energy Center, Calpine Corporation. Sutter County, California.
  Project manager for an AFC before the CEC for a 600-MW natural gas-fired power plant and
  appurtenant facilities including 12 miles of natural gas and 4 miles of electrical transmission
  lines. Coordinated a multidisciplinary team during the Discovery and Decision phases of
  licensing. Key analyses included preparing water temperature and water quality models,
  identifying emission reduction credits, and assessing potential impacts along an electrical
  transmission route.



#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 06-AFC-7

Application For Certification for the Humboldt Bay Repowering Project **DECLARATION OF DOUGLAS DAVY** 

- I, Douglas Davy, declare as follows:
  - I am employed by CH2M Hill as a Program Manager and have been retained by PG&E to be the AFC Project Manager for the project.
  - A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
  - I prepared the attached testimony relating to Hazardous Materials for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
  - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
  - I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on June 3, 2008.

Mish Day

I. <u>Name</u>: Douglas Davy

#### II. Purpose:

My testimony addresses the subject of Hazardous Materials associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

#### III. Qualifications:

I am presently employed at CH2M Hill for the past 4 years and am presently a Program Manager with that organization. I have a Degree in Anthropology and I have 24 years of experience in environmental siting, licensing, and permitting. I supervised the preparation of the Hazardous Materials sections of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

#### IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

- Exhibit 1 Humboldt Bay Repowering Project AFC, Sections 8.5 and Appendix 8.5.
- Exhibit 7 Data Responses to Data Requests 1 through 57, Response to Data Request 29 and 30, dated January 12, 2007
- Exhibit 13 Submittal of Pacific Gas and Electric Responses to Staff Data Requests 58 through 78 and Workshop Query 1 through 22, Response to Data Requests 59 through 63 and Workshop Queries 12 and 13, dated February 13, 2007
- Exhibit 16 CH2M Hill Responses to Data Requests 79 through 85 and Workshop Queries, Workshop Query 13, dated March 16, 2007
- Exhibit 18 Pacific Gas and Electric Responses to Workshop Queries 3, 11, 14, and 15 and Data Requests 11, 55, 82

and 83, Response to Data Request 55, page March 30, 2007

Exhibit 45 Pacific Gas and Electric Company's Supplemental Comments on the Preliminary Staff Assessment, comments on HAZ-1 and HAZ-8, dated January 2, 2008

#### V. Opinion and Conclusions

I have reviewed the Hazardous Materials sections of the FSA and agree that with the Conditions of Certification the HBRP will not result in significant hazardous materials impacts and will comply with all hazardous materials related laws, ordinances, regulations and standards (LORS).

## Douglas Davy, Ph.D.

## **Project Manager**

#### Education

Ph.D., Archaeology, Southern Illinois University M.A., Anthropology, Southern Illinois University B.A., Anthropology, University of California

## Relevant Experience

Dr. Davy has 24 years of experience providing regulatory compliance and project management support for infrastructure development projects. He has served as project manager for numerous environmental licensing and permitting projects, directing multidisciplinary teams of planners, engineers, and scientists in helping to resolve complex environmental regulatory issues. Dr. Davy has served as project manager for ten Applications for Certification (AFCs). His California Energy Commission (CEC) licensing experience includes project management on seven 12-month AFCs, two 6-month AFCs, one relicense and combined-cycle conversion AFC, several AFC and permit amendments, and three emergency peaker applications. Dr. Davy has also prepared critical project development and permitting reviews for more than 15 prospective power plant development sites in California.

#### Representative Projects

- Project Manager, Humboldt Bay Repowering Project AFC, Pacific Gas and Electric Company, Eureka, California. Project manager for AFC before the CEC for the 163-MW natural gas-fired power plant using 10 Wärtsilä 18V50DF dual-fuel turbine-generators. Directed multidisciplinary team of scientists and engineers in preparing testimony for licensing.
- Project Manager, Russell City Energy Center, Calpine/Bechtel Joint Development,
  Hayward, California. Project manager for the preparation of an AFC before the CEC for a
  600-MW natural gas-fired power plant and appurtenant facilities including natural gas,
  water supply, and electrical transmission lines. Prepared environmental assessment
  associated with reconductoring 14 miles of 230 kV transmission line. Project qualified for an
  expedited 6-month licensing process under the Governor's emergency power plant licensing
  executive order. Also served as project manager for an amendment to the project license
  involving movement of the project configuration.
- Project Manager, Walnut Creek Energy Park, Sun Valley Energy Center AFCs, Edison
  Mission Energy, City of Industry and Romoland, California. Project manager for AFCs
  before the CEC for two 500 MW natural gas-fired peaking power plants using GE Energy
  LMS100 technology. Directed multidisciplinary team of scientists and engineers in preparing
  testimony for licensing.

## Douglas Davy, Ph.D.

- Project Manager, Chula Vista Energy Upgrade Project, MMC Energy, Incorporated. San Diego County, California. Project manager for an AFC before the CEC for a 100-MW natural gas-fired power plant and appurtenant facilities. Coordinated a multidisciplinary team during the Discovery and Decision phases of licensing. Key analyses included analysis of noise and biological resource effects in an urban area adjacent to an open space and nature reserve area.
- Project Manager, Inland Empire Energy Center, Calpine Corporation, Riverside,
   California. Project manager for AFC before the CEC for the 810-MW natural gas-fired power
   plant. Directed multidisciplinary team of scientists and engineers in preparing testimony for
   licensing. Managed preparation of license amendments, including conversion of the turbine
   technology to the GE Energy S107H System and for a rerouting of the natural gas pipeline.
   Coordinated consultations with CEC staff and other regulatory agencies.
- Project Manager, Roseville Energy Park, Roseville Electric, Roseville, California. Project
  manager for AFC before the CEC for a 160-MW natural gas-fired power plant. Directed a
  multidisciplinary team of scientists and engineers in providing project development support
  and preparing application document, responding to data requests. Participated in
  consultations with CEC staff and other regulatory agencies including the Placer County Air
  Pollution Control District and the U.S. Army Corps of Engineers (USACE).
- Project Manager, Donald Von Raesfeld Power Plant/Pico Power Project, Silicon Valley Power, Santa Clara, California. Project manager for AFC before the CEC for a 123-MW natural gas-fired power plant. Directed a multidisciplinary team of scientists and engineers in providing project development support and preparing application document, responding to data requests, and providing expert testimony. Participated in consultations with CEC staff and other regulatory agencies. Project challenges included developing a mitigation plan for air emissions deposition effects on the Bay checkerspot butterfly, rezoning of the project site, negotiating Best Available Control Technology standards, and Federal Aviation Administration (FAA) air navigation hazard clearance.
- Project Manager, Los Esteros Critical Energy Facility Phase 1 Relicense and Phase 2
   Combined-Cycle Conversion, Calpine Corporation, San Jose, California. Project manager
   for AFC before the CEC that included relicensing a 180-MW simple-cycle power plant and a
   conversion to combined-cycle operation that would increase the nominal plant output to
   320-MW.
- Project Manager, Sutter Energy Center, Calpine Corporation. Sutter County, California.
  Project manager for an AFC before the CEC for a 600-MW natural gas-fired power plant and appurtenant facilities including 12 miles of natural gas and 4 miles of electrical transmission lines. Coordinated a multidisciplinary team during the Discovery and Decision phases of licensing. Key analyses included preparing water temperature and water quality models, identifying emission reduction credits, and assessing potential impacts along an electrical transmission route.



#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

**DOCKET NO. 06-AFC-7** 

Application For Certification for the Humboldt Bay Repowering Project DECLARATION OF SUSAN STRACHAN

- I, Susan Strachan, declare as follows:
  - I am the owner of Strachan Consulting and have been retained by PG&E to be the permitting and compliance manager for the project.
  - A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
  - I prepared the attached testimony relating to Land Use for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
  - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
  - I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Davis, CA on June 3, 2008.

1

I. Name: Susan Strachan

## II. Purpose:

My testimony addresses the subject of Land Use associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

## III. Qualifications:

I am the owner of Strachan Consulting am presently engaged by PG&E to assist and supervise the permitting and compliance of the HBRP. I have a Degree in Political Science and I have 18 years of experience in environmental project management and compliance. I assisted in the preparation of the Land Use section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

## IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

Exhibit 1 Humboldt Bay Repowering Project AFC, Section 8.6

**Exhibit 7 Data Responses Set 1,** Response to Data Requests 31 and 32, dated January 12, 2007

Exhibit 48 Applicant's Responses to CEC Staff Workshop Queries 16 and 17, Workshop Query 17, dated February 21, 2008

Exhibit 50 City of Eureka's Support for Pacific Gas and Electric Company's Contribution to a Public Use, dated April 7, 2008

## V. Opinion and Conclusions

I have reviewed the Land Use section of the Final Staff Assessment and agree that with incorporation of the Conditions of Certification, as modified by the Joint Stipulation of the parties executed on June 1, 2008, the HBRP

will not result in significant land use impacts and will comply with all applicable laws, ordinances, regulations and standards (LORS).

## SUSAN STRACHAN

Susan Strachan has 20 years of project management experience in the permitting and compliance activities associated with large industrial projects. She has extensive experience managing the environmental permitting of power plant, transmission, and pipeline projects. Her experience includes preparing permit applications and other project environmental documentation, negotiating permit conditions and other project related issues with regulatory agencies, conducting public outreach, developing compliance plans, and managing compliance activities.

## PROFESSIONAL HISTORY

Strachan Consulting

Principal, June 1998-Present

Sacramento Municipal Utility District

Mgr., Project Permitting and Licensing - March 1992-May 1998

Assemblymember Lloyd Connelly Senior Assistant - 1990 to 1992

Santa Barbara County Hazardous Materials Section Manager - 1987 to 1990 Environmental Planner 1985 to 1987

# PROFESSIONAL EXPERIENCE

Pacific Gas & Electric – Ms. Strachan is currently serving as Environmental Project Manager for the Humboldt Bay Repowering Project (HBRP). The HBRP is a 163 MW power plant located in Humboldt Co. Her responsibilities include: overseeing the preparation of the application to the California Energy Commission (CEC); responding to Data Requests; interfacing with the regulatory agencies, reviewing the Preliminary and Final Staff Assessments; preparing for and participating in Evidentiary Hearings; and managing compliance activities.

Turlock Irrigation District – Ms. Strachan provided Environmental Project Management Services to the Turlock Irrigation District for its Walnut Energy Center, a 250 MW power plant, located in Stanislaus Co. (2002). Her responsibilities included: assisting in site selection, overseeing the preparation of the application to the CEC; participating in public outreach activities; responding to Data Requests; interfacing with the regulatory agencies, reviewing the Preliminary and Final Staff Assessments; and preparing for and participating in Evidentiary Hearings.

Resume of Susan Strachan Page 1

Ms. Strachan also served as Environmental Compliance Manager for the Walnut Energy Center Project. Her responsibilities included: ensuring compliance with all environmental regulatory requirements; managing the activities of the environmental monitors; and maintaining communication with the environmental regulatory agencies.

Modesto Irrigation District - Ms. Strachan provided Environmental Project Management services to the Modesto Irrigation District for the Woodland 2 Generation Station, an 80 MW combined cycle power plan, located in San Joaquin Co., 2001). She also prepared CEC amendments for the Woodland 2 project (2002). Ms. Strachan also managed the permitting of the Modesto Irrigation District Electric Generation Station Ripon project, a 95 MW simple-cycle power plant, located in San Joaquin Co. (2003). Her responsibilities included: managing the preparation of the application, providing project coordination with regulatory agencies, and resolving issues/concerns of the agencies.

Calpine Corporation – Ms. Strachan served as the Environmental Project Manager for several natural gas-fired power plants developed by Calpine Corporation. These include the following:

- Delta Energy Center Contra Costa Co., 1998
- King City LM600 Project Monterey Co., 2001
- Gilroy City Phase I LM6000 Project Santa Clara Co., 2001
- East Altamont Energy Center Alameda Co., 2001

Her responsibilities included obtaining the CEC licenses for the projects and obtaining permits from other regulatory agencies such as the U.S. Fish and Wildlife Service, California Department of Fish and Game, State Lands Commission and U.S. Bureau of Reclamation. She has also provided permitting assistance to Calpine on its Sutter and Metcalf Energy Center projects.

