Testimony

Exhibits 2 through 16 and 30

In support of the

Amendment Petition No. 1

for the

Russell City Energy Center

Hayward, California

(01-AFC-7C)

Submitted to the:

California Energy Commission

Submitted by:

Russell City Energy Center, LLC

With Technical Assistance by:

CH2MHILL

Sacramento, California

July 16, 2007

List of Exhibits

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Engineering, Transmission Line Safety and Nuisance, Transmission System Engineering, and Compliance

I. Introduction

A. **Name:** Mike Argentine

B. **Purpose:** This testimony addresses a series of topics, generally classified under Project Description. These include engineering, transmission line safety and nuisance, transmission system engineering, and general aspects of regulatory compliance associated with the Russell City Energy Center Amendment Petition No. 1 proceeding.

C. **Qualifications:** Mr. Argentine is presently employed at Calpine as Director, Project Development, and has been for the past 6 years. He has an MBA and M.S. in Mechanical Engineering and has more than 27 years of professional experience in power plant licensing and development. Mr. Argentine directed the preparation of the Project Description and Engineering sections of the Amendment petition as well as the post-filing information, data responses, and supplemental filings. A copy of Mr. Argentine's resume is provided with his Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Section 2.0.
- Project Owner's Responses to CEC Staff Data Requests 1 through 52, January 17, 2007. Exhibit No. 17
- Project Owner's Responses to CEC Staff Data Requests 73 through 96 and Workshop Queries 1 through 3, April 13, 2007. Exhibit No. 22.
- Project Owner's Comments on the Preliminary Staff Assessment, Part 1, April 13, 2007. Exhibit No. 23.

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that forty-seven Conditions of Certification be adopted to address compliance, engineering, transmission line safety and nuisance, and transmission system engineering issues. These Conditions, COMPLIANCE-1 through COMPLIANCE-14, GEN-1 through GEN-8, CIVIL-1 through CIVIL-4, STRUC-1 through STRUC-4, MECH-1 through MECH-3, ELEC-1, TLSN-1 through TLSN-5, and TSE-1 through TSE-8 address applicable federal, state, and local laws, ordinances, regulations, and standards. I have reviewed the Conditions of Certification set forth in the Staff Assessment and suggest the following modifications.

Conditions TLSN-4 and TSLN-5

Comment: I recommend revising these conditions. PG&E will own and operate the transmission line that connects the RCEC to PG&E's transmission system under laws and regulations of the California Public Utilities Commission and will own and operate the transmission line. The Project Owner cannot compel PG&E to enter into an agreement Project Owner regarding matters that will be subject to the jurisdiction of the California Public Utilities Commission. The following suggested rewordings may address this issue.

> **TLSN-4** The project owner shall **request** ~~enter into an agreement with PG&E that ensures that PG&E would ensure that the rights-of-way of the project-related proposed transmission lines are would be kept free of combustible material, as required under the provisions of Section 4292 of the Public Resources Code and Section 1250 of Title 14 of the California Code of Regulations, and~~ that PG&E ~~would~~ provide to the project owner summaries of inspection results and any fire prevention activities carried out along the right-of-way as required under the provisions of Section 4292 of the Public Resources Code and Section 1250 of Title 14 of the California Code of Regulations.
>
> **Verification:** The project owner shall provide to the CPM evidence of the above **request** ~~noted agreement~~ 60 days before the beginning of line operation. During the first five years of plant operation, the project owner shall provide **the CPM with** ~~obtain from PG&E,~~ a summary of **PG&E's reported** inspection results and any fire prevention activities carried out along the right-of-way and provide such summaries in the Annual Compliance Report to the CPM.
>
> **TLSN-5** The project owner shall **request of** ~~enter into an agreement with~~ PG&E ~~that ensures~~ that PG&E ~~would~~ ensure that all permanent metallic objects within the right-of-way of the project-related lines are grounded according to industry standards regardless of ownership. In the event of a refusal by any property owner to permit such grounding, the project owner shall **request** ~~obtain~~ the related evidence from PG&E and notify the CPM accordingly. Such notification shall include, when possible, the owner's written objection. Upon receipt of such notice, the CPM may waive the requirement for grounding the object involved.

Verification: At least 30 days before the line is energized, the project owner shall transmit provide to the CPM a letter confirming compliance with this condition evidence of the above-noted ~~agreement~~ **request** 60 days before the beginning of line operation.

Conditions TSE-1 through TSE-8

General Comment: The Conditions of Certification address design and CBO review considerations for the project's transmission system. The Project Owner, however, does not have approval rights for the design and construction of transmission facilities outside of the plant switchyard. These will be designed and built by PG&E according the laws, regulations and standards of the CPUC. The CBO does not exert any authority over PG&E. I suggest changing the wording of these conditions to indicate that they apply only to the on-site facilities.

TSE-1 The project owner shall furnish to the CPM and to the CBO a schedule of transmission facility design submittals, a Master Drawing List, a Master Specifications List, and a Major Equipment and Structure List **for the onsite portions of the transmission line.** The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.

Verification: At least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List **for the onsite portions of the transmission line** to the CBO and to the CPM. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major equipment in Table 1: Major Equipment List below). Additions and deletions shall be made to the table only with CPM and CBO approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

TSE-2 Prior to the start of construction **of the onsite portions of the transmission line** the project owner shall assign an electrical engineer and at least one of each of the following to the project: A) a civil engineer; B) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; C) a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; or D) a mechanical engineer. (Business and Professions Code Sections 6704 et seq., require state registration to practice as a civil engineer or structural engineer in California.)

The tasks performed by the civil, mechanical, electrical, or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project (e.g., proposed earthwork, civil structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The **onsite portions of the** transmission line may be the responsibility of a separate California registered electrical engineer. The civil, geotechnical or civil and design engineer assigned in conformance with Facility Design condition **GEN-5**, may be responsible for design and review of the **onsite** TSE facilities.

The project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all engineers assigned to the project **and any onsite portions of the transmission line**. If any one of the designated engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer. This engineer shall be authorized to halt earthwork and to require changes; if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations.

The electrical engineer shall:

1. Be responsible for the electrical design of the power plant switchyard, outlet and termination facilities; and

2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all the responsible engineers assigned to the project, **including the onsite portions of the transmission line**. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval. If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five days in which to submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

TSE-3 If any discrepancy in design and/or construction **of the onsite transmission line and associated onsite facilities** is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend corrective action. (1998 CBC, Chapter 1, Section 108.4, Approval Required; Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector; Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. The discrepancy documentation shall become a controlled document and shall be submitted to the CBO for review and approval and shall reference this condition of certification.

Verification: The project owner shall submit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days of receipt. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action required to obtain the CBO's approval.

TSE-4 For the power plant switchyard, outlet line and termination **located on the project site**, the project owner shall not begin any increment of construction until plans for that increment have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. The following activities shall be reported in the Monthly Compliance Report:

a) receipt or delay of major electrical equipment;

b) testing or energization of major electrical equipment; and

c) the number of electrical drawings approved, submitted for approval, and still to be submitted.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of construction, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations for equipment and systems of the power plant switchyard, outlet line and termination **located on the project site**, including a copy of the signed and stamped statement from the responsible electrical engineer attesting to compliance with the applicable LORS, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

TSE-5 The project owner shall ensure that the design, construction and operation of the proposed **onsite** transmission facilities will conform to all applicable LORS, including the requirements listed below. The project owner shall submit the required number of copies of the design drawings and calculations to the CBO as determined by the CBO.
…

Verification: At least 60 days prior to the start of construction of **onsite** transmission facilities (or a lesser number of days mutually agree to by the project owner and CBO, the project owner shall submit to the CBO for approval.

…

TSE-6 The project owner shall inform the CPM and CBO of any impending changes **to the onsite portions of the transmission line**, which may not conform to the requirements **TSE-5** a) through f), and have not received CPM and CBO approval, and request approval to implement such changes. A detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change shall accompany the request. Construction involving changed equipment or substation configurations shall not begin without prior written approval of the changes by the CBO and the CPM.

Verification: At least 60 days prior to the construction of **onsite** transmission facilities, the project owner shall inform the CBO and the CPM of any impending changes which may not conform to requirements of **TSE-5** and request approval to implement such changes.

TSE-8 The project owner shall be responsible for the inspection of the **onsite portions of the** transmission facilities during and after project construction, and any subsequent CPM and CBO approved changes thereto, to ensure conformance with CPUC GO-95 or NESC, Title 8, CCR, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", applicable interconnection standards, NEC and related industry standards. In case of non-conformance, the project owner shall inform the CPM and CBO in writing, within 10 days of discovering such non-conformance and describe the corrective actions to be taken.

Verification: Within 60 days after first synchronization of the project, the project owner shall transmit to the CPM and CBO:

a) "As built" engineering description(s) and one-line drawings of the **onsite** electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO-95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", and applicable interconnection standards, NEC, related industry standards, and these conditions shall be provided concurrently.

b) An "as built" engineering description of the mechanical, structural, and civil portion of the **onsite** transmission facilities signed and sealed by the registered engineer in responsible charge or acceptable alternative verification. "As built" drawings of the electrical, mechanical, structural, and civil portion of the **onsite** transmission facilities shall be maintained at the power plant and made available, if requested, for CPM audit as set forth in the "Compliance Monitoring Plan".

c) A summary of inspections of the **onsite** completed transmission facilities, and identification of any nonconforming work and corrective actions taken, signed and sealed by the registered engineer in charge.

Air Quality

I. Introduction

A. **Names:** Gregory Darvin, Barbara McBride

B. **Purpose:** This testimony addresses air quality issues associated with the Russell City Energy Center Amendment Petition No. 1 proceeding.

C. **Qualifications:** *Gregory Darvin/Atmospheric Dynamics:* Mr. Darvin is presently employed at Atmospheric Dynamics as a meteorologist, and has specialized in the meteorological aspects of air quality issues for the last fifteen years. Mr. Darvin assisted in the preparation of the Air Quality section of the Amendment petition and testimony pertaining to air quality, public health, and thermal plumes and aviation. A copy of Mr. Darvin's resume is provided with his Declaration.

Barbara McBride/Calpine Corporation: Ms. McBride is Director, Safety, Health, and Environment for Calpine's Western Region. She has 17 years of experience in power generation and 20 years of experience in engineering and construction. A copy of Ms. McBride's resume is provided with her Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Section 3.1
- Project Owner's Responses to CEC Staff Data Requests 1 through 52, January 17, 2007. Exhibit No. 17
- Project Owner's Responses to CEC Staff Data Requests 16 and 55 through 72, March 23, 2007. Exhibit No. 20
- Project Owner's Responses to CEC Staff Data Requests 73 through 96 and Workshop Queries 1 through 3, April 13, 2007. Exhibit No. 22

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that sixty-three Conditions of Certification be adopted to address air quality issues. These Conditions, AQ-SC1 through AQ-SC14 and AQ-1 through AQ-49, address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's air quality impacts. We have reviewed the Conditions of Certification set forth in the Staff Assessment and suggest the following modifications.

Condition AQ-SC5 – Diesel fuel purchase

Comment: The Project Owner requests deletion of the requirement for detailed fuel purchase verification, because most diesel sold today is low sulfur diesel. Staff has indicated possible agreement with this modification.

> **AQ-SC5** Diesel-Fueled Engine Control: The AQCMM shall submit to the CPM in the MCR, a construction mitigation report that demonstrates compliance with the following mitigation measures for the purposes of controlling diesel construction-related emissions. Any deviation from the following mitigation measures shall require prior CPM notification and approval.
>
> …
>
> **Verification:** The project owner shall include in the MCR:
>
> (1) a summary of all actions taken to maintain compliance with this condition,
>
> ~~(2) copies of all diesel fuel purchase records,~~
>
> (3) a list of all heavy equipment used on site during that month, including the owner of that equipment ~~and a letter from each owner~~ **documentation from the AQCMM** indicating that equipment has been properly maintained, and
>
> (4) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

Condition AQ-SC7 – POC emissions

Comment: The FDOC issued by the BAAQMD sets a daily POC limit of 295 lbs/day. The Staff Assessment proposes a POC limit of 157 lbs/day. The project owner urges the Commission to adopt the POC limit set by the FDOC.

The Bay Area Air Quality Management District in its response to the CEC comments on June 27, 2007 indicates that it does not support the "average daily offset" concept. This statement from the BAAQMD is significant because the District has spent several years developing attainment strategies that are based on annual offsets in order to reach attainment for ozone and other pollutants. The project owner has compromised with the CEC on Nitrogen Oxide (NOx) and has agreed to take a lower limit based on the "average daily offsets" even though there is no District regulation that requires such. The District did include a revised daily NOx limit based on the CEC comments in the FDOC but there is no such revised limit on POC. Whereas NOx is controllable with the selective catalytic reduction system and is continuously monitored, neither of these is the case for POC. In addition, Calpine has other facilities that have verified that compliance with the NOx limit can be achieved. There is only one facility in Calpine's fleet that has conducted POC testing during startup and RCEC will not have a similar startup profile to this plant since it is air cooled. In the absence of data to support a lower POC limit the project owner strongly

objects to the lower limit that the Staff Assessment proposes. The Commission should adopt the POC limit of 295 lbs/day set forth in the FDOC.

