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March 3, 2003

Garret Shean  
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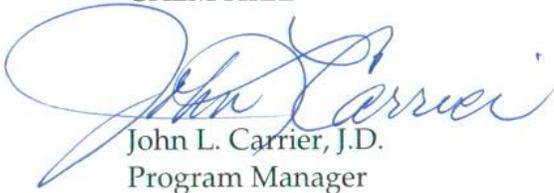
RE: Group 1 Testimonies  
Cosumnes Power Plant (01-AFC-19)

On behalf of the Sacramento Municipal Utility District, please find attached 12 copies and one original of our Group 1 testimonies. They cover all areas that were covered in Part 1 of the FSA.

Please call me if you have any questions.

Sincerely,

CH2M HILL



John L. Carrier, J.D.  
Program Manager

c: Colin Taylor/SMUD  
Kevin Hudson/SMUD  
Steve Cohn/SMUD

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# **Testimony for the Application for Certification for the Cosumnes Power Plant 01-AFC-19**

**Group 1:**

**Air Quality; Cultural Resources; Facility Design, Gas Line Supply;  
General Project Development: including Project Description, Facility  
Design, Power Plant Reliability, Power Plant Efficiency; Compliance  
Monitoring and Closure Plan; Geologic Hazards and Resources;  
Hazardous Materials Handling; Land Use; Noise; Paleontological  
Resources; Public Health; Radiological Conditions; Socioeconomics;  
Traffic & Transportation; Transmission Line Safety & Nuisance;  
Transmission System Engineering; Visible Plume; Visual Resources;  
Waste Management; and Worker Safety & Fire Protection**

Submitted to the

**California Energy Commission**

March 3, 2003

Submitted by

**SACRAMENTO MUNICIPAL UTILITY DISTRICT**



2485 Natomas Park Drive  
Sacramento, California 95833

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(in Alphabetical Order of Testimony Section)

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General Project Development: Including Project Description, Facility Design, Power Plant Reliability and Power Plant Efficiency, Compliance Monitoring and Closure Plan	Colin Taylor & Kevin Hudson
Geological Hazards and Resources	Tom Lae
Hazardous Materials Handling	Karen Parker & Jerry Salamy
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**APPENDIX A: Declarations and Witness Qualifications, Group 1**

**APPENDIX B: Exhibit List**

# AIR QUALITY

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## I. Introduction

### A. Name

Gary Rubenstein

### B. Purpose

This testimony addresses the air quality issues associated with the proposed project, and presents underlying technical analyses that support portions of the Applicant's public health, visual resources, and biological resources testimony.

### C. Qualifications

I am a Senior Partner in the firm of Sierra Research, an air quality consulting firm located in Sacramento, California. I have a Bachelor of Science degree in Engineering from the California Institute of Technology.

I co-founded Sierra Research in 1981, after serving as Deputy Executive Officer for technical programs for the California Air Resources Board (ARB). While at ARB, I supervised the work of more than 300 engineers and scientists involved in the development and enforcement of a wide variety of air pollution control regulations.

Since co-founding Sierra Research, I have had primary responsibility for the firm's activities in the areas of stationary source (i.e., industrial) air pollution. These activities include the preparation of permit applications for new facilities; evaluation of the effect of existing or proposed regulations on existing or new sources of air pollution; and assessments of compliance by existing sources of air pollution with federal, state and local requirements. I have had extensive experience in regard to advising clients in interpretation and compliance with regulations concerning environmental air pollution, including the regulations of the Sacramento Metropolitan Air Quality Management District (SMAQMD or Air District).

While with Sierra Research, I have prepared application materials, participated in energy facility siting workshops and hearings, and/or presented testimony before the California Energy Commission, in the following cases:

- Walnut Energy Center
- East Altamont Energy Center
- San Joaquin Valley Energy Center
- Avenal Energy Project
- Los Esteros Critical Energy Facility
- Inland Empire Energy Center
- El Segundo Power Redevelopment Project
- Morro Bay Modernization Project
- Metcalf Energy Center
- Woodland II Generating Station
- Gilroy Energy Center
- Los Medanos Energy Center
- Mountainview Power Project
- Moss Landing Power Plant Project
- Delta Energy Center

- Sutter Power Project
- San Francisco Energy Project
- Carson Ice-Gen Project
- SMUD/Sacramento Power Authority Cogeneration Project
- SMUD/Sacramento Cogeneration Authority Cogeneration Project
- SDG&E South Bay 3 Repowering Project
- Crockett Cogeneration Project
- 
- Argus Cogeneration Expansion (ACE) Project
- Texaco Coolwater Coal Gasification Project
- Mojave Cogeneration Project
- Midway Sunset Cogeneration Project
- Sycamore Cogeneration Project

While with the California Air Resources Board, prior to founding Sierra Research, I participated in energy facility siting workshops and hearings, and presented testimony before the California Energy Commission, in the following cases:

- PG&E Fossil 1&2
- Various PG&E geothermal power plants
- SCE Cal Coal
- SCE Lucerne Valley

#### **D. Prior Filings**

In addition to the statements herein, this testimony includes by reference the documents submitted in this proceeding that are listed in Attachment 1 to my testimony.

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.

## **II. Proposed Licensing Conditions**

The proposed licensing conditions related to air quality include those identified in the Final Determination of Compliance issued by the Sacramento Metropolitan Air Quality Management District (SMAQMD or Air District), and in the Final Staff Assessment for air quality (additional conditions related to mitigation and facility construction). The Applicant has reviewed these conditions; of the 49 air quality conditions reflected in these two documents, Applicant agrees, in principle, with 46. Applicant has substantive concerns with two of the conditions, has minor changes to suggest for other conditions, and has more substantive changes to suggest to several of the CEC Staff's proposed verifications modifying the licensing conditions contained in the Final Determination of Compliance. These concerns are described in more detail below. The Applicant has no objections to the conditions contained in the Final Determination of Compliance. In addition, except as noted in Section IV below, the Applicant has no objections to the California Energy Commission Staff's ("CEC Staff") proposed air quality conditions of certification.

### **III. Summary**

Air pollutant emissions from the proposed Cosumnes Power Plant result from operation of the gas turbines used to generate electricity, and from additional supporting equipment. These emissions will be controlled through the use of the best available pollution control technology. These controls will make the Cosumnes Power Plant one of the cleanest power generation facilities in the United States. The project will be located in eastern Sacramento County, where air quality levels are within most (but not all) air quality standards. The air quality impacts of the Cosumnes Power Plant were evaluated and shown to satisfy all state and federal air quality requirements. This conclusion has been confirmed after extensive reviews by the Air District. Emissions from the project result from operation of the gas turbines used to generate electricity, and from additional supporting equipment.

#### **A. Existing Air Quality**

The U.S. Environmental Protection Agency (EPA) and California Air Resources Board have each established ambient air quality standards to protect public health and welfare. Both state and national ambient air quality standards consist of two parts: an allowable concentration of a pollutant, and an averaging time over which the concentration is to be measured. Allowable concentrations are based on the results of studies of the effects of pollutants on human health, crops and vegetation. The averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposures to a high concentration for a short time (one hour, for instance), or to a relatively lower average concentration over a longer period.

Air quality standards have been set for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate sulfates, and fine particulate matter (PM10). Five ambient air monitoring stations were used to characterize air quality at the project site. These stations were used because of their proximity to the project site and because they record area-wide ambient conditions rather than the localized impacts of any particular facility. All of the ambient air quality data that I relied upon were taken from publications and data sources prepared by the California Air Resources Board (CARB). Ambient concentrations of ozone were taken from monitoring stations located at Sloughhouse and in Elk Grove. Ambient concentrations of nitrogen dioxide were also measured at Elk Grove. Ambient concentrations of carbon monoxide and PM2.5 were measured at T Street in Sacramento. Finally, ambient concentrations of PM10, sulfates, and airborne lead were measured at Stockton Blvd. in Sacramento, while sulfur dioxide measurements were from the Del Paso Manor site in Sacramento. The monitoring stations for each pollutant are summarized in the following Table 1:

**Table 1**  
**Ambient Air Monitoring Station Locations**

<b>Pollutant</b>	<b>Station</b>	<b>Distance from Project Site</b>
Ozone	Sloughhouse	11.1 mi NW
	Elk Grove	16.6 mi WSW
Nitrogen Dioxide	Elk Grove	16.6 mi WSW
Carbon Monoxide	Sacramento (T Street)	25.4 mi NW
PM <sub>10</sub>	Sacramento (Stockton Blvd.)	24.1 mi NW
PM <sub>2.5</sub>	Sacramento (T Street)	25.4 mi NW
Sulfates	Sacramento (Stockton Blvd.)	24.1 mi NW
Sulfur Dioxide	Sacramento (Del Paso Manor)	22.9 mi NW
Lead	Sacramento (Stockton Blvd.)	24.1 mi NW

All of these monitoring stations are located in the Sacramento Valley Air Basin, the same air basin in which the project is located. Each of these monitoring stations is the closest station to the project site for the pollutant monitored.<sup>1</sup> Because these stations are the closest to the project site, and are generally located in or just downwind of more heavily developed areas, the concentrations recorded at these stations are believed to be representative of, or more conservative (higher) than, concentrations expected to be found at the project site.

### **Ozone**

Ozone is formed in the atmosphere as a result of complex reactions between reactive organic gases and oxides of nitrogen in the presence of sunlight. Consequently, peak ozone levels are seen during the summer months, when there is the most sunlight. Over the long term, there has been a remarkable reduction in ozone levels in the Sacramento Valley Air Basin despite the tremendous growth in population and vehicle traffic. Although the CEC Staff routinely relies upon the highest 1-hour and 8-hour average concentrations of ozone in evaluating air quality trends<sup>2</sup>, air pollution control agencies typically rely upon more robust statistics for this purpose. The 3-year average of the 4<sup>th</sup> highest measured 1-hour and 8-hour concentrations are more typically used to evaluate long term trends for air quality planning purposes. In fact, in accordance with federal regulations this statistic is used to evaluate compliance with the 8-hour average national ambient air quality standard for ozone.

Table 2 summarizes the changes in ozone levels in Sacramento County during the last 20 years, and compares these changes with the growth in population and vehicle miles traveled (VMT).<sup>3</sup>

These data indicate that peak ozone levels have declined by 10% to 19% from 1981 to 2002, while population has increased by 51% and VMT has increased by 95% during a comparable period (1981 to 2000).

<sup>1</sup> Ozone data from Elk Grove were used to supplement the Sloughhouse data to provide a longer term trend; ozone monitoring began at Sloughhouse in 1997.

<sup>2</sup> See, e.g., Final Staff Assessment, Air Quality Figure 1 (p. 4.1-6)

<sup>3</sup> Ozone data from California Air Resources Board web site (<http://www.arb.ca.gov/adam/cgi-bin/db2www/polltrends.d2w/start>)

**Table 2**  
**Ozone and Population Trends**  
**Sacramento County**

Year	1-hr Ozone	8-hr Ozone	Population	VMT (10)
1980				
1981	0.150	0.111	823,200	1,546,600
1982	0.150	0.103	849,300	1,619,000
1983	0.150	0.106	870,400	1,793,500
1984	0.180	0.110	887,600	1,860,600
1985	0.180	0.114	909,000	2,013,600
1986	0.180	0.112	937,000	2,134,000
1987	0.160	0.107	970,900	2,331,200
1988	0.150	0.106	1,001,800	2,476,600
1989	0.150	0.098	1,032,500	2,610,600
1990	0.150	0.100	1,070,500	2,531,100
1991	0.150	0.120	1,102,400	2,576,600
1992	0.150	0.120	1,117,500	2,602,200
1993	0.150	0.120	1,130,600	2,655,600
1994	0.130	0.110	1,134,300	2,680,900
1995	0.145	0.110	1,137,000	2,713,000
1996	0.145	0.109	1,149,700	2,765,300
1997	0.133	0.109	1,164,200	2,777,100
1998	0.148	0.112	1,190,700	2,849,000
1999	0.148	0.112	1,219,500	2,929,600
2000	0.148	0.112	1,242,000	2,979,300
2001	0.133	0.107		
2002	0.122	0.100		

Notes:

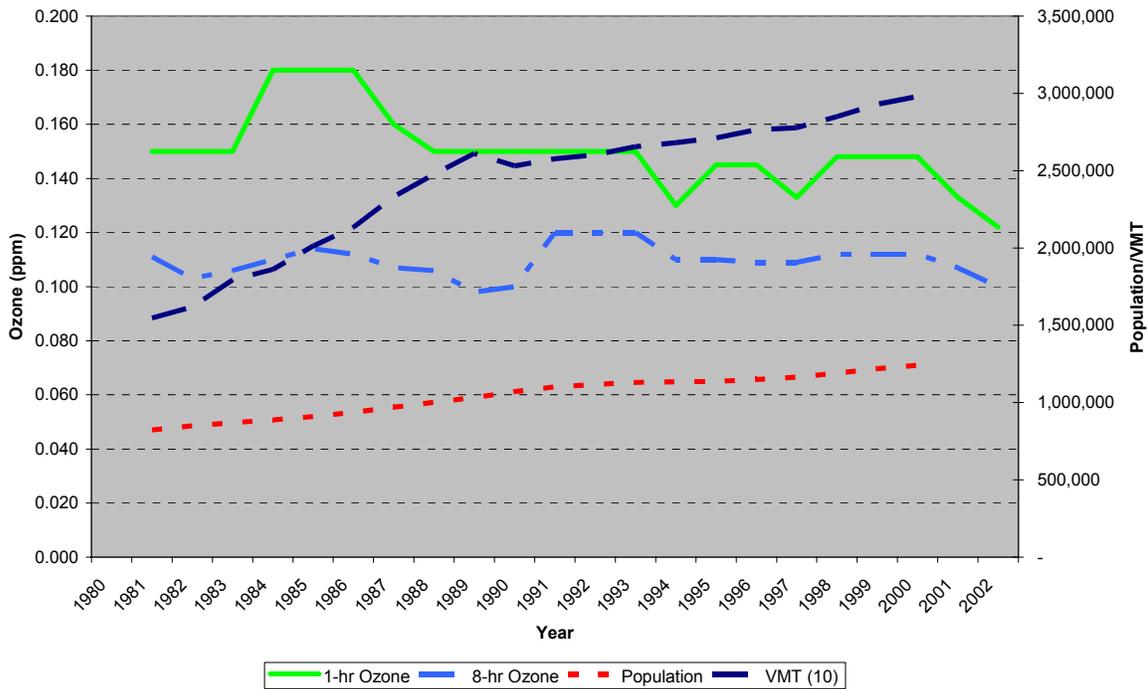
- 1 Ozone values are 3-year average of 4th highest value for Sacramento County.
- 2 Population (millions) and VMT (millions) data from *The 2002 California Almanac of Emissions and Air Quality*, California Air Resources Board. (April 2002)
- 3 1981 population and VMT data shown; 1980 data not available

The trend is shown even more clearly in Figure 1. Ozone levels in Sacramento County have been gradually declining throughout the last twenty years, despite the tremendous population growth in the region – particularly in areas outside of the urban cores. The trend is even more striking when you take into account that the highest levels recorded during the last several years have been at monitoring stations which were not in operation before 1996.<sup>4</sup>

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<sup>4</sup> The Folsom-Natoma Street, Sloughouse and Sacramento-Airport Road began operation in or after 1996.

**Figure 1  
Sacramento County Ozone Trends**



There has been not more than 1 exceedance of the federal ozone standard in Elk Grove each year during the last nine years; this is in comparison with 2 to 8 exceedances of the federal standard per year at Sloughhouse between 1997 and 2000. There were no violations of the federal ozone standard either at Sloughhouse or Elk Grove in 2001; the federal standard was not exceeded in Elk Grove in 2002, but was exceeded on two days at Sloughhouse.

In general, ozone levels in the southern portion of the Sacramento Valley have been relatively constant over the last several years, despite the tremendous growth in Sacramento and in the upwind areas within the Sacramento and Bay Area air basins. Ozone levels at the project site are expected to be comparable to, or slightly lower than, the levels observed at Elk Grove and Sloughhouse because of the site's greater distance from sources of ozone precursor emissions.

### Carbon Monoxide

Carbon Monoxide (CO) results from inefficient combustion, principally from motor vehicles and other mobile sources of air pollution. In many areas of California, CO emissions from wood-burning stoves and fireplaces can also be measurable contributors. Industrial sources typically contribute less than ten percent of ambient CO levels. Peak CO levels are usually seen during winter months. There have been no violations of state or federal CO standards measured in the Sacramento area since 1993. Since CO emissions are typically associated with high concentrations of motor vehicle traffic, CO levels at the project site are expected to be well below the levels observed in Sacramento.

## **Nitrogen Dioxide**

Nitrogen dioxide (NO<sub>2</sub>) is formed primarily in the air from reactions between nitric oxides and oxygen or ozone. Nitric oxide is formed during high temperature combustion, when nitrogen and oxygen in the air combine. Although nitric oxide is much less harmful than nitrogen dioxide, it can be converted to nitrogen dioxide in the atmosphere within a matter of hours, or even minutes, under certain conditions. There have been no violations of state or federal nitrogen dioxide standards measured in the Sacramento area since at least 1991.

## **Sulfur Dioxide and Sulfates**

Sulfur dioxide (SO<sub>2</sub>) is produced when any sulfur-containing fuel is burned. It is also emitted by chemical plants that treat or refine sulfur or sulfur-containing compounds. Natural gas contains negligible amounts of sulfur. Sulfur dioxide levels measured in the Sacramento area have been well below state and federal air quality standards since at least 1991.

Particulate sulfates result from the further oxidation of sulfur dioxide in the atmosphere. Sulfate levels have also been well below state standards. (There are no federal standards for sulfates.)

## **PM10**

Fine Particulate Matter (PM<sub>10</sub>) in the air is caused by a combination of wind-blown fugitive dust; particles emitted from combustion sources, including wood stoves and fireplaces (usually carbon particles); organic, sulfate and nitrate aerosols formed in the air from emissions of gaseous pollutants, and natural aerosols (such as salts from sea sprays). PM<sub>10</sub> levels have been below the federal standards since in the Sacramento area since at least 1991. The region's federal nonattainment status for this pollutant relates to the need for Sacramento to develop and obtain EPA approval of an air quality maintenance plan, rather than to any measured violations of the federal standard. PM<sub>10</sub> levels have been above the state standards in Sacramento (as throughout most of California) during this same period; however since 1993 there have been only 2-4 measured violations of the state standard per year, which is relatively lower than for other urbanized parts of the state.