Calpine Corporation – Compliance Ms. Strachan also assisted Calpine Corporation in compliance activities associated with projects licensed before the CEC. Her activities have included the preparation of several amendments to the project licenses for the Delta Energy Center and Los Medanos Energy Center (Contra Costa Co., 1999)

Calpine Corporation – Due Diligence Ms. Strachan conducted the environmental due diligence investigation for Calpine's

Resume of Susan Strachan Page 2

acquisition of the Los Medanos Energy Center (1999) and Otay Mesa projects (San Diego Co., 2000)

Sacramento Municipal Utility District Ms. Strachan served as the Manager, Project Permitting and Licensing, responsible for overseeing permitting activities before the California Energy Commission (CEC) for the following projects:

- Sacramento Cogeneration Authority at Procter & Gamble Sacramento, Co., 1993
- Sacramento Power Authority at Campbell Soup Sacramento Co., 1993
- Carson Ice-Gen Sacramento Co., 1992
- SEPCO Sacramento Co., 1993
- SMUD Cogeneration Pipeline Sacramento C0., and Yolo Co., 1993

In this position, Ms. Strachan worked closely with the CEC while the projects moved through the licensing process. Her responsibilities included preparation of the Applications for Certification, responding to data requests, negotiating permit conditions, working with members of the public, and participating in hearings.

Ms. Strachan was also responsible for acquiring permits from other agencies including the Sacramento Metropolitan Air Quality Management District, Regional Water Quality Control Board, U.S. Fish and Wildlife Service, and Army Corps of Engineers.

Construction Compliance As project manager for Sacramento Power Authority at Campbell Soup project, Ms. Strachan managed the compliance activities associated with the CEC's conditions of certification for the project. This included interface with the CEC during construction of the project, preparation of submittals to the CEC in compliance with permit conditions, and preparation of amendments for proposed changes to conditions of certification. Ms. Strachan was also responsible for responding to and addressing local community concerns associated with the project.

Cosumnes Power Plant – Ms. Strachan provided environmental project management support/advice to SMUD for the CEC licensing of the Cosumnes Power Plant project, located in Sacramento Co. (2002).

**EDUCATION** 

B.A., Political Science, University of California, Santa Barbara

Resume of Susan Strachan Page 3



#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

**DOCKET NO. 06-AFC-7** 

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Application For Certification for the Humboldt Bay Repowering Project **DECLARATION OF DOUGLAS DAVY** 

- 1, Douglas Davy, declare as follows:
  - I am employed by CH2M HILL as a Program Manager and have been retained by PG&E to be the AFC Project Manager for the project.
  - A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
  - I prepared the attached testimony relating to Noise and Vibration for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
  - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
  - I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on June 4, 2008.

1

I. <u>Name</u>: Doug Davy

## II. <u>Purpose</u>:

My testimony addresses the subject of Noise and Vibration associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

## III. Qualifications:

I am presently employed at CH2M HILL for the past 4 years and am presently a Program Manager with that organization. I have a Degree in Anthropology and I have 24 years of experience in environmental siting, licensing, and permitting. I supervised the preparation of the Noise and Vibration section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

## IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

Exhibit 1 Humboldt Bay Repowering Project AFC, Section 8.7

Exhibit 7 Data Responses to Data Requests 1 through 57, Response to Data Request 33, dated January 12, 2007

Exhibit 45 Pacific Gas and Electric Company's Supplemental Comments on the Preliminary Staff Assessment, comments on NOISE-4, dated January 2, 2008

## V. Opinion and Conclusions

I have reviewed the Noise and Vibration section of the FSA and agree that with the Conditions of Certification the HBRP will not result in significant noise and vibration impacts and will comply with all applicable laws, ordinances, regulations and standards (LORS).

## **Project Manager**

## Education

Ph.D., Archaeology, Southern Illinois University M.A., Anthropology, Southern Illinois University B.A., Anthropology, University of California

## Relevant Experience

Dr. Davy has 24 years of experience providing regulatory compliance and project management support for infrastructure development projects. He has served as project manager for numerous environmental licensing and permitting projects, directing multidisciplinary teams of planners, engineers, and scientists in helping to resolve complex environmental regulatory issues. Dr. Davy has served as project manager for ten Applications for Certification (AFCs). His California Energy Commission (CEC) licensing experience includes project management on seven 12-month AFCs, two 6-month AFCs, one relicense and combined-cycle conversion AFC, several AFC and permit amendments, and three emergency peaker applications. Dr. Davy has also prepared critical project development and permitting reviews for more than 15 prospective power plant development sites in California.

## Representative Projects

- Project Manager, Humboldt Bay Repowering Project AFC, Pacific Gas and Electric Company, Eureka, California. Project manager for AFC before the CEC for the 163-MW natural gas-fired power plant using 10 Wärtsilä 18V50DF dual-fuel turbine-generators. Directed multidisciplinary team of scientists and engineers in preparing testimony for licensing.
- Project Manager, Russell City Energy Center, Calpine/Bechtel Joint Development, Hayward, California. Project manager for the preparation of an AFC before the CEC for a 600-MW natural gas-fired power plant and appurtenant facilities including natural gas, water supply, and electrical transmission lines. Prepared environmental assessment associated with reconductoring 14 miles of 230 kV transmission line. Project qualified for an expedited 6-month licensing process under the Governor's emergency power plant licensing executive order. Also served as project manager for an amendment to the project license involving movement of the project configuration.
- Project Manager, Walnut Creek Energy Park, Sun Valley Energy Center AFCs, Edison
  Mission Energy, City of Industry and Romoland, California. Project manager for AFCs
  before the CEC for two 500 MW natural gas-fired peaking power plants using GE Energy
  LMS100 technology. Directed multidisciplinary team of scientists and engineers in preparing
  testimony for licensing.

- Project Manager, Chula Vista Energy Upgrade Project, MMC Energy, Incorporated. San Diego County, California. Project manager for an AFC before the CEC for a 100-MW natural gas-fired power plant and appurtenant facilities. Coordinated a multidisciplinary team during the Discovery and Decision phases of licensing. Key analyses included analysis of noise and biological resource effects in an urban area adjacent to an open space and nature reserve area.
- Project Manager, Inland Empire Energy Center, Calpine Corporation, Riverside,
   California. Project manager for AFC before the CEC for the 810-MW natural gas-fired power
   plant. Directed multidisciplinary team of scientists and engineers in preparing testimony for
   licensing. Managed preparation of license amendments, including conversion of the turbine
   technology to the GE Energy S107H System and for a rerouting of the natural gas pipeline.
   Coordinated consultations with CEC staff and other regulatory agencies.
- Project Manager, Roseville Energy Park, Roseville Electric, Roseville, California. Project
  manager for AFC before the CEC for a 160-MW natural gas-fired power plant. Directed a
  multidisciplinary team of scientists and engineers in providing project development support
  and preparing application document, responding to data requests. Participated in
  consultations with CEC staff and other regulatory agencies including the Placer County Air
  Pollution Control District and the U.S. Army Corps of Engineers (USACE).
- Project Manager, Donald Von Raesfeld Power Plant/Pico Power Project, Silicon Valley Power, Santa Clara, California. Project manager for AFC before the CEC for a 123-MW natural gas-fired power plant. Directed a multidisciplinary team of scientists and engineers in providing project development support and preparing application document, responding to data requests, and providing expert testimony. Participated in consultations with CEC staff and other regulatory agencies. Project challenges included developing a mitigation plan for air emissions deposition effects on the Bay checkerspot butterfly, rezoning of the project site, negotiating Best Available Control Technology standards, and Federal Aviation Administration (FAA) air navigation hazard clearance.
- Project Manager, Los Esteros Critical Energy Facility Phase 1 Relicense and Phase 2
   Combined-Cycle Conversion, Calpine Corporation, San Jose, California. Project manager
   for AFC before the CEC that included relicensing a 180-MW simple-cycle power plant and a
   conversion to combined-cycle operation that would increase the nominal plant output to
   320-MW.
- Project Manager, Sutter Energy Center, Calpine Corporation. Sutter County, California.
  Project manager for an AFC before the CEC for a 600-MW natural gas-fired power plant and
  appurtenant facilities including 12 miles of natural gas and 4 miles of electrical transmission
  lines. Coordinated a multidisciplinary team during the Discovery and Decision phases of
  licensing. Key analyses included preparing water temperature and water quality models,
  identifying emission reduction credits, and assessing potential impacts along an electrical
  transmission route.



#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 06-AFC-7

Application For Certification for the Humboldt Bay Repowering Project

**DECLARATION OF JERRY SALAMY** 

## I, Jerry Salamy, declare as follows:

- I am employed by CH2M HILL as a Senior Program Manager and have been retained by PG&E to be the AFC Deputy Project Manager for the project.
- A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
- I prepared the attached testimony relating to Public Health for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on June 4, 2008.

Jeurs Salans

I. <u>Name</u>: Jerry Salamy

#### II. Purpose:

My testimony addresses the subject of Public Health associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

## III. Qualifications:

I am presently employed at CH2M HILL for the past 10 years and am presently a Senior Program Manager with that organization. I have a Degree in chemistry and I have 22 years of experience in environmental siting, licensing, and permitting. I have reviewed the Public Health section of the AFC and have assisted with the preparation of some of the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

## IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

- **Exhibit 1** Humboldt Bay Repowering Project AFC, Section 8.9 and Appendix 8.9
- Exhibit 7 Data Responses to Data Requests 1 through 57,
  Response to Data Requests 34 and 35, dated January 12,
  2007
- Exhibit 39 Supplemental Screening Health Risk Assessment, dated November 9, 2007
- Exhibit 38 Applicant's Responses to CEC Staff Data Requests 104 and 105, dated November 6, 2007
- **Exhibit 42** Revised Visual Simulations, dated November 19, 2007

Public Health

Exhibit 45 Pacific Gas and Electric Company's Supplemental
Comments on the Preliminary Staff Assessment, Comments
on Staff's Public Health methodology, dated January 2, 2008

Exhibit 47 Pacific Gas and Electric Company's Supplemental Screening Health Risk Assessment, dated February 6, 2008

#### V. Opinion and Conclusions

## Proposed Condition of Certification PUBLIC HEALTH-1

In response to a request made by the CEC staff during the January 16, 2008 CEC workshop, a supplemental screening health risk assessment was submitted to the CEC on February 5, 2008. As shown in this supplemental screening health risk assessment, the following operations on Diesel fuel are required for commissioning and source testing activities:

- 20 hours per engine for initial commissioning, without abatement devices installed (for a total of 200 engine-hours).
- 45 hours per engine for abatement device turning and source testing (for a total of 450 engine-hours).

The latter number is derived from the source testing requirements included in the PDOC/PSA. The FDOC and FSA require even more testing, as follows:

- Proposed Condition AQ-163 requires that each of the 10 engines be initially tested at three loads on Diesel fuel, for a total of 30 sets of tests.
- One of the pollutants required to be tested is PM10; a second (different) pollutant is DPM (Diesel particulate matter). The most accurate PM10 test method currently approved for low concentration measurement is EPA Method 201a/202. The DPM measurement must be made using CARB Method 5. (17 CCR 93115(i)). It is not clear whether these two methods can be conducted simultaneously due to the limited space available on the stack testing platform.
- Three test runs are required for each test condition. For the measurement of low particulate matter concentrations (as are expected in this case) a minimum of four hours of sample collection is typically required when using EPA Methods 201a/202, which require that a sample volume of at least 100 scf be obtained for each test run. Assuming a minimum of 30 minutes of operation to stabilize emissions and flow rates at the start of each test day, one hour to change out test equipment between test runs, and 30 minutes at the end of each test run to demobilize, a total of 10 hours of Diesel operation will be required to complete two test runs. The third test run for each test condition would require five hours (30 minutes plus four hours plus 30 minutes). Thus, each test condition will require 15

Public Health

- hours of Diesel operation for each engine if everything goes according to schedule.
- The 30 sets of tests will require 450 hours of operation on Diesel fuel, assuming that the Method 201a/202 and Method 5 tests can be performed simultaneously. If they cannot be performed simultaneously, up to 900 hours of operation on Diesel fuel will be needed to complete the required testing.
- Proposed Condition PUBLIC HEALTH-2 requires, in addition to the PM10 and DPM testing required by the District, measurements of acetaldehyde. acrolein, benzene, 1,3-butadiene, ethylbenzene, formaldehyde, propylene, toluene, and xylenes. Furthermore, Proposed Condition PUBLIC HEALTH-2 requires that measurements of these compounds, as well as of DPM, be taken both upstream and downstream of the oxidation catalyst. These tests must be performed on a minimum of four engines. Although no test methods are specified in the condition, we expect that DPM testing will be performed pursuant to CARB or EPA Method 5; CARB Method 422 would be used for 1,3-butadiene; CARB Method 430 for acetaldehyde and formaldehyde; and EPA Method TO-15 for the remaining compounds. Typically, only two "grab sample" methods, such as these, can be performed at the same time. The required test run duration is a function of the sampling time, but is typically not less than one hour. Thus, assuming that the District-required PM10 and DPM runs can be performed simultaneously, at least one (and perhaps two) sets of triplicate runs will be required to satisfy the requirements of PUBLIC HEALTH-2. Assuming a one hour test run, with 30 minutes before and between each run, a total test series for one engine would require five hours. Thus, a minimum of 20 additional hours of operation on Diesel fuel would be required to test the minimum four engines to satisfy the requirements of PUBLIC HEALTH-2. If two test series were required to complete the necessary tests on each engine, and if all ten engines were required to be tested (as the worst case under PUBLIC HEALTH-2), then 100 hours of operation on Diesel fuel would be required to comply with **PUBLIC HEALTH-2.**

In total, between 670 and 750 hours of operation on Diesel fuel are required during the first year of operation to enable commissioning of the units on Diesel fuel and complete mandatory testing, assuming that everything goes according to plan. Any operation on Diesel fuel to address emergency conditions and/or natural gas curtailments would be in excess of these amounts.