> **AQ-SC7** The facility's emissions shall not exceed 1,225 lbs of NOx per day and **295** ~~157~~ lbs of POC during the June 1 to September 30 periods. In addition, NOx emissions in excess of 848 lbs per calendar day shall be mitigated through the surrender of emission reduction credits (ERCs). The amount of credits to be surrendered shall be the difference between 848 lbs per day and the actual daily emissions.

Conditions AQ-SC7, -SC8 and -SC9.

Comment: The Project Owner suggests changing the verification wording in the final sentence of these three conditions that requires an amendment in the case of a violation to allow malfunction, breakdown, and upset as acceptable causes of a violation that would not require an immediate amendment. Staff has indicated possible agreement with this modification.

> **Verification:** … Violations of this condition **other than those due to malfunction, breakdown, and upset** shall require the project owner to apply to the CPM for an immediate amendment to the project.

Condition AQ-SC12 Fireplace retrofit program

Comment: At the Staff Assessment workshop, the Staff, Project Owner and City discussed offering the fireplance retrofit program first to residents of Hayward and then offering it to other residents of Alameda County, including the City of Haywad. This language reflects that discussion.

> **AQ-SC12** A fireplace retrofit/woodstove replacement program shall be made available to all Hayward residents on a first-come, first-serve basis (to finance a voluntary woodstove replacement/fireplace retrofit) **for the first 12 months, after which time the program may also be offered to Hayward residents and other residents of Alameda County**
>
> **Verification:** At least ninety (90) days ~~from~~ **before the** start of construction, the project owner shall submit to the CPM a plan detailing the fireplace/woodstove replacement program for approval.

Condition AQ-SC13 – ERCs in lieu of fireplace retrofit

Comment: The Staff Assessment proposes geographic restrictions to the source or PM ERC's. While PM ERCs are available in the Bay Area Air Basin, sufficient PM ERCs are not available in the limited area defined by the Staff Assessment. Therefore, we request revising AQ-SC13 as follows:

> **AQ-SC13** In lieu of compliance with **AQ-SC12**, or if complete compliance with **AQ-SC12** cannot be achieved by the milestones, the project owner shall provide the unmet portion of the 86.8 TPY of PM10 required, either as PM10 or SOx ERCs, **acquired in the Bay Area Air Basin** ~~in the areas surrounding Oakland, Hayward, Fremont, San Jose and San Francisco areas~~ to provide an annual equivalent of 86.8 TPY of PM10 or PM10 equivalent at the SOx for PM10 interpollutant trading ratio of 5.3 to 1.

Biological Resources

I. Introduction

A. **Name:** Douglas Davy

B. **Purpose:** This testimony addresses biological resources issues associated with the Russell City Energy Center Amendment Petition No. 1 proceeding.

C. **Qualifications:** Mr. Davy is presently employed at CH2M HILL as a Senior Project Manager and has been for the past 3.5 years. He has a Ph.D. in Archaeology and has over 22 years of experience in providing regulatory compliance and project management support for infrastructure development projects. Mr. Davy supervised the preparation of the Biological Resources section of the Amendment petition as well as the post-filing information, data responses, and supplemental filings. A copy of Mr. Davy's resume is provided with his Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Section 3.2
- Project Owner's Comments on the Staff Assessment, Part 1, April 13, 2007. Exhibit No. 23

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that thirteen Conditions of Certification be adopted to address biological resources issues. These Conditions, BIO-1 through BIO-13, address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's biological resource impacts. I have reviewed the Conditions of Certification set forth in the Staff Assessment and suggest the following modifications.

Condition BIO-2, Designated Biologist Duties - Item 4

Comment: The Condition appears to require that the Designated Biologist be present every day to conduct the morning and evening inspections for animal activity. The project owner

suggests that, given the lack of wildlife habitat on site and in the urban areas that surround the site on three sides, this level of monitoring may not be necessary to protect wildlife. We suggest modifying the condition so that it is up to the Designated Biologist's discretion to perform this monitoring or to assign another party, such as a designated biological resources monitor or other project staff, to do so. The changes to the condition indicated above are as follows:

> **BIO-2** The Designated Biologist shall perform the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities:
> …
> 4. Inspect active construction areas where animals may have become trapped prior to construction commencing each day. ~~At the end of the day, i~~**I**nspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity **at the end of the construction day**. Periodically inspect areas with high vehicle activity (parking lots) for animals in harms way. **This inspection may be carried out by a qualified person selected and identified by the Designated Biologist**;

Condition BIO-4, Item #6, 404 and 401 permits 4, and #15, Biological Opinion:

Comment: The project owner suggests deleting these items, because the project, as currently configured, will not require a USACE Section 404 permit or SFRWQCB 401 certification or a Biological Opinion, and it is not possible at this time to predict whether or not a permit and certification opinion would be required and, if it were, what the conditions might be.

> **BIO-4** The project owner shall submit to the CPM for review and approval a copy of the final Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) and, once approved, shall implement the measures identified in the plan. The BRMIMP shall identify:
>
> …
>
> ~~6. A list of all terms and conditions set forth by the USACE Section 404 permits and state SFRWQCB 401 certifications, should these become necessary throughout the life of the project;~~
>
> …
>
> ~~15. A copy of the any State or USFWS Biological Opinion, and incorporation of all terms and conditions into the final BRMIMP, should a biological opinion become necessary any time throughout the life of the project;~~

Condition BIO-5: Worker Environmental Awareness Training

Comment: The project owner suggests adding text to permit the training to be given in the form of a recorded video presentation.

BIO-5 The project owner shall develop and implement a CPM approved Worker Environmental Awareness Program in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or related facilities during construction and operation, are informed about sensitive biological resources associated with the project. **The training may be presented on electronic media in the form of a video recording.**

Cultural Resources

I. Introduction

A. **Name:** Douglas Davy

B. **Purpose:** This testimony addresses cultural resource issues associated with the Russell City Energy Center Amendment Petition No. 1 proceeding.

C. **Qualifications:** Mr. Davy is presently employed at CH2M HILL as a Senior Project Manager and has been for the past 3.5 years. He has a Ph.D. in Archaeology and has over 22 years of experience in providing regulatory compliance and project management support for infrastructure development projects. Mr. Davy supervised the preparation of the Cultural Resources section of the Amendment petition as well as the post-filing information, data responses, and supplemental filings. A copy of Mr. Davy's resume is provided with his Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Section 3.3.
- Project Owner's Response to CEC Staff Data Requests 1-52, January 17, 2007. Exhibit No. 17
- Project Owner's Responses to CEC Staff Data Requests 16 and 55 through 72, March 23, 2007. Exhibit No. 20
- Project Owner's Responses to CEC Staff Data Requests 73 through 96 and Workshop Queries 1 through 3, April 13, 2007. Exhibit No. 22

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that seven Conditions of Certification be adopted to address cultural resource issues. These Conditions, CUL-1 through CUL-7, address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's cultural resource impacts. I have reviewed the Conditions of Certification set forth in the Staff Assessment and find the Conditions to be acceptable.

Geology and Paleontology

I. Introduction

A. **Name:** Douglas Davy

B. **Purpose:** This testimony addresses geological and paleontological resource issues associated with the Russell City Energy Center Amendment Petition No. 1 proceeding.

C. **Qualifications:** Mr. Davy is presently employed at CH2M HILL as a Senior Project Manager and has been for the past 3.5 years. He has a Ph.D. in Archaeology and has over 22 years of experience in providing regulatory compliance and project management support for infrastructure development projects. Mr. Davy supervised the preparation of the Geology and Paleontology sections of the Amendment petition as well as the post-filing information, data responses, and supplemental filings. A copy of Mr. Davy's resume is provided with his Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Sections 3.4
- Project Owner's Responses to CEC Staff Data Requests 1 through 52, January 17, 2007. Exhibit No. 17
- Project Owner's Response to CEC Staff Data Request 28, Final Geotechnical Report, February 12, 2007. Exhibit No. 18

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that two Conditions of Certification for geologic resources and seven Conditions of Certification for paleontological resources be adopted to address geological and paleontological resource issues. These Conditions, GEO-1 through GEO-2 and PAL-1 through PAL-7, address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's geological and paleontological resource impacts. I have reviewed the Conditions of Certification set forth in the Staff Assessment and find the Conditions to be acceptable.

Hazardous Materials Management

I. Introduction

A. **Name:** Sarah Madams

B. **Purpose:** This testimony addresses hazardous materials management issues associated with the Russell City Energy Center Amendment Petition No. 1 proceeding.

C. **Qualifications:** Ms. Madams is presently employed at CH2M HILL as a Hazardous Materials Management Specialist and has been for the past 6.5 years. Ms. Madams has a Degree in Environmental Toxicology and has 10 years of experience in Hazardous Materials and Waste Management. Ms. Madams assisted in the preparation of the Hazardous Materials section of the Amendment petition as well as the post-filing information, data responses, and supplemental filings. A copy of Ms. Madams' resume is provided with her Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Section 3.5

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that thirteen Conditions of Certification be adopted to address hazardous materials management issues. These Conditions, HAZ-1 through HAZ-13, address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's biological resource impacts. I have reviewed the Conditions of Certification set forth in the Staff Assessment and find the Conditions to be acceptable.

Land Use

I. Introduction

A. **Name:** Douglas Davy

B. **Purpose:** This testimony addresses land use issues associated with the Russell City Energy Center Amendment Petition No. 1 proceeding. In addition to this testimony, we have separately submitted testimony addressing the land use aspects of the issue regarding thermal plumes and aviation safety.

C. **Qualifications:** Mr. Davy is presently employed at CH2M HILL as a Senior Project Manager and has been for the past 3.5 years. He has a Ph.D. in Archaeology and has over 22 years of experience in providing regulatory compliance and project management support for infrastructure development projects. Mr. Davy supervised the preparation of the Land Use section of the Amendment petition as well as the post-filing information, data responses, and supplemental filings. A copy of Mr. Davy's resume is provided with his Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Section 3.6
- Project Owner's Responses to CEC Staff Data Requests 1 through 52, January 17, 2007. Exhibit No. 17
- Project Owner's Responses to CEC Staff Data Requests 16 and 55 through 72, March 23, 2007. Exhibit No. 20
- Testimony Regarding Thermal Plumes and Aviation, Chapter 1, July 16, 2007, Exhibit No. 28.

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that two Conditions of Certification be adopted to address land use issues. These Conditions, LAND-1 through LAND-2, address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's land use impacts. I have reviewed the Conditions of Certification set forth in the Staff Assessment and find the Conditions to be acceptable.

Noise

I. Introduction

A. **Name:** Douglas Davy

B. **Purpose:** This testimony addresses noise issues associated with the Russell City Energy Center Amendment Petition No. 1 proceeding.

C. **Qualifications:** Mr. Davy is presently employed at CH2M HILL as a Senior Project Manager and has been for the past 3.5 years. He has a Ph.D. in Archaeology and has over 22 years of experience in providing regulatory compliance and project management support for infrastructure development projects. Mr. Davy supervised the preparation of the Noise section of the Amendment petition as well as the post-filing information, data responses, and supplemental filings. A copy of Mr. Davy's resume is provided with his Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Section 3.7

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that eight Conditions of Certification be adopted to address noise issues. These Conditions, NOISE-1 through NOISE-8, address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's noise impacts. I have reviewed the Conditions of Certification set forth in the Staff Assessment and find the Conditions to be acceptable.

Public Health

I. Introduction

A. **Name:** Gregory Darvin

B. **Purpose:** This testimony addresses public health issues associated with the Russell City Energy Center Amendment Petition No. 1 proceeding.

C. **Qualifications:** Mr. Darvin is presently employed at Atmospheric Dynamics as a meteorologist, and has specialized in the meteorological aspects of air quality issues for the last fifteen years. Mr. Darvin assisted in the preparation the Public Health section of the Amendment petition. A copy of Mr. Darvin's resume is provided with his Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Section 3.8.

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that one Conditions of Certification be adopted to address public health issues. Condition PUBLIC HEALTH-1 addresses applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's public health impacts. I have reviewed the Condition of Certification set forth in the Staff Assessment and suggest the following modifications.

Page 4.7-7 Condition Public Health-1

Comment: The project owner recommends the following wording change to **Public Health-1** for clarity. Staff has accepted this change in other cases and has indicated that this change would be acceptable.