The trend in PM10 concentrations in the Sacramento area has been somewhat erratic, with no movement or a slight decrease in peak 24-hour and annual average concentrations. Overall, however, the Sacramento Valley Air Basin is experiencing a slight improvement in ambient PM10 levels as reported by the California Air Resources Board:

“The maximum annual geometric mean PM10 concentrations in the Sacramento Valley Air Basin show a fairly steady decline over the trend period. The maximum annual geometric mean shows a decrease of about 33% from 1988 to 2000, when the value was below the level of the State annual standard. The number of exceedances days also decreased. During 1988, there were 120 calculated exceedances days of the State 24-hour standard, compared with 45 days during 2000. Because many of the sources

that contribute to ozone also contribute to PM10, future ozone emission controls should improve PM10 air quality.”<sup>5</sup>

Table 3 summarizes data regarding PM10 air quality trends in Sacramento County. The data are presented graphically in Figure 2. These data are consistent with the conclusions of the Air Resources Board presented above.

**Table 3  
PM10 Air Quality  
Sacramento**

Year	EPDC PM <sub>10</sub> (ug/m3)	Annual Average	Days NAAQS	Days SAAQS
Notes	1	2	3	3
1990				73
1991	172.0		0	99
1992	171.2	41	0	33
1993	130.0	34	0	42
1994	121.7	30	0	36
1995	109.5	29	0	50
1996	111.8	28	0	24
1997	105.4	26	0	14
1998	101.1	24	0	43
1999	122.6	26	0	66
2000	116.8	29	0	21
2001	111.8	28	0	30
2002		25	0	30

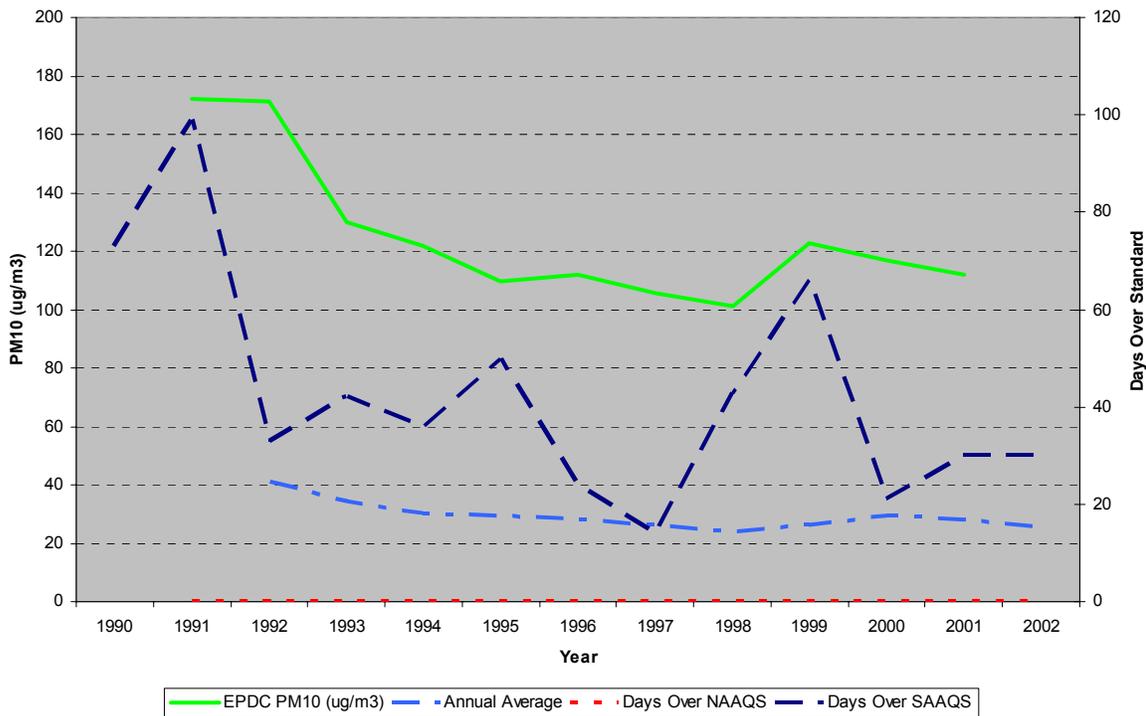
**Notes:**

- 1 EPDC - Expected peak daily concentration, 24-hour average
- 2 Three-year average.
- 3 Estimated days with 24-hour average concentration exceeding the national or state ambient air quality standard.

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<sup>5</sup> “The 2002 California Almanac of Emissions and Air Quality”. California Air Resources Board. April 2002 (p. 199)

**Figure 2  
Sacramento County PM10 Trends**



## PM2.5

In the Sacramento Valley, peak PM<sub>2.5</sub> levels are dominated by secondary ammonium nitrate, wood smoke, vehicle exhaust, and other carbon sources. The CEC Staff has suggested that PM<sub>2.5</sub> levels have been as high as 108 µg/m<sup>3</sup> in recent years, and suggests that there has been a steadily increasing trend in PM<sub>2.5</sub> levels in the Sacramento area. While some of the CEC Staff’s comments are technically accurate, I believe they present a misleading picture with respect to this pollutant.

Table 4 presents the recent trend in PM<sub>2.5</sub> concentrations in Sacramento County. The data indicate high concentrations, particularly in 1998 and 1999, and a steady decline thereafter. The peak concentration of 108 µg/m<sup>3</sup> shown for 1999, and relied upon extensively in the CEC Staff’s analysis, occurred during August of that year when wildfires in Northern California caused high PM<sub>10</sub> and PM<sub>2.5</sub> concentrations over a broad region – including Sacramento. The SMAQMD anticipates that the area will be designated as a federal nonattainment area for the PM<sub>2.5</sub> standard because the “period of record” for that determination will include 1999.<sup>6</sup> However, the federal PM<sub>2.5</sub> air quality standards have been attained in Sacramento County since 1999.<sup>7</sup>

<sup>6</sup> The federal nonattainment designation, if made, will not be based solely on any particular reading. Rather, the nonattainment designation is based on a three-year average of the 98<sup>th</sup> percentile measured 24-hour average concentration.

<sup>7</sup> Although Table 4 shows that the numerical federal standard of 65 µg/m<sup>3</sup> has been exceeded on one day each in 2000 and 2001, these do not constitute violations of the federal standard because compliance with the air quality standard is based on a three-year average of the 98<sup>th</sup> percentile measured value.

**Table 4  
PM2.5 Air Quality Trends  
Sacramento County**

<b>Year</b>	<b>Max 24-hr Avg PM<sub>10</sub> (ug/m3)</b>	<b>Annual Average</b>	<b>Days Over NAAQS</b>
1998	96.0		
1999	108.0	17.0	8
2000	67.0	12.3	1
2001	72.0	11.6	1
2002	46.0	10.9	0

## **B. Environmental Impacts**

Air emissions will result from the operation of the combined cycle gas turbines and cooling tower. Air pollutant emissions from the Cosumnes Power Plant are shown in the Final Determination of Compliance issued by the Air District, and in the Final Staff Assessment. These emissions have been calculated based on the maximum capacity of the equipment, consistent with operating limits expected to be imposed as permit conditions, and thus represent a worst case. Actual emissions during plant operation are expected to be much lower than the levels shown in the Final Staff Assessment.

## **C. Regulatory Requirements**

The project's emissions and air quality impacts are required to comply with various local, state, and federal laws, regulations, and standards. In addition to the California Energy Commission's review, the air quality impacts of the Cosumnes Power Plant have been reviewed by the SMAQMD, California Air Resources Board (CARB), and EPA Region 9.

The requirements applicable to the Cosumnes Power Plant include new source review (NSR) and Prevention of Significant Deterioration (PSD) requirements, as well as a number of prohibitory rules. The NSR and PSD programs apply to the facility as a whole, and are designed to ensure that new projects are developed in a manner that will not interfere with meeting health- and welfare-based ambient air quality standards. Prohibitory rules apply to specific pieces of equipment, rather than to the facility as a whole. They impose specific limits on emissions, including opacity and odors, and are enforced through permit conditions. Compliance with all of these rules is demonstrated in the Application for Certification, and has been confirmed in the Final Determination of Compliance issued by the Air District. As shown in Table 8.1-16 of the AFC, the SMAQMD is the regulating agency for all air quality regulations applicable to the Cosumnes Power Plant.

The main air quality requirements applicable to the Cosumnes Power Plant are summarized below.

- **Best Available Control Technology (BACT):** Emissions of all pollutants will be kept as low as possible by using clean natural gas as the fuel for all equipment. Because natural gas is a clean-burning fuel, emissions of sulfur dioxide (SO<sub>2</sub>), precursor organic compounds (POC, or hydrocarbons), and particulate matter (PM<sub>10</sub>) will be very low. To minimize emissions of oxides of nitrogen (NO<sub>x</sub>) and carbon monoxide

(CO), the gas turbines will use special combustion systems, known as advanced dry low-NOx combustors. To further reduce NOx emissions, the gas turbines and heat recovery steam generators will also use selective catalytic reduction (SCR) technology.

- **Offsets:** Both Air District and Energy Commission rules require that overall air quality does not deteriorate as a result of the project. This goal is achieved by using the best available pollution control technology, and then using emission reductions from other facilities to “offset” or mitigate most emission increases. Pursuant to Air District rules, the net emissions increase from the project is evaluated looking at the forecasted maximum future emissions from the new units. The emissions increases of volatile organic compounds, oxides of nitrogen and PM<sub>10</sub> from the Cosumnes Power Plant will be mitigated (offset) in accordance with SMAQMD requirements by the purchase of valid emission reduction credits from offset holders, and the creation of new emission reduction credits, within the Sacramento air district. The validity of emission reduction credits in the SMAQMD is determined by compliance with District Rules 202 and 204. All of the emission reduction credits proposed for use by the CPP are, or will be upon creation, in compliance with Rules 202 and 204.
- **Ambient Air Quality Impacts:** The impact of the Cosumnes Power Plant on ambient air quality was evaluated using dispersion models approved by the U.S. EPA. Worst-case ground-level impacts were assessed for various meteorological and operating conditions (flat terrain, elevated terrain/hillsides, fumigation, part-load and full-load operations, and startups). The worst-case ground-level impacts were added to existing (background) concentrations from nearby monitoring stations to determine the total ambient concentrations. These total concentrations were then compared with the ambient air quality standards. As confirmed in the Final Determination of Compliance and Final Staff Assessment, the project will result in concentrations well below the most stringent air quality standards. Even when combined with existing background levels, the proposed project will not cause a new violation of any state or federal air quality standard. The project will add a small amount (approximately five percent) to existing PM<sub>10</sub> concentrations at the point of maximum impact.
- **Screening Health Risk Assessment:** A screening level health risk assessment was performed to evaluate the potential impact of emissions of potentially toxic compounds that result from the combustion of natural gas. This assessment demonstrated that the facility will not pose a significant health risk. The worst-case cancer risk for the plant is below the level of 10 in one million that is considered significant, and is below the level of 1 in one million that triggers additional control technology requirements.
- **A cumulative air quality impacts of the Cosumnes Power Plant, in conjunction with other existing and proposed air pollution sources in the area.** This analysis, prepared by the applicant in accordance with a protocol contained in the AFC, indicated that there were no projects likely to result in cumulative air quality impacts. Furthermore, the ambient air quality impact analysis discussed above included the combination of worst case project impacts with maximum concentrations in the

ambient air (reflecting the operation of additional sources); this analysis also demonstrates that the Cosumnes Power Plant will not create any new cumulative impacts. The project will, however, contribute to existing violations of state and federal air quality standards for ozone, and to existing violations of state air quality standards for particulate matter.

## **D. Additional Issues**

### **Characterization of Existing Air Quality**

In an attempt to set the stage for the additional mitigation that they seek, the CEC Staff mischaracterizes the existing air quality in the project area.

With respect to ozone air quality, the CEC Staff concludes that “the area has experienced a slightly increased trend in both ozone concentrations and the number of violation days.”<sup>8</sup> To support this conclusion, the CEC Staff looks at the lowest and highest values for two parameters - peak ozone concentrations and number of days of violations of the state standard - which occurred between 1991 and 1996. It is a mathematical truism that if one compares the lowest and highest values in a series of numbers, the highest value in the series will be higher. The fact that the highest value in the series occurred at a point in time subsequent to the lowest value is not, by itself, indicative of any trends related to air quality. The CEC Staff has simply drawn a straight line between two points - a most inappropriate form of extrapolation. The year-to-year variability in ozone levels is due to the dominant role that year-to-year variations in meteorology play with respect to air quality levels in general, and ozone levels in particular. This is why air regulatory agencies use more robust statistics, and analytical techniques, in assessing air quality trends.

In its 2002 Air Quality Almanac, the California Air Resources Board identified ozone trends in the Sacramento Valley in this manner:

“Peak ozone values in the Sacramento Valley Air Basin have not declined as quickly over the last several years as they have in other urban areas. The maximum peak 1-hour values remained fairly constant during the 1980s. Since 1988, the peak values have decreased slightly, and the overall decline for the 20-year period is about 15 percent. Looking at the number of days above the State and national standards, the trend is much more variable. However, the number of exceedances days has declined since 1988. The maximum measured 1-hour concentrations have also decreased, but at a lower rate.”<sup>9</sup>

The SMAQMD has a similar view of ozone trends in the region:

“Our ozone trends are good, the overall rate of population exposure to ozone is down, and the number of days and hours over the standard are also trending down. The region recorded two violations in 2001. A protracted hot spell in 2002 produced six violations at the Cool monitoring site, but with emission reductions still to come from already-adopted rules, local incentive

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<sup>8</sup> CEC Staff Assessment, p. 4.1-6

<sup>9</sup> “The 2002 California Almanac of Emissions and Air Quality”. California Air Resources Board. April 2002, p. 196

programs, and more normal meteorology, our region could still be on track to attain the ozone standard by 2005.”<sup>10</sup>

The data presented above, in Table 2 and Figure 1, similarly contradict the CEC Staff’s conclusions on this point.

With respect to PM10 air quality, the CEC Staff does not draw any conclusions regarding trends. However, the CEC Staff does note that the area did not experience a violation of either the state or federal PM10 standards in 2001. This remarkable achievement, while not sufficient to indicate a long-term trend, is extremely rare for any part of California; as the Commission is well aware, the state PM10 air quality standard is exceeded throughout virtually the entire state.

However, the CEC Staff quickly moves on to discuss PM2.5 air quality, and concludes that there is “a steadily increasing trend in the 24-hour PM2.5 concentrations since 1991.” [Add a footnote with the citation.] A key element of the Staff’s conclusion in this regard is a reported value of 108 µg/m<sup>3</sup> for PM2.5 shown for calendar year 1999. As discussed above, this value was related to wildfires in Northern California, and is not indicative of regional air quality. PM2.5 levels have been below the national ambient air quality standards since 1999 in Sacramento County.

### **Construction Emissions Estimates**

The Final Staff Assessment, at pp. 4.1-8 to 4.1-13, discusses the estimated emissions associated with project construction. For reasons that are not clear, the CEC Staff presents the construction emission impacts that were originally presented in the AFC, even though these estimates were superseded in an October 2002 filing. The Final Staff Assessment makes no reference to the revised filing whatsoever. The revised filing demonstrated significantly lower emissions during construction than the original filing, and was based on more updated information regarding expected activities during project construction.

### **Project Sulfur Dioxide Emission Rate**

At Air Quality Table 3 in the Final Staff Assessment<sup>11</sup>, the CEC Staff presents short term and annual emission estimates for the Cosumnes Power Plant that are consistent with those of the SMAQMD and Applicant in all but one respect: the CEC Staff has elected to calculate expected sulfur dioxide emissions based on a different emission factor, resulting in estimated SO<sub>2</sub> emissions that are 12% higher. While this difference is not, in itself material (as the SO<sub>2</sub> emissions from this project are insignificant using either value), it is troubling. The SO<sub>2</sub> emission estimates prepared by the Applicant for the Cosumnes Power Plant are based on an assumed fuel sulfur level of 0.25 grains/100 scf. This emission factor was reviewed and accepted by the SMAQMD as well. However, the CEC Staff appears to believe, in this proceeding, that a value of 0.28 grains/100 scf is appropriate. Yet in hearings held on February 19, 2003, regarding the San Joaquin Valley Energy Center, the CEC Staff asserted that a factor of 0.25 grains/100 scf was appropriate. (In that proceeding, the Applicant had used a value of 0.25 grains/100 scf, and the CEC Staff was suggesting that this same factor should be used for the Pastoria Energy Facility as well.) In the case of the

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<sup>10</sup> <http://www.airquality.org/cleanairplan/cleanairplan.htm#whatshappening>

<sup>11</sup> Final Staff Assessment, p. 4.1-11

Walnut Energy Center, the Applicant assumed a higher fuel sulfur level of approximately 0.36 gr/scf – specifically in order to avoid questions from the CEC Staff, and not because of any concern about the accuracy of the lower value – and received a data request from the CEC Staff suggesting that the 0.36 gr/scf value was too high a value to reflect expected sulfur levels, and too low a value to reflect maximum allowable values:

“In the AFC (Table 8.1-15), it is noted that SO<sub>2</sub> maximum emission rates for the gas turbines are based on fuel sulfur content of 0.36 grains/100 scf. Staff has reviewed other projects that have proposed sulfur contents around 0.25 grains/100 scf based on available sulfur content data from PG&E or Sempra Energy; or have proposed sulfur contents based on the Public Utility Commission fuel sulfur limit of 0.75 grains/100 scf for pipeline quality natural gas.”<sup>12</sup>

It is unclear to this Applicant what fuel sulfur emission factor the CEC Staff believes should be used, and whether this factor should vary between siting cases depending on the CEC Staff engineer reviewing the project.

### **Air Quality Impact Analysis**

In the Final Staff Assessment, the CEC Staff continued to rely upon the older, inaccurate estimates of project construction emissions, and failed to take into account the updated analysis submitted in October 2002. Nonetheless, the CEC Staff concluded that the construction of the Cosumnes Power Plant would not create any new violations of any state or federal ambient air quality standards, but would contribute to existing violations of state PM<sub>10</sub> air quality standards. I agree with this conclusion.