 The provisions of Condition PUBLIC HEALTH-1 that exclude testing operations from the 510 hour per year limit during easterly and southeasterly winds are helpful in principle; however, from a practical perspective, they will provide only after-the-fact relief, as source tests need to be scheduled weeks in advance, and wind directions cannot be predicted with a sufficient level of certainty. To address the fact that the HBRP could not comply with the conditions as written PG&E requests the following modifications to **PUBLIC HEALTH-2** as follows. The proposed conditions would allow DPM emissions equivalent to 650 hours of Diesel operation during the first year (including commissioning and initial source tests), and 510 hours of Diesel operation per year during subsequent years. These numbers are consistent with the supplemental health risk assessment submitted by the applicant on February 5, 2008, and with the risk assessment prepared by staff and presented in the FSA.

Additionally, **PUBLIC HEALTH-1** has been modified to reflect the Staff's agreement to remove the restriction that testing operations be conducted outside school hours.

**PUBLIC HEALTH-1**. The project owner shall not operate the Wartsila engines on diesel fuel for a period exceeding 510 hours per year such that DPM emissions do not exceed 4846.4 pounds during the first twelve months after initial operation of the first unit, total for all 10 engines; and do not exceed 1983.9 pounds during any subsequent calendar year, averaged over three years, total for all 10 engines. Once the health risk assessment prepared pursuant to **PUBLIC HEALTH-2** is approved by the CPM, the CPM will notify the project owner of the total number of engine hours allowable DPM emissions on diesel fuel the project may operate emit annually, as determined by what the health risk assessment shows as the maximum number of hours that achieve a theoretical maximum cancer risk at the point of maximum impact of less than 10 in one million and acute and chronic Hazard Indices of less than 1.0. The 510 total hours of operation allowable DPM emissions for all engines using diesel fuel, and any subsequently adjusted number of hours limit, shall not include emissions associated with time needed for compliance testing required as per condition AQ-163 and AQ-167 if the testing is conducted when the wind direction is out of the east or south east. Compliance testing required per condition AQ-167 shall also not occur between 7:30 am and 3: 30 pm on days when the South Bay Elementary School is in session.

<u>Verification:</u> The project owner shall provide hourly logs of diesel fuel usage to the CPM in the Annual Compliance Report Summary. The log shall include the unit number, duration, purpose (annual compliance testing, natural gas curtailment or emergency), **and** wind direction, and whether South Bay Elementary School is in session. **DPM emissions** 

during Diesel Mode operation shall be calculated using valid fuel use records, source test results, and CPM-approved emission factors and methodology. DPM emissions during Diesel Mode operation without abatement of emissions by the oxidation catalyst shall be calculated using an emission rate of 5.56 pounds per engine hour.

I agree that with the modifications to **PUBLIC HEALTH-1** above and with Staff recommended Condition of Certification **PUBLIC HEALTH-2**, construction and operation of the HBRP will not result in significant public health impacts and will comply with all public health related laws, ordinances, regulations and standards (LORS).

# **Jerry Salamy**

## Senior Project Manager/ Air Quality Specialist

## **Education**

B.A., Chemistry, Holy Names College, Oakland

## **Relevant Experience**

Mr. Salamy has more than 22 years of consulting experience licensing new industrial energy-related sources. He has prepared numerous Prevention of Significant Deterioration Pre-Construction Air Quality Permit Applications, prepared project permitability studies, assessed industrial facilities compliance with state and federal air pollution rules and regulations, and assisted power plant clients with preparation of permit applications and compliance-related issues.

## Representative Projects

Air Quality Audits, SMUD. Managed air quality audits for four power plants in Northern California. He conducted air quality audits of the Central Valley Finance Authority's Carson Energy Facility and McClellan Gas Turbine Facility and oversaw air quality audits at the Sacramento Cogeneration Authority – SCA Cogen II and Cogen III. Mr. Salamy's responsibilities included managing the development of the pre-audit checklist and field interview forms; conducting kick-off, pre-audit, and close-out audit meetings; conducting field interviews and audits; summarizing and presenting findings; and preparing the final audit reports.

Air Quality Audits, Calpine Corp., Northern California. Participated in the multimedia auditing Calpine's power plants in Northern California. He conducted air quality audits of the Delta Energy Center and Los Medanos Energy Center facilities. Mr. Salamy's responsibilities included participating in the development of the pre-audit checklist and field interview forms; conducting kick-off, pre-audit, and close-out audit meetings; conducting field interviews and audits; summarizing and presenting findings; and preparing the final audit report.

Application for Certification, Sutter Power Plant, Calpine Corp., Yuba City. Managed the preparation of the air quality section of the Sutter Power Plant AFC. The air quality analysis required the preparation of an environmental setting for the project site, a criteria and toxic pollutant emission inventory, a Best Available Control Technology analysis, and air dispersion modeling. These analyses were used to support the preparation of a Prevention of Significant Deterioration and New Source Review permit applications. These applications were submitted to the U.S. EPA Region IX office and the Feather River Air Quality Management District for the issuance of a construction

permits. The scope of work also required the identification of emission reduction credits (ERCs) to support the New Source Review permitting process. Mr. Salamy was instrumental in locating and negotiating for the purchase of the ERCs necessary for the siting of the Sutter Power Plant.

Application for Certification, Los Esteros Critical Energy Facility, Calpine C\*Power, San Jose. Managed the preparation of the AFC for a 180-MW power plant in San Jose. The project required the preparation of numerous other studies/documents to satisfy the CEC staff request. These studies/documents included the preparation of a General Plan amendment and planned development zoning applications, archaeological and paleontological survey reports, and biological resource protection permits. Mr. Salamy also managed the development and implementation of biological, cultural, and paleontological resource monitoring programs; risk management plan; traffic and transportation management plan; waste reduction program; and an electromagnetic force evaluation for project construction.

Application for Certification, Delta Energy Center, Calpine Corp., Pittsburg. Managed the preparation of the Delta Energy Center AFC for an 880-MW power plant in Pittsburg. Mr. Salamy also managed the development and implementation of biological, cultural, and paleontological resource monitoring programs; risk management plan; traffic and transportation management plan; waste reduction program; and an electromagnetic force evaluation for the project construction.

Application for Certification, Los Medanos Energy Center, Calpine Corp., Pittsburg. Managed the development and implementation of compliance support documentation, biological, cultural, and paleontological resource monitoring programs; risk management plan; traffic and transportation management plan; waste reduction program; and an electromagnetic force evaluation for the project construction.

Application for Certification, East Altamont Energy Center, Calpine Corp., Tracy. Managed the preparation of the East Altamont Energy Center AFC for a 1,100-MW power plant in Tracy. Mr. Salamy also prepared the alternative site and generating technologies, ammonia risk assessments, and provided general licensing support.

Application for Certification, Metcalf Energy Center, Calpine Corp., San Jose. Assisted in the management of the preparation of the Metcalf Energy Center AFC. Mr. Salamy was responsible for the development and tracking of data response submittals requested by the CEC. Mr. Salamy also authored data responses for hazardous materials management.

Calpine Geysers Application for Certification Amendment, Calpine Corp., Middleton. Managed the preparation of license amendments for six Geyser Power Plant projects to allow for the use of recycled water on the project sites. The license amendment included the analysis of air quality, biological, cultural, paleontological, land use, noise, visual resources, and traffic and transportation impacts. The project required the preparation of a Title 22 Engineer's Report and is being granted approval

from two Regional Water Quality Control Boards and the State Department of Health Services.

Salton Sea Unit 6 Geothermal Power Plant Application for Certification; Mid American Energy Holding Company; Imperial County, California. Mr. Salamy managed the licensing of a 185-MW geothermal power plant in Imperial County, California. The power plant design was based on the flash geothermal power plant process, which produces both solid and liquid byproducts (brine cake and spent brine) that required disposal. The project site was located in a rural area of Imperial County, but was adjacent to a National Wildlife Refugee that supports significant populations of avian species. The licensing process involved the review of all environmental areas, specifically focused on waste disposal, air quality, hazardous materials handling, and biological resources. Mr. Salamy managed preparation of over 500 data responses submitted by the State and the public. The project was successfully completed, with a license issued by the California Energy Commissions.

Apex Generating Station Licensing; Mirant Inc.; Las Vegas, Nevada. Managed the licensing of Mirant's 1,100 Megawatt Apex Generating Station, located in Las Vegas, Nevada. Mr. Salamy prepared a Prevention of Significant Deterioration Pre-Construction Permit Application for the project, as well as the preparation of a National Environmental Policy Act Environmental Assessment to support the siting of the 500-kilovolt transmission line.

Prevention of Significant Deterioration (PSD) Permit; Sutter Power Project, Calpine; Yuba City, California. Managed preparation of a PSD Permit for a merchant power plant consisting of two combined-cycle gas turbine generator units. Permit preparation involved development of emission characteristics for criteria pollutants and identification and negotiation of emission-reduction credits necessary for permitting of the project. The permit was submitted to the EPA for its review and approval. The local air district was not delegated authority for the PSD program.

MID Electric Generation Station (MEGS), Modesto Irrigation District. Assistant project manager for the SPPE to license a nominal 95-MW natural-gas-fired, simple-cycle generating facility consisting of two natural-gas-fired combustion turbines, approximately 0.25 mile of new 69-kV subtransmission line and fiber optic cable, 0.25 mile of new 8-inch diameter natural gas pipeline, and water supply and wastewater tap lines into City of Ripon lines in Stockton Avenue. The project would occupy 8 acres within a 12.25-acre parcel. This plant had noise and land use issues to resolve. Plant is nearing completion of construction.

**San Joaquin Valley Energy Center, Calpine Corp.** Prepared the ammonia risk analysis in support of the licensing of a 1,060-MW combined-cycle merchant plant to be located in the city of San Joaquin.

Cosumnes Power Plant, SMUD. Prepared the ammonia risk assessment and assisted in responding to numerous data request for a 1,000-MW combined-cycle power plant on buffer lands for the former Rancho Seco Nuclear Plant. Also managed the identification of emission reduction credits in support of the facility licensing effort.

Walnut Energy Center, Turlock Irrigation District. Assistant project manager for the licensing of this 250-MW combined-cycle generating facility configured using two natural-gas-fired combustion turbines and one steam turbine. Managed the ammonia risk assessment, preparing a detailed analysis showing the probability of and potential effects of an accidental release on nearby residential receptors. Also assisted in responding to numerous hazardous materials handling issues.

Highgrove Generating Station, AES Pacific. Prepared the air quality permits and Application for Certification for 300 megawatt (MW) peaking facility consisting of three natural-gas-fired turbines and associated equipment. The project will employ General Electric's LMS100 combustion turbine generators (CTG) that integrate new technology to increase the combustion turbine's efficiency above existing turbine technologies.