PUBLIC HEALTH-1 The project owner shall develop, implement, and submit to the CPM for review and approval a Cooling Water Management Plan to ensure that the potential for bacterial growth in cooling water is **controlled**~~kept to a minimum~~.

Socioeconomics

I. Introduction

A. **Name:** Douglas Davy

B. **Purpose:** This testimony addresses socioeconomic issues associated with the Russell City Energy Center Amendment Petition No. 1 proceeding.

C. **Qualifications:** Mr. Davy is presently employed at CH2M HILL as a Senior Project Manager and has been for the past 3.5 years. He has a Ph.D. in Archaeology and has over 22 years of experience in providing regulatory compliance and project management support for infrastructure development projects. Mr. Davy supervised the preparation of the Socioeconomics section of the Amendment petition as well as the post-filing information, data responses, and supplemental filings. A copy of Mr. Davy's resume is provided with his Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Section 3.9.

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that one Condition of Certification be adopted to address socioeconomics issues. This Condition, SOCIO-2, addresses applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's socioeconomic impacts. I have reviewed the Conditions of Certification set forth in the Staff Assessment and find the Conditions to be acceptable.

Soil and Water Resources

I. Introduction

A. **Name:** Douglas Davy and Barbara McBride

B. **Purpose:** This testimony addresses soil and water resource issues associated with the Russell City Energy Center Amendment Petition No. 1 proceeding.

C. **Qualifications:** *Doug Davy/CH2M HILL:* Mr. Davy is presently employed at CH2M HILL as a Senior Project Manager and has been for the past 3.5 years. He has a Ph.D. in Archaeology and has over 22 years of experience in providing regulatory compliance and project management support for infrastructure development projects. Mr. Davy supervised the preparation of the Soil and Water Resources section of the Amendment petition as well as the post-filing information, data responses, and supplemental filings. A copy of Mr. Davy's resume is provided with his Declaration.

Barbara McBride/Calpine Corporation: Ms. McBride is Calpine Corporation Director of Safety, Health, and Environment for Calpine Corporation's Western Region. She has 17 years of experience in power generation and 20 years of experience in engineering and construction. A copy of Ms. McBride's resume is provided with her Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Section 3.10
- Project Owner's Responses to CEC Staff Data Requests 1 through 52, January 17, 2007. Exhibit No. 17

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that eight Conditions of Certification be adopted to address soil and water resources issues. These Conditions, Soil & Water-1 through Soil & Water-8, address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's soil and water impacts.

We have reviewed the Conditions of Certification set forth in the Staff Assessment and suggest the following modifications.

Condition SOIL&WATER-1

Comment: The project owner requests a modification to the Verification for this condition. Staff's proposed Verification requires the Applicant to submit the DESCP to the City of Hayward for comment 90 days before site mobilization, obtain the City's comments, and then submit the DESCP and comments to the CPM at least 60 days before site mobilization. It may not be feasible for the City, however, to review the document in 30 days, putting the Applicant's construction schedule in potential jeopardy. In addition, the requirement for monthly reporting is burdensome and duplicative. Project construction stormwater will be regulated under the General Industrial NPDES permit, subject to inspection by the City (Condition SOIL&WATER-2).

> **Soil & Water -1 Verification:** No later than 90 days prior to start of site mobilization, the project owner shall submit a copy of the DESCP to the City of Hayward (City) for review and comment. No later than 60 days prior to start of site mobilization, the project owner shall submit the DESCP and the City's comments, **if available,** to the CPM for review and approval. The CPM shall consider comments received from the City on the DESCP before issuing approval. The DESCP shall be consistent with the grading and drainage plan as required by condition of certification **CIVIL-1** and relevant portions of the DESCP shall clearly show approval by the Chief Building Official. The DESCP shall be consistent with Stormwater Pollution Prevention Plan (SWPPP) developed in conjunction with the City's municipal NPDES Permit No. CAS0029831 for Construction Activity. ~~The project owner shall provide in the monthly compliance report a narrative on the effectiveness of the drainage, erosion and sediment control measures; the results of monitoring and maintenance activities; and the dates of any dewatering activities.~~ The Grading and Erosion Control Plan shall be submitted to the CPM for review and approval, and to the City of Hayward (Public Works Department) and Alameda County (Public Works Agency) for review and comment at least sixty days prior to start of any site mobilization activities. The CPM~~, via concurrence from local agencies,~~ must approve the final Erosion Control Plan prior to the initiation of any site mobilization activities.

Condition SOIL&WATER-4

Comment: The Staff Assessment proposes three changes in Condition Soil&Water-4 as set forth in the current license. Our Amendment did not propose a change in this condition. First, the Staff Assessment proposes to reduce the number of days per year the RCEC would be authorized to use potable water as a backup supply in the case of *unavoidable* interruption in the supply of recycled water from the City's WPCF or the RCEC's on-site Title 22 facility. Second, the Staff Assessment proposes to strike in its entirety the exemption for natural disasters. Third, the Staff Assessment proposes to impose the Project Owner's estimate of consumption of 4 AFY of potable water for sanitary and domestic purposes as a cap on consumption for these purposes.

Each of the conditions that the Staff Assessment proposes to change in the current license were carefully considered by the Commission in the original proceeding and were supported by substantial evidence. In contrast, the Staff has not offered any new evidence

to support these proposed changes. Regarding the possible use of potable water in the event of emergency, Staff cites its opinion that "Because of the design and redundancy incorporate in the Title 22 RWF and the location of the WPCF (where disruption of service is expected to be very infrequent and last only a matter of days), staff are proposing to cap the amount of potable water use for process and cooling purposes to 20 days (480 hours) in any one operating year in the amended Condition of Certification **SOIL & WATER 4"** However, there the issues of design and redundancy were considered in formation of the existing condition, and there has been no change in design or redundancy that would warrant cutting this contingency by more than half.

Staff states that the use of water for industrial purposes is in conflict with Section 13551 of the State Water Code. This statement is clearly incorrect. Water Code Section 13551 states:

> 13551. A person or public agency, including a state agency, city, county, city and county, district, or any other political subdivision of the state, shall not use water from any source of quality suitable for potable domestic use for nonpotable uses, including cemeteries, golf courses, parks, highway landscaped areas, and industrial and irrigation uses *if suitable recycled water is available* as provided in Section 13550…" (emphasis added)

Clearly, the use of potable water by the RCEC when recycled water is not available due to an emergency does not violate this statute. Such use is clearly permitted where "suitable recycled water is not available". Whenever recycled water is available for cooling purposes, the RCEC will use recycled water. However, in the event of emergency or natural disaster which makes the supply unavailable, it is the public interest to permit the use of alternative supplies. The Staff's proposal, on the other hand, poses a serious and unnecessary threat to the reliability of California's energy system and to the public health and welfare.

Regarding the use of potable water for sanitary and domestic purposes, Staff concedes that "a LORS analysis of this relatively small amount of potable water consumption was not warranted." Yet, inexplicably where there is no standard or restriction on the use of potable water for domestic purposes, Staff proposes to arbitrarily impose its own standard. Therefore, we recommend that the Staff's proposed revisions to Soil & Water-4 be rejected.

> **SOIL & WATER 4**: The project owner shall use tertiary-treated water supplied from the ~~City of Hayward's Advanced Water Treatment (AWT) Plant~~ on-site Title 22 Recycled Water Facility (RWF) as its primary source for cooling and process water supply. Potable water may be used for cooling and process purposes only in the event of an unavoidable interruption of the on-site Title 22 RWF supply or secondary effluent from the City of Hayward ~~AWT Plant~~ supply, but not to exceed 45 days (1080 hours) ~~20 days (480 hours)~~ in any one operational calendar year. ~~Fresh~~ Potable water used for domestic purposes shall be metered separately from ~~fresh~~ potable water used for cooling and process water supply. The project owner will notify the CPM in writing if potable water is used for cooling or process purposes and provide an explanation of why the back-up supplies are being used. However, potable water may be used for cooling and process purpose in excess of 45 days per calendar year if an unavoidable interruption of the ~~AWT~~ **RWF or City of Hayward** supply is due to an Act of God, a natural disaster, an

> unforeseen emergency or other unforeseen circumstance outside the control of the project owner. If one of the aforementioned unavoidable interruptions should occur, the CPM, project owner and the City of Hayward shall confer and determine how best to restore the AWT supply as soon as practicable.
> …

The project owner shall prepare and submit to the CPM an annual summary that will include the monthly range and monthly average of daily water usage in gallons per day, and total water (range and average) used by the project on a monthly and annual basis in acre-feet. The annual summary shall distinguish sources (recycled or potable) and the uses (cooling, process, domestic, etc.) of the specified source. The project owner will obtain copies of project water use records derived from the City of Hayward's recycled and potable revenue meters. ~~The project owner will not use more than 4 AFY of potable water in any consecutive 12 months of operation for sanitary and domestic purposes.~~

Condition SOIL&WATER-5

Comment: Condition SOIL&WATER-5 should be consistent with the conditions for additional site assessment and remediation contained in the Waste Management section of the SA. This section requires a Soils Management Plan and Clean up Plan (Conditions WASTE-9 and WASTE-10). These two conditions include the same requirements listed in SOIL&WATER-5. Applicant therefore suggests deleting this condition. Staff has indicated that they can agree with this change.

Traffic and Transportation

I. Introduction

A. **Names:** Loren Bloomberg, Douglas Davy, Christine Killip, Gregory Darvin, Marshall Graves

B. **Purpose:** This testimony addresses traffic and transportation issues associated with the Russell City Energy Center Amendment Petition No. 1 proceeding. In addition to this testimony, we have separately submitted testimony addressing the issue of thermal plumes and aviation safety.

C. **Qualifications:** *Loren Bloomberg/CH2M HILL:* Mr. Bloomberg is presently employed at CH2M HILL as a Transportation Engineer and has been for the past 9 years. He has a Degree in Civil Engineering and 14 years of experience in Transportation Engineering. Mr. Bloomberg assisted in the preparation of the Traffic and Transportation section of the Amendment petition as well as the post-filing information, data responses, and supplemental filings. A copy of Mr. Bloomberg's resume is provided with his Declaration.

Doug Davy/CH2M HILL: Mr. Davy is presently employed at CH2M HILL as a Senior Project Manager and has been for the past 3.5 years. He has a Ph.D. in Archaeology and has over 22 years of experience in providing regulatory compliance and project management support for infrastructure development projects. Mr. Davy supervised the preparation of the Traffic and Transportation section of the Amendment petition as well as the post-filing information, data responses, and supplemental filings. Mr. Davy is cosponsoring the testimony pertaining to thermal plumes and aviation. A copy of Mr. Davy's resume is provided with his Declaration.

Christine Killip/Katestone Environmental: Ms. Killip is presently employed at Katestone Environmental as Managing Director, and has been there for the past 10 years. She has a Bachelor of Technology in Atmospheric Science, and has over 13 years of experience in meterological and air quality analysis, with particular reference to industrial site evaluation. Ms. Killip is cosponsoring the testimony pertaining to thermal plumes and aviation. A copy of Ms. Killip's resume is provided with her Declaration.

Greg Darvin/Atmospheric Dynamics: Mr. Darvin is presently employed at Atmospheric Dynamics as a meteorologist, and has specialized in the meteorological aspects of air quality issues for the last fifteen years. Mr. Darvin assisted in the preparation of testimony pertaining to thermal plumes and aviation. A copy of Mr. Darvin's resume is provided with his Declaration.

Marshall W. Graves/ International Institute for Aviation, Science and Technology: Mr. Graves is CEO/ President of the International Institute for Aviation, Science and Technology. He has over 34 years of experience in the Aviation Field for both the

military and commercial sector. Mr. Graves assisted in the preparation of testimony pertaining to thermal plumes and aviation. A copy of Mr. Graves' resume is provided with his Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Section 3.11
- Project Owner's Response to CEC Staff Data Request #53 and #54, March 2, 2007. Exhibit No. 19
- Project Owner's Responses to CEC Staff Data Requests 16 and 55 through 72, March 23, 2007, including Attachment DR55-1, *Safety Risk Analysis of Aircraft Overflight of Industrial Exhaust Plumes*, Federal Aviation Administration Safety Study Report DOT-FAA-AFS-420-06-1. Exhibit No. 20
- Project Owner's Responses to CEC Staff Data Requests 73 through 96 and Workshop Queries 1 through 3, April 13, 2007. Exhibit No. 22
- Draft Plume Vertical Velocity Assessment of a Proposed Gas-Fired Power Station at Russell City Energy Center, prepared by Katestone Environmental, June 8, 2007. Exhibit No. 24
- Revised Draft Plume Vertical Velocity Assessment of a Proposed Gas-Fired Power Station at Russell City Energy Center, prepared by Katestone Environmental, June 20, 2007. Exhibit No. 25
- Final Plume Vertical Velocity Assessment of a Proposed Gas-Fired Power Station at Russell City Energy Center, prepared by Katestone Environmental, July 10, 2007. Exhibit No. 26
- Final Plume Vertical Velocity Assessment of a Proposed Gas-Fired Power Station at Russell City Energy Center - Addendum, prepared by Katestone Environmental, July 10, 2007. Exhibit No. 27
- Testimony of RCEC, LLC Regarding Thermal Plumes and Aviation, Chapters 1 through 3, July 16, 2007. Exhibit No. 28
- Final Plume Vertical Velocity Assessment of a Proposed Gas-Fired Power Station at Russell City Energy Center – Addendum 2, prepared by Katestone Environmental, July 13, 2007. Exhibit No. 29

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that five Conditions of Certification, which do not relate to aviation. be adopted to address traffic and transportation issues. These Conditions, TLSN-1 through TLSN-5, address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's traffic and transportation impacts. We have reviewed the Conditions of Certification set forth in the Staff Assessment and suggest the following modifications.

