Initial Study

KINGS RIVER CONSERVATION DISTRICT PEAKING PLANT

Application For Certification (03-SPPE-2)
Fresno County

CALIFORNIA ENERGY COMMISSION

STAFF REPORT

MARCH 2004
(03-SPPE-2)

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CALIFORNIA ENERGY COMMISSION

SITING OFFICE

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EXECUTIVE SUMMARY

Jack W. Caswell

INTRODUCTION

This Initial Study contains the California Energy Commission (Energy Commission) staff's evaluation of the Kings River Conservation District Peaker Plant (KRCDPP), Application for a Small Power Plant Exemption (SPPE).

The Energy Commission has the exclusive power to certify all sites and related facilities for thermal electrical power plants of 50 MW or larger within the state. A provision of the Warren-Alquist Act allows the Energy Commission to exempt power plants not exceeding 100 MW from the site certification process if it finds that no substantial adverse impact on the environment or energy resources would result from the construction or operation of the proposed facility (Pub. Resources Code § 25541). Under this exemption process the Energy Commission prepares the environmental document that would be used by local and state agencies that issue the necessary permits.

In this Initial Study, staff examined the environmental, public health and safety, and transmission systems engineering aspects of the KRCDPP project and presents its conclusions and proposed conditions of exemption that staff believes are necessary to mitigate or avoid significant adverse environmental impacts of the proposed facility, if exempted.

BACKGROUND

On November 26, 2003, the Kings River Conservation District (KRCD), filed an Application (03-SPPE-2) for an SPPE for the KRCDPP project, and staff began its review of the project. The Energy Commission appointed a Committee to oversee the SPPE application at the December 17, 2003 business meeting.

The analyses contained in this Initial Study are based upon information from: 1) the SPPE Application for the KRCDPP; 2) the applicant's responses to data requests; 3) interested federal, state, and local agencies; 4) various documents and publications listed at the end of each section and; 5) public workshops and site visits.

The Energy Commission staff and the committee assigned to the case have made a substantial effort to notify interested parties and encourage public participation in the KRCDPP SPPE review process.

The Energy Commission has:

- Mailed December 12, 2003, separate Notices of Receipt of the Application for Small Power Plant Exemption (SPPE) to interested parties, local libraries, responsible and trustee agencies, and contiguous property owners mailed on December 12, 2003;
- Mailed a Notice of Public Hearing and Site Visit on January 9, 2004, to responsible and trustee agencies, persons with contiguous property to the proposed project, and individuals that expressed interest in the project;
- Distributed 6,300 flyers through the Fresno Bee in the Malaga Community;
- Distributed 250 flyers to Malaga Elementary School children with English on one side and Spanish on the other;
- Sent an informational newsletter submission to Fowler and Fresno Unified School Districts and to every school (seven) within a 5-mile radius of proposed Peaker Plant, as well as two day-care facilities, two senior citizen centers and a local hospital (University Medical Center). Newsletters were sent in both English and Spanish.
- Conducted an Informational Hearing and Site Visit on January 26, 2004 in Fresno;
- Held a Public Workshop on January 26, 2004, in Fresno;
- Mailed a Notice for a Draft Initial Study Workshop on February 13, 2004, to responsible and trustee agencies, persons with contiguous property to the proposed project, and individuals that have expressed interest in the project;
- Held a Public Workshop on February 23, 2004 in Fresno.

PROJECT DESCRIPTION

KRCD proposes to construct and operate a 97-megawatt (MW) generation plant called the Kings River Conservation District Peaking Plant (KRCDPP). The project is proposed to be located on a 19-acre industrial site south of Fresno near the community of Malaga, in Fresno County, at 2611 E. North Avenue. The power plant would occupy the southern 9.5 acres of the site while the northern 9.5 acres would be a construction staging area. The simple cycle plant would consist of two General Electric LM 6000 SPRINT PC model, natural gas combustion turbines. The proposed project includes the construction of approximately three-quarters of a mile of new single 115kV transmission line interconnecting to the Malaga PG&E substation. Additionally, a 700 foot PG&E natural gas supply line will deliver the fuel to the project site. Both services parallel North Avenue. The preferred water interconnection would run approximately 2000 feet from the project facilities along the south side of North avenue, connecting with the existing MCWD supply line at the intersection of North and Chestnut Avenues and include County easements. **See Project Description Figures 1 through 3**

As proposed, the KRCDPP project would require an average of 210 gallons per minute with a maximum annual water consumption estimated at 75 acre-feet. The project includes a zero liquid discharge (ZLD) system. This system will allow for recycling of

waste streams for reuse within the facility, which will result in lower potable water demands annually.

A more complete description of the project, including a description and maps of the proposed upgrades to the transmission, water, and natural gas pipeline upgrades, is contained in the **PROJECT DESCRIPTION** section of this Initial Study.

STAFF'S ASSESSMENT

Each technical area section of the Initial Study contains a discussion of impacts, and where appropriate, mitigation measures presented in the form of conditions of exemption. The Initial Study includes staff's discussion of:

- The environmental setting surrounding the project area;
- Significant adverse impacts to public health and safety, and measures proposed to mitigate these impacts; and
- Significant adverse environmental impacts and measures proposed to mitigate these impacts.