Application for Certification for three Natural Gas-fired Energy Facilities, to be colocated at PG&E 's San Mateo, Scott, and Martin substations. Managed the preparation of three Applications for Certification on expedited licensing schedule enacted by gubernatorial executive order. Mr. Salamy was responsible for proposal, costing, scheduling, team management and direction, as well as project execution within the three week AFC preparation timeline. In addition, Mr. Salamy authored the project description, air quality, and alternative sections of all three Applications for Certification. In addition, Mr. Salamy prepared three air permits for submittal to the Bay Area Air Quality Management District.

**Vernon Power Plant, City of Vernon.** Prepared the air quality permit and Application for Certification for 913 megawatt (MW) base load facility consisting of three natural-gas-fired turbines and heat recovery steam generators, one steam turbine, and associated equipment. The project will employ Siemen combustion turbine generators (CTG) that integrate new "fast start" technology to decrease the combustion turbine's start up duration and air emissions.

# **SOCIOECONOMICS TESTIMONY**

#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

**DOCKET NO. 06-AFC-7** 

Application For Certification for the Humboldt Bay Repowering Project **DECLARATION OF DOUGLAS DAVY** 

- I. Douglas Davy, declare as follows:
  - I am employed by CH2M HILL as a Program Manager and have been retained by PG&E to be the AFC Project Manager for the project.
  - A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
  - I prepared the attached testimony relating to Socioeconomics for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
  - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
  - I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on June 4, 2008.

- himp

I. <u>Name</u>: Douglas Davy

## II. Purpose:

My testimony addresses the subject of Socioeconomics associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

## III. Qualifications:

I am presently employed at CH2M HILL for the past 4 years and am presently a Program Manager with that organization. I have a Degree in Anthropology and I have 24 years of experience in environmental siting, licensing, and permitting. I supervised the preparation of the Socioeconomics section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

## IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

- Exhibit 1 Humboldt Bay Repowering Project AFC, Section 8.10
- **Exhibit 4** Data Adequacy Supplement, dated November 1, 2006, Response to Data Adequacy guestion
- Exhibit 7 Data Responses to Data Requests 1 through 57, Response to Data Request 36, dated January 12, 2007

## V. Opinion and Conclusions

I have reviewed the Socioeconomics section of the FSA and agree that with the Conditions of Certification the HBRP will not result in significant socioeconomic impacts and will comply with all applicable laws, ordinances, regulations and standards (LORS).

## **Project Manager**

## Education

Ph.D., Archaeology, Southern Illinois University M.A., Anthropology, Southern Illinois University B.A., Anthropology, University of California

## Relevant Experience

Dr. Davy has 24 years of experience providing regulatory compliance and project management support for infrastructure development projects. He has served as project manager for numerous environmental licensing and permitting projects, directing multidisciplinary teams of planners, engineers, and scientists in helping to resolve complex environmental regulatory issues. Dr. Davy has served as project manager for ten Applications for Certification (AFCs). His California Energy Commission (CEC) licensing experience includes project management on seven 12-month AFCs, two 6-month AFCs, one relicense and combined-cycle conversion AFC, several AFC and permit amendments, and three emergency peaker applications. Dr. Davy has also prepared critical project development and permitting reviews for more than 15 prospective power plant development sites in California.

## Representative Projects

- Project Manager, Humboldt Bay Repowering Project AFC, Pacific Gas and Electric Company, Eureka, California. Project manager for AFC before the CEC for the 163-MW natural gas-fired power plant using 10 Wärtsilä 18V50DF dual-fuel turbine-generators. Directed multidisciplinary team of scientists and engineers in preparing testimony for licensing.
- Project Manager, Russell City Energy Center, Calpine/Bechtel Joint Development, Hayward, California. Project manager for the preparation of an AFC before the CEC for a 600-MW natural gas-fired power plant and appurtenant facilities including natural gas, water supply, and electrical transmission lines. Prepared environmental assessment associated with reconductoring 14 miles of 230 kV transmission line. Project qualified for an expedited 6-month licensing process under the Governor's emergency power plant licensing executive order. Also served as project manager for an amendment to the project license involving movement of the project configuration.
- Project Manager, Walnut Creek Energy Park, Sun Valley Energy Center AFCs, Edison
  Mission Energy, City of Industry and Romoland, California. Project manager for AFCs
  before the CEC for two 500 MW natural gas-fired peaking power plants using GE Energy
  LMS100 technology. Directed multidisciplinary team of scientists and engineers in preparing
  testimony for licensing.

- Project Manager, Chula Vista Energy Upgrade Project, MMC Energy, Incorporated. San Diego County, California. Project manager for an AFC before the CEC for a 100-MW natural gas-fired power plant and appurtenant facilities. Coordinated a multidisciplinary team during the Discovery and Decision phases of licensing. Key analyses included analysis of noise and biological resource effects in an urban area adjacent to an open space and nature reserve area.
- Project Manager, Inland Empire Energy Center, Calpine Corporation, Riverside,
   California. Project manager for AFC before the CEC for the 810-MW natural gas-fired power
   plant. Directed multidisciplinary team of scientists and engineers in preparing testimony for
   licensing. Managed preparation of license amendments, including conversion of the turbine
   technology to the GE Energy S107H System and for a rerouting of the natural gas pipeline.
   Coordinated consultations with CEC staff and other regulatory agencies.
- Project Manager, Roseville Energy Park, Roseville Electric, Roseville, California. Project
  manager for AFC before the CEC for a 160-MW natural gas-fired power plant. Directed a
  multidisciplinary team of scientists and engineers in providing project development support
  and preparing application document, responding to data requests. Participated in
  consultations with CEC staff and other regulatory agencies including the Placer County Air
  Pollution Control District and the U.S. Army Corps of Engineers (USACE).
- Project Manager, Donald Von Raesfeld Power Plant/Pico Power Project, Silicon Valley Power, Santa Clara, California. Project manager for AFC before the CEC for a 123-MW natural gas-fired power plant. Directed a multidisciplinary team of scientists and engineers in providing project development support and preparing application document, responding to data requests, and providing expert testimony. Participated in consultations with CEC staff and other regulatory agencies. Project challenges included developing a mitigation plan for air emissions deposition effects on the Bay checkerspot butterfly, rezoning of the project site, negotiating Best Available Control Technology standards, and Federal Aviation Administration (FAA) air navigation hazard clearance.
- Project Manager, Los Esteros Critical Energy Facility Phase 1 Relicense and Phase 2
   Combined-Cycle Conversion, Calpine Corporation, San Jose, California. Project manager
   for AFC before the CEC that included relicensing a 180-MW simple-cycle power plant and a
   conversion to combined-cycle operation that would increase the nominal plant output to
   320-MW.
- Project Manager, Sutter Energy Center, Calpine Corporation. Sutter County, California.
  Project manager for an AFC before the CEC for a 600-MW natural gas-fired power plant and
  appurtenant facilities including 12 miles of natural gas and 4 miles of electrical transmission
  lines. Coordinated a multidisciplinary team during the Discovery and Decision phases of
  licensing. Key analyses included preparing water temperature and water quality models,
  identifying emission reduction credits, and assessing potential impacts along an electrical
  transmission route.

# TRAFFIC AND TRANSPORTATION TESTIMONY

#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

**DOCKET NO. 06-AFC-7** 

Application For Certification for the Humboldt Bay Repowering Project **DECLARATION OF DOUGLAS DAVY** 

## I, Douglas Davy, declare as follows:

- I am employed by CH2M HILL as a Program Manager and have been retained by PG&E to be the AFC Project Manager for the project.
- A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
- I prepared the attached testimony relating to Traffic and Transportation for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
- It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on June 4, 2008.

m5m Dry

I. <u>Name</u>: Douglas Davy

## II. <u>Purpose</u>:

My testimony addresses the subject of Traffic and Transportation associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

## III. Qualifications:

I am presently employed at CH2M HILL for the past 4 years and am presently a Program Manager with that organization. I have a Degree in Anthropology and I have 24 years of experience in environmental siting, licensing, and permitting. I supervised the preparation of the Traffic and Transportation section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

## IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

**Exhibit 1** Humboldt Bay Repowering Project AFC, Section 8.12

Exhibit 13 Submittal of Pacific Gas and Electric Responses to Staff Data Requests 58 through 78 and Workshop Query 1 through 22, Responses to Data Requests 64 and 65, dated February 13, 2007

## V. Opinion and Conclusions

I have reviewed the Traffic and Transportation section of the FSA and agree that with the Conditions of Certification the HBRP will not result in significant traffic and transportation impacts and will comply with all applicable laws, ordinances, regulations and standards (LORS).

## **Project Manager**

## Education

Ph.D., Archaeology, Southern Illinois University M.A., Anthropology, Southern Illinois University B.A., Anthropology, University of California

## Relevant Experience

Dr. Davy has 24 years of experience providing regulatory compliance and project management support for infrastructure development projects. He has served as project manager for numerous environmental licensing and permitting projects, directing multidisciplinary teams of planners, engineers, and scientists in helping to resolve complex environmental regulatory issues. Dr. Davy has served as project manager for ten Applications for Certification (AFCs). His California Energy Commission (CEC) licensing experience includes project management on seven 12-month AFCs, two 6-month AFCs, one relicense and combined-cycle conversion AFC, several AFC and permit amendments, and three emergency peaker applications. Dr. Davy has also prepared critical project development and permitting reviews for more than 15 prospective power plant development sites in California.

## Representative Projects

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  Hayward, California. Project manager for the preparation of an AFC before the CEC for a
  600-MW natural gas-fired power plant and appurtenant facilities including natural gas,
  water supply, and electrical transmission lines. Prepared environmental assessment
  associated with reconductoring 14 miles of 230 kV transmission line. Project qualified for an
  expedited 6-month licensing process under the Governor's emergency power plant licensing
  executive order. Also served as project manager for an amendment to the project license
  involving movement of the project configuration.
- Project Manager, Walnut Creek Energy Park, Sun Valley Energy Center AFCs, Edison
  Mission Energy, City of Industry and Romoland, California. Project manager for AFCs
  before the CEC for two 500 MW natural gas-fired peaking power plants using GE Energy
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  testimony for licensing.

- Project Manager, Chula Vista Energy Upgrade Project, MMC Energy, Incorporated. San Diego County, California. Project manager for an AFC before the CEC for a 100-MW natural gas-fired power plant and appurtenant facilities. Coordinated a multidisciplinary team during the Discovery and Decision phases of licensing. Key analyses included analysis of noise and biological resource effects in an urban area adjacent to an open space and nature reserve area.
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   California. Project manager for AFC before the CEC for the 810-MW natural gas-fired power
   plant. Directed multidisciplinary team of scientists and engineers in preparing testimony for
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   technology to the GE Energy S107H System and for a rerouting of the natural gas pipeline.
   Coordinated consultations with CEC staff and other regulatory agencies.
- Project Manager, Roseville Energy Park, Roseville Electric, Roseville, California. Project
  manager for AFC before the CEC for a 160-MW natural gas-fired power plant. Directed a
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  and preparing application document, responding to data requests. Participated in
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  Pollution Control District and the U.S. Army Corps of Engineers (USACE).
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- Project Manager, Los Esteros Critical Energy Facility Phase 1 Relicense and Phase 2
   Combined-Cycle Conversion, Calpine Corporation, San Jose, California. Project manager
   for AFC before the CEC that included relicensing a 180-MW simple-cycle power plant and a
   conversion to combined-cycle operation that would increase the nominal plant output to
   320-MW.
- Project Manager, Sutter Energy Center, Calpine Corporation. Sutter County, California.
  Project manager for an AFC before the CEC for a 600-MW natural gas-fired power plant and
  appurtenant facilities including 12 miles of natural gas and 4 miles of electrical transmission
  lines. Coordinated a multidisciplinary team during the Discovery and Decision phases of
  licensing. Key analyses included preparing water temperature and water quality models,
  identifying emission reduction credits, and assessing potential impacts along an electrical
  transmission route.

# TRANSMISSION LINE SAFEY AND NUISANCE TESTIMONY

#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the Humboldt Bay Repowering Project **DOCKET NO. 06-AFC-7** 

**DECLARATION OF DOUGLAS DAVY** 

## I, Douglas Davy, declare as follows:

- I am employed by CH2M HILL as a Program Manager and have been retained by PG&E to be the AFC Project Manager for the project.
- A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Transmission Line Safety and Nuisance for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on June 4, 2008.

m5h Dry

I. <u>Name</u>: Douglas Davy

## II. <u>Purpose</u>:

My testimony addresses the subject of Transmission Line Safety and Nuisance associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

## III. Qualifications:

I am presently employed at CH2M HILL for the past 4 years and am presently a Program Manager with that organization. I have a Degree in Anthropology and I have 24 years of experience in environmental siting, licensing, and permitting. I supervised the preparation of the Transmission Line Safety and Nuisance section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

## IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

Exhibit 1 Humboldt Bay Repowering Project AFC, Section 5.4

## V. Opinion and Conclusions

I have reviewed the Transmission Line Safety and Nuisance section of the FSA and agree that with the Conditions of Certification the HBRP will not result in significant transmission line safety and nuisance impacts and will comply with all applicable laws, ordinances, regulations and standards (LORS).