Condition TRANS-1, first bullet

Comment: There is a typographical error in this condition. The project owner suggests deleting the number "217" from the Condition. Staff has agreed to this correction.

- Establish construction work hours outside of the peak traffic periods to ensure that construction workforce traffic occurs during off-peak hours, except in situations where schedule or construction activities require travel during peak hours, in which case workers will be directed to ~~217~~ routes that will not deteriorate the peak hour level of service below the City of Hayward's LOS D standard;

Visual Resources

I. Introduction

A. **Name:** Thomas Priestley

B. **Purpose:** This testimony addresses visual resource issues associated with the Russell City Energy Center Amendment Petition No. 1 proceeding.

C. **Qualifications:** Dr. Priestley is presently employed at CH2M HILL as a Senior Technologist for Visual Resources and has been for the past 6.5 years. He has a Ph. D. in Environmental Planning and has more than 25 years of professional experience in urban and environmental planning and project assessment. Dr. Priestley assisted in the preparation of the Visual Resources section of the Amendment petition as well as the post-filing information, data responses, and supplemental filings. A copy of Dr. Priestley's resume is provided with his Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Section 3.12

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that eleven Conditions of Certification be adopted to address visual resource issues. These Conditions, VIS-1 through VIS-11, address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's visual resource impacts. I have reviewed the Conditions of Certification set forth in the Staff Assessment and suggest the following modifications.

Conditions of Certification

Comment: Because Condition VIS-2 as modified by Staff provides requirements for the project site's landscaping plan, I request deleting the reference to the project site in Condition VIS-10. I understand that the Staff agrees with this change.

VIS-10 … Consistent with Measure 3 of the Visual Mitigation Plan, the project owner shall install trees along the west side of the warehouse and industrial park complexes ~~and the project site~~ that line the eastern edge of the shoreline wetlands.

Waste Management

I. Introduction

A. **Name:** Sarah Madams and Barbara McBride

B. **Purpose:** This testimony addresses waste management issues associated with the Russell City Energy Center Amendment Petition No. 1 proceeding.

C. **Qualifications:** *Sarah Madams/CH2M HILL:* Ms. Madams is presently employed at CH2M HILL as a Hazardous Materials Management Specialist and has been for the past 6.5 years. Ms. Madams has a Degree in Environmental Toxicology and has 10 years of experience in Hazardous Materials and Waste Management. Ms. Madams assisted in the preparation of the Waste Management section of the Amendment petition as well as the post-filing information, data responses, and supplemental filings. A copy of Ms. Madams' resume is provided with her Declaration.

Barbara McBride/Calpine Corporation: Ms. McBride is Director of Safety, Health, and Environment for Calpine Corporation's Western Region. She has 17 years of experience in power generation and 20 years of experience in engineering and construction. A copy of Ms. McBride's resume is provided with her Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Section 3.13
- Project Owner's Responses to CEC Staff Data Requests 1 through 52, January 17, 2007. Exhibit No. 17
- LFR's Response to the Department of Toxic Substances Control Letter, March 27, 2007. Exhibit No. 21

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that twelve Conditions of Certification be adopted to address Waste Management issues. These Conditions, WASTE-1 through WASTE-12, address applicable federal, state, and local laws, ordinances,

regulations, and standards and minimizes the project's biological resource impacts. I have reviewed the Conditions of Certification set forth in the Staff Assessment and suggest the following changes to them. Staff has indicated possible agreement with the changes to conditions.

Condition WASTE-8

Comment: The project owner will be working closely with the CEC, City of Hayward Fire Department and the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) to develop with a plan that will adequately characterize the groundwater and soil prior to any remediation activities. These activities will be outlined in the Soils Management Plan and Clean-Up Plan required by Conditions WASTE-9 and WASTE-10. The project owner suggests revising Condition WASTE-8 to indicate that a groundwater sampling plan will be prepared and executed in consultation with the City of Hayward Fire Department and the SFRWQCB, as follows:

WASTE-8 The project owner shall **prepare in consultation with the CEC, City of Hayward Fire Department and the RWQCB a groundwater sampling plan to be part of the Soils Management Plan submitted in Condition WASTE-9. The sampling locations and constituents to be sampled will be based on previous results from the site assessments already conducted, and will specifically consider** ~~sample and submit sampling results of groundwater below~~ the biosolids drying area, the wood treatment area and the metal Master's building **to fill data gaps.** ~~for the following constituents: Total Petroleum Hydrocarbons, Volatile and Semi-volatile Compounds, Polychlorinated Biphenyls, metals and chlorinated herbicides.~~

Verification: The project shall submit the groundwater sampling report to the San Francisco Bay Regional Water Quality Control Board and Hayward Fire Department at least ~~120~~ **60** days prior to start of construction. At least 30 days prior ……

Condition WASTE-9

Comment: The verification section of this condition requires that the plan be submitted 120 days prior to earthwork for approval. The demolition and soil clean up, however, will be conducted prior to construction mobilization. Per current schedules, the demolition work may be done as early as November of 2007. The project owner therefore requests that the time prior to earth work be changed to 60 days instead of the 120 days, to accommodate the work schedule.

Verification: At least ~~120~~ **60** days prior to any earthwork, including those earthwork activities associated with site mobilization, ground disturbance, or grading as defined in the general conditions of certification the project owner shall submit the Soils Management Plan to the City of Hayward Fire Department and the San Francisco Bay Regional Water Quality Control Board for review and comment, and to the CPM for approval.

Condition WASTE-10

Comment: The project owner suggests the following modifications:

The project owner shall ensure that the site is properly characterized and remediated. The project owner shall consult with the city of Hayward Fire Department and the San Francisco Bay Regional Water Quality Control Board in preparing a Site Clean up Plan for soil and groundwater contamination present on the RCEC site in compliance with the Porter-Cologne Water Quality Act, California Water

Code Section 13267. The project owner shall submit this plan both the City of Hayward Fire Department and the San Francisco Bay Regional Water Quality Control Board for review and comment and to the CPM. **The site clean up plan will provide a regulatory framework to manage residual effected soil in a manner that is protective of human health and the environment including in a manner protective of groundwater quality.** ~~The Site Cleanup Plan shall present clean up goals, remediation alternatives considered, and measures selected to address human health risks~~. The site Clean up Plan shall include a schedule for remediation …….

Verification: At least ~~120~~ **60** days prior to ground disturbance…

Worker Safety and Fire Protection

I. Introduction

A. **Name:** Sarah Madams

B. **Purpose:** This testimony addresses worker safety and fire protection issues associated with the Russell City Energy Center Amendment Petition No. 1 proceeding.

C. **Qualifications:** Ms. Madams is presently employed at CH2M HILL as a Hazardous Materials Management Specialist and has been for the past 6.5 years. Ms. Madams has a Degree in Environmental Toxicology and has 10 years of experience in Hazardous Materials and Waste Management. Ms. Madams assisted in the preparation of the Worker Health and Safety section of the Amendment petition as well as the post-filing information, data responses, and supplemental filings. A copy of Ms. Madams' resume is provided with her Declaration.

II. Prior Filings

In addition to the statements herein, this testimony includes by reference the following documents submitted in this proceeding:

- Russell City Energy Center Amendment Petition No. 1, November 17, 2006. Exhibit No. 1, Section 3.14

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

III. Proposed Licensing Conditions

The Staff Assessment for the project filed by the CEC recommends that five Conditions of Certification be adopted to address visual resource issues. These Conditions, WORKER SAFETY-1 through WORKER SAFETY-5, address applicable federal, state, and local laws, ordinances, regulations, and standards and minimizes the project's worker health and fire safety impacts. I have reviewed the Conditions of Certification set forth in the Staff Assessment and find the Conditions to be acceptable.

Exhibit 30

Project Owner's Witness Declarations and Resumes

STATE OF CALIFORNIA

Energy Resources
Conservation and Development Commission

In the Matter of:	**DOCKET NO. 01-AFC-7C**
Russell City Energy Center Amendment Petition No. 1	**DECLARATION OF** **Michael Argentine**

I, Michael Argentine, declare as follows:

1. I am presently employed by Calpine, as Director of Project Development.

2. A copy of my professional qualifications and experience is incorporated by reference in this Declaration.

3. I supervised preparation of the attached testimony relating to the Project Description for the Russell City Energy Center Amendment Petition No. 1 (Exhibits 1 and 2).

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 Pleasanton, CA on July 11, 2007.

Michael A. Argentine

Resume of Michael A. Argentine

Experience

August 2001 to Present Calpine Corporation Folsom, CA
Director Project Development

- Project Manager for the development of Russell City Energy Center. Development activities include managing project team, project licensing, interfacing with governmental and regulatory agencies and interconnection of project with local utilities.
- Managed the commercial/development activities during construction of the Pastoria Energy Facility and the Metcalf Energy Facility.
- Project Manager for the development of the San Joaquin Valley Energy Center. Development activities include managing contracts, preliminary project design, licensing, land acquisition, electrical interconnection and project budget.

November 2000 to August 2001 FPL Energy Sacramento, CA
Project Development Manager

- Completed the late stage acquisition of a 520 MW late stage power plant development project in California. Managed all due diligence activities related to the acquisition. Continuing as project manager through construction and start-up. Managed the project development team.
- Identified potential greenfield development sites throughout California and conducted fatal flaw analyses to determine viability of developing the sites. Managed the ongoing development activities related to developing the sites including preliminary legal analysis, engineering design, environmental studies and participated in community outreach programs.
- Met with local governmental officials and presented information regarding FPLE's proposed development plans. Attended public meetings and hearings and made presentations as appropriate.
- Updated the information for FPLE's WSCC market model to ensure development projects meet financial hurdle requirements.
- Provided support during CEC hearings and assisted in the preparation of the AFC for the Rio Linda/El Verta power plant project.

1988 to 2000 Northern California Power Agency Roseville, CA
Manager of Combustion Turbine Facilities and Assistant to General Manager, Business Development

- Prepared responses to request for proposals related to the valuation of PG&E's hydroelectric projects. Coordinating the Agency's strategic planning effort with respect to PG&E's potential divestiture of its hydroelectric facilities.
- Assisted in the preparation of reliability must run (RMR) contract proposals to submit to California Independent System Operator. RMR contracts allow power plant owners to recover all or a portion of all operating costs.
- Prepare Scheduling Coordination (SC) Business Plan and expand SC business by adding new credit worthy customers.
- Managed the operation of five 25 megawatt "frame 5" combustion turbines (CT) and one 49.9 megawatt LM-5000 steam injected CT.
- Responsible for maintaining all Dispatch Center SCADA system hardware. The SCADA system is used to collect data from WAPA meters located at city substations enabling resources to be scheduled to meet electric load requirements.

- Reduced operations and maintenance staff by one-third to improve project economics without reducing plant availability. Availability consistently exceeded 98 percent.
- Maintained high staff morale in spite of constant fears of power plant shut down and/or sales due to competition.
- Provided technical input to power plant economic studies completed for Agency by consultant.
- Instituted computerized maintenance system for inventory control, purchasing and work order processing.
- Prepared reports to regulatory agencies and ensured power plant compliance with all applicable laws, ordinances and standards.

1986–1988 Northern California Power Agency Roseville, CA
Assistant to the Manager of Operations and Engineering

- Managed Operations and Engineering Department in absence of Manager.
- Managed the Operations Department, including all power plants and Dispatch as Assistant Manager of Operations during period in the absence of Manager.
- Negotiated and prepared transmission settlement agreement with PG&E for CT units thereby ensuring project capacity credits.
- Provided technical and administrative support to the Operations and Engineering Department.
- Negotiated, prepared, and administered construction and procurement contracts.
- Evaluated new business opportunities for the Department and prepared business proposals.
- Prepared specifications for power plant and steam field improvements.
- Presented budgets for all operating facilities to the NCPA Commission for approval.