The table on this page presents a summary of the potential impacts of the KRCDPP. Staff believes that if the Conditions of Exemption recommended herein are implemented, KRCDPP will not cause significant adverse direct, indirect, or cumulative impacts to public health, safety, and the environment or transmission system.

Summary of Conclusions: Environmental and Engineering Checklist

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
ENVIRONMENTAL				
Agricultural and Soil Resources			X	
Air Quality		X		
Biological Resources		X		
Cultural Resources		X		
Energy Resources				X
Geology and Paleontology		X		
Hazardous Materials and Waste		X		
Hydrology and Water Quality		X		
Land Use and Recreation				X
Noise		X		
Public Health		X		
Socioeconomics				X
Traffic & Transportation		X		
Visual Resources			X	
ENGINEERING				
Transmission Line Safety & Nuisance			X	
Transmission System Engineering		X		

PUBLIC REVIEW

Written comments on the Initial Study must be submitted to the Energy Commission by March 19, 2004, at the address below. An additional opportunity to make comment will be provided at hearings to be scheduled at a later date. For further information or to submit written comments, please contact:

Jack W. Caswell, Project Manager
Kings River Conservation District Peaker Project
California Energy Commission
1516 9th Street, M.S. 15
Sacramento, CA 95814
Phone: (916) 653-0062
Fax: (916) 654-3882
E-mail: j@energy.state.ca.us

To review documents, copies of notices and other relevant information on the project, please see the Energy Commission Web page at:
http://www.energy.ca.gov/sitingcases/kingsriver

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PROPOSED MITIGATED NEGATIVE DECLARATION

Pursuant to Title 14, California Code of Regulations, Sections 15070 and 15071 and pursuant to the California Energy Commission's Rules of Practice and Procedure (Cal. Code Regs., tit. 20, section 1101 et seq.) and Site Certification Regulations (Cal. Code Regs., tit. 20, section 1701 et seq.), the Deputy Director of the California Energy Commission's Division of Systems Assessment and Facility Siting does prepare, make, declare, publish, and cause to be filed with the County Clerk of Fresno County, State of California, this Mitigated Negative Declaration for the Kings County Conservation District Peaker Plant (KRCDPP), Application for Small Power Plant Exemption (03-SPPE-2).

1. The State Energy Resources Conservation and Development Commission (Energy Commission) is responsible for licensing all thermal power plants in California that have a capacity of 50 megawatts (MW) or greater. (Pub. Resources Code, section 25500.) The Energy Commission may exempt power plants from these requirements if they have a capacity not exceeding 100 MW and if the Energy Commission finds that the project will not create a substantial adverse impact on the environment or energy resources. (Pub. Resources Code section 25541.) Such projects are subject to applicable local permitting requirements.

   The Energy Commission is the Lead Agency for all projects that it licenses or exempts. (Pub. Resources Code section 25519(c).) The Energy Commission proposes to grant the Application for a Small Power Plant Exemption filed by Kings River Conservation District (KRCD) on November 26, 2003, for the Kings River Conservation District Peaker Plant (KRCDPP) project. If the Energy Commission grants the exemption, KRCDPP will be required to obtain all necessary local, regional, state and federal permits to construct and operate the proposed facility.

2. Title and Short Description of Project:

   a) Kings River Conservation District Peaker Plant (KRCDPP), Application for a Small Power Plant Exemption (03-SPPE-2).

   b) The proposed project is to construct and operate a 97-megawatt (MW) generation plant called the Kings River Conservation District Peaker Plant (KRCDPP). The natural gas-fired simple cycle plant will consist of two General Electric LM 6000 SPRINT combustion turbines. The proposed project includes the construction of approximately three-quarters of a mile of new 115-kV transmission line, approximately 700 feet of natural gas supply line, 2000 foot water supply line connecting with existing Malaga County Water Districts lines located under North Avenue and a storm water basin adjacent to the northern boundary at the project site.

3. Location of Project:

   a) Fresno County (Assessors Parcel Number 330-050-23S), (see PROJECT DESCRIPTION — Figure 1, Local Map and Figure 2, Regional Map).

b) Community of Malaga an unincorporated area of Fresno County (see PROJECT DESCRIPTION — Figures 2).

4. Project Applicant:

   Kings River Conservation District
   4886 E. Jensen Avenue
   Fresno, CA 95725-1899

5. Further information about the KRCDPP, the Initial Study, or the Energy Commission's exemption process may be obtained by contacting the California Energy Commission's Siting Project Manager for the KRCDPP project, Jack W. Caswell, California Energy Commission, 1516 9th Street, M.S. 15, Sacramento, CA 95814, Phone (916) 653-0062.

6. The mitigation measures that avoid potentially significant adverse effects are included in the Initial Study at the end of each technical section.