Similarly, the CEC Staff concluded that the operation of the Cosumnes Power Plant would not create any new violations of state or federal ambient air quality standards, but, again, would contribute to existing violations of the state PM<sub>10</sub> standard. Once again, I agree with this conclusion. However, the CEC Staff goes beyond this point to argue that operation of the Cosumnes Power Plant would contribute to violations of the new federal PM<sub>2.5</sub> standard, based on the same inappropriate value of 108 µg/m<sup>3</sup> discussed earlier in this testimony. Furthermore, the CEC Staff asserts that this contribution would be significant, notwithstanding the fact that the Cosumnes Power Plant’s maximum PM<sub>2.5</sub> concentration, at any location, would be:

- Less than the established significance levels for PM<sub>10</sub> (there are, as yet, no significance levels established for PM<sub>2.5</sub>)
- Less than 7% of the federal 24-hour average PM<sub>2.5</sub> standard
- Less than 9% of the background 24-hour average PM<sub>2.5</sub> level
- Less than 2% of the federal annual average PM<sub>2.5</sub> standard<sup>13</sup>

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<sup>12</sup> CEC Data Requests for Walnut Energy Center (02-AFC-4), January 2003. Background for Data Request 9

<sup>13</sup> These conclusions are based on the Applicant’s modeling results presented in Supplement A to the AFC, filed in March 2002. Although the CEC Staff references this same document as the source for their numbers in Air Quality Table 5 of the Final Staff Assessment, the values in Air Quality Table 5 are inconsistent with the Supplement A values.

In fact, if the maximum project PM<sub>2.5</sub> concentrations are added to the maximum PM<sub>2.5</sub> concentrations measured in Sacramento County from 2000 through 2002, no violation of the federal standard would be projected:

**Table 5**  
**Cosumnes Power Plant - PM<sub>2.5</sub> Air Quality Impacts**

Pollutant	Averaging Time	Maximum Facility Impact <sup>1</sup> (µg/m <sup>3</sup> )	Background	Total Impact (µg/m <sup>3</sup> )	Federal Standard
			Concentration (µg/m <sup>3</sup> )		(µg/m <sup>3</sup> )
PM <sub>2.5</sub>	24-hour	4.5	53 <sup>2</sup>	57.5	65
	Annual	0.24	12.3 <sup>3</sup>	12.5	15

Notes:

1. AFC Supplement A (Table 8.1-28, revised) and FDOC (p. 20). Although the FSA cites AFC Supplement A as the source of its values, they are not, in fact, consistent with those presented in AFC Supplement A or in the FDOC. **Project impacts are for Phases I and II combined. Phase I impacts have not been separately assessed, but will be even lower.**
2. For purposes of compliance with the 24-hour average national ambient air quality standard, the 98<sup>th</sup> percentile value is used, and not the maximum recorded concentration. The value shown is the highest, valid 98<sup>th</sup> percentile value recorded in Sacramento, and is based on the Sacramento T Street monitor in 2001.
3. Although compliance with the annual average national ambient air quality standard is based on a three-year average, the highest annual average value (from the Sacramento T Street monitor in 2000) is presented here as a conservative worst case.

Thus, the CEC Staff appears to have established a criterion that any addition to a violation (or alleged violation) of a state or federal ambient air quality standard constitutes a significant air quality impact – no matter how small. Such a conclusion is not supported by either precedent or science.

### **Ammonia Slip Emission Limit**

The CEC Staff cites a number of reference works to support its proposal to modify Condition AQ-23 to reflect a 5 ppm ammonia slip limit, as opposed to the 10 ppm limit established by the SMAQMD. The CEC Staff proposes this lower ammonia slip limit as a mitigation measure to lessen the contribution of ammonium nitrate to the PM<sub>10</sub> and PM<sub>2.5</sub> impacts.

However, the CEC Staff has failed to cite either of the two air pollution control agencies with expertise in this area. The Applicant suspects that this is because these agencies disagree with the CEC Staff's conclusions.

In the FDOC, the SMAQMD limits the ammonia emissions from the combustion turbines to not more than 10 ppm. The FDOC was circulated for comment to the California Air Resources Board and US Environmental Protection Agency. Neither agency suggested an alternative ammonia slip limit.

Furthermore, as part of the agencies' review of a proposed inter-precursor trade between sulfur dioxide and particulate emissions, the California Air Resources Board performed a preliminary analysis to determine whether the Sacramento area is ammonia-rich. The

ARB's analysis, reported in the FDOC at page 361 (Appendix B-2, p. 13), suggested that the Sacramento area is, in fact, ammonia-rich.

Consequently, we believe that the formation of ammonium nitrate from turbine ammonia slip will be insignificant, and, accordingly, there is no basis for reducing the ammonia slip limit from 10 ppm to 5 ppm. In an ammonia-rich region, reducing ammonia emission rates will not contribute significantly to lower particulate nitrate formation.

Adding more ammonia to the ambient air will result in the immediate formation of ammonium nitrate particulate only if the area is ammonia-limited; that is, if there are excess acidic nitrates and sulfates available for reaction, the addition of ammonia to the atmosphere will result in the formation of ammonium nitrate and sulfate compounds. However, if the area is ammonia-rich, adding more ammonia to the air will not automatically result in more ammonium nitrate formation because the area is NO<sub>x</sub> and SO<sub>x</sub> limited. The ARB's preliminary conclusions, described above, suggest that the project area is NO<sub>x</sub>/SO<sub>2</sub> limited, so that nitrate formation will be most effectively controlled by minimizing NO<sub>x</sub> and SO<sub>2</sub> emissions from the turbines. The proposed 2 ppm NO<sub>x</sub> emission limit and the use of natural gas fuel will achieve this objective.

Therefore, we believe that ammonium nitrate formation as a result of ammonia slip from the turbines will not be significant, and that nitrate formation is better controlled by reducing NO<sub>x</sub> and SO<sub>2</sub> emissions from the turbines. Thus, the ammonia slip level should remain at 10 ppm as proposed by the SMAQMD.

### **Construction Impacts and Mitigation**

The Applicant believes that with a few clarifications and corrections, the construction mitigation measures proposed by the CEC Staff would be acceptable and consistent with previous CEC Staff proposals and Commission decisions. Applicant's proposed changes are presented in Section IV below. The more significant points are as follows:

**AQ-SC1** - Applicant is seeking clarification, which has been provided in other proceedings, that the air quality construction mitigation manager need not be a separate individual, and need not be a single individual. Applicant anticipates that the responsibilities of the air quality construction mitigation manager may be divided amongst several individuals who may have other responsibilities as well.

**AQ-SC3** - Applicant is seeking clarification that not all of these provisions would apply to the construction of linear facilities, as compliance with some provisions would be infeasible for those activities. Furthermore, Applicant is seeking a change to paragraph (n), which relates to the cessation of specific dust generating activities during high wind conditions, to relate to a wind speed of 25 mph rather than 15 mph, consistent with the CEC Staff's conditions in other proceedings. Finally, Applicant is seeking the replacement of paragraphs (p), (q) and (r) with language consistent with prior Commission decisions. These paragraphs relate to the requirement to install Diesel particulate soot filters on construction equipment. These filters are not approved by the U.S. Environmental Protection Agency as retrofit systems for certified non-road engines and, as a result, should not be required by the Commission at this time. Furthermore, there are questions of federal

pre-emption of this issue which have been raised in other Commission proceedings<sup>14</sup>, but are equally applicable in this case. Finally, the CEC Staff has not demonstrated, in either the Air Quality or Public Health sections of the FSA, that there is a significant environmental impact related to Diesel exhaust particulate during construction which warrants additional mitigation. As shown in the Applicant's revised construction impacts analysis<sup>15</sup>, the maximum health risks at any location due to Diesel exhaust particulate during construction activities is 9.3 in one million, below the 10 in one million level typically used by the CEC Staff to establish significance. Furthermore, the area in which the risk exceeds the more stringent threshold of one in one million does not extend to more than about 300 meters from the project site. For all of these reasons, the Applicant believes that the use of Diesel particulate soot filters should not be mandated in addition to requirements for the use of EPA- or CARB-certified non-road engines.

**AQ-SC4** - Applicant is seeking clarification that this condition applies to dust generating activities, as suggested in the verification language.

### **Adequacy of Mitigation Provided**

On the basis of the issues discussed above with respect to PM<sub>2.5</sub> trends in the project area, the CEC Staff concludes that the project's impacts are not adequately mitigated. In addition, the CEC Staff contends that the project's impacts with respect to PM<sub>10</sub> are not adequately mitigated because the Applicant has not provided emission reduction credits to offset the small increase in SO<sub>x</sub> emissions associated with project operation.

The Cosumnes Power Plant project has to demonstrate that the project's air quality impacts will not be significant on either a local or regional level. Localized air quality impacts are mitigated through the use of best available control technology; the performance of an air quality modeling analysis that demonstrates that the project will not cause any new violations of state or local ambient air quality standards at any location, under any meteorological conditions expected at the site, and under any operating conditions; and the performance of a health risk assessment that demonstrates that the health risks associated with the project will be insignificant, at any location, under any meteorological conditions expected at the site, and under any operating conditions. In my opinion, the analyses performed for this project make that demonstration; consequently, I do not believe that there are any localized air quality impacts that are significant, and hence warrant mitigation. I am not aware of any factual, technically supported evidence in the record of this proceeding which would contradict this opinion.

In addition to demonstrating that the project's air quality impacts are not significant on a local level, the Cosumnes Power Plant project must demonstrate that the project's impacts are not significant on a regional level. This demonstration is made through the use of best available control technology; a cumulative air quality impacts analysis that shows that the project, in combination with other existing or proposed facilities, will not cause a violation of any state or federal air quality standard; and through the provision of emission offsets in accordance with SMAQMD regulations. In my opinion, the analyses performed for this

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<sup>14</sup> This issue has arisen in the Commission's deliberations in the East Altamont Energy Center and San Joaquin Valley Energy Center cases.

<sup>15</sup> Informal Data Responses, Set 7

project make this demonstration; consequently, I do not believe that there are any regional air quality impacts that are significant, and hence warrant further mitigation.

As can be seen from the preceding discussion, emission offsets (or similar mitigation measures) play no role in ensuring that localized air quality impacts are not significant. Emission offsets are required, and provided, to ensure that there are no significant regional, or cumulative, air quality impacts associated with a proposed project – and not to mitigate significant localized air quality impacts, of which there are none for this project.

With respect to SO<sub>2</sub> emissions, the CEC Staff has been inconsistent in requiring mitigation for the trace levels of SO<sub>2</sub> emissions associated with natural gas combustion. There have been a number of cases in which the facts are similar to those of CPP, but the Commission has not required the mitigation of the small increases in SO<sub>2</sub> emissions:

- Blythe Energy (SO<sub>2</sub> emissions below District offset levels and no mitigation required for SO<sub>2</sub> impacts)
- Contra Costa (SO<sub>2</sub> mitigation was not required; the PM<sub>10</sub> mitigation provided by the Applicant was found to be sufficient)
- Delta Energy Center (SO<sub>2</sub> mitigation was not required; the PM<sub>10</sub> mitigation provided by the Applicant was found to be sufficient)
- High Desert (SO<sub>2</sub> mitigation was not required; the PM<sub>10</sub> mitigation provided by the Applicant was found to be sufficient)

During recent hearings regarding the San Joaquin Valley Energy Center (SJVEC), CEC Staff was questioned directly about these inconsistencies. In the SJVEC proceeding, the CEC Staff testified that additional mitigation for SO<sub>2</sub> project impacts was being sought because the project was proposed to be located in an area that was in nonattainment with the national ambient air quality standard for PM<sub>10</sub>. In contrast, the CEC Staff testified, other projects for which additional mitigation of SO<sub>2</sub> impacts was not required, such as those listed above, were located in areas which were in attainment of the national ambient air quality standard for PM<sub>10</sub>. In the case of the Cosumnes Power Plant, the project is located within an area that has not experienced an exceedance of the national PM<sub>10</sub> air quality standards since at least 1993.

However, even if one were to conclude that the SO<sub>2</sub> increases, if not mitigated, represented a significant air quality impact due to their potential contribution to ambient PM<sub>10</sub> levels, the CEC Staff has, in past cases, accepted reductions in other PM<sub>10</sub> precursors (such as direct PM<sub>10</sub> emissions, oxides of nitrogen emissions and, in some cases, POC emissions) as suitable mitigation.<sup>16</sup> As shown below, Applicant believes that sufficient mitigation has been provided even if the Staff's position were to prevail.

The CEC Staff has similarly argued that the benefits of the Applicant's road dust paving mitigation should be discounted because not all of these emission reductions are in the PM<sub>2.5</sub> size range. Applicant disagrees with this conclusion for a number of reasons.

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<sup>16</sup> See, for example, CEC Staff assessments in the cases of Delta Energy Center, Metcalf Energy Center, Moss Landing Power Plant, and Morro Bay Power Plant.

First, CEC Staff refers to a two-year-old memorandum in support of its position that PM<sub>10</sub> reductions from road paving activities should not be used to mitigate combustion particulate matter. While ARB's position is clearly that such reductions should be discouraged, and used only in the absence of better emission reduction options, the Applicant believes that there are no better options in the vicinity of the project. Furthermore, the proposed emission reduction credits for the Applicant's road paving program were publicly noticed and subject to public comment earlier this year by the SMAQMD; the ARB expressed no written objection to issuance of those credits for this project during the public comment period.

Second, the CEC Staff's position that the PM<sub>10</sub> (as distinguished from PM<sub>2.5</sub>) reductions associated with the road paving credits will be too localized is in direct opposition to the conclusion reached by the CEC Staff in the Tracy Peaker Project (TPP) case recently decided by the commission. In that proceeding, the CEC Staff concluded that the provision of emission reduction credits from locations as far as 200 miles from the project site was adequate to ensure that there were no significant unmitigated air quality impacts. Although the CEC Staff may be quick to cite the local mitigation program proposed by the TPP project developer, in doing so the CEC Staff overlooks the language in PMPD condition AQ-78 that deals with the TPP local mitigation program. This condition reads as follows:

“This condition is agreed to in order to address concerns raised by the public, and is not imposed to mitigate a significant impact under CEQA.”

Thus, the Commission's conclusions regarding the significance of air quality impacts for TPP rest solely on that project's provision of emission reduction credits – without regard to the distance between the project site and the location of the ERCs, or the characteristics of the sources of those ERCs. The Applicant believes that the same logic should apply to the CPP project as well.

It is also important to note that the CEC Staff has historically, and correctly, taken the position that when it comes to evaluating impacts for significance under CEQA, it is appropriate to look at reasonable worst-case scenarios and not absolute worst-case scenarios. The previous context in which the CEC Staff addressed this issue was in the manner used to determine worst-case daily emissions from a project to evaluate the need for, and adequacy of, mitigation. For example, even if the air permit for a project would have allowed the operation of duct burners for all 24 hours in a day, the CEC Staff evaluated whether that was a likely worst-case scenario and, in some cases, concluded that, for example, only 16 hours of duct firing operation would occur on a “reasonable worst case day”.

The CEC Staff presently evaluates project impacts looking at annual emissions, and not daily emissions; however, the “reasonable worst case” concept still applies. The Applicant believes that with respect to PM<sub>10</sub> emissions from the Project, this issue is particularly relevant. The CEC Staff is in receipt of source test data from comparable facilities that demonstrate that expected PM<sub>10</sub> emission rates will be approximately one-half, or less, of the maximum PM<sub>10</sub> emission rates shown in Air Quality Table 3, even if the Project operates to the maximum level allowable under the SMAQMD permit. An evaluation of CPP emissions based on this “reasonable worst case” emission rate for PM<sub>10</sub> lends further

credence to the position that the Project's PM<sub>10</sub> impacts are fully mitigated through the provision of emission reduction credits provided to satisfy SMAQMD offset requirements.

Finally on this point, the CEC Staff's position is inconsistent with the position taken by CEC Staff in the High Desert Power Project case. In that case, the CEC Staff raised questions only as to whether the road paving reductions were surplus to other regulatory requirements; there was no mention made of any discount to reflect the PM<sub>2.5</sub> fraction of the reductions proposed.<sup>17</sup> The CEC Staff's position in that case was affirmed by the California Energy Commission, which approved the project based on the full PM<sub>10</sub> reductions associated with the road paving project.<sup>18</sup> The following table shows how road paving credits have been treated in several prior proceedings.

**Table 6  
Comparison of Road Paving Mitigation Measures**

	<b>High Desert</b>	<b>Three Mountain Power</b>	<b>Blythe Energy</b>
Total Project PM <sub>10</sub> Emissions Offsets Required (Tons/Year)	234	184	103
PM <sub>10</sub> Reductions from Road Paving (Tons/Year)	220	138	103
Distance from Road Paving Reductions to Project (Miles)	< 10	< 10	Unknown
Fraction of Project PM <sub>10</sub> Offsets Provided with Road Paving Credits	94%	75%	100%
Discount Factor Applied to Road Paving Credits	None indicated	None indicated	None indicated

The above data indicate that for these three projects, the majority of the PM<sub>10</sub> offsets were provided through road paving projects. In none of the cases does it appear that any discount was applied with respect to particle sizes smaller than 10 microns. The Applicant is unaware of any reason why the road paving credits proposed for the Cosumnes Power Project should be treated any differently.

Nonetheless, even assuming the correctness of the CEC Staff's positions regarding the need to mitigate the project's SO<sub>2</sub> emissions and the need to reduce the project's road paving credits by 85%, Applicant believes that it has fully mitigated the impacts of the Cosumnes power Project.

As shown in Table 7 below, using the same calculation technique the CEC Staff has applied in other proceedings, and assuming that (1) SO<sub>2</sub> impacts require mitigation, and (2) PM<sub>10</sub>

<sup>17</sup> Staff Assessment, High Desert Power Project (97-AFC-1), p. 40

<sup>18</sup> Commission Decision, High Desert Power Project (97-AFC-1), p. 101

reductions from road paving ERCs should be discounted by 85%, the ERCs required by the SMAQMD will result in all project impacts being fully mitigated.