1985–1986 Northern California Power Agency Roseville, CA
Project Manager

- Managed the siting, land purchase, licensing, design, and construction of five “frame 5” CT units.
- Units were placed into service on time, within a 24 month time frame, and under budget.
- Administered construction and procurement contracts.
- Resolved claims in NCPA’s favor relating to major equipment procurement.

1982–1985 Northern California Power Agency Roseville, CA
Project Engineer

- Successfully licensed a two unit 110 megawatt geothermal power plant with the California Energy Commission (CEC) within a 13 month period.
- Provided written and oral testimony to the CEC concerning all project features.
- Participated in specification review and equipment procurement.
- Managed the design and construction of the NCPA main office in Roseville.

1980-1982 California Department of Water Resources Sacramento, CA

Project Manager

- Managed the Department's South Brawley geothermal development project, including well drilling and power plant conceptual design.
- Completed power plant feasibility studies.

1975-1980 Air Resources Board Sacramento, CA

Air Resources Engineer

- Evaluated permit applications for power plants and industrial development.

1974-1975 General Cable Corporation Colusa, CA

Process Engineer

- Managed cable insulating line.
- Directed a study to minimize cable failures and reduce manufacturing waste.

Education

California State University Sacramento, CA

- M.B.A. (1983)
- M.S. Mechanical Engineering (1977).
- B.A. Chemistry, Minor: Physics (1974).

Registration

Registered Professional Engineer (Mechanical), California.

Professional Membership

Member of the American Society of Mechanical Engineers.

STATE OF CALIFORNIA

Energy Resources
Conservation and Development Commission

In the Matter of:	**DOCKET NO. 01-AFC-7C**
Russell City Energy Center Amendment Petition No. 1	**DECLARATION OF** **Loren Bloomberg**

I, Loren Bloomberg, declare as follows:

1. I am presently employed by CH2M HILL, Inc, as a Transportation Engineer.

2. A copy of my professional qualifications and experience is incorporated by reference in this Declaration.

3. I prepared the attached testimony relating to the non-aviation portions of Traffic and Transportation for the Russell City Energy Center Amendment Petition No. 1 (Exhibits 1, 13, 19, 20, and 22).

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 Santa Ana, CA on July 13, 2007.

Loren Bloomberg, P.E.

Transportation Engineer

Education

M.S., Civil Engineering, University of California
B.S., Systems Engineering, University of Virginia

Professional Registrations

Professional Engineer (Traffic): California

Distinguishing Qualifications

- Broad background in transportation planning, conceptual design, and transportation systems analysis
- Expert in traffic simulation modeling

Relevant Experience

Mr. Bloomberg has led or played a key role in numerous transportation analyses for new power plant permitting projects. He has conducted studies and developed plans for local areas, corridors, and entire regions. Mr. Bloomberg's technical expertise is simulation modeling and traffic operations, with a particular focus on conceptual engineering and traffic analysis. He is often called upon as a technical expert for CH2M HILL's modeling projects and is known for his ability to complete traffic analyses accurately and efficiently, while meeting client requirements.

Representative Projects

- **AFC, Walnut Energy Center, and Traffic Control and Implementation Plan (TCIP), Turlock Irrigation District, California.** Developed the traffic control plan for the utility (potable and recycled water) lines. The TCIP addressed the mitigation of traffic impacts to the existing transportation facilities to satisfy the requirements of the CEC Conditions of Certification.
- **Task Lead, AFC, Metcalf Energy Center, Calpine Corporation, San Jose, California.** Traffic control lead for this fast-track effort to design and construct linear facilities (recycled water, sewer, and potable water) to support a new energy center. Developed plans to support two pipeline alignments through 6 to 10 miles of urban streets. Worked with local agencies to develop a transportation management plan to support agency requirements and maintain construction schedules.
- **Task Lead, AFC, San Francisco Electric Reliability Project, San Francisco Public Utilities Commission, California.** Task lead for the traffic and transportation section of the AFC. Traffic impacts focused on construction activities.

- **Task Lead, Proponent's Environmental Assessment (PEA), San Mateo County, California.** Task lead for the transportation analysis to support the PEA and associated environmental impact report (EIR) for a major utility company. The project involved trenching and overhead construction throughout San Mateo County, with potential impacts to freeways, ramps, surface streets, and Bay Area Rapid Transit (BART). Led the transportation analysis (including evaluation, assessment of impacts, and development of mitigation measures) and was primary author for the transportation section of the environmental document. Leaded the development of transportation management plans for the multiple jurisdictions.
- **Traffic Task Lead, Infrastructure Improvement Projects and Dutton Meadows EIR, Santa Rosa, California.** Traffic task lead for developing project- and program-level EIRs to support planned development in Santa Rosa. Developed traffic/transportation sections of the CEQA documents, tiering off previous environmental documents and technical studies.
- **Traffic Task Lead, Owens Lake Dust Control Project EIR, Southern California.** Traffic task lead for the assessment of the impacts of a major hauling operation near Lone Pine. Gathered traffic information and forecasts and conducted reconnaissance with local agency staff. Assessed traffic operations and impacts of the proposed project.
- **Traffic Task Lead, SR 237 Guadalupe Bridge Replacement, Santa Clara County, California.** Traffic task lead for this replacement bridge on SR 237 over the Guadalupe River. Developed transportation management plan, including detour plans and lane closure charts. Conducted operational analysis for staging plans and late lane re-opening penalties.
- **Task Lead, Route 70/Algodon Road Interchange, Yuba City, California.** Task lead for traffic operations analysis to support planning efforts for the Route 70/Algodon Road interchange near Yuba City. Led the analysis is to assess future operations of the freeway, interchange, and cross-streets to identify design improvements.
- **Highway 114/Hyampom Road, Trinity County, California. Traffic task lead for evaluating a rural road in Trinity County.** Directed the effort to gather traffic information and forecasts, conduct reconnaissance with local agency staff, and evaluate existing and future traffic. Worked with client staff to achieve consensus on future forecasts, and helped craft the purpose and need statement.

STATE OF CALIFORNIA

Energy Resources
Conservation and Development Commission

In the Matter of:	**DOCKET NO. 01-AFC-7C**
Russell City Energy Center Amendment Petition No. 1	**DECLARATION OF** **Gregory Darvin**

I, Gregory Darvin, declare as follows:

1. I am presently employed by Atmospheric Dynamics as a Meteorologist.

2. A copy of my professional qualifications and experience is incorporated by reference in this Declaration.

3. I prepared the attached testimony relating to Air Quality and Public Health for the Russell City Energy Center Amendment Petition No. 1 (Exhibits 1, 3, 10, 17, 20, 22, 24, 25, 26, and 27).

4. I am a co-sponsor of Chapter 2 of *Testimony of RCEC, LLC Regarding Thermal Plumes and Aviation,* Exhibit 28

5. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.

6. 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 Santa Barbara, CA on July 12, 2007.

GREGORY S. DARVIN
Meteorologist

Summary of Experience

Mr. Darvin has specialized in the meteorological aspects of air quality issues for the last fifteen years. He has extensive experience in air quality management, dispersion modeling, meteorological modeling, monitoring, major source permitting, complex terrain model development and implementation, emission inventory and health risk assessments. Mr. Darvin also has extensive experience in air quality operational permits (Title V), especially for the oil and gas industry. His experience spans more than 25 different states and several countries.

He has been actively involved with recent PSD permits for many large-scale solid fuel and gaseous fuel projects across the United States. Mr. Darvin has performed the following in support of PSD applications for utilities: baseline air quality and air quality modeling analyses (including preparation and negotiation of the modeling protocol), prepared the PSD and air permit regulatory applicability analyses, managed the preparation of the air quality emissions inventory, and assisted with the Best Available Control Technology (BACT) evaluations.

Specific project experience includes emissions calculations, modeling of impacts, evaluation of regulatory applicability and compliance, New Source Review (NSR) and Prevention of Significant Deterioration (PSD) permitting, and minor source permitting. He has used and is thoroughly familiar with a number of air quality models, including AERMOD, ISC3, CALPUFF, CALMET, COMPLEX I AND II, IGM, FDM, RTDM, CTSCREEN, CTDMPLUS, UAM, DEGADIS, SPILLS, VISCREEN, PLUVUEII, MESOPUFF, INPUFF, BLP, PAL, CAMEO, CALINE4, OCD5, RAM, TRACE, MM5, SLAB, and the Paris Airshed Model. These models have been used in scientific and development settings as well as in regulatory settings.

Education
M.S. Atmospheric Science, San Francisco State University, 1993
B.A. Physical Geography/Meteorology, University of California, Santa Barbara, 1985.

Professional Affiliations
Air and Waste Management Association
American Meteorological Society

Select Project Experience
A representative selection of Mr. Darvin's projects is included below.

Carson Hydrogen Project AFC, BP and Edison Mission Energy (August 2006-Present). Air Quality Project Manager and lead modeler for preparation of the first hydrogen powered combined cycle power plant for 500 MW of generation. The project will gasify petroleum coke and remove the CO_2 for oilfield re-injection. The project will also include permitting the gasification process and will involve preparation of a PSD permit application, Class I modeling, and offsets.

Select Project Experience (continued)

Walnut Creek and Sun Valley Energy Project AFCs, Edison Mission Energy (August 2005 to Present). Air Quality Project Manager and lead air quality modeler for preparation of two simple cycle AFC's for over 1000 MW of generation in the South Coast Air Basin. Project includes permit negotiation, ERC/RECLAIM review, and preparation of visible cooling tower plume analyses.

Mountainview Power Plant – SCE (2005 to Present). Project Manager for preparing an air quality permit modification related to commissioning activities and plant startup/shutdown. The project includes preparing a CEMS certification protocol, siting a meteorological tower, and ongoing compliance and regulatory consulting.

Roseville Electric Project AFC, City of Roseville, Ca. (January 2003 to Present). Air Quality Project Manager for air quality analysis related to a proposed new 200 MW natural gas fired power plant. Analysis included evaluation of Class I impacts, visibility impacts, complex terrain, and cooling tower plume modeling.

Pico Power Project AFC, City of Santa Clara. (January 2002 to November 2004). Air Quality Project Manager and lead air quality modeler for permitting a 180 MW power plant in the City of Santa Clara, Ca. Prepared and negotiated air quality permit with BAAQMD and prepared air section(s) of AFC for the California Energy Commission.

Russell City Energy Center AFC, Calpine (January 1999 to November 2002, September 2006-Present). Air Quality Project Manager for obtaining PSD permit and AFC for a large natural gas fired power plant, located near Hayward, Ca. Project required detailed emission calculations, air quality modeling, combined impact assessments, BACT analysis and demonstration, Title IV compliance, and Title V compliance issues.

Metcalf Energy Center AFC, Calpine. (1998 to 2003) Lead air quality modeler for modeling a large natural gas fired power plant, located near San Jose, Ca. Project included using refined modeling techniques to determine nitrogen deposition impacts, Class I analysis, and downwash analysis.

Otay Mesa Generating AFC, Calpine. (1999 to 2004). Lead Meteorologist for permitting a combined cycle power plant, located near San Diego, Ca. Project included Class I impacts, a nitrogen deposition impact assessment, and a downwash analysis in complex terrain. Modeling was used to prepare PSD permit application as well as the AFC application which was submitted to CEC.

East Altamont Energy Center AFC (2000-2002) Lead Meteorologist for permitting large power plant, located near Tracy, Ca. Project included meteorological data set assessments, criteria pollutant and toxics impacts analysis, and constructon impact modeling. Modeling was used to prepare PSD permit application as well as the AFC application for submittal to the CEC.

Select Project Experience (continued)

San Joaquin Energy Center AFC (2001-2002) Lead Meteorologist for permitting large power plant, located near the town of San Joaquin in the San Joaquin Valley. Project included preparing modeling assessments for toxics and criteria pollutants, meteorological data set assessments, construction impacts, and plume visibility assessments for the CEC and local air agency.

Prevention of Significant Deterioration (PSD) Permit Modification, Kettle Falls Generating Station, Avista Corporation, Kettle Falls Washington. Prepared a PSD application for modification to the Kettle Falls Generating Station, a wood-waste fired generating facility to address emission increases resulting from a capacity increase modification at the facility. Air quality modeling analyses were required to assess compliance with ambient air quality standards and PSD increments. A toxic air pollutant evaluation was also prepared.