Therefore, the Energy Commission finds that the Initial Study has identified potentially significant adverse effects on the environment, however: 1) revisions to the project plans or proposals made by, or agreed to by, the applicant will avoid the effects or mitigate the effects to where clearly no significant adverse effect on the environment would occur, and 2) there is no substantial evidence, in light of the whole record before the agency, that the project, as revised, may have a significant effect on the environment. As a result, the Energy Commission finds that the Kings River Conservation District Peaker Plant (KRCDPP) will result in no significant adverse environmental impact.

INTRODUCTION

Jack W. Caswell

PURPOSE OF THIS REPORT

California's Warren-Alquist Act (Pub. Resources Code (PRC) § 25000 et seq.) gives the Energy Commission the exclusive power to certify all sites and related facilities for thermal electrical power plants of 50 MW or more within the state (Pub. Resources Code § 25120 and 25500 et seq.). Section 25541 of the Warren-Alquist Act allows the Energy Commission to exempt power plants not exceeding 100 MW from the site certification process if it finds that no substantial adverse impact on the environment or energy resources will result from the construction or operation of the proposed facility.

The applicant, Kings River Conservation District (KRCD) filed a request for a Small Power Plant Exemption (SPPE) with the California Energy Commission (Energy Commission) on November 26, 2003. The Energy Commission has appointed a Committee to hear the case. An Informational Hearing was held at the Kings River Conservation District Headquarters on January 26, 2004. Additionally staff held a workshop to discuss the proposed project on that same date.

The proposed plant is also subject to the requirements of the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). Pub Resources Code section 25519 (c) states that the Energy Commission shall act as lead agency under CEQA for projects that it either certifies or exempts from certification. Staff has prepared this Initial Study in accordance with CEQA and Title 20, California Code of Regulations (CCR) sections 1934 et seq. and 2300 et seq.

Staff's environmental analysis in the Initial Study document are the factual basis for staff's recommendation regarding the project's potential to result in substantial adverse impacts on the environment or energy resources.

Staff has included Conditions of Exemption in various technical areas, which if implemented along with the Applicant's proposed mitigation measures, should ensure that the project would result in no substantial adverse impact. In addition, staff will adopt a reporting or monitoring program designed to ensure compliance during project development and to avoid significant impacts or the need for further mitigation. Additionally staff held a Draft Initial Study workshop February 23rd 2004, to discuss this document and receive comments on the document's contents.

The Energy Commission's Siting Committee (Committee) will conduct a hearing at which all parties will have an opportunity to comment on the Initial Study and make recommendations on the SPPE application. The Committee will consider the application, staff's analysis, and any other evidence presented in the proceedings to determine whether to recommend granting the SPPE. Following the hearing, the Committee will prepare and publish a proposed decision. The full Commission will then hold a hearing for final comments and render a decision on the application.

Title 14, California Code of Regulations section 15063 (d) states that an Initial Study shall contain the following items:

- A description of the project including the location of the project;
- An identification of the environmental setting;
- An identification of environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries;
- A discussion of the ways to mitigate the significant effects identified, if any;
- An examination of whether the project would be consistent with existing zoning, plans, and other applicable land use controls; and
- The name of the person or persons who prepared or participated in the Initial Study.

The Energy Commission has made a substantial effort to notify interested parties and encourage public participation. The Energy Commission has:

- Mailed separate Notices of Receipt of the Application for Small Power Plant Exemption (SPPE) to interested parties, local libraries, responsible and trustee agencies, and contiguous property owners on December 12, 2003;
- Mailed a Notice of Public Hearing and Site Visit on January 9, 2004, to responsible and trustee agencies, persons with contiguous property to the proposed project, and individuals that expressed interest in the project;
- Distributed 6,300 flyers through the Fresno Bee in the Malaga Community;
- Distributed 250 flyers to Malaga Elementary School children with English on one side and Spanish on the other;
- Sent an informational newsletter discussing sit visit and workshop submission to Fowler and Fresno Unified School Districts and to every school (seven) within a 5-mile radius of proposed Peaker Plant, as well as two day-care facilities, two senior citizen centers and a local hospital (University Medical Center). Newsletters were sent in both English and Spanish;
- Conducted an Informational Hearing and Site Visit on January 26, 2004 in Fresno;
- Mailed a Notice for a Draft Initial Study Workshop on February 13, 2004, to responsible and trustee agencies, persons with contiguous property to the proposed project, and individuals that have expressed interest in the project; and
- Held Public Workshops on January 26, 2004 and February 23, 2004 in Fresno.

Staff will accept public comment on this Initial Study until March 17, 2004. Please see the Executive Summary for details

PROJECT DESCRIPTION

Jack W. Caswell

PROJECT TITLE

Kings River Conservation District Peaker Plant, Application for Small Power Plant Exemption (03-SPPE-02).

PROJECT SPONSOR'S NAME AND ADDRESS

Kings River Conservation District
4886 E. Jensen Avenue
Fresno, CA 93725-1899

LEAD AGENCY NAME AND ADDRESS

California Energy Commission
Systems Assessment and Facilities Siting Division
1516 Ninth Street
Sacramento, CA 95814

PROJECT LOCATION

Kings River Conservation District Peaking Plant (KRCDPP) is proposed to be located on a 19-acre industrial site south of Fresno near the community of Malaga, California, San Joaquin County, 2611 E. North Avenue, Assessor's Parcel Number 330-050-23S. This site is located on the southwest corners of North and Chestnut Avenues. **See Local Area Map Figure 1 and Regional Map Figure 2**.