**Table 7  
CEC Mitigation Summary - Cosumnes Power Project**

		Emissions (tpy) - Phase I Only					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>Project Emissions</b>		29.99	297.75	125.60	10.96	79.50	79.50 FDOC, p. 19
<b>Offsets</b>							
<b>ERC Source</b>	<b>Nominal Distance to CPP (mi)</b>						
Formica	36	207.10					
Swanson's	24	36.33					
Proctor & Gamble	20	50.00		16.69		22.54	22.54
Donner Furniture	29	1.30					
Burns Philip Food	38	0.02		1.00			
Holly Sugar	42	1.88		46.88			
Blue Diamond Growers	26	3.15		11.63		6.72	6.72
Ag Containers	22	5.88					
American River Asphalt	19	1.54		1.98	1.60	2.79	2.79
Rancho Seco	0	0.56			68.36	2.29	2.29
General Mills	42			1.80			
Campbell Soup	22			7.97	0.35	1.71	1.71
Poppy Ridge Partners	17				0.16	1.88	1.88
Grace Industries	17				3.92	7.13	7.13
Elk Grove Ready Mix	18					2.90	2.90
Road Paving 02-00767	4.5					3.08	0.46
Road Paving 02-00768	5.5					5.75	0.86
Road Paving 02-00769	1.8					9.24	1.39
Road Paving 02-00770	15						0.00
Road Paving 02-00771	14						0.00
Road Paving 02-00772	12					15.03	2.26
Road Paving 02-00773	4.3					9.44	1.42
Road Paving 02-00774	5					6.65	1.00
Road Paving 02-00775	8					1.64	0.25
Less: surplus ERCs to be refunded:							
<b>Totals</b>		307.75	0.00	87.95	74.39	98.80	55.59
<b>Interprecursor VOC-&gt;NOx</b>		-97.89		37.65			2.60 interprecursor ratio
<b>Interprecursor SOx-&gt;PM10</b>					-63.43	25.38	25.38 1.7-3.3 interprecursor ratio
<b>Net Increase (Decrease)</b>		-179.87	297.75	0.00	0.00	-44.68	-1.47
<b>Weighted Average Distance from CPP to ERCs</b>		31	NA	33	1	13	17

Consequently, if the CEC Staff were to analyze the impacts of the Cosumnes Power Plant project in a manner consistent with that used by the CEC Staff in other proceedings, the CEC Staff should conclude that no additional mitigation is necessary.

In conclusion, I believe that the project will not result in significant, unmitigated air quality impacts if the project is evaluated in a manner consistent with the California Energy Commission's treatment of other, contemporaneous projects. Consequently, I believe that Condition AQ-SC5, which would require the establishment of a wood stove retrofit program, should be deleted as unnecessary.

## F. Conclusion

The Cosumnes Power Plant has been designed to have extremely low emission rates and minimal environmental impacts. It will be one of the cleanest power plants in the United States, with state-of-the-art design features and emission control capabilities. Remaining increases in emissions of NOx, hydrocarbons and PM<sub>10</sub> will be offset at a ratio of at least one to one, and emissions of these pollutants plus sulfur dioxide will be mitigated at a ratio of at least one to one. The emission reductions provided as mitigation will be greater than the project's emission increases, thus ensuring a net benefit to regional air quality.

With the implementation of the above mitigation measures, and in combination with the proposed conditions of certification contained in the Final Staff Assessment (as proposed to be amended above), the project will comply with all applicable federal, state and local laws, ordinances, regulations and standards, and remaining potential impacts, if any, are mitigated to a level that is less than significant.

## IV. Proposed Changes to Conditions of Certification

Based upon the analysis presented in Section III, the Applicant requests that the following changes be made to the Conditions of Certification.

**AQ-SC1** - The proposed changes would conform this condition to the version agreed to by CEC Staff in the San Joaquin Valley Energy Center proceeding.

**AQ-SC1.** The project owner shall fund all expenses for an on-site air quality construction mitigation manager(s) (AQCM) who shall be responsible for maintaining compliance with conditions AQ-SC2 through AQ-SC4 for the entire project site and linear facilities construction. The on-site AQCM shall have full access to areas of construction of the project site and linear facilities, and shall have the authority to appeal to the CPM to have the CPM stop any or all construction activities as warranted by applicable construction mitigation conditions. The on-site AQCM shall have a current certification by the California Air Resources Board for Visible Emission Evaluation prior to the commencement of ground disturbance. The AQCM need not be one individual and may have other responsibilities in addition to those described in this condition. Employment of the on-site AQCM shall not be terminated without written consent of the CPM.

**Verification:** At least sixty (60) days prior to the start of ground disturbance, the project owner shall submit to the CPM, for approval, the name, current ARB Visible Emission Evaluation certificate, and contact information for the on-site AQCM.

**AQ-SC2** - The following changes are proposed for clarity.

**AQ-SC2.** The project owner shall provide a construction mitigation plan, for approval, which shows the steps that will be taken, and reporting requirements, to ensure compliance with conditions AQ-SC3 and AQ-SC4.

**Verification:** At least sixty (60) days prior to starting any ground disturbance for construction, the project owner shall submit to the CPM, for approval, the construction mitigation plan. The CPM will notify the project owner of any necessary modifications to the plan within 30 days from the date of receipt. Otherwise, the plan shall be deemed approved.

**AQ-SC3** - Substantive changes are proposed, as discussed in Section III above. Additional changes are proposed for clarity or consistency.

**AQ-SC3.** The ~~on-site AQ-CMM~~ project owner shall submit to the CPM, in the monthly compliance report, a construction mitigation report that demonstrates compliance with the following mitigation measures:

- a) All unpaved roads and disturbed areas in the project and linear construction sites shall be watered until sufficiently wet to comply with the dust mitigation objectives of AQ-SC4 ~~for every four hours of construction activity. The frequency of watering can be reduced or eliminated during periods of precipitation.~~
- b) No vehicle shall exceed 10 miles per hour within the construction site.
- c) The construction site entrances shall be posted with visible speed limit signs.
- d) All vehicle tires shall be washed or cleaned free of dirt prior to entering paved roadways.
- e) Gravel ramps of at least 20 feet in length must be provided at the tire washing/cleaning station.
- f) All entrances to the construction site ~~or laydown area~~ shall be ~~graveled~~ treated with dust soil stabilization compounds.
- g) No construction vehicles can enter the construction site unless through the treated entrance roadways.
- h) Construction areas adjacent to any paved roadway shall be provided with sandbags to prevent run-off to the roadway.
- i) All paved roads within the construction site shall be swept twice daily.
- j) At least the first 500 feet of any public roadway exiting from the construction site shall be swept twice daily.
- k) All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered, or be treated with appropriate dust suppressant compounds.
- l) All vehicles that are used to transport solid bulk material and that have potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least one foot of freeboard.
- m) ~~All~~ Wind erosion control techniques, such as wind breaks, water/chemical dust suppressants and vegetation, shall be used on all construction areas that may be disturbed ~~shall be equipped with windbreaks at the windward sides prior to any ground disturbance. The windbreaks shall remain in place until the soil is stabilized or permanently covered with vegetation. These wind control techniques shall be adequate to comply with the dust mitigation objectives in AQ-SC4.~~

- n) Any construction activities that can cause fugitive dust in excess of the visible emission limits specified in Condition **AQ-SC4** shall cease when the wind exceeds 15 25 miles per hour.
- o) All diesel-fueled engines used in the construction of the facility shall be fueled only with ultra-low sulfur diesel, which contains no more than 15 ppm sulfur.
- p) All large construction diesel engines, which have a rating of 100 hp or more, shall meet, at a minimum, the 1996 ARB or EPA certified standards for offroad equipment.
- q) ~~All large construction diesel engines, which have a rating of 100 hp or more, shall be equipped with catalyzed diesel particulate filters (soot filters), unless certified by engine manufacturers or the on-site AQCMM that the use of such devices is not practical for specific engine types.~~
- r) ~~All diesel-fueled engines used in the construction of the facility shall have clearly visible tags issued by the on-site AQCMM that shows the engine meets the conditions **AQ-SC3(p)** and **AQ-SC3(q)** above. shall comply with the following mitigation requirements, except as noted below:~~

<u>Engine Size (BHP)</u>	<u>1996 CARB or EPA Certified Engine</u>	<u>Required Mitigation</u>
<u>≤ 100</u>	<u>NA</u>	<u>Ultra-low Sulfur Diesel</u>
<u>≥ 100</u>	<u>Yes</u>	<u>Ultra-low Sulfur Diesel</u>
<u>≥ 100</u>	<u>No</u>	<u>Ultra-low Sulfur Diesel, and Diesel Particulate Filter (DPF) if suitable as determined by the CMM</u>

- (i) If the construction equipment is intended to be on-site for ten (10) days or less, then only the use of ultra-low sulfur Diesel fuel shall be required.
- (ii) The CPM may grant relief from the mitigation measures listed in this condition for a specific piece of equipment if the CMM can demonstrate that they have made a good faith effort to comply with the mitigation measures and that compliance is not possible.
- (iii) The use of a DPF may be terminated immediately if one of the following conditions exists, provided that the CPM is informed within ten (10) working days of the termination:
  - a. The use of the DPF is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or reduced power output due to an excessive increase in back pressure.

- b. The DPF is causing or is reasonably expected to cause significant engine damage.
- c. The DPF is causing or is reasonably expected to cause a significant risk to workers or the public.
- d. Any other seriously detrimental cause which has approval of the CPM prior to the termination being implemented.

**Verification:** In the monthly compliance report (MCR), the project owner shall provide the CPM a copy of the construction mitigation report and any diesel fuel purchased records, which clearly demonstrates compliance with condition AQ-SC3.

**AQ-SC4** - The applicant proposes the following changes as clarifications and for consistency with prior, similar conditions.

**AQ-SC4.** No construction activities are allowed to cause visible dust emissions at or beyond the project site fenced property boundary. No construction activities are allowed to cause visible dust plumes that exceed 20 percent opacity at any location on the construction site. No construction activities are allowed to cause any visible dust plume in excess of ~~200~~ 300 feet beyond the centerline of the construction of linear facilities.

**Verification:** The on-site AQCM shall conduct a visible emission evaluation at the construction site fence line, or ~~200~~ 300 feet from the center of construction activities at the linear facilities, each time he/she sees excessive fugitive dust from the construction or linear facility site. The records of the visible emission evaluations shall be maintained at the construction site and shall be provided to the CPM in the monthly compliance reports.

**AQ-SC5** - For the reasons discussed in Section III above, the Applicant proposes to delete condition AQ-SC5 in its entirety.

**AQ-SC6** - The Applicant proposes the following changes as clarifications, and for consistency with prior, similar conditions.

**AQ-SC6** The project owner shall submit to the CPM for review and approval any substantive modification proposed by ~~either the project owner or issuing agency~~ to any project air permit. The project owner shall submit to the CPM any modification to any permit proposed by the District or EPA, and any revised permit issued by the District or EPA, for the project.

**Verification:** The project owner shall submit any proposed air permit modification to the CPM within five working days of its submittal either by 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt.

**AQ-6** - The Applicant proposes the following change to the verification language for clarity.

**AQ-6.** Severability – if any provision, clause, sentence, paragraph, section, or part of these conditions for any reason is judged to be unconstitutional or

invalid, such judgement shall not affect or invalidate the remainder of these conditions.

**Verification:** ~~The project owner shall provide the District and the CPM quarterly and annual reports as required in condition AQ-34.~~ Not necessary.

**AQ-10** – The Applicant proposes the following changes to return the condition to the version contained in the FDOC.

**AQ-10.** The owner/operator of the CPP shall submit a plan to the District and the CEC CPM at least 4 weeks prior to first firing of CTG's #1 & #2 describing that describes the procedures to be followed during the commissioning of the gas turbines and HRSGs. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but is not limited to, the tuning of the dry-low-NOx combustors, the installation and operation of the SCR systems, the installation, calibration, and testing of the NOx, CO and O<sub>2</sub> continuous emission monitors, and any activities requiring the firing of the CTG's #1 & #2 without abatement by their respective SCR systems.

**Verification:** The project owner shall submit a commissioning plan to the District and CPM for review at least four weeks prior to the first firing of CTG's 1 and 2.

**AQ-11** – The Applicant proposes the following changes to return the condition to the version contained in the FDOC.

**AQ-11.** During the commissioning period, the owner/operator of CTG's #1 & #2 shall demonstrate compliance with conditions AQ-13 through 16 through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters:

- a. Firing hours for each CTG,
- b. Fuel flow rates to each CTG,
- c. Stack gas nitrogen oxide emission concentrations of each CTG,
- d. Stack gas carbon monoxide emission concentrations of each CTG, and
- e. Stack gas oxygen concentrations of each CTG.

The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the CTG's #1 & #2. The owner/operator shall use District approved methods to calculate heat input rates, NOx, CO, ROC, SO<sub>x</sub> and PM<sub>10</sub> mass emission rates, and NOx and CO emission concentrations, summarized for each clock hour and each calendar day. All records shall be retained on site for at least 5 years from the date of entry and made available to District personnel upon request.

**Verification:** The project owner shall submit in the monthly compliance report to the CPM a discussion about how this condition is being complied with. All records shall be retained on site for at least 5 years from the date of entry and made available to District personnel and CPM upon request.

**AQ-19** – The Applicant requests that the total annual emissions limit for CO be corrected to read 595,505 lbs/year; the table included in the Final Staff Assessment contains a typographic error.

**AQ-23** – The Applicant proposes the following change, both for the reasons discussed in Section III above and to return the condition to the version contained in the FDOC.

**AQ-23.** Each combined cycle combustion turbine shall not emit more than ~~5~~ 10 ppmvd ammonia at 15% O<sub>2</sub>, measured as NH<sub>3</sub>, averaged over any consecutive three hour period, excluding start-ups/shut-downs as defined in condition **AQ-26**.

**Verification:** As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

**AQ-24** – The Applicant proposes the following change to the verification language since the language in Condition AQ-32 covers the same topic.

**AQ-24.** The total dissolved solids content of the circulating cooling water shall not exceed 470 ppmw, averaged over any consecutive three-hour period.

**Verification:** ~~The project owner shall sample and test the cooling tower water at least once per day to verify compliance with this TDS limit. In addition,~~ the project owner shall include information on the date, time, and duration of any violation of this permit condition in the quarterly and annual reports.

**AQ-27** – The Applicant proposes to correct the verification language as it does not appear to be related to this condition.

**AQ-27.** The cooling towers shall not use any chromium-containing water treatment chemicals.

**Verification:** ~~The project owner shall sample and test the cooling tower water at least once per day to verify compliance with this TDS limit. In addition,~~ the project owner shall include information on the date, time and duration of any violation of this permit condition in the quarterly and annual reports.

**AQ-31 and AQ-32** – The Applicant proposes to revise the verification language for these conditions so that they better reflect the underlying regulatory requirements.

**AQ-31.** The CPP shall operate a continuous emission monitoring system that has been approved by the Air Pollution Control Officer for each combined cycle turbine's emissions.

A. The continuous emission monitoring (CEM) system shall monitor and record nitrogen oxides, carbon monoxide, and oxygen.

B. The CEM system shall comply with the EPA performance specifications (title 40, Code of Federal Regulations, Part 60, Appendix B, Performance Specifications 2, 3, and 4).

**Verification:** At least sixty (60) days prior to purchase of the CEM system ~~the start of ground disturbance~~, the project owner shall submit to the District ~~and the CPM, for approval, and to the CPM, for review~~, a copy of the manufacturer specifications for the continuous emission monitoring system, which demonstrates compliance with the EPA performance specifications.

**AQ-32.** The CPP shall operate a continuous monitoring system that has been approved by the Air Pollution Control Officer that either measures or calculates and records the following.

{No change proposed to table}

**Verification:** At least sixty (60) days prior to purchase of the continuous monitoring system ~~the start of ground disturbance~~, the project owner shall submit to the District ~~and the CPM, for approval, and to the CPM, for review~~, a copy of the manufacturer specifications for the continuous ~~emission~~ monitoring system, which demonstrates compliance with the ~~EPA performance specifications~~ District's monitoring requirements.

**AQ-34** – Applicant proposes the following revisions to the verification language to delete new requirements and conform the verification requirements to the underlying FDOC condition.

**AQ-34.** For each calendar quarter submit to the Air Pollution Control Officer a written report which contains the following. Each quarterly report is due by the 30th day following the end of the calendar quarter.

Frequency	Information to be Submitted
Whenever the continuous emissions monitoring system is inoperative except for zero and span checks.	A. Date and time of non operation of the continuous emission monitoring system B. Nature of the continuous emission monitoring system repairs or adjustments.
Whenever an emission occurs as measured by the required continuous monitoring equipment that is in excess of any emission limitation	A. Magnitude of the emission which has been determined to be in excess. B. Date and time of the commencement and completion of each period of excess emissions C. Periods of excess emissions due to start-up, shut-down, short-term excursion, and malfunction shall be specifically identified. D. The nature and cause of any malfunction (if known). E. The corrective action taken or preventive measures adopted.
If there were no excess emissions for a quarter	A report shall be submitted indicating that there were no excess emissions

**Verification:** The project owner shall submit to the District and CPM, quarterly reports for the preceding calendar quarter within 30 days from the end of the quarter. The report for the fourth quarter can be an annual compliance summary for the preceding year. ~~The quarterly and annual compliance summary reports shall contain the following information.~~

- ~~(a) Operating parameters of emission control equipment, including but not limited to ammonia injection rate, and NO<sub>x</sub> emission rate, and ammonia slip.~~
- ~~(b) Total plant operation time (hours), number of startups, hours in cold startup, hours in warm startup, hours in hot startup, and hours in shutdown.~~
- ~~(c) Date and time of the beginning and end of each startup and shutdown period.~~
- ~~(d) Average plant operation schedule (hours per day, days per week, weeks per year).~~
- ~~(e) All A summary of continuous emissions data reduced and reported in accordance with the District approved CEMS protocol, to the extent required by the District.~~
- ~~(f) Maximum hourly, maximum daily, total Total quarterly, and total calendar year emissions of NO<sub>x</sub>, CO, PM<sub>10</sub>, VOC, and SO<sub>x</sub> (including calculation protocol).~~
- ~~(g) Fuel sulfur content (monthly laboratory analyses, monthly natural gas sulfur content reports from the natural gas supplier(s), or the results of a custom fuel monitoring schedule approved by the District).~~
- ~~(h) A log of all excess emissions, including the information regarding malfunctions/breakdowns.~~
- ~~(i) A log of excess visible emissions, including the information regarding malfunctions/breakdowns.~~
- ~~(j) Any permanent changes made in the plant process or production, which would affect air pollutant emissions, and indicate when changes were made.~~
- ~~(k) Any major maintenance to any air pollutant control system (recorded on an as-performed basis).~~

~~In addition, this information shall be maintained on site for a minimum of five (5) years and shall be provided to the CPM or District personnel upon request.~~

AQ-37 - The Applicant proposes changes to the verification language to clarify that ERCs must be approved by the District.

**AQ-37.** The project owner shall provide the District emission reduction credit certificates in sufficient quantity to show compliance with the quarterly emission limits by the use of the following calculation procedure.