PSD Permitting and EIS For 2000-MW Coal-Fired Power Plant, Sierra Pacific Resources, Nevada. Managed the preparation of a Prevention of Significant Deterioration (PSD) permit application for a 2000-megawatt coal-fired power plant in northeastern Nevada proposed by Sierra Pacific Resources. Evaluation of PSD increments involved extensive air quality modeling for regions with complex terrain. Detailed air quality analyses were performed to address complex issues including: long-range transport of pollutants and subsequent effects on acid deposition, effects of plant emissions on visibility in nearby and distant Class I areas, evaluation of pollutant buildup during stagnation conditions and its effect on visibility, dust emissions from the construction and operation of the power plant, and ambient air quality standards and PSD increments. As part of the state's permitting requirements, an evaluation of air toxics was performed.

PSD Permitting for Rinker Materials Cement Kiln in Brooksville, Florida. Mr. Darvin performed the baseline air quality and air quality modeling analyses, prepared the PSD and air permit regulatory applicability analyses, managed the preparation of the air quality emissions inventory and assisted with the Best Available Control Technology (BACT) evaluation. The project fuel sources included coal, oil, and natural gas.

Air Quality Permitting for an Ammonia/Urea Plant, Btu Nitrogen Company, Wallula, Washington. Prepared a Notice of Construction application for the proposed Btu Nitrogen Plant near Wallula, Washington which included a 600 ton per day ammonia plant and 1,000 ton per day urea fertilizer plant. The facility was to be located in a PM_{10} nonattainment area. Air quality modeling was used to demonstrate compliance with PM_{10} requirements and air quality standards for criteria and toxic air pollutants. Additionally, Best Available Control Technology analyses were prepared for both criteria and toxic air pollutants.

Select Project Experience (continued)

Power Generation Facility – 1250 MW Combined-Cycle, PSD Air Quality Permitting, Kootenai Generation LLC, Rathdrum, Idaho. Managed preparation of a PSD permit application for a proposed 1,250 MW gas-fired combined-cycle turbine power generation facility to be located in Rathdrum, Idaho. Evaluation of local and regional air quality impacts were assessed with the ISCST3 model and CTSCREEN model for impacts in complex terrain. Potential impacts on regional haze and acid deposition on distant federal Class I areas were evaluated with the CALPUFF modeling system. Other air quality evaluations required for the PSD permit application include evaluation of impacts from toxic air pollutants and evaluation of Best Available Control Technology (BACT).

Clean Fuels Refinery Modification, Chevron, Los Angeles, California. Lead air quality modeler for preparation of an Environmental Impact Report (EIR) and New Source Review permit for a large refinery modification in Los Angeles to support the Clean Fuels Program. Project also included toxic emissions calculations and preparation of a Health Risk Assessment.

Prevention of Significant Deterioration - Calpine Rocky Mountain Energy Center. Project manager for preparing PSD application for a 620 MW power plant, located near Hudson Colorado. Project required completion of a PSD permit application, air quality impact modeling analysis in both near and distant from the source, BACT demonstration, and assessment of Class I area impacts. Project was deemed complete by agency in less than 4 weeks.

Arctic Ocean Permitting, Arco Alaska. Task Leader and lead modeler for the first OCS permit ever submitted to the USEPA. Permit was for several off-shore oil exploration drilling platforms in the Arctic Ocean off Alaska. Project involved use of OCD to calculate impacts from exploratory drilling rig and support vessels. Impacts at ANWR were also assessed.

Mesoscale Complex Terrain Model Development, Italian Government and Alyeska. Developed a mesoscale complex terrain wind field model to determine impacts of topographically induced winds on a large man-made lake in the Italian Alps. This model has also been used to diagnose trajectories of potential oil spills in Alaskan waters.

Lead Dispersion and Deposition Study, ASARCO, Leadville, Colorado. Lead scientist for assessing potential deposition of lead from smelting operations over a 130-year period. Results of emissions calculations, modeling and deposition were used to develop a soils sampling program and subsequent cleanup criteria.

Biological Resources, Cultural Resources, Geology & Paleontology, Land Use, Noise, Socioeconomics, Soil & Water Resources, Visual Resources

STATE OF CALIFORNIA

Energy Resources
Conservation and Development Commission

In the Matter of:	**DOCKET NO. 01-AFC-7C**
Russell City Energy Center Amendment Petition No. 1	**DECLARATION OF** **Douglas Davy**

I, Douglas Davy, declare as follows:

1. I am presently employed by CH2M HILL, Inc., as a Senior Project Manager.

2. A copy of my professional qualifications and experience is incorporated by reference in this Declaration.

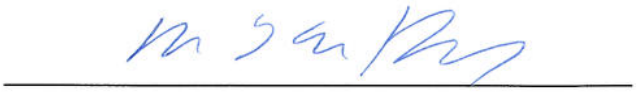
3. I supervised preparation of the attached testimony relating to Biological Resources, Cultural Resources, Geology and Paleontology, Land Use, Noise and Vibration, Socioeconomics, and Soil and Water Resources for the Russell City Energy Center Amendment Petition No. 1 (Exhibits 1, 4, 5, 6, 8, 9, 11, 12, 14, 17, 18, 20, 22 and 23).

4. I am the sponsor of Chapter 1 of *Testimony of RCEC, LLC Regarding Thermal Plumes and Aviation,* Exhibit 28.

5. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.

6. 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 July 11, 2007.



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 22 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 nine successful Applications for Certification (AFCs), including the AFC for Inland Empire Energy Center, which is located near the Sun Valley site. His California Energy Commission (CEC) licensing experience includes project management on eight 12-month AFCs, two 6-month AFCs, one relicense and combined-cycle conversion AFC, several AFC and permit amendments, and three emergency peaker AFCs.
Dr. Davy has also prepared critical project development and permitting reviews for 10 prospective power plant development sites in California.

Representative Projects

- **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, 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, 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, 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, Newark Energy Center, Calpine/Bechtel Joint Development, Alameda County, 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.
- **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. 01-AFC-7C**
Russell City Energy Center Amendment Petition No. 1	**DECLARATION OF** **Marshall W. Graves, Jr.**

I, Marshall W. Graves, Jr., declare as follows:

1. I am presently the sole proprietor of the International Institute for Aviation, Science and Technology, serving as the President and Chief Executive Officer.
2. A copy of my professional qualifications and experience is incorporated by reference in this Declaration.
3. I am the sponsor of Chapter 3 of *Testimony of RCEC, LLC Regarding Thermal Plumes and Aviation,* Exhibit 28
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 Carmichael, California on July 12, 2007.

Marshall W. Graves, Jr.

Marshall W. Graves, Jr.
3303 California Avenue
Carmichael, CA 95608
(916) 944-4108 home
marshall.graves@comcast.net

Personal Profile

Education and Professional Training

Academic : MSEME (Mechanical Engineering, Automotive), University of Michigan
BSEME (Mechanical Engineering, Automotive), University of Michigan

Training : OMB A-11Exhibit 300, General Services Administration, Washington, DC
Government Contract Administration, General Services Administration, Washington, DC
Government Aircraft Cost Accounting, General Services Administration, Washington, DC
Fleet Air Modernization, General Services Administration, Washington, DC
Aviation Safety Officer (Contractor Flight Operations), Naval Postgraduate School, Monterey, CA

Aviation Experience

4050 Total Hours
1880 Airplane Multi-Engine Hours
1950 Helicopter Hours
180 Airplane Multi-Engine (Jet) Hours

FAA Certificates

Airline Transport Pilot, Airplane Multi-Engine Land
Commercial Pilot, Helicopter with Instrument Rating
Type Rating SA-227 (C-26 / Metroliner), no restrictions
FEX Written, 100%
First Class Medical: June 22, 2007

Credentials

Designated Aerospace Engineering Subspecialist, U.S. Navy
Registered Professional Engineer, Mechanical, California
Certified Acquisition Professional, U.S. Navy
Top Secret Security Clearance, Presidential (inactive)

Achievements

United States Congressional Citation, 1995
Awarded for outstanding public service to the citizens of Alameda and the San Francisco East Bay communities during the Naval Air Station Alameda base closure process.

Society of Automotive Engineers Ralph R. Teeter Award, 1981
Chosen as one of the 25 Outstanding Engineering Educators in the United States and Canada while assigned to the faculty of the U.S. Naval Academy

Top Graduate, Naval Aviation Officer Candidate School, 1972
Ranked number 1 of 43 Naval aviation officers in commissioning class 38-71

Marshall W. Graves, Jr.
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Civilian Experience

President / CEO, International Institute for Aviation, Science and Technology — Current

Perform aviation program and aviation safety reviews for domestic and international aviation programs (flight operations, aircraft maintenance, logistics support, crew training, contractor staffing, and safety program management). Review and write standard operating procedures and training manuals. Write and evaluate proposals for contractor flight operations. Contracted Director of Operations for Union Flights. Organized Emergency Response Aviation Human Factors, Aviation Operational Risk Management, and Government Aviation Business Practices courses for the University of California, Davis Extension.

Executive Director, California Commission on Tax Policy in the New Economy — 2002-2003

Coordinated activities for nine (9) Commissioners appointed by the Governor and the Legislature and nine (9) ex-officio members assigned by statutory authority. Principal liaison to California Senate and Assembly members and their staffs to evaluate proposals for revising California tax and revenue policies. Drafted press releases. Published *Interim Report*, *Options for Revising the California Tax System*, and *Final Report*.

California State Fellow, American Society of Mechanical Engineers — 2001-2002

Fellowship sponsored by the California Technology Trade and Commerce Agency. Provided engineering analyses and policy guidance in support of advanced technology programs for the executive and legislative branches of California state government. Member of the Governor's Emerging Technology Working Group.

Director of Aviation, Intel Corporation — 2000-2001

Implemented an in-house, regional jet, air shuttle program connecting five (5) city pairs, providing scheduled aviation services for 175,000 passengers on an annual basis. Accountable for all flight operations, aircraft maintenance, logistics support, aviation safety, aircraft security, Hazmat programs, Injury and Illness Prevention Program (industrial safety), line service, reservation systems, and customer relations. Negotiated multi-year aviation services contract for contractor flight support. Managed a $33 million annual operating budget.

Chief of Aviation, California Department of Forestry and Fire Protection — 1996-2000

Responsible for 24 hour / day flight operations, maintenance, and safety programs for 55 airplanes and helicopters deployed to 22 California air attack bases. Accountable for a $200 million aircraft and aircraft parts inventory. Directed a $72 million aircraft modernization program for 14 OV-10s and 23 S-2Ts. Flew back-up fire suppression missions in OV-10s. Aviation liaison to Emergency Operations Command Centers. Represented the western states and Alaska on the Interagency Airtanker Board. Member of the GSA Interagency Committee for Aviation Policy (ICAP), Public Use Aircraft Working Group. Managed a $49 million operating budget.

Base Reuse and Closure Consultant, Private Practice — 1995-1996

Evaluated the Naval Air Station Alameda CA industrial complex for the Alameda Reuse and Redevelopment Authority during base closure. Inventoried and appraised several thousand machine tools in 90 buildings worth more than $100 million. Analyzed Cal-OSHA compliance upgrade requirements for selected buildings and processes. Assisted private investor teams in developing and implementing business plans for reuse strategies.

Marshall W. Graves, Jr.
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marshall.graves@comcast.net

Military Experience

Director of Operations, Naval Aviation Depot, Alameda, CA 1990-1995

Commander, U. S. Navy. Supervised 2,500 civilian employees overhauling S-3, P-3, and A-6 aircraft. Maintained engineering, modification, and structural repair standards for 120 S-3 and 500 P-3 aircraft in the Navy inventory. Flew test flights in S-3 and A-6 jets. Team leader for Cal-OSHA and Fed-OSHA compliance programs. Hazmat and Bay Area Air Quality Management District permitting officer. Liaison to San Francisco and Oakland / East Bay communities during base closure. Accountable for a $350 million budget.

Powerplants Class Desk, Commander, Naval Air Force, U.S. Pacific Fleet 1987-1990

Responsible for all levels of maintenance and for approving all powerplant changes for 6,000 Pacific Fleet aircraft engines worth $4.2 billion. Developed integrated logistics support plans for the Navy fleet introductions of the F404 jet engine (F/A-18 fighter), the T700 engine (SH-60B helicopter), and the T427 engine (E-2C turboprop). Supervised a direct staff of eight and indirect staff (U.S. and Western Pacific) of several hundred.

Executive Officer, Naval Plant Representative Office, Sikorsky Aircraft, Stratford, CT 1984-1987

Administered world-wide Department of Defense and Coast Guard production and overhaul contracts worth $1.8 billion. Directly supervised the White House contract for the overhaul of the U.S. Presidential helicopter fleet. Top Secret Security Clearance, Presidential. Coordinated field team repair efforts overseas. Joint Service Standardization Instructor Pilot for all models of the H-60 helicopter. Flew test flights in H-60 Blackhawks, SH-60 Seahawks and Presidential VH-3D executive helicopters.