GENERAL PLAN DESIGNATION

Fresno County General Plan, Fresno

ZONING

Industrial (M-3)

BACKGROUND AND DESCRIPTION OF PROJECT

On November 26, 2003, the Kings River Conservation District (KRCD) filed an application for a Small Power Plant Exemption (SPPE), (03-SPPE-2). KRCD is seeking an exemption from the California Energy Commission's (Energy Commission) licensing requirements. If an exemption is granted, the applicant will need to secure the appropriate licenses and permits for the project from various local, state and federal agencies.

KRCD proposes to construct and operate a 97-megawatt (MW) generation plant called the Kings River Conservation District Peaking Plant (KRCDPP). The project is proposed to be located on a 19-acre industrial site south of Fresno near the community of Malaga, in Fresno County, at 2611 E. North Avenue. The power plant would occupy the southern 9.5 acres of the site while the northern 9.5 acres would be a construction staging area. The simple cycle plant would consist of two General Electric LM 6000 SPRINT PC model, natural gas combustion turbines. The proposed project includes the construction of approximately 0.75 miles of new single-circuit 115kV transmission line interconnecting to the Malaga PG&E substation. Additionally, a 700ft PG&E natural gas supply line will deliver the fuel to the project site. Both services parallel North Avenue. The preferred water connection would require construction of a 2000-foot potable water supply line. **See Local Map figure #1, Regional Map Figure #2 and Site Layout Figure #3.**

WATER SUPPLY AND USE

As proposed, the KRCDPP project would require a peak demand of 210 gallons per minute (gpm) of non-potable water or 75 acre feet per year. The proposed water source for cooling, process water, and sanitary uses would be provided via a new pipeline from the Malaga County Water District (MCWD) which serves the local area near the project site. Water interconnection would run approximately 2000 feet from the project facilities along the south side of North avenue, connecting with the existing MCWD supply line at the intersection of North and Chestnut Avenues. MCWD has a groundwater well and a 10 inch water supply line located along Chestnut Avenue. Stormwater from the project site will be directed to the existing storm water basin adjacent to the northern boundary at the project site.

The project includes a zero liquid discharge system (ZLD). This system will allow for recycling of waste streams for reuse within the facility and results in lower non-potable water demand.

TRANSMISSION

Approximately 0.75 mile of 115 kV transmission line will be required, running north from the proposed facility along the eastern border of the KRCDPP site to North Avenue, east along the south side of North Avenue to the intersection of North and Willow Avenues, then across North Avenue to the PG&E Malaga Substation. The transmission line will be in the existing PG&E transmission easement that runs parallel to Fresno County roads.

The project will require the replacement of the existing 12kV distribution line poles with taller transmission poles designed to support the new 115kV transmission lines.

NATURAL GAS

Natural gas will be the only fuel required for the facility. It will be delivered via a new, approximately 700ft, 8-inch diameter pipeline. The pipeline would connect to an existing PG&E gas main line north of the project site on North Avenue in Fresno County. The new gas pipeline would be constructed within the North Avenue right-of-way.

The natural gas would be delivered by P G & E between 200 and 500 pounds per square inch gauge (psig). Three 700 kW compressors will be used to boost the natural gas pressure to 700 psig at the combustion turbine inlet to KRCDPP. Each compressor is able to supply the fuel gas consumed by a single combustion turbine. The additional compressor is intended to serve as a backup in the event one of the others is out of service.

The proposed new pipeline segment will be designed, constructed, and operated in accordance with national safety codes and the safety standards for new gas pipelines stated in the California Public Utility Commission's General Order (G.O.) 112-E.

EMISSION CONTROLS

The KRCDPP project will be equipped with Best Available Control Technology (BACT) to control air pollutant emissions. These controls include a combustor water injection system to reduce the nitrogen oxide (NO_x) emissions from the CTG exhaust and a NO_x Selective Catalytic Reduction (SCR) system to reduce emissions to 2.5 parts per million (ppm) at full load. The SCR system uses aqueous ammonia as a reagent for an ammonia injection system and an oxidation catalyst to maintain a CO emission limit of 6.0 ppm in all operating conditions. In addition, there will be a continuous emission monitoring system for the exhaust stack.