{No change to equation}

**Verification:** At least thirty (30) working days prior to starting any ground disturbance for construction, the project owner shall provide valid emission reduction credits specified in AQ-38 to 40 to the District ~~and the CPM for approval, and to the CPM for review.~~

AQ-38 - The Applicant proposes changes to the verification language for clarity.

**Verification:** Thirty (30) days prior to start any ground disturbance for construction, the project owner shall provide the necessary emission reduction credit certificates, ~~and~~ If the credits deviate from those listed this condition, the Applicant shall include detailed calculations showing that the District's offsets requirements are fully satisfied.

**AQ-39 and AQ-40** – Since these conditions are only informative and do not establish any requirements, the Applicant believes that verification language is not necessary.

**AQ-39.** ROC emission reduction credits may be traded for NOx emission reduction credits at a ratio of 2.6 lb ROC for 1 lb NOx.

**Verification:** ~~Thirty (30) days prior to start any ground disturbance for construction, the project owner shall provide the necessary emission reduction credit certificates and detailed calculations showing that the offsets are fully satisfied.~~ Not necessary.

**AQ-40.** SO<sub>x</sub> emission reduction credits may be traded for PM<sub>10</sub> emission reduction credits at the following ratios

- a) 2.8 lb SO<sub>x</sub> for 1 lb PM<sub>10</sub> for Calendar Quarter 1
- b) 1.7 lb SO<sub>x</sub> for 1 lb PM<sub>10</sub> for Calendar Quarter 2 and 3
- c) 3.3 lb SO<sub>x</sub> for 1 lb PM<sub>10</sub> for Calendar Quarter 4.

**Verification:** ~~Thirty (30) days prior to start any ground disturbance for construction, the project owner shall provide the necessary emission reduction credit certificates and detailed calculations showing that the offsets are fully satisfied.~~ Not necessary.

**AQ-41** – The Applicant proposes changes to the verification language for clarity and to conform to the underlying FDOC requirement.

**AQ-41.** Those credits that that are being generated contemporaneous with the construction of the CPP (i.e. road paving ERC applications 00768, 00769, & 00772-00776) will only be required to be submitted prior to operation.

**Verification:** Not later than thirty ~~Thirty (30) days after the issuance of the District emission reduction credit certificates, the project owner shall surrender the necessary certificates to the District, with a copy to the CPM. In the event that the reductions indicated on those certificates are lower than the values shown in Condition 38, the Applicant shall also submit~~ and detailed calculations showing that the District's offsets requirements are fully satisfied.

**AQ-42** – The Applicant proposes changes to the verification language to eliminate the constraint placed on the District's ability to issue the ERC certificates when it is ready to do so.

**AQ-42.** SMUD shall pave the roadways described in SMAQMD ERC applications 00768, 00769, 00772-00776.

**Verification:** ~~Thirty (30) days prior~~ Prior to issuance of the District emission reduction credit certificates, the project owner shall provide the District and the CPM the work order completion and pictures of the roadways before and after paving is performed.

**AQ-43** – The Applicant proposes changes to the verification language for clarity.

**AQ-43.** SMUD shall ensure that the paved roads described in SMAQMD ERC applications 00768, 00769, 00772-00776 are properly maintained and repaired for the life of the Cosumnes Power Plant.

**Verification:** The project owner shall include pictures of the roadways after being paved for credits in the annual compliance report as required in the verification requirement for condition AQ-34.

# Attachment 1

## Testimony of Gary Rubenstein

### Prior Filings

#### Application for Certification and Supplemental Filings Related to Air Quality

- Exhibit \_\_\_\_ . Section 8.1 and Appendix 8.1 of the AFC (Docket #22222)
- Exhibit \_\_\_\_ . Section 8.6 (Public Health) of the AFC, supporting air quality analyses (Docket #22222)
- Exhibit \_\_\_\_ . Data Adequacy Supplement (Docket # 23215)
- Exhibit \_\_\_\_ . AFC Supplement A (Docket #24944)
- Exhibit \_\_\_\_ . AFC Supplement B (Docket #25300)
- Exhibit \_\_\_\_ . AFC Supplement C (Docket #26229)
- Exhibit \_\_\_\_ . AFC Supplement D (Docket #27236)
- Exhibit \_\_\_\_ . Data Response, Set 1A, No. 1 (Docket #23917)
- Exhibit \_\_\_\_ . Data Response, Set 1E; discussions related to air quality impacts and visible plume impacts associated with cooling alternatives (Docket #25004)
- Exhibit \_\_\_\_ . Data Response, Set 2A; Nos. 166-179 (Docket #24359)
- Exhibit \_\_\_\_ . Data Response, Set 2B; No. 177 (revised), 179 (revised) (Docket #24651)
- Exhibit \_\_\_\_ . Data Response, Set 2D; No. 166 (Docket #25524)
- Exhibit \_\_\_\_ . Data Response, Set 3B; Nos. 184 and 185 (Docket #25523)
- Exhibit \_\_\_\_ . Data Response, Set 3H; No. 184
- Exhibit \_\_\_\_ . Informal Data Response, Set 2, No. AQ-1 (Docket #26068)
- Exhibit \_\_\_\_ . Informal Data Response, Set 7: Revised analysis of air quality impacts during construction (Docket #27195)
- Exhibit \_\_\_\_ . PSA Comments, Set 1 (Docket #26646)
- Exhibit \_\_\_\_ . PSA Comments, Set 2 (Docket #26650)
- Exhibit \_\_\_\_ . PSA Comments Set 3 (Docket #26941, #26991)

#### Correspondence

- Exhibit \_\_\_\_ . Letter dated July 24, 2001 from Sierra Research (Tom Andrews) to SMAQMD (Brian Krebs) re: Modeling Protocol for Cosumnes Power Plant
- Exhibit \_\_\_\_ . Letter dated September 13, 2001 from SMUD (Colin Taylor) to SMAQMD (Norman Covell) re: Application for Determination of Compliance and Authority to Construct (Docket #22254)
- Exhibit \_\_\_\_ . Letter dated October 12, 2001 from SMUD (Colin Taylor) to SMAQMD (Brian Krebs) re: Application for DOC/ATC – Request for Extension to the Application Completeness Determination

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- Exhibit \_\_\_\_\_. E-mail dated October 31, 2001 from Sierra Research (Gary Rubenstein) to CEC (Tuan Ngo) re: Clarifying Information Related to Emission Offsets (Docket #23014)
- Exhibit \_\_\_\_\_. Letter dated October 25, 2001 from Sierra Research (Gary Rubenstein) to SMAQMD (Aleta Kennard) re: interpollutant trading ratio analysis
- Exhibit \_\_\_\_\_. Letter dated December 3, 2001 from Sierra Research (Tom Andrews) to SMAQMD (Brian Krebs) re: protocol for evaluating PM10 emission reductions for road paving programs
- Exhibit \_\_\_\_\_. Letter dated December 5, 2001 from Sierra Research (Gary Rubenstein) to SMAQMD (Brian Krebs) re: interpollutant trading analysis (Docket #24066)
- Exhibit \_\_\_\_\_. Letter dated December 10, 2001 from Sierra Research (Gary Rubenstein) to SMAQMD (Brian Krebs) re: modeling protocol for ozone sensitivity simulation
- Exhibit \_\_\_\_\_. Letter dated December 13, 2001 from Sierra Research (Gary Rubenstein) to SMAQMD (Brian Krebs) re: distances to ERC sources (Docket #23621)
- Exhibit \_\_\_\_\_. Letter dated January 9, 2002 from Sierra Research (Gary Rubenstein) to SMAQMD (Aleta Kennard) re: revised protocol for evaluating PM10 emission reductions for road paving programs
- Exhibit \_\_\_\_\_. Letter dated January 11, 2002 from Sierra Research (Nancy Matthews) to SMAQMD (Jim Jester) re: public information request related to cumulative air quality impacts analysis
- Exhibit \_\_\_\_\_. Letter dated January 30, 2002 from Sierra Research (Gary Rubenstein) to SMAQMD (Brian Krebs) re: interpollutant offset ratio (Docket #24680)
- Exhibit \_\_\_\_\_. Letter dated March 4, 2002 from Sierra Research (Gary Rubenstein) to SMAQMD (Brian Krebs) re: results of ozone sensitivity simulations (Docket #24779)
- Exhibit \_\_\_\_\_. Letter dated March 18, 2002 from SMUD (Stuart Husband) to SMAQMD (Krebs) transmitting AFC Supplement A (transmittal letter only)
- Exhibit \_\_\_\_\_. Letter dated April 4, 2002 from Sierra Research (Gary Rubenstein) to SMAQMD (Aleta Kennard) re: SOx to PM10 interpollutant offset ratio
- Exhibit \_\_\_\_\_. Letter dated April 12, 2002 from Sierra Research (Tom Andrews) to SMAQMD (Aleta Kennard) re: Application for PM10 Emission Reduction Credits for a Road Paving Program
- Exhibit \_\_\_\_\_. Letter dated April 12, 2002 from Sierra Research (Gary Rubenstein) to CEC Dockets Office transmitting modeling files on CD-ROM related to AFC Supplement A (Docket #25285)
- Exhibit \_\_\_\_\_. Letter dated April 26, 2002 from SMUD (Stuart Husband) to SMAQMD (Aleta Kennard) re: Placer County APCD Approval of Inter-District ERC Transfer (Docket #25499)
- Exhibit \_\_\_\_\_. Letter dated June 12, 2002 from Sierra Research (Gary Rubenstein) to SMAQMD (Aleta Kennard) re: updated summary of emission reduction credits (Docket #25931)

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- Exhibit \_\_\_\_ Letter dated June 19, 2002 from Sierra Research (Tom Andrews) to SMAQMD (Sam Maani) re: comments on road paving emission reduction credits
- Exhibit \_\_\_\_ Letter dated September 27, 2002 from SMUD (Stuart Husband) to CEC (Kristy Chew) transmitting comments on the PDOC (Docket #26822)

### **Additional Materials Prepared by Others**

- Exhibit \_\_\_\_ Letter dated October 12, 2001 from SMAQMD (Brian Krebs) to SMUD (Colin Taylor) re: Request for Extension
- Exhibit \_\_\_\_ Letter dated May 20, 2002 from SMAQMD (Sam Maani) to SMUD (Stuart Husband) re: preliminary decision to approve emission reduction credit applications
- Exhibit \_\_\_\_ June 28, 2002 Draft Preliminary Determination of Compliance Issued by SMAQMD (Docket #26119)
- Exhibit \_\_\_\_ Letter dated August 13, 2002 from SMAQMD (Aleta Kennard) to EPA Region IX (Manny Aquitania) responding to EPA comments regarding road paving ERCs
- Exhibit \_\_\_\_ Letter dated September 30, 2002 from EPA Region IX (Gerardo Rios) to SMAQMD (Jorge DeGuzman) re: comments on PDOC (Docket #26881, #26982)
- Exhibit \_\_\_\_ October 21, 2002 Final Determination of Compliance issued by SMAQMD
- Exhibit \_\_\_\_ Letter dated October 10, 2002 from SMAQMD (Jorge DeGuzman) to EPA Region IX (Gerardo Rios) responding to EPA comments on PDOC
- Exhibit \_\_\_\_ The 2002 California Almanac of Emissions and Air Quality, California Air Resources Board (April 2002)  
<http://www.arb.ca.gov/aqd/almanac/almanac02/pdf/almanac2002all.pdf>
- Exhibit \_\_\_\_ Ozone data from California Air Resources Board web site  
(<http://www.arb.ca.gov/adam/cgi-bin/db2www/polltrends.d2w/start>)
- Exhibit \_\_\_\_ PM10 data from California Air Resources Board web site  
(<http://www.arb.ca.gov/adam/cgi-bin/db2www/polltrends.d2w/start>)
- Exhibit \_\_\_\_ <http://www.airquality.org/cleanairplan/cleanairplan.htm#whatshappening>

# CULTURAL RESOURCES

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## I. Introduction

### A. Name

Jim Bard, Ph. D.

My qualifications are summarized more completely in the attached resume (Appendix A).

### B. Prior Filings

This testimony includes by reference the Cultural Resource sections of the following documents submitted in this proceeding:

- Section 8.3 of the AFC and Appendices 8.3A through 8.3E
- Data Adequacy Supplement to the AFC
- AFC Supplement A
- AFC Supplement B
- AFC Supplement C
- AFC Supplement D
- Data Response, Set 1A, Nos. 32-38, 44-48, 52 and 53
- Data Response, Set 1C, Nos. 32, and 34-53
- Data Response, Set 1D, Nos. 41 and 42
- Data Response, Set 1F, No. 39
- Data Response, Set 1G, Nos. 50 and 51
- Data Response, Set 1H, No. 39
- Data Response, Set 1K, No. 39
- Data Response, Set 1L, No. 39
- Data Response, Set 1O, No. 39
- Data Response, Set 3A, Nos. 208-210
- Informal Data Response, Set 9
- Informal Data Response, Set 10
- Informal Data Response, Set 11
- PSA Comments, Set 1
- Prehearing Conference Statement, Exhibit A

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.

## II. Summary

The Final Staff Assessment (FSA) for the CPP project recommends that Conditions of Certification be adopted to address Cultural Resources. These conditions are CUL-1 through CUL-9 and are described on pages 4.3-20 through 4.3-28 of the FSA. Project design and implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. I have reviewed the Staff's proposed Conditions of Certification set forth in the FSA and find them acceptable with the modifications proposed for Cultural Resources in Exhibit A to the Prehearing Conference Statement.

## III. Declaration

I, James Bard, Ph.D., declare as follows:

1. I am presently employed by CH2M HILL Incorporated as a Senior Technologist.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I prepared the testimony on Cultural Resources for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: February 26, 2003                      Signed: Original signed

At: Corvallis, Oregon

# FACILITY DESIGN

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## I. Introduction

### A. Name

Scott Flake, P.E.

My qualifications are summarized in the attached resume (Appendix A)

### B. Prior Filings

This testimony includes by reference the following Facility Design documents submitted in this proceeding:

- Informal Data Response, Set 13 (Revised)

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

## II. Summary

The Final Staff Assessment (FSA) for the CPP project recommends that Conditions of Certification be adopted for Facility Design. These conditions are GEN-1 through GEN-8, CIVIL-1 through CIVIL-4, STRUC-1 through STRUC-4, MECH-1 through MECH-3, and ELEC-1, and are described on pages 5.1-6 through 5.1-22 of the FSA. Project design and implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. I have reviewed the Staff's proposed Conditions of Certification GEN-1 through GEN-8, CIVIL-1 through CIVIL-4, STRUC-1 through STRUC-4, MECH-1 through MECH-3, and ELEC-1, set forth in the FSA and find them acceptable.

## III. Declaration

I, Scott Flake, P.E., declare as follows:

1. I am presently employed by Sacramento Municipal Utility District as the Superintendent, Project Development Engineering, Cosumnes Power Plant. In that capacity, I am responsible for the project's engineering design. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I helped prepare the testimony on Facility Design for the Cosumnes Power Plant based on my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: February 28, 2003                      Signed: Original signed

At: Sacramento, CA

# FACILITY DESIGN

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## I. Introduction

### A. Name

Bob Nelson

My qualifications are summarized in the attached resume (Appendix A)

### B. Qualifications

Mr. Nelson has 17 years of progressively responsible power industry operations, maintenance, management, and project development experience. In addition to his role in the CPP project's development and construction, Mr. Nelson has charge over three operating cogeneration plants owned and operated by separate Joint Power Authorities ("JPA") that were formed by SMUD and are governed by the SMUD Board of Directors and one SMUD-owned simple cycle peaking plant, each of which use hazardous materials similar, if not identical, to those proposed for the CPP project. His qualifications are summarized more completely in the attached resume (Appendix A).

### C. Testimony

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

## II. Summary

The Final Staff Assessment (FSA) for the CPP project recommends that Conditions of Certification be adopted for Facility Design. These conditions are GEN-1 through GEN-8, CIVIL-1 through CIVIL-4, STRUC-1 through STRUC-4, MECH-1 through MECH-3, and ELEC-1, and are described on pages 5.1-6 through 5.1-22 of the FSA. Project design and implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. I have reviewed the Staff's proposed Conditions of Certification GEN-1 through GEN-8, CIVIL-1 through CIVIL-4, STRUC-1 through STRUC-4, MECH-1 through MECH-3, and ELEC-1, set forth in the FSA and find them acceptable.

### III. Declaration

I, Bob Nelson, declare as follows:

1. I am presently employed by the Sacramento Municipal Utility District as Superintendent, Project Development.
1. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
2. I helped prepare the testimony on Facility Design for the Cosumnes Power Plant based on my professional experience and knowledge.
3. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
4. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: March 3, 2003

Signed: Original signed

At: Sacramento, CA

# GENERAL CONDITION COM-8: CONSTRUCTION AND OPERATION SECURITY PLAN

---

## I. Introduction

### A. Name

Jim Shetler

### B. Purpose

This testimony addresses the CEC staff's proposed General Condition COM-8 regarding "Construction and Operation Security Plan."

### C. Qualifications

Jim Shetler is the Assistant General Manager for Energy Supply at the Sacramento Municipal Utility District (SMUD). His Executive Profile is attached. (Appendix A).

## II. Project Construction and Operation Security

The General Conditions Including Compliance Monitoring and Closure Plan section of the Final Staff Assessment (FSA) consist of General Conditions of Certification and General Conditions of Facility Closure. These conditions, COM-1 through COM-14 on pages 7.1-4 through 7.1-12 of the FSA, address the process for complying with the CEC's Conditions of Certification and the process to be followed in the event of a planned or unplanned facility closure.

SMUD agrees with and commits to comply with all of the general conditions specified in the General Conditions Including Compliance Monitoring and Closure Plan section of the FSA, **except for** Condition "COM-8, Construction and Operation Security Plan" (p. 7.1-8), which requires the District to submit to the CEC Compliance Project Manager for review and approval a site-specific "Security Plan" for the construction phase and a "Security Plan and Vulnerability Assessment" for the operation phase. Under staff's proposal, the CEC CPM would have authority to require additional measures.

This testimony explains why the District cannot agree to the Staff's proposed Condition COM-8 and proposes substitute language that better addresses security issues without duplicating other agencies' efforts or jeopardizing site security.

SMUD uses a proactive approach to protect our employees, company assets, and critical infrastructure, particularly our generating and transmission facilities under my management and supervision. We take security very seriously. For that reason, this

testimony discusses security issues in a general sense, but does not reveal detailed security measures in order to protect the public health and safety.