Air Operations Officer, Amphibious Squadron Seven 1982-1984

Planned and executed all flight operations for a combined USS Peleliu and USS Ranger amphibious / carrier battle group in preparation for combat operations in Lebanon. Responsible for Battle Group threat assessment and countermeasures. Accountable for flight deck certifications of all ships capable of supporting helicopter flight operations. Flew combat assault and search and rescue missions in UH-1N helicopters. Aviation Liaison Officer to Japanese, Korean, Australian, and Canadian forces during joint amphibious assault exercises.

Instructor, Mechanical Engineering, U. S. Naval Academy, Annapolis, MD 1979-1982

Taught courses in Compressible Flow and Turbomachinery, Fluid Mechanics, Thermodynamics, and Statics. Flew aviation indoctrination flights and taught seamanship for midshipmen during summer recess.

Combat Pilot, Helicopter Antisubmarine Warfare Squadron Thirty Six 1976-1979

Officer-in-Charge Detachment Six. Deployed with USS Saratoga Battle Groups. Flew combat support from Navy destroyers and cruisers in SH-2F helicopters. Navy finalist for astronaut training.

Operational Test and Evaluation Pilot, Air Test and Evaluation Squadron One, Patuxent River, MD 1973-1976

Flew antisubmarine test flights in S-2E/G airplanes, SH-3H and SH-2F helicopters. Wrote test plans, analyzed test data, and drafted final reports. Top Secret publications, cryptography, and equipment control officer.

STATE OF CALIFORNIA

Energy Resources
Conservation and Development Commission

In the Matter of:	**DOCKET NO. 01-AFC-7C**
Russell City Energy Center Amendment Petition No. 1	**DECLARATION OF** **Christine Killip**

I, Christine Killip, declare as follows:

1. I am presently employed by Katestone Environmental, as an Atmospheric Scientist.
2. A copy of my professional qualifications and experience is incorporated by reference in this Declaration.
3. I supervised preparation of technical studies regarding Plume Vertical Velocity for the Russell City Energy Center Amendment Petition No. 1, as follows:
   - *Plume Vertical Velocity Assessment of a Proposed Gas-Fired Power Station at Russell City Energy Center*, Exhibit 26
   - *Plume Vertical Velocity Assessment of a Proposed Gas-Fired Power Station at Russell City Energy Center – Addendum*, Exhibit 27
   - *Plume Vertical Velocity Assessment of a Proposed Gas-Fired Power Station at Russell City Energy Center – Addendum 2*, Exhibit 29
4. I assisted in the preparation of Chapter 2 of *Testimony of RCEC, LLC Regarding Thermal Plumes and Aviation,* Exhibit 28
5. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
6. 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 Toowong, Queensland, Australia on July 12, 2007.

Christine Killip – Managing Director –
Curriculum vitae

Expertise:

Meteorological and air quality analysis, with particular reference to industrial site evaluation. Air quality impact assessments for projects ranging from large industrial projects to regional photochemical impacts to local impacts of dust and odours. Detailed practical knowledge of a variety of regulatory and specialist dispersion models.

Professional experience:

Air quality modelling including TAPM, CALMET/CALPUFF, Aermod, Ausplume, ISC3, Caline (traffic) and in-house dispersion models for tall stacks in coastal and inland situations.

Assessment of site meteorology for industrial plants, including site selection, installation and data evaluation.

Air quality impact assessment of major power station and industrial developments in Queensland, New South Wales and Western Australia.

Estimation of greenhouse gas emissions for various power station projects.

Estimation of vertical plume velocities for aviation safety assessments

Statistical photochemical evaluation of urban-based major industries.

Odour and dust impact evaluations of a variety of industries.

Development of odour dispersion techniques for different source types.

Development of a real-time predictive strategy to reduce the sulphur dioxide impact of a synthetic rutile plant.

Coastal air quality assessments and preparation of meteorological data sets.

Selection of stack height and control options for major industrial emitters.

Emission estimations for a wide range of industries.

Course notes for post-graduate air quality management course at Central Queensland University.

Training course for CALMET and CALPUFF dispersion modelling system, 2001.

Qualifications:

Bachelor of Technology (Atmospheric Science), Macquarie University, 1994.
Member of Australian and New Zealand Clean Air Society.
Member of American Meteorological Society.
Member of American Waste Management Association

Training courses:

Calpuff Dispersion Modelling System, 2001
Advanced Modelling for Ausplume, 1996

Conferences attended:

Taiwan Joint Symposium on Environment Modelling and Management, Taiwan, 2000
16th International Clean Air Conference, Christchurch, New Zealand 2002

Publications:

Best PR, Killip C and Brooke A (2004), "Fragrance, fluctuations, facts or fantasy - the use, abuse and disuse of extreme statistics in odour evaluations", Enviro 2004 Conference, Sydney, Australia.

Leishman N, Killip C, Best PR, Brooke AS, Jackson L and Quintarelli F (2004), "Air quality management at the rural/urban interface of an expanding metropolis", 13th World Clean Air and Environmental Protection Congress, London, UK.

Killip CA, Brooke AS and Best PR (2003), "Application of various dispersion models to management of local and regional air quality", Air & Waste Management Association Conference, Connecticut, U.S.A. October 2003.

Best P, Jackson L, Killip C, Kanowski M and Spillane K (2003), "Aviation Safety and Buoyant Plumes", Clean Air Conference, Newcastle, New South Wales, Australia.

Jackson L, Leishman N, Killip C and Best P (2003), "Windfield prediction and verification for a variety of sites across Australia", Clean Air Conference, Newcastle, New South Wales, Australia.

Killip CA, Brooke AS and Best PR (2003), "Application of various dispersion models to management of local and regional air quality", Air & Waste Management Association Conference, Connecticut, U.S.A October 2003.

Killip CA, Brooke AS, Jackson L, Best PR, Verrall K and Wainwright D (2002), "Advanced modelling tools for air quality management – Gladstone 10 years on", 16th International Clean Air Conference, New Zealand, 422-428.

Best PR, Lunney KE, Jackson LD, Cresta DJ, Killip CA and Ellis ND (2002), "Downscaling of weather prediction models for short-term alert systems for air quality and other decision-support systems", 16th International Clean Air Conference, New Zealand, 97-103.

Best R, Killip C and Kanowski M (2002), "Predicting community response and potential health issues in the Australian context for major piggeries and other similar concentrated animal- feeding operations" Presented to the APL "National Workshop on Odour Assessment for Piggeries", Sydney.

Best PR, Lunney KE and Killip CA (2001), "Statistical elements of predicting the impact of a variety of odour sources", Water Science and Technology, 44, pp 157-164.

Best P and Killip C (2001), "Regulatory concerns for NO_x control of major point sources", Ultra Systems Seminar, Brisbane, Australia.

Best PR, Lunney KE and Killip CA (2000), "Averaging time corrections for estimating extreme air quality statistics", 15th International Clean Air Conference, Sydney.

Killip C, Lunney KE, Best PR, Kanowski M (2000), "Air quality decision support systems", Australia - Taiwan Joint Symposium on Environment Modelling and Management.

Current Interests:

Regional modelling and advanced modelling techniques

STATE OF CALIFORNIA

Energy Resources
Conservation and Development Commission

In the Matter of:	**DOCKET NO. 01-AFC-7C**
Russell City Energy Center Amendment Petition No. 1	**DECLARATION OF** **Sarah Madams**

I, Sarah Madams, declare as follows:

1. I am presently employed by CH2M HILL, Inc., as a Hazardous Materials and Waste Management Specialist.

2. A copy of my professional qualifications and experience is incorporated by reference in this Declaration.

3. I prepared the attached testimony relating to Hazardous Materials, Waste Management, and Worker Safety and Fire Protection for the Russell City Energy Center Amendment Petition No. 1 (Exhibits 1, 7, 15, 16, 17, 21, and 23).

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 July 11, 2007.

SMadams

Sarah Madams

Environmental Toxicologist

Education

B.S., Environmental Toxicology, University of California

Distinguishing Qualifications

- Expertise includes working with multidisciplinary teams to assess the environment impacts of power plants on the environment
- Currently serves as deputy project manager for power plant licensing works performed by CH2M HILL

Relevant Experience

Ms. Madams has more than 7 years of professional experience in project management, regulatory compliance, permitting, public involvement/community relations, data collection and analysis, database management, compliance audits, document preparation, and technical writing. Her environmental assessment experience includes impacts to air, biological and cultural resources, land uses, noise, socioeconomics, public health, water and visual resources, soils and geology, and paleontology.

Representative Projects

- ✓ **Project Coordinator, AFC for AES Highgrove Power Plant.** Project coordinator for the AFC for a 100-MW power plant. Reviewed applications, coordinated multidisciplinary data requests and responses, and served as liaison and coordinated efforts between CEC project management and staff.
- ✓ **Project Coordinator, AFC, Los Esteros Critical Energy Facility, Calpine C*Power, San Jose, California.** Project coordinator for the AFC for a 180-MW power plant. 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. Assisted with the development and implementation of biological, cultural, and paleontological resource monitoring programs, risk management plan, and traffic and transportation management plan.
- ✓ **Project Coordinator, AFC, San Francisco Electric Reliability Project, San Francisco Public Utilities Commission, California.** Project coordinator for the AFC for a 145-MW simple-cycle power plant. Reviewed applications, coordinated multidisciplinary data requests and responses, attended public workshops, and prepared a site investigation report for the process water route. Assisted in preparation of the hazardous materials and hazardous

waste sections for the AFC. Served as liaison and coordinated efforts between CEC project management and staff.

- ✓ **Project Coordinator, Small Power Plant Exemption (SPPE), Electric Generation Station, Modesto Irrigation District, Ripon, California.** Project coordinator for the SPPE for a 95-MW peaking plant. Reviewed applications, coordinated multidisciplinary data requests and responses, and served as liaison and coordinated efforts between CEC project management and staff.
- ✓ **Project Coordinator, AFC, Walnut Energy Center, Turlock Irrigation District, California.** Project coordinator for the AFC for a 250-MW combined-cycle power plant. Reviewed applications, coordinated multidisciplinary data requests and responses, and coordinated efforts between CEC project management and CH2M HILL staff. Assisted with the development of the security plan and emergency response plan.
- ✓ **Project Coordinator, AFC, Salton Sea Unit 6 Geothermal Power Plant, Mid-American Energy Holding Company, Imperial County, California.** Project coordinator for the licensing of the 185-MW geothermal power plant. The power plant design was based on the flash geothermal power plant process, which produces both solid and liquid byproducts that required disposal. The project site was in a rural area of Imperial County, but adjacent to a National Wildlife Refugee that supports significant populations of avian species. The licensing process involved the review of all environmental areas, and specifically focused on waste disposal, air quality, hazardous materials handling, and biological resources. Responsible for the development and tracking of data response submittals requested by the CEC. The project was successfully completed, with a license issued by the CEC.
- ✓ **Air Quality Audits, SMUD, California.** Conducted air quality audits of the Central Valley Finance Authority's Carson Energy facility and McClellan gas turbine facility. Responsibilities included assisting with the development of the pre-audit checklist and field interview forms, conducting field interviews and audits, and assisting with summarizing and presenting findings in the final audit report.
- ✓ **Initial Study, August Substation, Turlock Irrigation District, California.** Managed the preparation of an Initial Study (IS) for the construction and operation of a proposed substation in Hilmar. The IS evaluated all environmental resources and identified mitigation for significant impacts. Prepared the hazardous materials portion of the IS.
- ✓ **Project Team Member, Environmental Regulatory Services, SMUD, Sacramento, California.** Project team member for on-call environmental support. Prepared the hazardous material subsections for the Initial Studies/Mitigated Negative Declarations (IS/MNDs) at the following substations and connecting overhead 69-kV subtransmission lines: Metro Air Park, North Vineyard, Franklin-Elk Grove, and Oselot-Zinfandel.

Air Quality and Waste Management

STATE OF CALIFORNIA

Energy Resources
Conservation and Development Commission

In the Matter of: Russell City Energy Center Amendment Petition No. 1	**DOCKET NO. 01-AFC-7C** **DECLARATION OF** **Barbara McBride**

I, Barbara McBride, declare as follows:

1. I am presently employed by Calpine as a Director, Environmental Health and Safety, Western Region.

2. A copy of my professional qualifications and experience is incorporated by reference in this Declaration.

3. I am cosponsoring the attached testimony relating to Air Quality, Soil and Water Resources, and Waste Management for the Russell City Energy Center Amendment Petition No. 1 (Exhibits 1, 3, 10, 17, 20, 21, 22, and 23).

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 Pittsburg, CA on July 12, 2007.