## Project Manager

## Education

Ph.D., Archaeology, Southern Illinois University M.A., Anthropology, Southern Illinois University B.A., Anthropology, University of California

## Relevant Experience

Dr. Davy has 24 years of experience providing regulatory compliance and project management support for infrastructure development projects. He has served as project manager for numerous environmental licensing and permitting projects, directing multidisciplinary teams of planners, engineers, and scientists in helping to resolve complex environmental regulatory issues. Dr. Davy has served as project manager for ten Applications for Certification (AFCs). His California Energy Commission (CEC) licensing experience includes project management on seven 12-month AFCs, two 6-month AFCs, one relicense and combined-cycle conversion AFC, several AFC and permit amendments, and three emergency peaker applications. Dr. Davy has also prepared critical project development and permitting reviews for more than 15 prospective power plant development sites in California.

## Representative Projects

- Project Manager, Humboldt Bay Repowering Project AFC, Pacific Gas and Electric Company, Eureka, California. Project manager for AFC before the CEC for the 163-MW natural gas-fired power plant using 10 Wärtsilä 18V50DF dual-fuel turbine-generators. Directed multidisciplinary team of scientists and engineers in preparing testimony for licensing.
- Project Manager, Russell City Energy Center, Calpine/Bechtel Joint Development,
  Hayward, California. Project manager for the preparation of an AFC before the CEC for a
  600-MW natural gas-fired power plant and appurtenant facilities including natural gas,
  water supply, and electrical transmission lines. Prepared environmental assessment
  associated with reconductoring 14 miles of 230 kV transmission line. Project qualified for an
  expedited 6-month licensing process under the Governor's emergency power plant licensing
  executive order. Also served as project manager for an amendment to the project license
  involving movement of the project configuration.
- Project Manager, Walnut Creek Energy Park, Sun Valley Energy Center AFCs, Edison
  Mission Energy, City of Industry and Romoland, California. Project manager for AFCs
  before the CEC for two 500 MW natural gas-fired peaking power plants using GE Energy
  LMS100 technology. Directed multidisciplinary team of scientists and engineers in preparing
  testimony for licensing.

- Project Manager, Chula Vista Energy Upgrade Project, MMC Energy, Incorporated. San Diego County, California. Project manager for an AFC before the CEC for a 100-MW natural gas-fired power plant and appurtenant facilities. Coordinated a multidisciplinary team during the Discovery and Decision phases of licensing. Key analyses included analysis of noise and biological resource effects in an urban area adjacent to an open space and nature reserve area.
- Project Manager, Inland Empire Energy Center, Calpine Corporation, Riverside,
   California. Project manager for AFC before the CEC for the 810-MW natural gas-fired power
   plant. Directed multidisciplinary team of scientists and engineers in preparing testimony for
   licensing. Managed preparation of license amendments, including conversion of the turbine
   technology to the GE Energy S107H System and for a rerouting of the natural gas pipeline.
   Coordinated consultations with CEC staff and other regulatory agencies.
- Project Manager, Roseville Energy Park, Roseville Electric, Roseville, California. Project
  manager for AFC before the CEC for a 160-MW natural gas-fired power plant. Directed a
  multidisciplinary team of scientists and engineers in providing project development support
  and preparing application document, responding to data requests. Participated in
  consultations with CEC staff and other regulatory agencies including the Placer County Air
  Pollution Control District and the U.S. Army Corps of Engineers (USACE).
- Project Manager, Donald Von Raesfeld Power Plant/Pico Power Project, Silicon Valley Power, Santa Clara, California. Project manager for AFC before the CEC for a 123-MW natural gas-fired power plant. Directed a multidisciplinary team of scientists and engineers in providing project development support and preparing application document, responding to data requests, and providing expert testimony. Participated in consultations with CEC staff and other regulatory agencies. Project challenges included developing a mitigation plan for air emissions deposition effects on the Bay checkerspot butterfly, rezoning of the project site, negotiating Best Available Control Technology standards, and Federal Aviation Administration (FAA) air navigation hazard clearance.
- Project Manager, Los Esteros Critical Energy Facility Phase 1 Relicense and Phase 2
   Combined-Cycle Conversion, Calpine Corporation, San Jose, California. Project manager
   for AFC before the CEC that included relicensing a 180-MW simple-cycle power plant and a
   conversion to combined-cycle operation that would increase the nominal plant output to
   320-MW.
- Project Manager, Sutter Energy Center, Calpine Corporation. Sutter County, California.
  Project manager for an AFC before the CEC for a 600-MW natural gas-fired power plant and
  appurtenant facilities including 12 miles of natural gas and 4 miles of electrical transmission
  lines. Coordinated a multidisciplinary team during the Discovery and Decision phases of
  licensing. Key analyses included preparing water temperature and water quality models,
  identifying emission reduction credits, and assessing potential impacts along an electrical
  transmission route.

# TRANSMISSION SYSTEM ENGINEERING TESTIMONY

#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the Humboldt Bay Repowering Project

**DOCKET NO. 06-AFC-7** 

DECLARATION OF ROBER T. JENKINS

- I, Robert T. Jenkins, declare as follows:
  - 1. I am currently employed by PG&E as a Principal in Energy Procurement.
  - My professional qualifications and experience are included with the attached testimony and is incorporated by reference in this Declaration.
  - 3. I prepared the attached testimony relating to Transmission System Engineering for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
  - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
  - I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

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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 to the best of my knowledge and that this declaration was executed at San Francisco, CA on June 4, 2008.

I. Name: Robert T. Jenkins

#### II. Purpose:

My testimony addresses the subject of Transmission System Engineering associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

# III. Qualifications:

I am a Principal with Pacific Gas and Electric Company in its Energy Procurement department and am actively engaged in advising the PG&E new resource procurement activities concerning electric transmission and generation interconnection matters. I have 27 years of experience in the electric industry and am the Past-Chairman of the WECC Planning Coordination Committee. Prior to starting with PG&E in 2005, I was a Transmission Support Principal at Mirant Corporation working in matters related to transmission open access and merchant powerplant interconnection issues. Prior to my work at Mirant, I was in the transmission planning and system operation groups of Pacific Gas and Electric and the Manager of Strategic and Technical Services responsible for EHV transmission planning and regional coordination. I am a registered Professional Engineer in California and a Senior Member of IEEE. I assisted in the preparation Transmission System Engineering Section of the AFC as well as the post-filing information, data responses, and supplemental filings and related permit applications.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

#### IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

- Exhibit 1 Humboldt Bay Repowering Project AFC, All of Section 5. Except Section 5.4
- **Exhibit 4 Data Adequacy Supplement**, Response to Data Adequacy Question, dated November 1, 2006
- Exhibit 13 Submittal of Pacific Gas and Electric Responses to Staff Data Requests 58 through 78 and Workshop Query 1

**through 22**, Responses to Workshop Queries 17 through 20, dated February 13, 2007

Exhibit 16 CH2M Hill Responses to Data Requests 79 through 85 and Workshop Queries, Data Responses 84 and 85, dated March 16, 2007

# V. Opinion and Conclusions

I have reviewed the Transmission System Engineering section of the FSA and agree that with the Conditions of Certification the HBRP will not result in unmitigated impacts to the transmission system and will comply with all applicable laws, ordinances, regulations and standards (LORS).



# STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

**DOCKET NO. 06-AFC-7** 

Application For Certification for the Humboldt Bay Repowering Project DECLARATION OF SUSAN STRACHAN

- I, Susan Strachan, declare as follows:
  - I am the owner of Strachan Consulting and have been retained by PG&E to be the permitting and compliance manager for the project.
  - A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
  - I prepared the attached testimony relating to Waste Management for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
  - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
  - I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Davis, CA on June 3, 2008.

I. Name: Susan Strachan

## II. <u>Purpose</u>:

My testimony addresses the subject of Waste Management associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

# III. Qualifications:

I am the owner of Strachan Consulting am presently engaged by PG&E to assist and supervise the permitting and compliance of the HBRP. I have a Degree in Political Science and I have 18 years of experience in environmental project management and compliance. I assisted in the preparation of the Waste Management section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

#### IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

- Exhibit 1 Humboldt Bay Repowering Project AFC, Section 8.14 and Appendix 8.14
- Exhibit 13 Submittal of Pacific Gas and Electric Responses to Staff Data Requests 58 through 78 and Workshop Query 1 through 22, Response to Workshop Query 21, dated February 13, 2007
- Exhibit 23 Humboldt Bay Repowering Project Preliminary Phase II ESA Report (06-AFC-7) dated April 23, 2007

# V. Opinion and Conclusions

I have reviewed the Waste Management section of the Final Staff Assessment and agree that with incorporation of the Conditions of Certification the HBRP will not result in significant land use impacts and will comply with all applicable laws, ordinances, regulations and standards (LORS). However, for the reasons outlined below, I recommend modifications to Condition of Certification **WASTE-7** 

#### **CONDITION WASTE-7**

#### HBRP Phase II Site Assessment

In order to construct the HBRP project, PG&E first has to remove existing structures on the project site and remediate contaminated soil. Based on the Phase II Environmental Site Assessment (ESA) for the HBRP site and construction laydown area, areas to be remediated include:

- The base of a power pole located on the HBRP site; and
- The former oil-containing circuit breaker rock blotter;

The location of the power pole and oil-containing circuit breaker rock blotter on the HBRP site are shown on the drawing S&W 7-1.

In addition, the Phase II recommended that PG&E also do the following:

- During demolition of the concrete hazardous waste ponds, look for evidence of leaks or tears in the liner and the potential for soils to have been impacted by leaking materials. If such evidence is found during demolition, conduct analytical testing to determine handling requirements;
- Collect soil samples for speciation of chromium (chromium III and chromium VI) to ensure the chromium concentrations do not significantly exceed screening levels.
- Conduct groundwater monitoring

As PG&E has stated previously, the concrete hazardous waste ponds have already been removed. Soil samples were taken under the liner and no contamination was found. In addition, the groundwater monitoring wells recommended in the Phase II ESA have been installed. No contamination has been identified in the groundwater test results. Reports on the sampling results of the waste ponds and groundwater monitoring wells are currently being prepared.

The Phase II ESA also recommended that PG&E collect soil samples for speciation of chromium. This was based on chromium concentrations detected at the HBRP site and laydown area which were slightly above background and exceeded screening levels for total chromium. A subsequent soil investigation found that chromium levels are well below background concentrations and below Preliminary Remediation Goals and California Human Health Screening Levels. Hexavalent chromium was not detected above reporting limits in any of the samples tested. Based on these results, additional soil sampling for chromium is not deemed necessary.

#### Construction Activities Prior to or Simultaneously with Soil Remediation

Given the time of year that PG&E anticipates HBRP construction commencing (just before the onset of the rainy season), it is essential that, prior to the initiation of soil remediation and demolition activities, the storm water discharge system, specifically the hydroseparator and bioswale, and the storm water Best Management Practices, be installed. This will ensure that storm water runoff during soil remediation and demolition activities meets Clean Water Act requirements. In addition, PG&E's Section 404 permit issued by the Army Corp of Engineers requires that these components be constructed prior to the rainy season. The location of the hydroseparator and bioswale and the storm water Best Management Practices are shown on the two attached water pollution control drawings Sheets 1 and 5.

The HBRP construction schedule requires that the temporary access road and potable water pipeline, which will be located under the road, must be constructed simultaneously with soil remediation and demolition activities. This will ensure the road is available for use by HBRP construction personnel and equipment at the commencement of HBRP site grading.

As shown in Figure S&W 7-1, the two known site remediation areas are located away from the location of the temporary access road/potable water line and storm water discharge system. The storm water Best Management Practices are also located away for the remediation areas. Based on the Phase II ESA, it is not anticipated that contaminated soil will be encountered during installation of these project components.

PG&E also needs to conduct the demolition activities simultaneously with soil remediation activities. Demolition is closely tied to remediation efforts, since remediation may be required if contamination is discovered under one of the buildings to be removed.