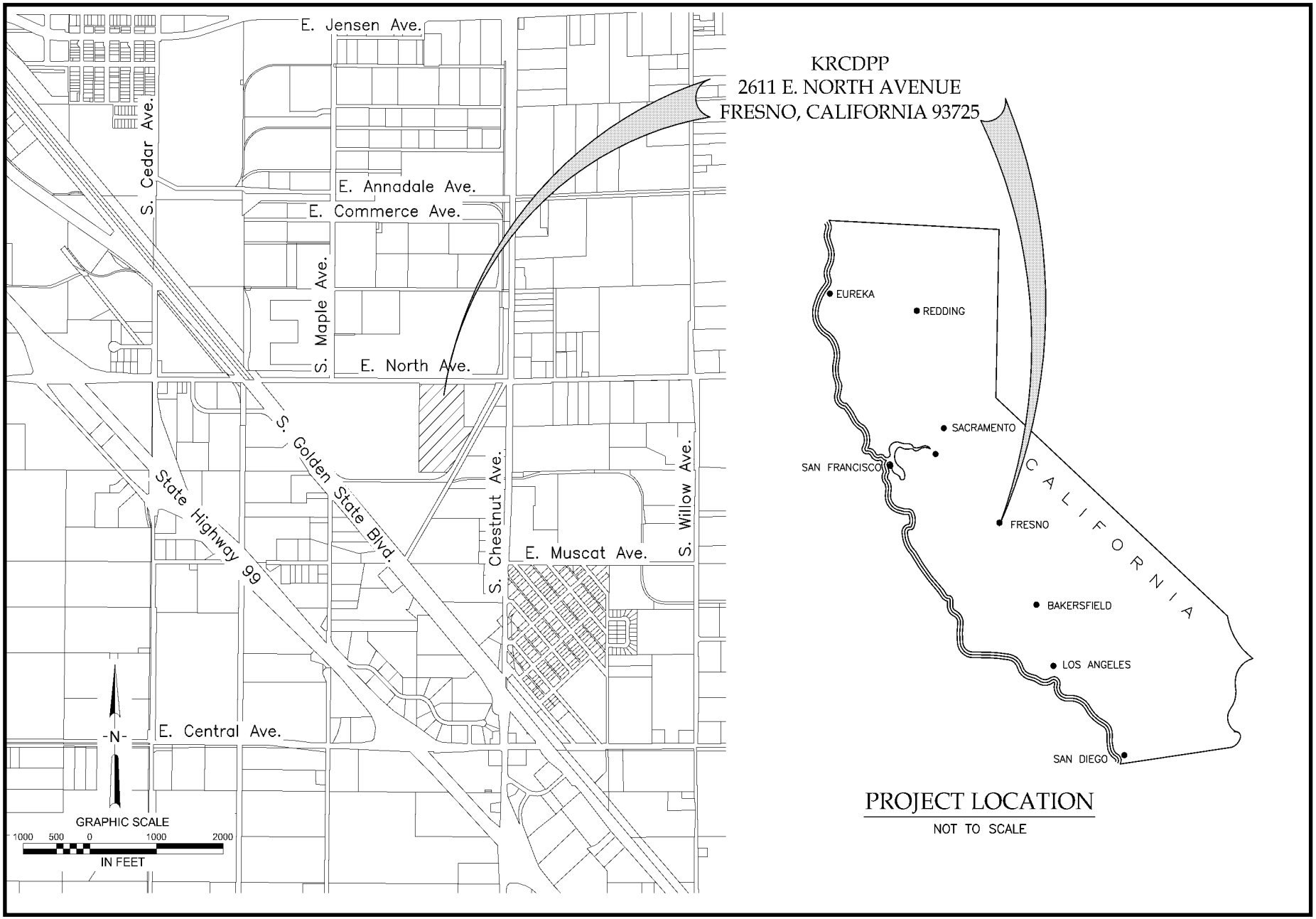
CONSTRUCTION SCHEDULE AND WORKFORCE

If the exemption is approved by the Energy Commission, KRCDPP expects to begin construction of the project by July 2004 and complete it by the end of March 2005. The Applicant anticipates beginning full-scale commercial operation in the spring of 2005.

KRCD estimates the capital costs of the KRCDPP to be $40 million. KRCD expects to employ up to approximately 68 construction workers over the 6-month construction schedule. A permanent professional workforce of approximately 3 people will operate the plant. Construction payroll costs are estimated to be $4.5 million while annual operations payroll is expected to be $210,000 for three plant workers.