District Security has both internal and external provisions for dealing with national and/or local threats germane to the electrical industry and employee protection for all of the District's facilities, ranging from SMUD's 59th Street and Headquarters Campus, the Rancho Seco Nuclear Generating Facility, and three SMUD cogeneration facilities in Sacramento County, to SMUD's transmission and distribution lines and substations, gas pipeline facilities, and Upper American River Project (UARP) hydroelectric facilities, which are located in several counties in the Sacramento region. District Security Administrative Procedure (DSAP) 023, District Threat Advisory Notification, details Security internal procedures for analyzing and mitigating threats.

SMUD proactively works with and coordinates security and emergency response plans and measures with more than 30 public agencies and industry associations to ensure that we have effective communication and planning in order to deal with security incidents, which could potentially occur at SMUD facilities. These agencies range from the Nuclear Regulatory Commission from both Headquarters Washington, D.C. and Region IV located in Arlington, Texas; the Western Nuclear Security Association (WNSA) Region IV Security Managers; the Federal Bureau of Investigation (FBI); the federal Department of Homeland Security; the State Department of Justice and the State Office of Emergency Services (OES); to local law enforcement authorities, including the many police and sheriff's departments and the fire departments in Sacramento County and the adjoining counties, just to name a few.

As a public agency, the District also complies with the Standardized Emergency Management System (SEMS), serving on the Operational Area Councils for both Sacramento and El Dorado counties. During District emergencies, both natural and technological, the District activates an Emergency Operations Center (EOC) with staffing from all operational disciplines of the District and law enforcement liaisons. The facility is equipped for sustained operations with backup power, redundant communication equipment and various resource materials and supplies. Regularly scheduled drills are conducted to maintain expertise of our staff and to test EOC operations and procedures.

In addition, Asset Protection/District Security continually use industry standards, such as the Protection of Assets Manual, to reference and develop professional and accepted industry Security programs. We keep close watch on any changes with Homeland Security and the protection of Critical Infrastructures.

The District has also been proactive in implementing appropriate security measures for the protection of all of its existing generation, transmission and distribution facilities to include security features such as: fencing, lighting for a safe work environment and to prevent criminal activity, intrusion detection equipment, lock and key control, alarm response, Closed Circuit Television (CCTV) monitoring, access control during and after normal working hours, and appropriate Security measures for alarm response and notification to Local Law Enforcement Agencies. Emergency Plans are in place to respond to and report incidents that may occur in these facilities. Emergency Exercises are developed and exercised annually as required by law, which includes active participation by numerous federal, state, and local agencies.

The CPP plant will certainly incorporate these types of measures. But, in addition, because of the plant's proximity to the Rancho Seco Nuclear Generating Station site, please note that the security requirements at the Rancho Seco site are in full compliance with the Nuclear Regulatory Commission (NRC) and Interim Compensatory Measures (ICMs) as result of additional Security protection measures resulting from the September 11, 2001, incident. The Security details are considered "Safeguards Information," under NRC Part 73.21, and are exempt from public disclosure. However, the Rancho Seco Program does have in place a Security Physical Protection Plan, Contingency Plan, and Training and Qualification Plans. In addition, Security Training programs and Implementation Procedures are in place.

Rancho Seco maintains a comprehensive Emergency Plan and a trained, on call, Emergency Response Organization staff to handle any emergency that may arise. The Rancho Seco Emergency Plan is tested annually in coordination with local emergency response organizations.

## **Conclusion and Recommendation**

The District's Security team has considerable experience and expertise in providing the highest levels of security. We are skilled at identifying security needs and applying industry standards to ensure SMUD staff and facilities are well protected. The District has always placed the defense and protection of District staff and facilities as a fundamental priority, taking all appropriate measures identified by the Security team. This will continue to be the case for the CPP.

SMUD will incorporate virtually all of the specific items listed in the CEC staff's proposed Condition COM-8, **AND A LOT MORE!** SMUD is willing to share with CEC personnel who have proper security clearances the details of these security plans and measures as they relate to CPP. However, it is not appropriate for SMUD to submit our CPP security plans for approval by the CEC, particularly without proper assurance that the CEC has all necessary security protocols to ensure public protection, and without the CEC's going through a rulemaking process to develop such protocols and procedures and to ensure consistency with all other state and federal agencies with jurisdiction over security issues.

Condition COM-8 is a new requirement. The CEC has never published notice of rulemaking to regulate in the area of site security. SMUD is already working with state, federal and local authorities to ensure security of all District facilities, including the Rancho Seco nuclear site and the power plant site. An additional layer of regulation in this area could prove to be harmful to security rather than helpful.

In view of the foregoing facts, SMUD respectfully requests that Condition COM-8 be revised as follows:

### **COM-8, Construction and Operation Security Plan**

Thirty (30) days prior to commencing construction, a site-specific Security Plan for the construction phase shall be developed and maintained at the project site. At least sixty (60) days prior to the initial receipt of hazardous materials on-site, a site-specific Security Plan and Vulnerability Assessment for the operational phase shall be developed and maintained at the project site. The project owner shall notify the CPM in writing that the Plan is

available for review and approval by CEC personnel with proper security clearance at the project site.

### **Construction Security Plan**

The Construction Security Plan must address:

1. site fencing enclosing the construction area;
2. use of security guards;
3. check-in procedure or tag system for construction personnel and visitors;
4. protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and
5. evacuation procedures.

### **Operation Security Plan**

The Operations Security Plan must address:

1. permanent site fencing and security gate;
2. use of security guards;
3. security alarm for critical structures;
4. protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;
5. evacuation procedures;
6. perimeter breach detectors and on-site motion detectors;
7. video or still camera monitoring system;
8. fire alarm monitoring system;
9. site personnel background checks; and
10. site access for vendors and requirements for hazardous materials vendors to conduct personnel background security checks.

In addition, the project owner shall prepare a Vulnerability Assessment and implement site security measures addressing hazardous materials storage and transportation consistent with U.S. EPA and U.S. Department of Justice guidelines.

The CPM may authorize modifications to these measures, or may require additional measures depending on circumstances unique to the facility, and in response to industry-related security concerns.

## DECLARATION OF JIM SHETLER

I, Jim Shetler, declare as follows:

1. I am presently employed by SMUD as Assistant General Manager, Energy Supply.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I am the senior level officer responsible for all aspects of the planning, design, construction and operation of the Cosumnes Power Plant. I also oversee the purchase and sale of the District's gas and electric commodities, the reliability of the transmission system, and the District's electric generating facilities, which include hydroelectric, natural gas-fired, solar and wind facilities. I directly oversee the following SMUD Departments: Energy Trading and Contracts, System Operations and Reliability, and Power Generation.
4. It is my professional opinion that this prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. In my opinion, I am personally familiar with the general facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: March 3, 2003

Signed: \_\_\_\_\_

Jim Shetler

At: Sacramento, CA

# **GENERAL PROJECT DEVELOPMENT: INCLUDING PROJECT DESCRIPTION, FACILITY DESIGN, POWER PLANT RELIABILITY, POWER PLANT EFFICIENCY, AND GENERAL CONDITIONS INCLUDING COMPLIANCE MONITORING AND CLOSURE PLAN**

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## **I. Introduction**

### **A. Name**

Colin Taylor

My qualifications are summarized in the attached resume (Appendix A).

### **B. Prior Filings**

This testimony includes by reference the following documents submitted in this proceeding that are listed in Appendix B, which were prepared under my direction or supervision.

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

## **II. Summary**

The Final Staff Assessment (FSA) for the CPP project recommends that various Conditions of Certification be adopted to address a variety of disciplines. Project design and implementation of the Conditions of Certification, as proposed to be amended in Exhibit A to SMUD's Prehearing Conference Statement, will ensure the following:

- (1) That the facility will be designed, sited, and operated in compliance with applicable public health and safety standards, applicable air and water quality standards, and any other federal, state, regional and local laws, ordinances, regulations, and standards (LORS);
- (2) That the facility will be designed, sited and operated to protect environmental quality and assure safe and reliable operation of the facility; and to ensure that any potential environmental impacts will be avoided or mitigated to a level of insignificance.

### III. Declaration

I, Colin Taylor, declare as follows:

1. I am presently employed by SMUD as Cosumnes Power Plant Project Director. In that capacity, I oversee all aspects of the project's planning, design, construction and operation.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I directed the preparation of testimony in all disciplines for the Cosumnes Power Plant based on my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. In my opinion, I am personally familiar with the general facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: February 28, 2003

Signed: Original signed

At: Sacramento, CA

# **GENERAL PROJECT DEVELOPMENT: INCLUDING PROJECT DESCRIPTION, FACILITY DESIGN, POWER PLANT RELIABILITY, POWER PLANT EFFICIENCY, AND GENERAL CONDITIONS INCLUDING COMPLIANCE MONITORING AND CLOSURE PLAN**

---

## **I. Introduction**

### **A. Name**

Kevin M. Hudson, P.E.

My qualifications are summarized in the attached resume (Appendix A).

### **B. Prior Filings**

This testimony includes by reference the following documents submitted in this proceeding that are listed in Appendix B, which were prepared under my direction or supervision.

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

## **II. Summary**

The Final Staff Assessment (FSA) for the CPP project recommends that various Conditions of Certification be adopted to address a variety of disciplines. Project design and implementation of the Conditions of Certification, as proposed to be amended in Exhibit A to SMUD's Prehearing Conference Statement, will ensure the following:

- (1) That the facility will be designed, sited, and operated in compliance with applicable public health and safety standards, applicable air and water quality standards, and any other federal, state, regional and local laws, ordinances, regulations, and standards (LORS);
- (2) That the facility will be designed, sited and operated to protect environmental quality and assure safe and reliable operation of the facility; and to ensure that any potential environmental impacts will be avoided or mitigated to a level of insignificance.

### III. Declaration

I, Kevin M. Hudson, P.E., declare as follows:

1. I am presently employed by SMUD as a Senior Project Manager.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I supervised the preparation of testimony in all disciplines for the Cosumnes Power Plant based on my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. In my opinion, I am personally familiar with the general facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: February 28, 2003                      Signed: Original signed

At: Sacramento, CA

# GEOLOGIC HAZARDS AND RESOURCES

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## I. Introduction

### A. Name

Thomas A. Lae

My qualifications are summarized in the attached resume (Appendix A).

### B. Prior Filings

This testimony includes by reference the Geologic Hazards and Resources sections of the following documents submitted in this proceeding:

- Section 8.15 and Appendix 8.15A of the AFC
- AFC Supplement A
- AFC Supplement B
- AFC Supplement C
- AFC Supplement D
- Data Response, Set 1A, No. 54

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.

## II. Summary

The Final Staff Assessment (FSA) for the CPP project recommends that Conditions of Certification be adopted to address Geologic Hazards and Resources. These conditions are **GEN-1**, **GEN-5**, and **CIVIL-1** and are described on pages 5.1-6 through 5.1-15 of the FSA. Project design and implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. I have reviewed the Staff's proposed Conditions of Certification set forth in the FSA and find them acceptable.

## III. Declaration

I, Thomas A. Lae, declare as follows:

1. I am presently employed by CH2M HILL Incorporated as a Hydrogeologist.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the testimony on Geologic Hazards and Resources for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: February 26, 2003                      Signed: Original signed

At: Sacramento, CA

# Hazardous Materials Management

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## I. Introduction

### A. Name

Karen Parker and Jerry Salamy

### B. Purpose

This testimony addresses the hazardous materials that will be used at the Cosumnes Power Plant (CPP), the potential impact of the hazardous materials on human health and the environment and how the probability of a significant effect on human health and the environment from the hazardous materials will be reduced to an insignificant level.

### C. Qualifications

Ms. Parker has over 5 years of experience preparing environmental documentation for power plants and over 4 years preparing Applications for Certification. In addition, Ms. Parker has 22 years of experience in hazardous materials and waste management. Her qualifications are summarized more completely in the attached resume (Appendix A).

Mr. Salamy has over 17 years of experience preparing environmental documentation for power plants and over 10 years preparing Applications for Certification. Mr. Salamy has presented Hazardous Materials Handling testimony in four previous licensing cases before the Commission (i.e., Metcalf Energy Center, Delta Energy Center, East Altamont Energy Center, and Los Esteros Critical Energy Facility). His qualifications are summarized more completely in the attached resume (Appendix A).

### D. Prior Filings

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

- Section 8.12 of the AFC
- AFC Supplement A
- AFC Supplement B
- AFC Supplement C
- AFC Supplement D
- Data Response, Set 2A, Nos. 180 and 182
- Data Response, Set 2B, No. 181
- Data Response, Set 2C, Nos. 181 and 182
- PSA Comments, Set 1
- Prehearing Conference Statement, Exhibit A

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.

## **II. Proposed Licensing Conditions**

The Final Staff Assessment (FSA) for the project recommends that Conditions of Certification be adopted to address Hazardous Material Management issues. These conditions, HAZ-1 through HAZ-8, are described on pages 4.4-20 through 4.4-22 of the FSA. Incorporation of mitigation measures in accordance with the requirements of these Conditions of Certification would ensure that the routine use and transport of hazardous materials would not significantly impact the public or environment and that the facility would be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS).

We have reviewed the Staff's proposed Conditions of Certification set forth in the FSA and find them acceptable (with the exception of Condition HAZ-8), with the modifications proposed for Hazardous Materials Management in Exhibit A to the Prehearing Conference Statement.

## **III. Summary**

### **A. Affected Environment**

The project site is located in Sacramento County on Clay East Road, approximately 1.75 miles east of the intersection between Twin Cities and Clay East Road, and approximately 25 miles southeast of Sacramento. The site is located in the southwest corner of the Rancho Seco property. There are no sensitive receptor facilities (such as schools, daycare facilities, convalescent centers, or hospitals) in the vicinity (i.e., within a 3-mile radius) of the project site. There is a school approximately 8.5 miles from the project site in the town of Herald along the proposed hazardous materials transportation route.

Hazardous materials to be used at the Cosumnes Power Plant during construction and operation were evaluated for hazardous characteristics. Some of these materials will be stored at the generating site continuously. Others will be brought onsite for the initial startup and periodic maintenance (every 3 to 5 years). Some materials will be used only during startup. Hazardous materials will not be stored or used in the gas supply line, water supply line, or electric transmission line corridors during operations. Storage locations for the hazardous materials that will be used at the Cosumnes Power Plant are described in Table 8.12-2 of the AFC.

### **B. Construction Impacts**

During construction of the project and linears, acutely hazardous materials, as defined in California's Health and Safety Code, Section 25531, will not be used.

Hazardous materials to be used during construction of the project and its associated linear facilities will include gasoline, diesel fuel, motor oil, hydraulic fluid, solvents, cleaners, sealants, welding flux, various lubricants, paint, and paint thinner. There are no feasible alternatives to motor fuels and oils for operating construction equipment. The types of paint required are dictated by the types of equipment and structures that must be coated and by the manufacturers' requirements for coating.

The quantities of hazardous materials that will be onsite during construction are small relative to the quantities used during operation. Construction personnel will be trained to handle the materials properly. The most likely possible incidents will involve the potential for fuels, oil, and grease dripping from construction equipment. The small quantities of fuel, oil, and grease that might drip from construction equipment will have relatively low toxicity and will be biodegradable. Therefore, the expected environmental impact is minimal.

Small oil spills may also occur during onsite refueling. Equipment refueling will be performed away from water bodies to prevent contamination of water in the event of a fuel spill. Therefore, the potential environmental effects from fueling operations are expected to be limited to small areas of contaminated soil. If a fuel spill occurs on soil, the contaminated soil will be placed into barrels or trucks for offsite disposal as a hazardous waste.

The quantities of hazardous materials that will be handled during construction are relatively small and BMPs will be implemented by contractor personnel. Therefore, the potential for environmental effects is expected to be small.

### **C. Operational Impacts**

During the Cosumnes Power Plant operation, some hazardous and acutely hazardous materials will be stored onsite. Listed below are management and mitigation measures for minimizing the risks of hazardous material handling during facility operation.

Aqueous ammonia (a 29 percent solution by weight) will be used in the air emissions control system. Storage of the aqueous ammonia will be in one 18,000-gallon tank that will be filled to a maximum of 15,000 gallons. The aqueous ammonia storage and handling facilities will be equipped with continuous tank level monitors, temperature and pressure monitors and alarms, and excess flow and emergency block valves. Containment will be provided; if there is an inadvertent release from the storage tank, the liquid will be contained within an underground spill containment vault structure. Two to three times a week, a 6,000-gallon tanker truck will deliver aqueous ammonia to CPP, where it will be stored in the 18,000-gallon storage tank. A delivery vehicle transfer pad will slope to a drain that flows to the tank's secondary containment vault.

Cyclohexylamine and morpholine in the form of neutralizing amines will be fed into the condenser hotwell or condensate piping to control corrosion. Cyclohexylamine is corrosive to the eyes and skin and, depending on the length of exposure, can cause permanent eye damage and third degree burns to the skin. Morpholine is also a severe eye, skin, and mucous membrane irritant, and it can cause kidney damage. However, neither of these chemicals is particularly volatile, and both are soluble in water, which constitutes 50 to 75 percent of the mixture to be used at the site. The maximum quantity of neutralizing amines stored on-site will be 6,800 gallons, the maximum quantity of pure cyclohexylamine will be 2,700 gallons, and the maximum quantity of pure morpholine will be 700 gallons. Because of the low volatility of these chemicals and the relatively small quantities stored, the off-site threat is considered small. The feed equipment will consist of a storage tank, pumps, leak detection system, alarm system, and fire detection and protection system. The chemical will be stored in 500- to 700-gallon tanks located near each of the four Heat Recovery Steam Generators (HRSG). The tanks will be located above concrete, epoxy-lined containment areas with sufficient capacity to contain the full quantity of a tank in the event of a spill or

tank rupture. If exposed to rainfall, the containment areas will be large enough to contain, in addition to a spill, the accumulated rainfall for 24 hours from a 25-year storm.

Sulfuric acid will be fed into the circulating water system in proportion to makeup water flow for alkalinity reduction; this will be done to control the scaling tendency of the circulating water within an acceptable range. The acid feed equipment will consist of an acid storage tote container and two full-capacity piston-diaphragm inhibitor metering pumps. The 300-gallon tote tanks (one tote per cooling tower) will be located near the cooling tower circulating water pumps in a catch basin for accidental spills.