## One Contractor for HBRP Demolition and Remediation Activities

One contractor will be used to conduct both the demolition and soil remediation activities. This same contractor will also install the storm water discharge system, and the storm water Best Management Practices. No other construction personnel or PG&E workers will be on the HBRP site while the site demolition and remediation activities are underway. A different contractor will be used to construct the access road/potable water pipeline. However, these project features are located outside of the Humboldt Bay Power Plant fence line and HBRP site.

The site remediation and demolition contractor and their subcontractors will have the appropriate licenses and will adhere to all applicable OSHA requirements, as well as a site-specific Health and Safety Plan (HSP). Specifically, in accordance with Title 29 CFR 1910.120 and 1926, and California Code of Regulations 5192, the HSP will be implemented for any and all demolition and remediation activities for the Humboldt Bay Repowering Project. The Plan will include but not be limited to the following aspects:

- identification of potential hazards and constituents of concern that may be encountered at the site;
- appropriate training, such as 40-hour hazardous waste operations and emergency response (HAZWOPER) for the site workers;
- health and safety protection measures for the site workers, any guests, and the surrounding community; and
- emergency procedures, including route(s) to the local hospital.

A qualified health and safety officer will oversee the compliance with HSP.

#### **Condition WASTE-7**

Condition of Certification WASTE-7, requires the submittal of various reports pertaining to soil remediation before and after remediation efforts. PG&E has modified Condition WASTE-7 to enable the construction of the temporary access road, potable water pipeline, storm water discharge system, and storm water Best Management Practices before the initiation of soil remediation and demolition activities. The condition also provides a modified timeline for submitting information to the CEC required by the condition. The modified timeline better reflects the schedule for when the information will be available.

Waste-7: Prior to any site grading for the HBRP except for the temporary access road, potable water line, storm water discharge system, and storm water Best Management Practices soil disturbance or the beginning of site mobilization for the Humboldt Bay Repowering Project, the project owner shall provide to the CPM for review and approval a Remedial Investigation (Rl) report or equivalent detailing site characterization and a Remedial Action Plan (RAP) or equivalent detailing site cleanup methods. The RI plan or equivalent shall include an assessment of the containment pond liners and whether they have been compromised. After implementation of the RAP (or equivalent), the project owner shall submit a report describing that the recommendations of the 2007 Preliminary Phase II Environmental Site Assessment have been implemented and shall include confirmatory sampling and analysis results as described in the RAP (or equivalent).

Verification: At least 120 30 days prior to any site grading for the HBRP except for the temporary access road, potable water line, storm water discharge system, storm water Best Management Practices soils disturbance or the beginning of site mobilization for the Humboldt Bay Repowering Project, the project owner shall provide the RI report (or equivalent) and the RAP (or equivalent) to the CPM for review and approval. After remedial activities have been completed and prior to site grading, the project owner shall provide a data compilation report, describing that the recommendations of the 2007 Preliminary Phase II Environmental Site Assessment have been implemented. aAt least sixty (60) days prior to any soils disturbance or the beginning of site mobilization after the commencement of site grading, the project owner shall submit a report describing that the recommendations of the 2007 Preliminary Phase II Environmental Site Assessment have been implemented and shall include confirmatory sampling and analysis results final Remediation Completion and Closure Report.



# WATER POLLUTION CONTROL DRAWINGS (WPCDs)

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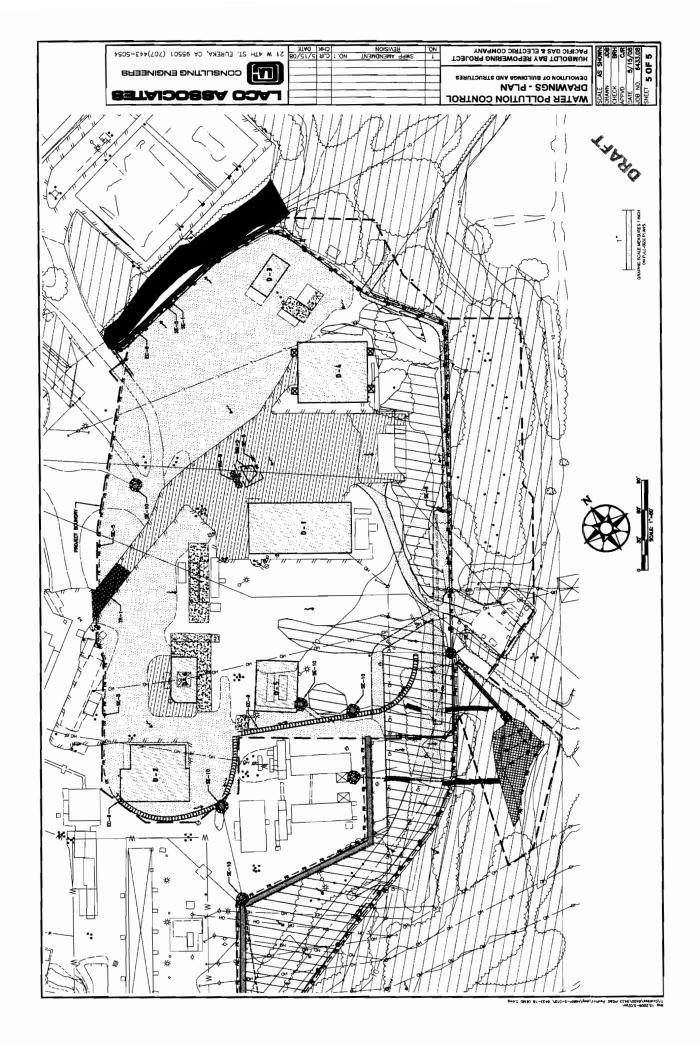
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HEET 1 OF 5



# SUSAN STRACHAN

Susan Strachan has 20 years of project management experience in the permitting and compliance activities associated with large industrial projects. She has extensive experience managing the environmental permitting of power plant, transmission, and pipeline projects. Her experience includes preparing permit applications and other project environmental documentation, negotiating permit conditions and other project related issues with regulatory agencies, conducting public outreach, developing compliance plans, and managing compliance activities.

# PROFESSIONAL HISTORY

Strachan Consulting Principal, June 1998-Present

Sacramento Municipal Utility District
Mgr., Project Permitting and Licensing - March 1992-May 1998

Assemblymember Lloyd Connelly Senior Assistant - 1990 to 1992

Santa Barbara County Hazardous Materials Section Manager - 1987 to 1990 Environmental Planner 1985 to 1987

# PROFESSIONAL EXPERIENCE

Pacific Gas & Electric – Ms. Strachan is currently serving as Environmental Project Manager for the Humboldt Bay Repowering Project (HBRP). The HBRP is a 163 MW power plant located in Humboldt Co. Her responsibilities include: overseeing the preparation of the application to the California Energy Commission (CEC); responding to Data Requests; interfacing with the regulatory agencies, reviewing the Preliminary and Final Staff Assessments; preparing for and participating in Evidentiary Hearings; and managing compliance activities.

Turlock Irrigation District – Ms. Strachan provided Environmental Project Management Services to the Turlock Irrigation District for its Walnut Energy Center, a 250 MW power plant, located in Stanislaus Co. (2002). Her responsibilities included: assisting in site selection, overseeing the preparation of the application to the CEC; participating in public outreach activities; responding to Data Requests; interfacing with the regulatory agencies, reviewing the Preliminary and Final Staff Assessments; and preparing for and participating in Evidentiary Hearings.

Resume of Susan Strachan Page 1

Ms. Strachan also served as Environmental Compliance Manager for the Walnut Energy Center Project. Her responsibilities included: ensuring compliance with all environmental regulatory requirements; managing the activities of the environmental monitors; and maintaining communication with the environmental regulatory agencies.

Modesto Irrigation District - Ms. Strachan provided Environmental Project Management services to the Modesto Irrigation District for the Woodland 2 Generation Station, an 80 MW combined cycle power plan, located in San Joaquin Co., 2001). She also prepared CEC amendments for the Woodland 2 project (2002). Ms. Strachan also managed the permitting of the Modesto Irrigation District Electric Generation Station Ripon project, a 95 MW simple-cycle power plant, located in San Joaquin Co. (2003). Her responsibilities included: managing the preparation of the application, providing project coordination with regulatory agencies, and resolving issues/concerns of the agencies.

**Calpine Corporation** – Ms. Strachan served as the Environmental Project Manager for several natural gas-fired power plants developed by Calpine Corporation. These include the following:

- Delta Energy Center Contra Costa Co., 1998
- King City LM600 Project Monterey Co., 2001
- Gilroy City Phase I LM6000 Project Santa Clara Co., 2001
- East Altamont Energy Center Alameda Co., 2001

Her responsibilities included obtaining the CEC licenses for the projects and obtaining permits from other regulatory agencies such as the U.S. Fish and Wildlife Service, California Department of Fish and Game, State Lands Commission and U.S. Bureau of Reclamation. She has also provided permitting assistance to Calpine on its Sutter and Metcalf Energy Center projects.

Calpine Corporation – Compliance Ms. Strachan also assisted Calpine Corporation in compliance activities associated with projects licensed before the CEC. Her activities have included the preparation of several amendments to the project licenses for the Delta Energy Center and Los Medanos Energy Center (Contra Costa Co., 1999)

**Calpine Corporation – Due Diligence** Ms. Strachan conducted the environmental due diligence investigation for Calpine's

Resume of Susan Strachan Page 2

acquisition of the Los Medanos Energy Center (1999) and Otay Mesa projects (San Diego Co., 2000)

**Sacramento Municipal Utility District** Ms. Strachan served as the Manager, Project Permitting and Licensing, responsible for overseeing permitting activities before the California Energy Commission (CEC) for the following projects:

- Sacramento Cogeneration Authority at Procter & Gamble Sacramento, Co., 1993
- Sacramento Power Authority at Campbell Soup Sacramento Co., 1993
- Carson Ice-Gen Sacramento Co., 1992
- SEPCO Sacramento Co., 1993
- SMUD Cogeneration Pipeline Sacramento Co., and Yolo Co., 1993

In this position, Ms. Strachan worked closely with the CEC while the projects moved through the licensing process. Her responsibilities included preparation of the Applications for Certification, responding to data requests, negotiating permit conditions, working with members of the public, and participating in hearings.

Ms. Strachan was also responsible for acquiring permits from other agencies including the Sacramento Metropolitan Air Quality Management District, Regional Water Quality Control Board. U.S. Fish and Wildlife Service, and Army Corps of Engineers.

Construction Compliance As project manager for Sacramento Power Authority at Campbell Soup project, Ms. Strachan managed the compliance activities associated with the CEC's conditions of certification for the project. This included interface with the CEC during construction of the project, preparation of submittals to the CEC in compliance with permit conditions, and preparation of amendments for proposed changes to conditions of certification. Ms. Strachan was also responsible for responding to and addressing local community concerns associated with the project.

Cosumnes Power Plant – Ms. Strachan provided environmental project management support/advice to SMUD for the CEC licensing of the Cosumnes Power Plant project, located in Sacramento Co. (2002).

**EDUCATION** 

B.A., Political Science, University of California, Santa Barbara

# SOIL AND WATER RESOURCES TESTIMONY

#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

**DOCKET NO. 06-AFC-7** 

Application For Certification for the Humboldt Bay Repowering Project **DECLARATION OF DOUGLAS DAVY** 

# I, Douglas Davy, declare as follows:

- I am employed by CH2M HILL as a Program Manager and have been retained by PG&E to be the AFC Project Manager for the project.
- A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Soil and Water Resources for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on June 4, 2008.

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I. Name: Douglas Davy

# II. <u>Purpose</u>:

My testimony addresses the subject of Soil and Water Resources associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

# III. Qualifications:

I am presently employed at CH2M HILL for the past 4 years and am presently a Program Manager with that organization. I have a Degree in Anthropology and I have 24 years of experience in environmental siting, licensing, and permitting. I supervised the preparation of the Soil and Agricultural and the Water Resources sections of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

## IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

- **Exhibit 1** Humboldt Bay Repowering Project AFC, Sections 8.11 and 8.15
- Exhibit 8 Drainage, Erosion and Sediment Control Plan, dated January 12, 2007
- Exhibit 13 Submittal of Pacific Gas and Electric Responses to Staff
  Data Requests 58 through 78 and Workshop Query 1
  through 22, Responses to Workshop Queries 14 through 16,
  dated February 13, 2007
- Exhibit 18 Pacific Gas and Electric Responses to Workshop Queries 3, 11, 14, and 15 and Data Requests 11, 55, 82 and 83, Responses to Workshop Queries 14 and 15, dated March 30, 2007

# Exhibit 45 Pacific Gas and Electric Company's Supplemental Comments on the Preliminary Staff Assessment, Comments related to SOIL & WATER-6, dated January 2, 2008

# V. Opinion and Conclusions

I have reviewed the Soil & Water Resources section of the FSA and agree that with incorporation of the Conditions of Certification, as modified by the Joint Stipulation of the parties executed on June 1, 2008, the HBRP will not result in significant impacts to soil or water resources and will comply with all applicable laws, ordinances, regulations and standards (LORS).).