PROJECT DESCRIPTION - FIGURE 1

Kings River Conservation District Peaker Project (KRCDPP) - Local Map

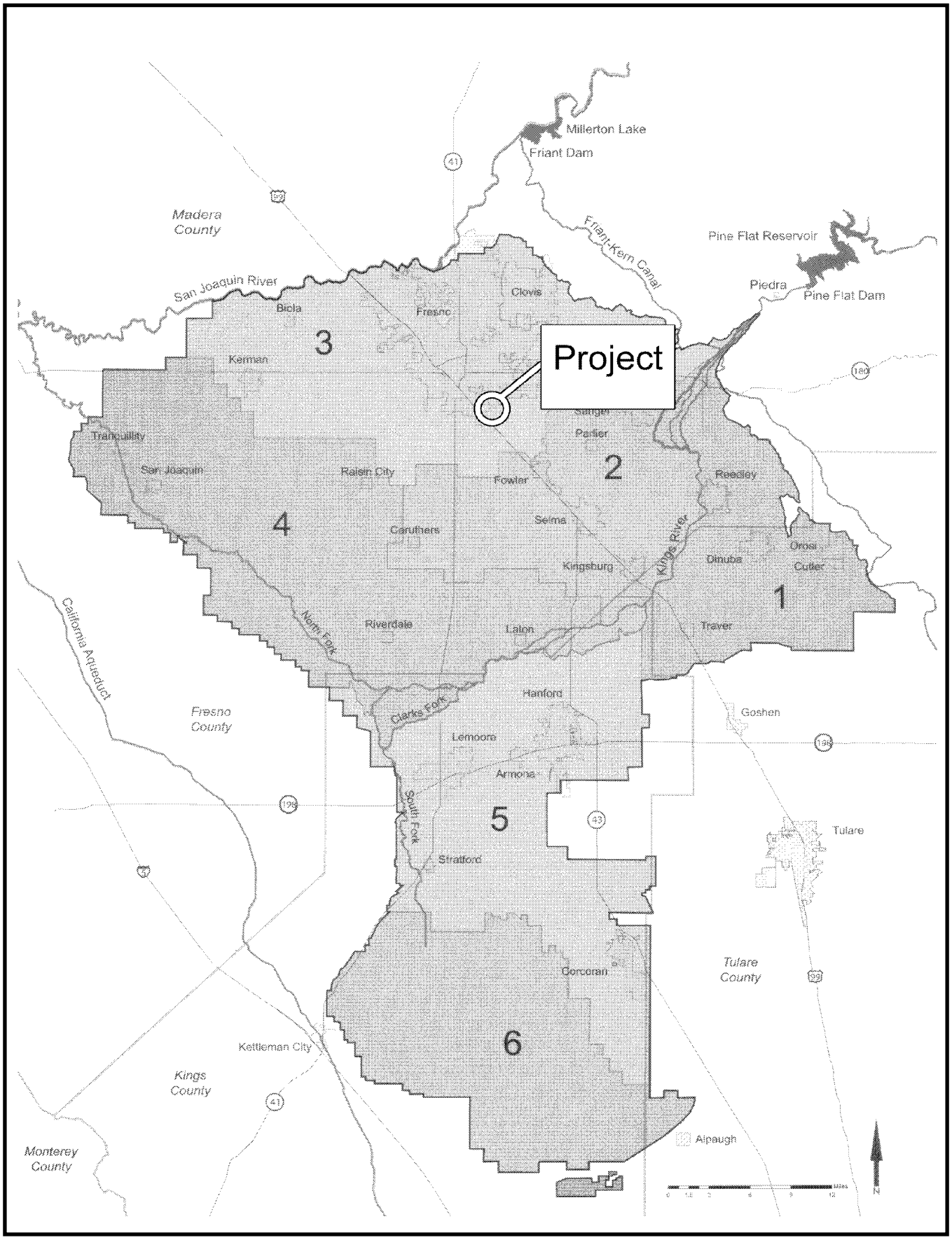


CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

SOURCE: SPPE Figure 1.2-1

PROJECT DESCRIPTION - FIGURE 2

Kings River Conservation District Peaker Project (KRCDPP) - Regional Map

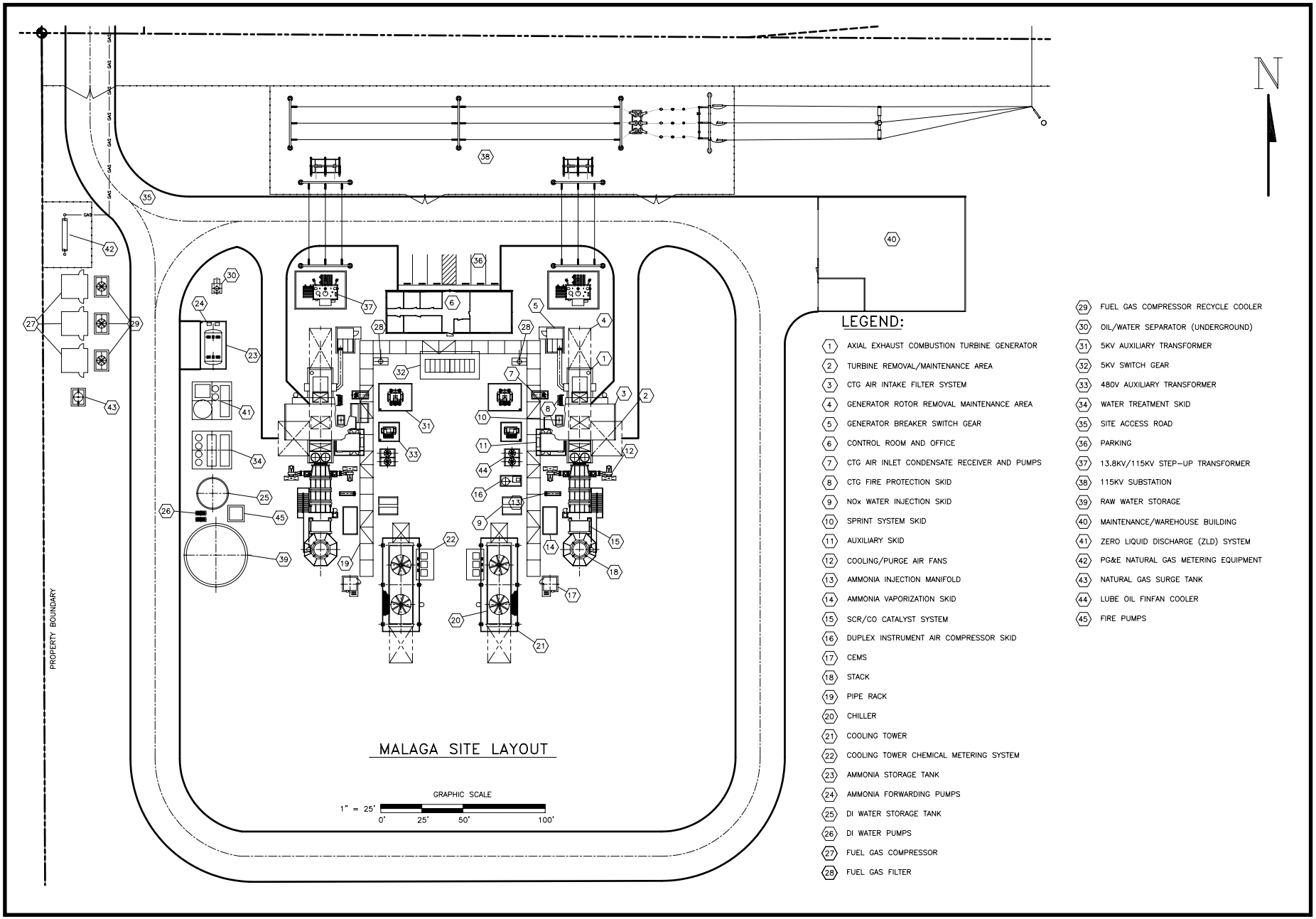


CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

SOURCE: SPPE Figure 1.2-2

PROJECT DESCRIPTION - FIGURE 3

Kings River Conservation District Peaker Project (KRCDPP) - Site Layout



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

SOURCE: SPPE Figure 2.2-2

AIR QUALITY

Testimony of Brewster Birdsall

INTRODUCTION

This analysis evaluates the expected air quality impacts of the emissions of criteria air pollutants due to the construction and operation of the Kings River Conservation District (KRCD, or applicant) Peaking Plant project (KRCDPP), which would be located in Fresno County.

In carrying out the analysis, the California Energy Commission staff evaluated the major issues identified in the CEQA Guidelines checklist for air quality. The following sections address the questions included in the checklist.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Under the Warren-Alquist Act, Public Resources Code section 25541, staff is charged with evaluating whether the project as proposed would have a substantial adverse impact on the environment. Staff has identified the following LORS as potential criteria for evaluating whether the project as proposed would have a substantial adverse impact on air quality. For this project, the San Joaquin Valley Air Pollution Control District (SJVAPCD or District) will be responsible for ensuring that the project complies with all applicable LORS.

FEDERAL

The United States Environmental Protection Agency (U.S. EPA) establishes the National Ambient Air Quality Standards (NAAQS). Pollutants regulated under these standards include ozone, nitrogen dioxide (NO_2), carbon monoxide (CO), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead. Two precursors to ozone, volatile organic compounds (VOC) and nitrogen oxides (NOx) are also regulated. Additional information regarding the NAAQS is provided in the Setting Section. The District and the California Air Resources Board (CARB) are responsible for providing attainment plans and achieving attainment with these standards.