Sodium hypochlorite will be fed into the water received from the Folsom-South Canal as a biocide before it enters the condenser cooling water system. At buildout, the system will consist of two 10,000-gallon storage tanks, two full-capacity chemical feed pumps, a leak detection system, an alarm system, and a fire detection and protection system. The tanks will be located above concrete containment areas with sufficient capacity to contain the full tank contents plus accumulated rainfall for 24 hours during a 25-year storm.

Sodium hydroxide is used to control circulating water pH. The sodium hydroxide feed equipment will consist of a tote container and two full-capacity metering diaphragm pumps. The tote container will be located near the cooling tower circulating water pumps in a containment basin. The sodium hydroxide will be stored in 300-gallon size totes, one for each cooling tower.

The natural gas that will provide CPP with fuel for the combustion turbines, is flammable and could leak from the approximate 26-mile-long supply line that brings gas from the District's main pipeline at the Carson Ice-Gen plant. The risk of leakage is the normal type of risk encountered with transmitting natural gas via pipeline. Proper design, construction, and maintenance of the line will minimize leaks and the risk of fire or explosion. The line will be buried primarily in or adjacent to roadways or existing railroad or transmission line easements. To prevent ruptures of the natural gas line beneath the existing railroad right-of-way, Union Pacific Railroad (UPRR) requires that the gas line be encased in a larger pipe or conduit.

All hazardous materials will be handled and stored in accordance with applicable codes and regulations. All containers used to store hazardous materials will be visually inspected at least daily for signs of leaking or failure. Incompatible materials will be stored in separate storage and containment areas. Areas susceptible to potential leaks and/or spills will be paved and bermed. Containment areas may drain to a collection area, such as an oil/water separator or a waste collection tank. Piping and tanks will be protected from potential traffic hazards by concrete or pipe-type traffic bollards and barriers.

If a spill involves hazardous materials equal to or greater than the specific reportable quantity all federal, state, and local reporting requirements will be followed. The California Water Code (Section 13272(f)) establishes a reportable quantity of 42 gallons for spills of petroleum products in water bodies. However, the California Water Quality Control Board Region 5 has jurisdiction for the project site and they would like all oil spills on surface water to be reported.

A worker safety plan, in compliance with applicable regulations, will be implemented. It will include training for contractors and operations personnel. Training programs will

include safe operating procedures, the operation and maintenance of hazardous materials systems, proper use of Personnel Protective Equipment (PPE), fire safety, and emergency communication and response procedures. All plant personnel will be trained in emergency procedures, including plant evacuation and fire prevention. In addition, designated personnel will be trained as members of a plant hazardous material response team; team members will receive first responder and hazardous material technical training. However, in the event of an emergency, the fire department will call on the City of Sacramento Hazardous Materials Response Team (HMRT). For large spills, cities and counties provide mutual assistance. One of the other HMRTs in the City of Sacramento (at Station #5, #19 and #20) will most likely be the second or backup responder.

## **D. Cumulative Impacts**

The construction and operation of the Cosumnes Power Plant will not produce any significant negative cumulative impacts. The primary potential cumulative impact from the use and storage of hazardous materials would be from a simultaneous release from two or more sites of a chemical or chemicals that would migrate offsite. Potentially, the two or more migrating releases could combine, thereby posing a greater threat to the offsite population than a single release by any one site. The only hazardous material that has the potential to migrate offsite from CPP is an ammonia vapor released from spilled aqueous ammonia. Based on the results of the Off-Site Consequence Analysis (OCA), the distance to an expected ammonia concentration of 75 ppm is 801 feet from the site of the ammonia storage tank. The 75-ppm benchmark is the level considered to be without serious adverse effects on the public for a one time exposure. Based on the OCA, the concentration of 75 ppm would occur mostly on the project site.

## **E. Mitigation**

As outlined in the AFC, potential impacts during construction and operational phases will be mitigated through extensive implementation of engineered controls, training, best management practices, and the development of plans and procedures. With the implementation of the proposed project mitigation measures and the Conditions of Certification, the project will comply with all applicable federal and state LORS.

All hazardous materials will be handled and stored in accordance with applicable codes and regulations. Incompatible materials will be stored in separate storage and containment areas. Areas susceptible to potential leaks and/or spills will be paved and bermed. Containment areas may drain to a collection area, such as an oil/water separator or a waste collection tank. Wherever required, double-walled piping will be used to minimize potential releases from ruptured piping. Piping and tanks will be protected from potential traffic hazards by concrete or pipe-type traffic bollards and barriers.

The aqueous ammonia storage and handling facilities will be equipped with continuous tank level monitors, temperature and pressure monitors and alarms, and excess flow and emergency block valves. Containment will be provided; if there is an inadvertent release from the storage tank, the liquid will be contained within the secondary containment structure.

Transportation of hazardous materials to the plant will comply with all Department of Transportation (DOT), EPA, California Department of Toxic Substances Control (DTSC),

California Highway Patrol (CHP), and the California State Fire Marshal regulations for the transportation of hazardous materials. Under the California Vehicle Code, the CHP has the authority to adopt regulations for transporting hazardous materials in California. The CHP can issue permits and specify the route for hazardous material delivery. The key acutely hazardous material that will be delivered to CPP is the aqueous ammonia, and the Vehicle Code has special regulations for the transportation of hazardous materials that pose an inhalation hazard (Vehicle Code Section 32100.5). These and regulations concerning any of the other hazardous materials delivered to CPP will be complied with fully. Through the compliance with all applicable hazardous materials transportation LORS, the delivery of hazardous materials to the CCP will not pose a significant impact to the public or sensitive receptors. Furthermore, we agree with the Commission Staff's assessment of the risk associated with the transportation of hazardous materials to the project site [*"Staff therefore believes the risk of exposure to significant concentrations of aqueous ammonia during transportation to the facility are insignificant because of the remote possibility of accidental release of a sufficient quantity to present a danger to the public."* (FSA, page 4.4-13)] and believe that the risk of an accidental release of ammonia during transport within 1 mile of the school represents a even lower probability of occurring. Therefore, Condition of Certification HAZ-8 is not warranted based on the analysis presented in Staff's FSA.

The proposed facility will comply with the requirements of the federal and state Risk Management Plan programs, which will include implementation of detailed engineering and administrative controls, and emergency response planning.

## DECLARATION OF KAREN PARKER

I, Karen Parker, declare as follows:

1. I am presently employed by CH2M HILL, Incorporated as a Regulatory Compliance Specialist.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I prepared the testimony on Hazardous Materials Management for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Original signed

Dated: March 3, 2003

Signed: \_\_\_\_\_

At: Sacramento, CA

## DECLARATION OF JERRY SALAMY

I, Jerry Salamy, declare as follows:

1. I am presently employed by CH2M HILL, Incorporated as a Senior Project Engineer.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I prepared the testimony on Hazardous Materials Management for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Original signed

Dated: March 3, 2003

Signed: \_\_\_\_\_

At: Sacramento, CA

# Hazardous Materials Management: HAZ-8

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## I. Introduction

### A. Name

Bob Nelson

### B. Purpose

This testimony addresses transportation of hazardous materials that will be used at the Cosumnes Power Plant (“CPP”), how the probability of a significant effect on human health and the environment resulting from transportation of these hazardous materials will be reduced to an insignificant level, and how California Energy Commission (“CEC”) Staff’s proposed Condition of Certification HAZ-8 would represent an undue burden upon the Sacramento Municipal Utility District’s (“SMUD”) customer-owners.

### C. Qualifications

Mr. Nelson has 17 years of progressively responsible power industry operations, maintenance, management, and project development experience. In addition to his role in the CPP project’s development and construction, Mr. Nelson has charge over three operating cogeneration plants owned and operated by separate Joint Power Authorities (“JPA”) that were formed by SMUD and are governed by the SMUD Board of Directors and one SMUD-owned simple cycle peaking plant, each of which use hazardous materials similar, if not identical, to those proposed for the CPP project. His qualifications are summarized more completely in the attached resume (Appendix A).

### D. Testimony

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.

## II. Proposed Licensing Conditions

The Final Staff Assessment (“FSA”) for the project recommends that Conditions of Certification be adopted to address Hazardous Material Management issues. These conditions, HAZ-1 through HAZ-8, are described on pages 4.4-20 through 4.4-22 of the FSA. Incorporation of mitigation measures in accordance with the requirements of these Conditions of Certification would ensure that the routine use and transport of hazardous materials would not significantly impact the public or environment and that the facility would be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (“LORS”).

I have reviewed the Staff’s proposed Conditions of Certification set forth in the FSA and find them acceptable, excepting FSA Condition HAZ-8, assuming that the modifications

proposed for hazardous materials conditions in Exhibit A to SMUD's Prehearing Conference Statement are incorporated.

### **III. Summary**

#### **A. Affected Environment**

The project site is located in Sacramento County on Clay East Road, approximately 1.75 miles east of the intersection between Twin Cities and Clay East Road, and approximately 25 miles southeast of Sacramento. The site is located in the southwest corner of the Rancho Seco property. There are no sensitive receptor facilities (such as schools, daycare facilities, convalescent centers, or hospitals) in the vicinity (i.e., within a 3-mile radius) of the project site. There is a school approximately 8.5 miles from the project site in the town of Herald along the proposed hazardous materials transportation route (State Route 104).

#### **B. Construction Impacts**

During construction of the project and linears, acutely hazardous materials, as defined in California's Health and Safety Code, Section 25531, will not be used.

Hazardous materials to be transported during construction of the project and its associated linear facilities will include gasoline, diesel fuel, motor oil, hydraulic fluid, solvents, cleaners, sealants, welding flux, various lubricants, paint, and paint thinner. There are no feasible alternatives to transportation and use of these materials.

The quantities of hazardous materials that will be transported during construction are small relative to the quantities used during operation. The most likely possible incidents will involve the potential for small amounts of fuels to spill on-site during unloading. Any small quantity spills will likely occur within fuel storage tank containments. Therefore, the expected environmental impact is minimal.

#### **C. Operational Impacts**

During the Cosumnes Power Plant operation, some hazardous and acutely hazardous materials will be transported and stored on-site.

Aqueous ammonia (a 29 percent solution by weight) will be used in the air emissions control system. Storage of aqueous ammonia will be in one 18,000-gallon tank that will be filled to a maximum of 15,000 gallons. The aqueous ammonia storage and handling facilities will be equipped with continuous tank level monitors, temperature and pressure monitors and alarms, and excess flow and emergency block valves. Containment will be provided. If there is an inadvertent release from the storage tank or during truck offloading, the liquid will be contained within an underground spill containment vault structure. Two to three times a week, a 6,000-gallon tanker truck will deliver aqueous ammonia to CPP, where it will be stored in the 18,000-gallon storage tank. A delivery vehicle transfer pad will slope to a drain that flows to the tank's secondary containment vault.

Sodium hypochlorite, an oxidizing microbiocide, will be fed into the circulating water system. At build out, the system will consist of two 10,000-gallon storage tanks, two full-

capacity chemical feed pumps, a leak detection system, an alarm system, and a fire detection and protection system. The tanks will be located above concrete containment areas with sufficient capacity to contain the full tank contents plus accumulated rainfall for 24 hours during a 25-year storm. Sodium hypochlorite will be delivered to CPP in 6,000-gallon tanker trucks.

All hazardous materials will be transported, handled, and stored in accordance with applicable federal and state LORS.

## **D. Cumulative Impacts**

The transportation of hazardous materials during the construction and operation of CPP will not produce any significant adverse cumulative impacts. The primary potential cumulative impact from the transportation of hazardous materials would be from a potential release during truck offloading of a chemical that would migrate offsite. The only hazardous material that has the potential to migrate offsite from CPP is ammonia vapor released from spilled aqueous ammonia. Based on the results of the Off-Site Consequence Analysis (“OCA”), the distance to an expected ammonia concentration of 75 ppm is 801 feet from the site of the ammonia storage tank. The 75 ppm benchmark is the level considered to be without serious adverse effects on the public for a one time exposure. Based on the OCA, the concentration of 75 ppm would occur mostly on the project site.

## **E. Mitigation**

As outlined in the AFC, potential impacts during the construction and operational phases will be mitigated through extensive implementation of engineered controls, training, best management practices, and the development of plans and procedures. With the implementation of the proposed project mitigation measures and the Conditions of Certification, the project will comply with all applicable federal, state, and local laws, LORS.

Transportation of hazardous materials to the plant will comply with all Department of Transportation (“DOT”), Environmental Protection Agency (“EPA”), California Department of Toxic Substances Control (“DTSC”), California Highway Patrol (“CHP”), and California State Fire Marshal regulations for the transportation of hazardous materials. Under the California Vehicle Code, the CHP has the authority to adopt regulations for transporting hazardous materials in California. The CHP can issue permits and specify the route for hazardous material delivery. The key acutely hazardous material that will be delivered to CPP is aqueous ammonia, and the Vehicle Code has special regulations for the transportation of hazardous materials that pose an inhalation hazard (Vehicle Code Section 32100.5). These statutes and regulations concerning any of the other hazardous materials delivered to CPP will be complied with fully. Through the compliance with all applicable hazardous materials transportation LORS, the delivery of hazardous materials to CPP will not pose a significant impact to the public or sensitive receptors.

CEC Staff’s proposed Condition of Certification HAZ-8 states:

“All hazardous material tanker trucks transporting any hazardous material solution in an amount equal to or greater than 1,000 gallons shall be escorted from State Route 99 or Interstate 5 to the facility by a lead vehicle equipped with fog lights. Both vehicles shall also be equipped with radios to provide

communication between the lead vehicle and the tanker truck. Both vehicles shall have their headlights on at all times when traversing the route.”

Tractor-trailer rigs transporting hazardous materials, including aqueous ammonia, are typically equipped with fog lights. Further, I understand that firms involved in the transport of hazardous materials, including aqueous ammonia, commonly require that their drivers operate their trucks with lights on during daylight hours in the interest of safety.

The proposed HAZ-8 requirement for a lead vehicle equipped with fog lights and a two-way radio would not serve to enhance the safety of hazardous material transport to CPP. In fact, the lead vehicle would simply amount to one more vehicle on the road, introducing an additional hazard into the transportation equation along with additional air pollution source. Proposed Condition of Certification HAZ-8 would be unprecedented in nature and is not supported by DOT or CHP regulation.

Further, the proposed requirement for a lead vehicle would be unduly burdensome to CPP operations. I have found that known aqueous ammonia suppliers have never encountered a lead vehicle requirement for aqueous ammonia delivery, nor are such services offered. As a result, CPP would be forced to dedicate staff to perform such tasks or separately contract for lead vehicle services. In either case, SMUD’s customer-owners would suffer the additional expense.

In addition, the proposed lead vehicle requirement would certainly result in aqueous ammonia scheduling difficulties for CPP. In my experience, suppliers do not schedule individual deliveries of aqueous ammonia for pre-set times, but instead the actual time of delivery can vary widely during any given day dependent on time taken by the driver at previously delivery locations, weather, traffic, etc. It may be possible to coordinate the delivery of aqueous ammonia to occur during a pre-set span of time (e.g., a.m. or p.m. ), however, such deliveries are still subject to some variability. Such variability would inevitably lead to delays in delivery and additional expense to SMUD, as either the proposed lead vehicle would be forced to wait for the aqueous ammonia delivery truck on Twin Cities Road near State Highway 99 or vice versa. Either way, the time and expense incurred would be unnecessarily borne by SMUD’s customer-owners.

During those times when on-site reserves of aqueous ammonia are low and a delivery to CPP is urgently needed or outside of normal business hours the proposed lead vehicle requirement will be an unreasonable constraint. Under such circumstances the proposed lead vehicle requirement might actually inhibit delivery of needed aqueous ammonia to CPP and result in an unscheduled plant shutdown.

I agree with the CEC Staff’s assessment of the risk associated with the transportation of hazardous materials to the project site [*“Staff therefore believes the risk of exposure to significant concentrations of aqueous ammonia during transportation to the facility are insignificant because of the remote possibility of accidental release of a sufficient quantity to present a danger to the public.”* (FSA, page 4.4-13)] and believe that the risk of an accidental release of ammonia during transport within 1 mile of the school represents an even lower probability of occurring.

In conclusion, it does not appear that the proposed Condition of Certification HAZ-8 is warranted based on the analysis presented in CEC Staff’s FSA, on the testimony of Karen Parker and Jerry Salamy, and based on the testimony provided herein.

## DECLARATION OF BOB NELSON

I, Bob Nelson, declare as follows:

1. I am presently employed by the Sacramento Municipal Utility District as Superintendent, Project Development.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I prepared testimony on Hazardous Materials Management based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: March 3, 2003 Signed: Original signed

At: Sacramento, CA

# LAND USE

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## I. Introduction

### A. Name

Katy Carrasco

My qualifications are summarized in the attached resume (Appendix A).

### B. Prior Filings

This testimony includes by reference the Land Use sections of the following documents submitted in this proceeding:

- Section 8.4 of the AFC
- Data Response, Set 1A Nos. 55, 57, 59 and 61
- Data Response, Set 1C Nos. 56, 58, 60 and 61
- Data Response, Set 1D No. 60
- Data Response, Set 1G No. 56
- Data Response, Set 3A Nos. 211-217
- Preliminary Staff Assessment Comments, Set 1

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.

## II. Summary

The Final Staff Assessment (FSA) for the CPP project does not contain any Conditions of Certification than need to be adopted to mitigate Land Use impacts. Project design and implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. The Final Staff Assessment (FSA) for the CPP project does not contain any Conditions of Certification than need to be adopted to mitigate Land Use impacts.

## III. Declaration

I, Katy Carrasco, declare as follows:

1. I am presently employed by CH2M HILL Incorporated as a Project Manager.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the testimony on Land Use for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: \_\_\_\_\_ Signed: \_\_\_\_\_ Original signed

At: Sacramento, CA

# NATURAL GAS SUPPLY

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## I. Introduction

### A. Name

Joseph C. Pennington

My qualifications are summarized in the attached resume (Appendix A).

### B. Prior Filings

This testimony includes by reference the Natural Gas sections of the following documents submitted in this proceeding:

- Section 6.0 and Appendix 6A of the AFC
- AFC Supplement B
- AFC Supplement D
- Data Response, Set 1A, Nos. 57, 61, 69 and 89
- Data Response, Set 1C, Nos. 58 and 61
- Data Response, Set 3A, Nos. 221 and 252
- Informal Data Response, Set 2, No. NO-1
- PSA Comments, Set 1
- Prehearing Conference Statement, Exhibit A

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.