# Douglas Davy, Ph.D.

# **Project Manager**

# Education

Ph.D., Archaeology, Southern Illinois University M.A., Anthropology, Southern Illinois University B.A., Anthropology, University of California

# Relevant Experience

Dr. Davy has 24 years of experience providing regulatory compliance and project management support for infrastructure development projects. He has served as project manager for numerous environmental licensing and permitting projects, directing multidisciplinary teams of planners, engineers, and scientists in helping to resolve complex environmental regulatory issues. Dr. Davy has served as project manager for ten Applications for Certification (AFCs). His California Energy Commission (CEC) licensing experience includes project management on seven 12-month AFCs, two 6-month AFCs, one relicense and combined-cycle conversion AFC, several AFC and permit amendments, and three emergency peaker applications. Dr. Davy has also prepared critical project development and permitting reviews for more than 15 prospective power plant development sites in California.

# Representative Projects

- Project Manager, Humboldt Bay Repowering Project AFC, Pacific Gas and Electric Company, Eureka, California. Project manager for AFC before the CEC for the 163-MW natural gas-fired power plant using 10 Wärtsilä 18V50DF dual-fuel turbine-generators. Directed multidisciplinary team of scientists and engineers in preparing testimony for licensing.
- Project Manager, Russell City Energy Center, Calpine/Bechtel Joint Development,
  Hayward, California. Project manager for the preparation of an AFC before the CEC for a
  600-MW natural gas-fired power plant and appurtenant facilities including natural gas,
  water supply, and electrical transmission lines. Prepared environmental assessment
  associated with reconductoring 14 miles of 230 kV transmission line. Project qualified for an
  expedited 6-month licensing process under the Governor's emergency power plant licensing
  executive order. Also served as project manager for an amendment to the project license
  involving movement of the project configuration.
- Project Manager, Walnut Creek Energy Park, Sun Valley Energy Center AFCs, Edison
  Mission Energy, City of Industry and Romoland, California. Project manager for AFCs
  before the CEC for two 500 MW natural gas-fired peaking power plants using GE Energy
  LMS100 technology. Directed multidisciplinary team of scientists and engineers in preparing
  testimony for licensing.

# Douglas Davy, Ph.D.

- Project Manager, Chula Vista Energy Upgrade Project, MMC Energy, Incorporated. San Diego County, California. Project manager for an AFC before the CEC for a 100-MW natural gas-fired power plant and appurtenant facilities. Coordinated a multidisciplinary team during the Discovery and Decision phases of licensing. Key analyses included analysis of noise and biological resource effects in an urban area adjacent to an open space and nature reserve area.
- Project Manager, Inland Empire Energy Center, Calpine Corporation, Riverside,
   California. Project manager for AFC before the CEC for the 810-MW natural gas-fired power
   plant. Directed multidisciplinary team of scientists and engineers in preparing testimony for
   licensing. Managed preparation of license amendments, including conversion of the turbine
   technology to the GE Energy S107H System and for a rerouting of the natural gas pipeline.
   Coordinated consultations with CEC staff and other regulatory agencies.
- Project Manager, Roseville Energy Park, Roseville Electric, Roseville, California. Project
  manager for AFC before the CEC for a 160-MW natural gas-fired power plant. Directed a
  multidisciplinary team of scientists and engineers in providing project development support
  and preparing application document, responding to data requests. Participated in
  consultations with CEC staff and other regulatory agencies including the Placer County Air
  Pollution Control District and the U.S. Army Corps of Engineers (USACE).
- Project Manager, Donald Von Raesfeld Power Plant/Pico Power Project, Silicon Valley Power, Santa Clara, California. Project manager for AFC before the CEC for a 123-MW natural gas-fired power plant. Directed a multidisciplinary team of scientists and engineers in providing project development support and preparing application document, responding to data requests, and providing expert testimony. Participated in consultations with CEC staff and other regulatory agencies. Project challenges included developing a mitigation plan for air emissions deposition effects on the Bay checkerspot butterfly, rezoning of the project site, negotiating Best Available Control Technology standards, and Federal Aviation Administration (FAA) air navigation hazard clearance.
- Project Manager, Los Esteros Critical Energy Facility Phase 1 Relicense and Phase 2
   Combined-Cycle Conversion, Calpine Corporation, San Jose, California. Project manager
   for AFC before the CEC that included relicensing a 180-MW simple-cycle power plant and a
   conversion to combined-cycle operation that would increase the nominal plant output to
   320-MW.
- Project Manager, Sutter Energy Center, Calpine Corporation. Sutter County, California.
  Project manager for an AFC before the CEC for a 600-MW natural gas-fired power plant and
  appurtenant facilities including 12 miles of natural gas and 4 miles of electrical transmission
  lines. Coordinated a multidisciplinary team during the Discovery and Decision phases of
  licensing. Key analyses included preparing water temperature and water quality models,
  identifying emission reduction credits, and assessing potential impacts along an electrical
  transmission route.

# WORKER SAFETY AND FIRE PROTECTION TESTIMONY

#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the Humboldt Bay Repowering Project **DOCKET NO. 06-AFC-7** 

**DECLARATION OF DOUGLAS DAVY** 

# I, Douglas Davy, declare as follows:

- I am employed by CH2M HILL as a Program Manager and have been retained by PG&E to be the AFC Project Manager for the project.
- A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
- I prepared the attached testimony relating to Worker Safety & Fire Protection for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
- It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on June 4, 2008.

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I. <u>Name</u>: Douglas Davy

# II. <u>Purpose</u>:

My testimony addresses the subject of Worker Safety and Fire Protection associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

# III. Qualifications:

I am presently employed at CH2M HILL for the past 4 years and am presently a Program Manager with that organization. I have a Degree in Anthropology and I have 24 years of experience in environmental siting, licensing, and permitting. I supervised the preparation of the Worker Safety and Fire Protection section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

#### IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

- Exhibit 1 Humboldt Bay Repowering Project AFC, Section 8.12
- Exhibit 13 Submittal of Pacific Gas and Electric Responses to Staff Data Requests 58 through 78 and Workshop Query 1 through 22, Responses to Workshop Query 22, dated February 13, 2007
- Exhibit 45 Pacific Gas and Electric Company's Supplemental Comments on the Preliminary Staff Assessment, Comments related to WORKER SAFETY-1 and 2, dated January 2, 2008

# V. Opinion and Conclusions

I have reviewed the Worker Safety and Fire Protection section of the FSA and agree that with incorporation of the Conditions of Certification, the HBRP will protect workers and provide for a safe working environment. Additionally, the HBRP has adequate fire protection measures and will comply with all applicable laws, ordinances, regulations and standards (LORS).).

# Douglas Davy, Ph.D.

# **Project Manager**

# Education

Ph.D., Archaeology, Southern Illinois University M.A., Anthropology, Southern Illinois University B.A., Anthropology, University of California

# Relevant Experience

Dr. Davy has 24 years of experience providing regulatory compliance and project management support for infrastructure development projects. He has served as project manager for numerous environmental licensing and permitting projects, directing multidisciplinary teams of planners, engineers, and scientists in helping to resolve complex environmental regulatory issues. Dr. Davy has served as project manager for ten Applications for Certification (AFCs). His California Energy Commission (CEC) licensing experience includes project management on seven 12-month AFCs, two 6-month AFCs, one relicense and combined-cycle conversion AFC, several AFC and permit amendments, and three emergency peaker applications. Dr. Davy has also prepared critical project development and permitting reviews for more than 15 prospective power plant development sites in California.

# Representative Projects

- Project Manager, Humboldt Bay Repowering Project AFC, Pacific Gas and Electric Company, Eureka, California. Project manager for AFC before the CEC for the 163-MW natural gas-fired power plant using 10 Wärtsilä 18V50DF dual-fuel turbine-generators. Directed multidisciplinary team of scientists and engineers in preparing testimony for licensing.
- Project Manager, Russell City Energy Center, Calpine/Bechtel Joint Development,
  Hayward, California. Project manager for the preparation of an AFC before the CEC for a
  600-MW natural gas-fired power plant and appurtenant facilities including natural gas,
  water supply, and electrical transmission lines. Prepared environmental assessment
  associated with reconductoring 14 miles of 230 kV transmission line. Project qualified for an
  expedited 6-month licensing process under the Governor's emergency power plant licensing
  executive order. Also served as project manager for an amendment to the project license
  involving movement of the project configuration.
- Project Manager, Walnut Creek Energy Park, Sun Valley Energy Center AFCs, Edison
  Mission Energy, City of Industry and Romoland, California. Project manager for AFCs
  before the CEC for two 500 MW natural gas-fired peaking power plants using GE Energy
  LMS100 technology. Directed multidisciplinary team of scientists and engineers in preparing
  testimony for licensing.

# Douglas Davy, Ph.D.

- Project Manager, Chula Vista Energy Upgrade Project, MMC Energy, Incorporated. San Diego County, California. Project manager for an AFC before the CEC for a 100-MW natural gas-fired power plant and appurtenant facilities. Coordinated a multidisciplinary team during the Discovery and Decision phases of licensing. Key analyses included analysis of noise and biological resource effects in an urban area adjacent to an open space and nature reserve area.
- Project Manager, Inland Empire Energy Center, Calpine Corporation, Riverside,
   California. Project manager for AFC before the CEC for the 810-MW natural gas-fired power
   plant. Directed multidisciplinary team of scientists and engineers in preparing testimony for
   licensing. Managed preparation of license amendments, including conversion of the turbine
   technology to the GE Energy S107H System and for a rerouting of the natural gas pipeline.
   Coordinated consultations with CEC staff and other regulatory agencies.
- Project Manager, Roseville Energy Park, Roseville Electric, Roseville, California. Project
  manager for AFC before the CEC for a 160-MW natural gas-fired power plant. Directed a
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  and preparing application document, responding to data requests. Participated in
  consultations with CEC staff and other regulatory agencies including the Placer County Air
  Pollution Control District and the U.S. Army Corps of Engineers (USACE).
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- Project Manager, Los Esteros Critical Energy Facility Phase 1 Relicense and Phase 2
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   for AFC before the CEC that included relicensing a 180-MW simple-cycle power plant and a
   conversion to combined-cycle operation that would increase the nominal plant output to
   320-MW.
- Project Manager, Sutter Energy Center, Calpine Corporation. Sutter County, California. Project manager for an AFC before the CEC for a 600-MW natural gas-fired power plant and appurtenant facilities including 12 miles of natural gas and 4 miles of electrical transmission lines. Coordinated a multidisciplinary team during the Discovery and Decision phases of licensing. Key analyses included preparing water temperature and water quality models, identifying emission reduction credits, and assessing potential impacts along an electrical transmission route.

# **VISUAL RESOURCES TESTIMONY**

#### STATE OF CALIFORNIA

# Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the Humboldt Bay Repowering Project DOCKET NO. 06-AFC-7

**DECLARATION OF DOUGLAS DAVY** 

## I, Douglas Davy, declare as follows:

- I am employed by CH2M HILL as a Program Manager and have been retained by PG&E to be the AFC Project Manager for the project.
- A copy of my professional qualifications and experience is included with the attached testimony and is incorporated by reference in this Declaration.
- I prepared the attached testimony relating to Visual Resources for the Humboldt Bay Repowering Project (California Energy Commission Docket Number 06-AFC-7).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on June 4, 2008.

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I. Name: Douglas Davy

# II. <u>Purpose</u>:

My testimony addresses the subject of Visual Resources associated with the construction and operation of the Humboldt Bay Repowering Project (HBRP).