Under the federal Clean Air Act new and modified major stationary sources of air pollution must undergo New Source Review (NSR) before commencing construction. NSR requirements vary depending on the attainment status of the area where the facility is to be located. Nonattainment area NSR is a permitting process for evaluation of those pollutants that violate federal ambient air quality standards. Conversely, Prevention of Significant Deterioration (PSD) requirements to those pollutants that are in attainment of NAAQS. The nonattainment area NSR analysis has been delegated by the U.S. EPA to the SJVAPCD. The U.S. EPA reviews the project for conformance with the PSD regulations. The PSD requirements apply only to those projects (known as major sources) that exceed 250 tons per year for any pollutant, or any new facility or stationary source category that is listed in 40 CFR Part 52.21(b)(1)(i)(a), and that emits 100 tons or more per year of any criteria pollutant. Since KRCDPP is not a steam electric plant and does not meet any other source category listed in 40 CFR Part 52.21(b)(1)(i)(a), it is subject to the 250 tpy PSD threshold. Emissions from KRCDPP

would be much less than 250 tpy; therefore PSD does not apply to the KRCDPP project.

Title V of the federal Clean Air Act requires local agencies to implement and administer an operating permit program to ensure that large sources operate in compliance with all requirements specified in different air quality regulations that affect an individual project. Under the delegated SJVAPCD Title V program, administered under Rule 2520, the KRCDPP project will require a Title V permit. Title V does not impose substantive new requirements.

The KRCDPP is also subject to the federal New Source Performance Standards (NSPS) for the combustion turbines (40 CFR 60 Subpart GG). This regulation has pollutant emission requirements that are less stringent than those that will be required by NSR requirements for Best Available Control Technology (BACT).