## II. Summary

The Final Staff Assessment (FSA) for the CPP project recommends that Conditions of Certification be adopted to address gas pipeline construction, operation and maintenance. These conditions are: HAZ-6 and HAZ-7 described on page 4.4-21; TRANS-5 and TRANS-7 described on pages 4.9-23 and 4.9-24; VIS-1 described on pages 4.12-41 and 4.12-42; GEN-2 described on pages 5.1-7 to 5.1-9 of the FSA. Project design and implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. I have reviewed the Staff's proposed Conditions of Certification set forth in the FSA and find them acceptable with the modifications proposed for those conditions referenced above in Exhibit A to the Prehearing Conference Statement.

### III. Declaration

I, Joseph C. Pennington, declare as follows:

1. I am presently employed by Sacramento Municipal Utility District as the Superintendent, Gas Pipeline Asset.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I helped prepared the testimony on Natural Gas Supply for the Cosumnes Power Plant based on my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: March 3, 2003

Signed: Original signed

At: Sacramento, CA

# NOISE AND VIBRATION

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## I. Introduction

### A. Name

Mark J. Bastasch

My qualifications are summarized in the attached resume (Appendix A)

### B. Prior Filings

This testimony includes by reference the Noise sections of the following documents submitted in this proceeding:

- Section 8.5 and Appendix 8.5A of the AFC
- Data Adequacy Supplement to the AFC
- AFC Supplement A
- AFC Supplement B
- AFC Supplement C
- AFC Supplement D
- Data Response, Set 1A, Nos. 63, 66, 67, and 68
- Data Response, Set 1C, Nos. 62, 64 and 65
- Data Response, Set 3A, No. 219
- Data Response, Set 3B, No. 220
- Data Response, Set 3N, No. 219
- Informal Data Response, Set 2, Nos. NO-1, NO-2 and NO-3
- Informal Data Response, Set 3, No. NO-1
- Data Response Kathy Peasha, Set 1 Nos. NO-1, NO-2
- Data Response Kathy Peasha, Set 2 Nos. NO-1, NO-2
- PSA Comments, Set 1
- Prehearing Conference Statement, Exhibit A

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.

## II. Summary

The Final Staff Assessment (FSA) for the CPP project recommends that Conditions of Certification be adopted to address Noise. These conditions are NOISE-1 through NOISE-10 and are described on pages 4.6-18 through 4.6-22 of the FSA. Project design and implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. I

have reviewed the Staff's proposed Conditions of Certification set forth in the FSA and find them acceptable with the modifications proposed for NOISE in Exhibit A to the Prehearing Conference Statement.

### III. Declaration

I, Mark J. Bastasch, declare as follows:

1. I am presently employed by CH2M HILL Incorporated as a Project Engineer.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I prepared the testimony on Noise for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: February 26, 2003 Signed: Original signed

At: Portland, OR

# PALEONTOLOGICAL RESOURCES

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## I. Introduction

### A. Name

Lanny H. Fisk, PhD, RG

My qualifications are summarized more completely in the attached resume (Appendix A).

### B. Prior Filings

This testimony includes by reference the Paleontological Resources sections of the following documents submitted in this proceeding:

- Section 8.16 of the AFC
- AFC Supplement A
- AFC Supplement B
- AFC Supplement C
- AFC Supplement D
- Preliminary Staff Assessment Comments, Set 1
- Prehearing Conference Statement, Exhibit A

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.

## II. Summary

The Final Staff Assessment (FSA) for the CPP project recommends that Conditions of Certification be adopted to address Paleontological Resources. These conditions are PAL-1 through PAL-7 and are described on pages 5.2-9 through 5.2-15 of the FSA. Project design and implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. I have reviewed the Staff's proposed Conditions of Certification set forth in the FSA and find them acceptable with the modifications proposed for the Paleontological Resources in Exhibit A to the Prehearing Conference Statement.

## III. Declaration

I, Lanny H. Fisk, declare as follows:

1. I am presently employed by PaleoResource Consultants as a Senior Paleontologist.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I prepared the testimony on Paleontological Resources for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: February 26, 2003                      Signed: Original signed

At: Sacramento, CA

# PUBLIC HEALTH

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## I. Introduction

### A. Name

John Lowe

My qualifications are summarized more completely in the attached resume (Appendix A).

### B. Prior Filings

This testimony includes by reference the public health sections of the following documents submitted in this proceeding:

- Section 8.6 of the AFC
- AFC Supplement A
- AFC Supplement B
- AFC Supplement C
- AFC Supplement D
- PSA Comments, Set 1
- Prehearing Conference Statement, Exhibit A

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.

## II. Summary

The Final Staff Assessment (FSA) for the CPP project recommends that Condition of Certification be adopted to address Public Health. This condition is Public Health-1 as described on page 4.7-19 of the FSA. Project design and implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. I have reviewed the Staff's proposed Conditions of Certification set forth in the FSA and find them acceptable with the modifications proposed for the public health in Exhibit A to the Prehearing Conference Statement.

## III. Declaration

I, John Lowe, declare as follows:

1. I am presently employed by CH2M HILL Incorporated as a risk assessor.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I prepared the testimony on Public Health for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: February 27, 2003                      Signed: Original signed

At: Dayton, OH

# RADIOLOGICAL CONDITIONS

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## I. Introduction

### A. Name

Steve Redeker

### B. Prior Filings

This testimony includes by reference the following documents submitted in this proceeding:

- Data Response, Set 3D, No. 229

To the best of my knowledge, all of the facts contained in this testimony (including Data Response, Set 3D, No. 229) 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.

## II. Summary

In preparation for the development of the planning for the Cosumnes Power Plant a radiological survey was performed in late 2000. The survey addressed all areas outside the Rancho Seco security fence (including the CPP site) except for the liquid effluent discharge pathway. The survey included direct surveys (both fixed and moving scan) as well as sampling and analysis. The survey was designed in accordance with MARSSIM (Multi-Agency Radiation Survey and Site Investigation Manual) survey guidelines. These guidelines will be used for the final site survey for ultimate release of the site from radiological controls by the Nuclear Regulatory Commission. The survey found no activity of plant origin above background levels.

Highlights of the survey report include:

- 76 acres (308,000 sq. meters) of land within the 2480 acre Rancho Seco Owner Controlled Area were surveyed. The areas were chosen using the statistical selection methodology of MARSSIM.
- All survey areas were verified to be non-impacted with no contamination in excess of background detected.
- Over 80,000 gamma spectra were collected and processed during the survey project.
- Achievement of sensitivities between one and two orders of magnitude less than Derived Concentration Guidelines.

- Completed performance tests consisting of repeated grids, grids “salted” with check sources, and a grid intentionally placed in a known contaminated area.

### III. Declaration

I, Steve Redeker, declare as follows:

1. I am presently employed by SMUD as the Rancho Seco Plant Manager, responsible for all site activities including decommissioning the power plant and safe storage of the nuclear fuel. .
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I prepared the testimony on Radiological Conditions for the Cosumnes Power Plant based on my independent review of the radiological survey, my professional experience and knowledge and based on the analysis of other professionals under my direction
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: March 3, 2003

Signed: -- original signed by --  
Steve Redeker

At: Sacramento, CA

# SOCIOECONOMICS

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## I. Introduction

### A. Name

John L. Carrier, J.D.

My qualifications are summarized in the attached resume (Appendix A).

### B. Prior Filings

This testimony includes by reference the Socioeconomic sections of the following documents submitted in this proceeding:

- Section 8.8 and Appendix 8.8A of the AFC
- AFC Supplement A
- AFC Supplement B
- AFC Supplement C
- AFC Supplement D
- Preliminary Staff Assessment Comments, Set 1

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.

## II. Summary

The Final Staff Assessment (FSA) for the CPP project does not contain any Conditions of Certification than need to be adopted to mitigate Socioeconomic impacts. The project's design and implementation will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. The Final Staff Assessment (FSA) for the CPP project does not contain any Conditions of Certification than need to be adopted to mitigate Socioeconomic impacts.

## III. Declaration

I, John L. Carrier, declare as follows:

1. I am presently employed by CH2M HILL Incorporated as a Program Manager.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I supervised the preparation of the testimony on Socioeconomics for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: February 28, 2002                      Signed: Original signed

At: Sacramento, CA

# TRAFFIC AND TRANSPORTATION

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## I. Introduction

### A. Name

Jeanne Acutanza, P.E.

My qualifications are summarized more completely in the attached resume (Appendix A).

### B. Prior Filings

This testimony includes by reference the Traffic and Transportation sections of the following documents submitted in this proceeding:

- Section 8.10 of the AFC
- Data Adequacy Supplement to the AFC
- AFC Supplement A
- AFC Supplement B
- AFC Supplement C
- AFC Supplement D
- Data Response, Set 1A, Nos. 73-82, and 85
- Data Response, Set 1B, Nos. 83 and 84
- Data Response, Set 1M, No. 78
- Data Response, Set 3A, Nos. 224 -228
- Informal Data Response No. 2
- Data Response Kathy Peasha, Set 1
- Data Response Kathy Peasha, Set 2
- PSA Comments, Set 1
- Prehearing Conference Statement, Exhibit A

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.

## II. Summary

The Final Staff Assessment (FSA) for the CPP project recommends that Conditions of Certification be adopted to address Traffic and Transportation. These conditions are TRANS-1 through TRANS-8 and are described on pages 4.9-22 through 4.9-25 of the FSA. Project design and implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. I have reviewed the Staff's proposed Conditions of Certification set forth in

the FSA and find them acceptable with the modifications proposed for the traffic and transportation in Attachment A to the Prehearing Conference Statement.

### III. Declaration

I, Jeanne Acutanza, PE, declare as follows:

1. I am presently employed by CH2M HILL Incorporated as a Project Manager 02.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I prepared the testimony on traffic and Transportation for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: February 26, 2003 \_\_\_\_\_

Signed: Original signed \_\_\_\_\_

At: Bellevue, WA \_\_\_\_\_

# TRANSMISSION SYSTEM ENGINEERING & TRANSMISSION LINE SAFETY AND NUISANCE

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## I. Introduction

### A. Name

Gilbert Butler

My qualifications are summarized more completely in the attached resume (Appendix A).

### B. Prior Filings

This testimony includes by reference the Transmission System Engineering/Transmission Line Safety and Nuisance sections of the following documents submitted in this proceeding:

- Section 5.5 of the AFC and Appendices 5A and 5B
- Data Response, Set 1C, No. 86
- Data Response, Set 4A, Nos. 254- 257
- Data Response, Set 4B, No. 254
- Preliminary Staff Assessment Comments, Set 1
- Preliminary Staff Assessment Comments, Set 4
- Informal Data Response, Set 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.

## II. Summary

The Final Staff Assessment (FSA) for the CPP project recommends that Conditions of Certification be adopted to address Transmission System Engineering. These conditions are TSE-1 through TSE-4 and are described on pages 5.5-9 through 5.5-11 of the FSA. Project design and implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. I have reviewed the Staff's proposed Conditions of Certification set forth in the FSA and find them acceptable.

## III. Declaration

I, Gilbert Butler, declare as follows:

1. I am presently employed by Sacramento Municipal Utility District as a Principal Transmission Planning Engineer.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I prepared testimony on Transmission System Engineering for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: February 25, 2003                      Signed: Original signed

At: Sacramento, CA

# VISIBLE PLUMES

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## I. Introduction

### A. Name

Gary Rubenstein

My qualifications are summarized in the attached resume (Appendix A).

### B. Prior Filings

This testimony includes by reference the visual water vapor plume sections of the following documents submitted in this proceeding:

- Section 8.11 of the AFC
- Data Response, Set 1A, Nos. 103, 106, 107, 108, 109, and 110
- Data Response, Set 1C, Nos. 107, 108, and 110
- Data Response, Set 1D, No. 109
- Data Response, Set 1F, No. 109
- PSA Comments, Set 3 (Revised)

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.

## II. Summary

The Final Staff Assessment (FSA) for the CPP project recommends that one Condition of Certification be adopted to address the issue of visible water vapor plumes. This condition is PLUME-1, and is described on pages 4.11-22 through 4.11-23 of the FSA. Project design and implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. I have reviewed the Staff's proposed Condition of Certification set forth in the FSA and believe that it should be modified as shown below to be consistent with site-specific conditions and with conditions developed in other, recent Commission proceedings.

**PLUME-1** The project owner shall ensure that the Cosumnes Power Plant cooling tower is designed and operated so that the plume frequency will not increase from the design as certified.

**Verification:** At least 30 days prior to ordering the cooling towers, the project owner shall provide to the CPM for review the final design specifications of the cooling tower related to plume formation. The project owner shall not order

the cooling tower until notified by the CPM that the two design requirements ~~above~~ below have been satisfied:

The cooling tower shall be designed ~~and operated~~ so that the exhaust air flow rate per heat rejection rate (1) will be not less than 21.0 kilograms per second per megawatt when the ambient temperatures are greater than 34 degrees F and at or less than 61 degrees F; and (2) will be not less than 19.0 kilograms per second per megawatt when the ambient temperatures are more than 61 degrees F but less than 104 degrees F.

The project owner shall provide a written certification in each Annual Compliance Report, ~~to include cooling tower operation recording data, to demonstrate~~ that the cooling towers have consistently been operated within the above specified design parameters, except as necessary to prevent damage to the cooling tower. If determined to be necessary to ensure operational compliance, based on legitimate complaints received or other physical evidence of potential non-compliant operation, the project owner shall monitor the cooling tower operating parameters in a manner and for a period as specified by the CPM. For each period that the cooling tower operation monitoring is required, the project owner shall provide to the CPM the cooling tower operating data within 30 days of the end of the monitoring period. The project owner shall include with this operating data an analysis of compliance and shall provide proposed remedial actions if compliance cannot be demonstrated.

### III. Declaration

I, Gary Rubenstein, declare as follows:

1. I am presently employed by Sierra Research as a Senior Partner.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I prepared the testimony on visible water vapor plumes for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Original signed

Dated: February 28, 2003

Signed: \_\_\_\_\_

At: Sacramento, CA

# VISUAL RESOURCES

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## I. Introduction

### A. Names

Wendy E. Haydon

Thomas Priestley, PhD, AICP/ASLA

Our qualifications are summarized more completely in the attached resumes (Appendix A).

### B. Prior Filings

This testimony includes by reference the Visual Resource sections of the following documents submitted in this proceeding:

- Section 8.11 of the AFC
- Data Adequacy Supplement to the AFC
- AFC Supplement A
- AFC Supplement B
- AFC Supplement C
- AFC Supplement D
- Data Response, Set 1A, Nos. 89-93, and 97-110
- Data Response, Set 1B, No. 94
- Data Response, Set 1C, Nos. 87, 88, 95, 96, 107, 108, and 110
- Data Response, Set 1D, No. 109
- Data Response, Set 1E
- Data Response, Set 1G, Nos. 87 and 88
- Data Response, Informal Set 2, No. VIS-1
- Data Response, Informal Set 12, No. VR-2
- Data Response, Kathy Peasha Set 1, Nos. VR-1 and VR-2
- Preliminary Staff Assessment Comments, Set 3 (Revised)
- Prehearing Conference Statement, Exhibit A

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.

## II. Summary

The Final Staff Assessment (FSA) for the CPP project recommends that Conditions of Certification be adopted to address Visual Resources. These conditions are VIS-1 through VIS-5 and are described on pages 4.12-41 through 4.12-44 of the FSA. Project design and

implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. We have reviewed the Staff's proposed Conditions of Certification set forth in the FSA and find them acceptable with the modifications proposed for Visual Resources in Exhibit A to the Prehearing Conference Statement.

### III. Declarations

I, Wendy E. Haydon, declare as follows:

1. I am presently employed by CH2M HILL Incorporated as an Environmental Planner.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I prepared the testimony on Visual Resources for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: February 27, 2003

Signed: Original signed

At: Sacramento, CA

I, Thomas Priestley, declare as follows:

1. I am presently employed by CH2M HILL Incorporated as a Senior Environmental Planner.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I supervised the preparation of the testimony on Visual Resources for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: February 27, 2003

Signed: Original signed

At: Oakland, CA

# WASTE MANAGEMENT

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## I. Introduction

### A. Name

Karen Parker

My qualifications are summarized in the attached resume (Appendix A).

### B. Prior Filings

This testimony includes by reference the Waste Management sections of the following documents submitted in this proceeding:

- Section 8.13 of the AFC
- AFC Supplement A
- AFC Supplement B
- AFC Supplement C
- AFC Supplement D
- Data Response, Set 2A, No. 183
- Data Response, Set 2B, No. 183
- Data Response, Set 2C, No. 183
- Data Response, Set 3A, No. 230
- Data Response, Set 3B, Nos. 230, 231, and 232
- Data Response, Set 3C, No. 229h
- Data Response, Set 3D, Nos. 229
- Preliminary Staff Assessment Comments, Set 1

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.

## II. Summary

The Final Staff Assessment (FSA) for the CPP project recommends that Conditions of Certification be adopted to address Waste Management. These conditions are WASTE-1 through WASTE-6 and are described on pages 4.13-11 through 4.13-13 of the FSA. Project design and implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. I have reviewed the Staff's proposed Conditions of Certification set forth in the FSA and find them acceptable.

### III. Declaration

I, Karen Parker, declare as follows:

1. I am presently employed by CH2M HILL Incorporated as a Regulatory Compliance Specialist.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I prepared the testimony on Waste Management for the Cosumnes Power Plant based on my independent analysis and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

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

Dated: February 28, 2003

Signed: Original signed

At: Sacramento, CA

# WORKER SAFETY & FIRE PROTECTION

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## I. Introduction

### A. Name

Patricia L. Danby, C.I.H.

My qualifications are summarized more completely in the attached resume (Appendix A).

### B. Prior Filings

This testimony includes by reference the Worker Safety/Fire Protection sections of the following documents submitted in this proceeding:

- Section 8.7 of the AFC
- AFC Supplement A
- AFC Supplement B
- AFC Supplement C
- AFC Supplement D

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.

## II. Summary

The Final Staff Assessment (FSA) for the CPP project recommends that Conditions of Certification be adopted to address Worker Health and Safety. These conditions are WORKER SAFETY-1 and WORKER SAFETY-2 and are described on pages 4.15-11 through 4.15-12 of the FSA. Project design and implementation of the Conditions of Certification will ensure that the facility will be in compliance with the applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) and any potential impacts will be mitigated to a level of insignificance. I have reviewed the Staff's proposed Conditions of Certification set forth in the FSA and find them acceptable.

## III. Declaration

I, Patricia L. Danby, C.I.H. declare as follows:

1. I am presently employed by CH2M HILL Incorporated as a Regional Health and Safety Manager.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