## III. Qualifications:

I am presently employed at CH2M HILL for the past 4 years and am presently a Program Manager with that organization. I have a Degree in Anthropology and I have 24 years of experience in environmental siting, licensing, and permitting. I supervised the preparation of the Visual Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

#### IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

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- Exhibit 13 Submittal of Pacific Gas and Electric Responses to Staff
  Data Requests 58 through 78 and Workshop Query 1
  through 22, Responses to Data Request 66 through 74, dated
  February 13, 2007
- Exhibit 36 Responses to CEC Staff Requests 86 through 105, Response to Data Requests 104 and 105, dated November 1, 2007
- Exhibit 38 Applicant's Responses to CEC Staff Data Requests 104 and 105, dated November 6, 2007
- Exhibit 42 Revised Visual Simulations, dated November 19, 2007

Exhibit 45 Pacific Gas and Electric Company's Supplemental
Comments on the Preliminary Staff Assessment, Comments
related to WORKER SAFETY-1 and 2, dated January 2, 2008

# V. Opinion and Conclusions

I have reviewed the Visual Resources section of the Final Staff Assessment and agree that with incorporation of the Conditions of Certification, as modified by the Joint Stipulation of the parties executed on June 1, 2008, the HBRP will not result in significant visual resources impacts and will comply with all applicable laws, ordinances, regulations and standards (LORS).

# Douglas Davy, Ph.D.

# **Project Manager**

# Education

Ph.D., Archaeology, Southern Illinois University M.A., Anthropology, Southern Illinois University B.A., Anthropology, University of California

# Relevant Experience

Dr. Davy has 24 years of experience providing regulatory compliance and project management support for infrastructure development projects. He has served as project manager for numerous environmental licensing and permitting projects, directing multidisciplinary teams of planners, engineers, and scientists in helping to resolve complex environmental regulatory issues. Dr. Davy has served as project manager for ten Applications for Certification (AFCs). His California Energy Commission (CEC) licensing experience includes project management on seven 12-month AFCs, two 6-month AFCs, one relicense and combined-cycle conversion AFC, several AFC and permit amendments, and three emergency peaker applications. Dr. Davy has also prepared critical project development and permitting reviews for more than 15 prospective power plant development sites in California.

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# Douglas Davy, Ph.D.

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  California. Project manager for AFC before the CEC for the 810-MW natural gas-fired power
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  technology to the GE Energy S107H System and for a rerouting of the natural gas pipeline.
  Coordinated consultations with CEC staff and other regulatory agencies.
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  manager for AFC before the CEC for a 160-MW natural gas-fired power plant. Directed a
  multidisciplinary team of scientists and engineers in providing project development support
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  consultations with CEC staff and other regulatory agencies including the Placer County Air
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- Project Manager, Los Esteros Critical Energy Facility Phase 1 Relicense and Phase 2
   Combined-Cycle Conversion, Calpine Corporation, San Jose, California. Project manager
   for AFC before the CEC that included relicensing a 180-MW simple-cycle power plant and a
   conversion to combined-cycle operation that would increase the nominal plant output to
   320-MW.
- Project Manager, Sutter Energy Center, Calpine Corporation. Sutter County, California.
  Project manager for an AFC before the CEC for a 600-MW natural gas-fired power plant and
  appurtenant facilities including 12 miles of natural gas and 4 miles of electrical transmission
  lines. Coordinated a multidisciplinary team during the Discovery and Decision phases of
  licensing. Key analyses included preparing water temperature and water quality models,
  identifying emission reduction credits, and assessing potential impacts along an electrical
  transmission route.

# Pacific Gas and Electric (PG&E) Humboldt Bay Repowering Project (06-AFC-7) Final Evidentiary Hearing Exhibit List

Humboldt Bay Repowering Project AFC (06-AFC-7) 09/29/06
Application for Determination of Compliance (06-AFC-7) 09/29/06
Request by North Coast Unified Air Quality Management District fulfilled by Sierra Research (06-AFC-7) 10/13/06
Data Adequacy Supplement (06-AFC-7) 11/01/06
Cumulative Impacts Analysis Letter to Nancy Matthews (06-AFC-7) 11/9/06
Web Team, Nancy Matthews Responses to Air Resources Board Questions (06-AFC-7) 01/11/07
Data Responses to Data Requests 1 through 57 (06-AFC-7) 01/12/07
Drainage, Erosion, and Sediment Control Plan (06-AFC-7) 01/12/07
Responses to Questions from Simona Altman by Nancy Matthews (06-AFC-7) 01/17/07
Sierra Research's Responses to Emission Calculations from Nancy Matthews (06-AFC-7) 01/18/07
Transmittal of Electronic Copy of Draft Wetland Delineation Report (06-AFC-7) 01/19/07
Additional Responses to Questions from Simona Altman of the Air Resources Board, by Nancy Matthews of Sierra Research (06-AFC-7) 02/02/07
Submittal of Pacific Gas and Electric Responses to Staff Data Requests 58 through 78 and Workshop Query 1 through 22 (06-AFC-7) 02/13/07
Response to Air Quality Workshop Query #1 (06-AFC-7)

Exhibit 15	Wartsila Emission Factor Guarantees for the Humboldt Bay Repowering Project (06-AFC-7) 03/14/07
Exhibit 16	CH2M Hill Responses to Data Requests 79 through 85 and Workshop Queries (06-AFC-7) 03/16/07
Exhibit 17	Pacific Gas and Electric Responses to Workshop Queries 8 and 23 through 27 (06-AFC-7) 03/23/07
Exhibit 18	Pacific Gas and Electric Responses to Workshop Queries 3, 11, 14, and 15 and Data Requests 11, 55, 82 and 83 (06-AFC-7) 03/30/07
Exhibit 19	Pacific Gas and Electric Revisions to the Air Quality Analysis Baseline Period and Emission Reduction Credits (06-AFC-7) 04/04/07
Exhibit 20	Wartsila Memo Confirming the Emission Values Contained in the AFC (06-AFC-7) 04/11/07
Exhibit 21	Redwood Coast Energy Authority Support Letter for the Humboldt Bay Repowering Project (06-AFC-7) 04/11/07
Exhibit 22	Letter Report on Air Quality Modeling Methodology for the Humboldt Bay Repowering Project, Prepared by D. Bruce Turner, Trinity Consultants (06-AFC-7) 04/18/07
Exhibit 23	Humboldt Bay Repowering Project Preliminary Phase II ESA Report (06-AFC-7) 04/23/07
Exhibit 24	Revised Humboldt Bay Power Plant Activities (06-AFC-7) 05/04/07
Exhibit 25	U.S. Army Corps of Engineers Wetland Delineation Verification Letter and Map Dated April 23, 2007 (06-AFC-7) 05/29/07
Exhibit 26	Buhne Point Wetlands Preserve Mitigation and Monitoring Plan; and Coastal Access Enhancement Proposal (06-AFC-7) 07/06/07
Exhibit 27	Letter in Response to July 5, 2007 letter to Greg Lamberg/ Pacific Gas and Electric Regarding Revised Modeling Protocol Submitted June 13, 2007 (06-AFC-7) 07/17/07
Exhibit 28	Modeling Protocol, Revised July 17, 2007 (06-AFC-7) 07/17/07

Exhibit 29	CDP Application # E-07-005 for Proposed Offices and Parking at Humboldt (06-AFC-7) 10/12/07
Exhibit 30	Memo Regarding PM Control Efficiency of Diesel Oxidation Catalysts (06-AFC-7) 08/30/07
Exhibit 31	Revised Air Quality Analysis Section 8.1A through 8.1G (06-AFC-7) 09/12/07
Exhibit 32	Supplement to Address Revised Air Quality Modeling and Increased Stack Height (06-AFC-7) 09/28/07
Exhibit 33	Preliminary Determination of Compliance Permit to Construct Evaluation (06-AFC-7) 10/15/07
Exhibit 34	Letter from Coastal Commission Regarding Review of Project Subject to the Application for Certification (06-AFC-7) 10/16/07
Exhibit 35	Preliminary Determination of Compliance (06-AFC-7) 10/22/07
Exhibit 36	Responses to CEC Staff Requests 86 through 105 (06-AFC-7) 11/01/07
Exhibit 37	Applicant's Response to CEC Staff Data Request 100 (06-AFC-7) 11/02/07
Exhibit 38	Applicant's Responses to CEC Staff Data Requests 104 and 105 (06-AFC-7) 11/06/07
Exhibit 39	Supplemental Screening Health Risk Assessment (06-AFC-7) 11/09/07
Exhibit 40	Letter Regarding CDP #E07-005 for the SDPP (06-AFC-7) 11/15/07
Exhibit 41	Applicant's Responses to CEC Staff Data Request 103 (06-AFC-7) 11/16/07
Exhibit 42	Revised Visual Simulations (06-AFC-7) 11/19/07
Exhibit 43	Pacific Gas and Electric Comments on the Humboldt Bay Repowering Project Preliminary Determination of Compliance (06-AFC-7) 11/20/07
Exhibit 44	Pacific Gas and Electric Pipeline Removal Project (06-AFC-7)

Exhibit 45	Pacific Gas and Electric Company's Supplemental Comments on the Preliminary Staff Assessment (06-AFC-7) 01/02/08
Exhibit 46	Amendment to Facility License (Amendment No. 23, License No. DPR-7) (06-AFC-7) 01/16/08
Exhibit 47	Pacific Gas and Electric Company's Supplemental Screening Health Risk Assessment (06-AFC-7) 02/06/08
Exhibit 48	Applicant's Responses to CEC Staff Workshop Queries 16 and 17 (06-AFC-7) 02/21/08
Exhibit 49	Post-Shutdown Decommissioning Activities Report, Humboldt Bay Power Plant Unit 3 (06-AFC-7) 04/02/08
Exhibit 50	City of Eureka's Support for Pacific Gas and Electric Company's Contribution to a Public Use (06-AFC-7) 04/07/08
Exhibit 51	Final Determination of Compliance Engineering Evaluation1Package (06-AFC-7) 03/31/08
Exhibit 52	Title V Federal Operating Permit North Coast Unified Air Quality Management District Permit to Operate and Final Determination of Compliance (06-AFC-7) 04/14/08
Exhibit 53	Applicant's Supplemental Information in Responses to Workshop Queries Historical Resources Evaluation of the Humboldt Bay Power Plant Units 1 and 2 Humboldt Bay Repowering Project (06-AFC-7) 04/17/08
Exhibit 54	Clean Water Act Section 404 Permit (06-AFC-7), 10/16/07
Exhibit 55	Project Description Testimony and Declaration of Greg Lamberg, dated June 4, 2008
Exhibit 56	Air Quality Testimony and Declaration of Gary Rubenstein, dated June 4, 2008
Exhibit 57	Alternatives Testimony and Declarations of Susan Strachan and Douglas Davy, dated June 4, 2008
Exhibit 58	Biological Resources Testimony and Declaration of Debra Crowe, dated June 4, 2008

Exhibit 59	Cultural Resources Testimony and Declarations of Douglas Davy and Jessica Feldman, dated June 4, 2008
Exhibit 60	Facility Design, Efficiency and Reliability Testimony and Declaration of Kenneth F. Horn, dated June 4, 2008
Exhibit 61	Geology and Paleontology Testimony and Declaration of Douglas Davy, dated June 4, 2008
Exhibit 62	Hazardous Materials Testimony and Declaration of Douglas Davy, dated June 4, 2008
Exhibit 63	Land Use Testimony and Declaration of Susan Strachan, dated June 4, 2008
Exhibit 64	Noise and Vibration Testimony and Declaration of Douglas Davy, dated June 4, 2008
Exhibit 65	Public Health Testimony and Declaration of Jerry Salamy, dated June 4, 2008
Exhibit 66	Socioeconomics Testimony and Declaration of Douglas Davy, dated June 4, 2008
Exhibit 67	Traffic and Transportation Testimony and Declaration of Douglas Davy, dated June 4, 2008
Exhibit 68	Transmission Lines Safety and Nuisance Testimony and Declaration of Douglas Davy, dated June 4, 2008
Exhibit 69	Transmission System Engineering Testimony and Declaration of Robert T. Jenkins, dated June 4, 2008
Exhibit 70	Waste Management Testimony and Declaration of Susan Strachan, dated June 4, 2008
Exhibit 71	Soil and Water Resources Testimony and Declaration of Douglas Davy, dated June 4, 2008
Exhibit 72	Worker Safety Testimony and Declaration of Douglas Davy, dated June 4, 2008
Exhibit 73	Visual Resources Testimony and Declaration of Douglas Davy, dated June 4, 2008