CALPINE
RESUMES

104 WOODMERE ROAD
FOLSOM, CALIFORNIA 95630
916-608-3800
916-985-5655 (FAX)

Barbara McBride
Director - Safety, Health and Environment

Experience
17 Years in Power Generation
20 Years in Engineering and Construction

Calpine Corporation
2001 – Present **Director - Safety, Health and Environment**

Ms. McBride is currently serving as Director of Safety, Health and Environment for the Western Power Region for Calpine. She is responsible for Safety, Health and Environmental compliance for 29 operating plants in the power region. She is also responsible for Safety, Health and Environmental support for business development including acquisition due diligence and site selection and proposal efforts and supports project development activities in the areas of project permitting from their initial involvement through, construction and commercial operation. Ms McBride works closely with all permitting agencies including the California Energy Commission, EPA and other state and local agencies.

Ms McBride is responsible for coordinating with and supporting the government affairs department in developing new and modifying existing legislation, regulation and policy. She is also responsible for developing and implementing region wide Safety, Health and Environmental procedures.

Equilon Enterprises, LLC.
1998 – 2001 **Permitting and Title V Engineer**

Ms. McBride served as the Contra Costa County permitting engineer and Title V permitting engineer at the Martinez Refining Company. This included writing and negotiating County Land Use Permits, BAAQMD Air Permits, and the Facility Title V Permit.

Ms. McBride was responsible for the Toxic Release Inventory Reporting, Maximum Achievable Control Technology implementation, Proposition 65 implementation, and SARA/CERCLA reporting at the refinery. She was also responsible for ensuring that continuous emissions monitoring systems were in compliance with federal and state regulation.

Bechtel Environmental, Inc.
1990 – 1998

Ms. McBride was the Environmental Permitting Engineer for a Catalyst Plant Expansion Project and the Base Oil 2000 Project for two major oil refineries. This included writing and negotiating the Air Permit Application, developing environmental design criteria and ensuring compliance with state, federal, and local regulations.

Ms. McBride Assisted the Shell Martinez Catalyst plant in ensuring their compliance with hazardous waste, air and other local regulations. This included conducting audits, negotiating with agency personnel, preparing and submitting periodic reports, and developing standard operating procedures.

Ms. McBride coordinated the source testing effort for the Shell Martinez Refining Company Clean Fuels Project. This entailed writing the source test plans, managing the subcontractor, and ensuring timely submittal of source testing reports.

Ms. McBride was the Project Environmental Coordinator for the Tosco Refining Company Reformulated Gasoline Project. This entailed writing and implementing the Construction Environmental Control Plan, the Erosion and Sedimentation Control Plan, and the Waste Minimization Plan. Ms. McBride was also responsible for ensuring project compliance with the Land Use and Air Permits.

Ms. McBride prepared the RCRA Part B permit application and Interim Status Document for the FMC Pocatello Phosphorus Chemicals Plant in Pocatello Idaho. This included identifying the affected units at the facility, identifying the applicable regulations and standards, and developing and recommending compliance options to the client. Ms. McBride was also responsible for writing and implementing the Sampling and Analysis Plan to characterize the waste streams at the Plant.

Ms. McBride provided oversight for three power generating facilities environmental compliance. She was responsible for preparing source test plans, continuous emissions monitoring systems certification, agency negotiations, and on-site subcontractor management. Ms. McBride was also responsible for trouble shooting problems with various NOx and CO pollution control devices and the continuous emissions monitoring system.

Ms. McBride has completed a two-year assignment as an environmental engineer for design engineering and permitting of a large hazardous waste thermal treatment facility built by Bechtel for a non-ferrous metals manufacturing company. She was involved in preparing the required state permit applications, including the RCRA Part B, Air Permit, and Class III Landfill Permit. She also prepared the RCRA/BIF trial burn plan and the Air Permit source test plan. Ms. McBride also participated in selection of the trial burn subcontractor.

Ms. McBride assisted in the management of a program to test NOx emissions and organics emissions from a low NOx burner to provide emissions rates for AB 2588 and risk assessment for a major oil refinery. She wrote the testing protocol and directed the testing contractor on-site at the burner test facility.

Ms. McBride developed a source testing program to test the performance of a newly installed urea injection system to reduce NOx emissions from a CO Boiler at a major oil refinery. This included writing a source testing plan, interfacing with the local air district, and managing the testing subcontractor.

Ms. McBride assisted in the design and construction of a chemical wastewater treatment facility at Chevron Chemical in Richmond California. She reviewed engineering drawings and P&IDs. She performed process evaluations and process descriptions, and provided oversight of project organization.

Education and Registration
B.S. Agricultural Engineering, 1987, University of California, Davis
Engineer-in-training, California, 1993
Qualified Environmental Professional, 1996

Qualifications
20 years of Safety, Health and Environment Experience
17 years of Power Industry Experience

STATE OF CALIFORNIA

Energy Resources
Conservation and Development Commission

In the Matter of: Russell City Energy Center Amendment Petition No. 1	**DOCKET NO. 01-AFC-7C** **DECLARATION OF** **Thomas Priestley, AICP/ASLA**

I, Thomas Priestley, declare as follows:

1. I am presently employed by CH2M HILL, Inc., as a Senior Technologist for Visual Resources.

2. A copy of my professional qualifications and experience is incorporated by reference in this Declaration.

3. I prepared the attached testimony relating to Visual Resources for the Russell City Energy Center Amendment Petition No. 1 (Exhibits 1 and 14).

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 Oakland, CA on July 12, 2007.

Thomas J. Priestley

Thomas Priestley, AICP/ASLA

Senior Visual Resources Specialist

Education

Ph.D., Environmental Planning, University of California, Berkeley
M.L.A., Environmental Planning, University of California, Berkeley
M.C.P., City Planning, University of California, Berkeley
B.U.P., Urban Planning, University of Illinois

Relevant Experience

Dr. Priestley has more than 20 years of professional experience in urban and environmental planning and project assessment. He is known nationwide for his expertise in evaluating land use, property value, aesthetic, and public acceptance issues related to electric facility projects. His experience includes projecting community land use development trends to determine facility needs and optimal location; assessing land use and visual effects of proposed generating plants, transmission lines, and substations; and conducting studies of public perceptions. Through his project experience and his research conducted for utility clients, Dr. Priestley has developed a broad knowledge of methods used for siting electric generation, transmission and substation facilities, and mitigating their land use, aesthetic, and other environmental effects.

Representative Projects

- ✓ **Visual Resource Impact Analyses of Gas-fired Power Plants, Various Locations, California.** Evaluated the potential visual resources impacts of 12 major gas-fired power plants proposed for a variety of urban and rural settings in both Northern and Southern California. Identified visual issues, designed the analysis strategies, contributed to development of architectural and landscape treatments, prepared visual resources analyses for the Applications for Certification for submittal to the California Energy Commission, reviewed and critiqued relevant sections of the Energy Commission's analyses of the projects, and evaluated the visual issues associated with CEC-proposed alternative sites. As an expert witness on visual resources, prepared written testimony and provided oral testimony in hearings before the California Energy Commission.

- ✓ **Kittitas Valley Wind Power Project, Kittitas County, Washington.** Designed and conducted the analysis of the potential aesthetic effects of a proposal to develop up to 121 1.3 to 2.5 mW turbines on ridge lands in a rural area in north central Kittitas County. Assessed effects on views from nearby roadways and residences and recommended mitigation measures to attenuate impacts. Prepared the aesthetics chapter for the permit application to the Washington Electric Facility Siting Council (EFSEC) and is now participating in the subsequent stages of the licensing process.

- ✓ **Wild Horse Wind Power Project, Kittitas County, Washington.** Designed and conducted the analysis of the potential aesthetic effects of a large wind turbine installation proposed for

Whiskey Dick Mountain in eastern Kittitas County Assessed effects on views from nearby roadways and residences and recommended mitigation measures. Prepared the aesthetics chapter for the permit application to the Washington Electric Facility Siting Council (EFSEC).

- ✓ **Aesthetic and Site Enhancement Studies, Shoshone Falls Hydroelectric Project, Idaho.** Consultant to Idaho Power on the effects of proposed relicensing of the Shoshone Falls hydroelectric project on the aesthetic qualities of the falls and adjacent park. Provided direction for development of the analysis approach for assessing the effects of changes in flows over the falls on the falls' appearance and public expectations. Evaluated the project in light of local government and land management agency plans and policies, designed and implemented special perception studies that included use of focus groups and surveys, and worked with an advisory committee of representatives of local governments and state agencies. Based on this process, recommended mitigation and enhancement measures. Assisted in preparing a visual analysis report for incorporation into the Exhibit E submitted to Federal Energy Regulatory Commission (FERC).
- ✓ **Oroville Facilities Hydroelectric Project, Oroville, California.** As part of an Applicant Prepared Relicensing (APR) process, responsible for preparation of initial project documents. Developed outlines and work plans; coordinated with the Department of Water Resources and environmental specialists for each of the issue areas; assembled drafts; edited text; designed final reports; and supervised report production. Responsible for analysis of the visual resource issues associated with the project's reservoir, forebay, afterbay, canals, dam structures, power houses, and fish ladder facility.
- ✓ **Technical Advisor, Land Use, Land Management, and Aesthetics Work Groups.** Required participation in sessions involving agency staff, representatives of Indian Tribes and non-governmental organizations, and members of the general public.
- ✓ **Jefferson-Martin Transmission Project Proponent's Environmental Assessment, San Mateo County, California.** Senior reviewer and consultant for an analysis of the aesthetic issues associated with the proposed replacement of a 14.7-mile segment of an existing kV transmission line with a 230 kV line on larger towers. The transmission line's location in an open space area prized for its scenic qualities and in proximity to affluent residential areas made the visual issues a sensitive and critical dimension of this project, requiring an intensive degree of analysis.
- ✓ **Kangley-Echo Lake Transmission Line, King and Kittitas Counties, Washington.** Scoped the visual issues and designed and implemented an analysis plan to assess the potential aesthetic impacts of a proposed 500 kV transmission line on four alternative routes, with a total length of approximately 120 miles through forest, recreation, scenic corridor, and rural and suburban residential areas. Supervised the preparation of photo simulations and the preparation of Geographical Information System (GIS) analyses. Prepared the technical report documenting the analysis.
- ✓ **Swan Lake, Lake Tyee Transmission Project EIS, Tongass National Forest, Alaska.** Prepared the visual section of the EIS for a 60-mile transmission line and associated access

roads proposed for Forest Service lands in Alaska's southeast peninsula. Coordinated with Forest Service planning and visual resource management specialists, reviewed Forest Service Visual Resource Management analyses and policies for the project area, analyzed existing landscape conditions, evaluated the aesthetic effects of similar facilities that already exist in the region, provided advice about siting the route alternatives, analyzed the visual effects of the alternatives, and developed mitigation strategies.

- ✓ **Development of a New Method for Considering Aesthetic Issues in Transmission Line Siting, Québec, Canada.** For Hydro-Québec, provided conceptual review and research assistance for its efforts to evaluate and revise approaches to treatment of transmission line aesthetic issues in project planning, siting, and design.
- ✓ **Project Manager, International Electric Transmission Perception Project, Hydro-Québec, Electricité de France, BC Hydro, the Bonneville Power Administration and Southern California Edison.** Managed a team of planners and social scientists working on development and application of standardized methods for surveying the public's perceptions of the impacts of high voltage transmission lines. Identified transmission line siting issues and information needs; summarized and evaluated existing research findings; participated in development of a conceptual framework for understanding public perceptions; and contributed to the development of a master plan and design for preparation and testing of standardized survey instruments.
- ✓ **Environmentally Sensitive Design of Transmission and Substation Equipment, Hydro-Québec and Electricité de France.**Developed an inventory and assessment of the experience of U.S. utilities in developing new transmission and substation equipment designs to reduce aesthetic and other environmental impacts. Activities included literature review, survey of utility engineers and planners, interviews with utility personnel, and documentation and synthesis of findings.
- ✓ **Design Solutions for Mitigation of Substation Impacts, Hydro-Québec.** Documented the experience of utilities in the U.S., Canada, France, and Japan during the development of design solutions for urban substations to aid their integration into their settings. In addition, documented measures used by US utilities to respond to environmental issues associated with modifications of existing substations.
- ✓ **Consultant and Major Contributor to the Design and Implementation, Study of Transmission Line Effects on Property Values, Solano County, California.** Consultant and major contributor to the design and implementation of a research project sponsored by Southern California Edison that used hedonic modeling to evaluate the property value effects of transmission lines in a cross-section of suburban residential neighborhoods.
- ✓ **Co-author, Review of the Literature on Transmission Line Effects on Property Values, Edison Electric Institute.** Co-author of a bibliography and critical review of post-1975 studies on the relationship between transmission lines and the value of residential property.