The U.S. EPA has reviewed and approved the District's regulations and has delegated to the SJVAPCD implementation of the federal NSR, Title V, and NSPS programs. The District implements these programs through its own rules and regulations, which are, at a minimum, as stringent as the federal regulations. In addition, the U.S. EPA has also delegated to the District the authority to implement the federal Clean Air Act Title IV "acid rain" program. The Title IV regulation requirements will include obtaining a Title IV permit prior to operation, the installation of continuous emission monitors to monitor acid deposition precursor pollutants, and obtaining Title IV allowances for emissions of SO_x. Rule 2540 implements the federal Title IV program. Therefore, compliance with the District's rules and regulations should result in compliance with federal Title IV.

STATE

The CARB establishes the California Ambient Air Quality Standards (CAAQS). These standards are more stringent standards than the NAAQS and they address some pollutants not covered under the NAAQS. Additional pollutants regulated under these standards include sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. Additional information regarding the CAAQS is provided in the Setting Section.

The California State Health and Safety Code (CH&SC) section 41700 requires that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property."

LOCAL

The proposed project is subject to San Joaquin Valley Air Pollution Control District Rules and Regulations, including the following:

Rule 2201 – New and Modified Stationary Source Review Rule

The main function of the District's New Source Review Rule is to allow for the issuance of Authorities to Construct, Permits to Operate, the application of Best Available Control

Technology (BACT) to new or modified permit source and to require the new permit source to secure emission offsets.

Section 4.1 – Best Available Control Technology

BACT is defined as: a) the mandatory performance levels that are contained in any State Implementation Plan and that have been approved by EPA; b) the most stringent emission limitation or control technique that has been achieved in practice for a class or source; or c) any other emission limitation or control technique that the District's Air Pollution Control Officer (APCO) finds is technologically feasible and is cost effective. BACT is required from any new or modified emission unit that results in an emissions increase of 2.0 lb/day. However, Section 4.2.1 states that BACT is not required for CO emissions from any new or modified emissions unit if those sources emit less than 200,000 lb/year of CO. In the case of KRCDPP, BACT applies for NO_x, VOC, SO_2, and PM_{10} emissions from the combustion turbines. Other smaller sources proposed for KRCDPP (cooling towers and dryer baghouse) would be designed to emit less than 2 lb/day, which would enable them to be exempt from BACT requirements.

Section 4.5 – Emission Offset Requirements

Emissions offsets for new or modified sources are required when those sources are equal to or exceed the following emission levels:

- Oxides of Nitrogen, NOx – 20,000 lb/year
- Volatile Organic Compounds, VOC – 20,000 lb/year
- Carbon Monoxide, CO – 200,000 lb/year
- PM_{10} – 29,200 lb/year
- Sulfur Oxides, SO_x – 54,750 lb/year

As proposed, the KRCDPP would exceed only the NOx threshold.

Section 4.6 – Emission Offset Exemptions

Emissions offsets are not required for increases of CO in attainment areas, if the applicant demonstrates that the emissions increase will not cause or contribute to a violation of the ambient air quality standards, and that those emissions are consistent with the District's goals for reasonable further progress.

Section 4.6.2 also exempts emergency equipment that is used exclusively as emergency standby equipment for electrical power generation that does not operate more than 200 hours per year for non-emergency purposes and is not used pursuant to voluntary arrangements with a power supplier to curtail power.

Section 4.13 – Additional Offset Requirements

Section 4.13.1 specifies that major sources (defined as those sources that emit greater than 25 tons of NOx or VOC, or greater than 70 tons of PM_{10}) that are shutdown and thus generate an Emission Reduction Credit (ERC) may not be used as an offset for new major source unless those ERCs are included in an EPA-approved attainment

plan. As proposed, KRCDPP would not be a new major source, and would not be subject to this restriction.

Section 4.13.2 allows use of offsets from another district only if the source of the offsets is within 50 miles of the proposed emission increase. The APCO must also review the permit conditions and certify that such offsets meet the requirements of this rule and CH&SC Section 40709.6.

Section 4.13.3 allows for the use of interpollutant offsets (including precursors for PM_{10}) on a case-by-case basis, provided that the applicant demonstrates that the emissions increase will not cause a violation of any ambient air quality standard. The ratio for interpollutant trading shall be based on an air quality analysis and shall be equal to or greater than the minimum offsetting requirement (the distance ratios) of this rule (Section 4.8). As of January 2004, it is not clear whether the proposed offset package will involve interpollutant trading.

Section 4.13.4 requires Actual Emissions Reductions (AER) used as offsets to have occurred during the same calendar quarter as the emissions increases being offset. Exceptions to this rule (in sections 4.13.6 through 4.13.9) allow PM emission reductions that occurred from October through March to offset PM emissions occurring anytime during the year and for NO_x and VOC emission reductions that occurred from April through November to offset NO_x and VOC emissions occurring anytime during the year.

Section 4.14 – Additional Source Requirements

Section 4.14.2 requires that a new source not cause, or make worse, the violation of an ambient air quality standard as demonstrated through analysis with air dispersion models. Although the KRCDPP would not be a new major source, it would be subject to this requirement because it could result in emissions of more than 100 lb/day of certain pollutants.

Section 4.14.3 requires that the applicant of a proposed new major source demonstrate to the satisfaction of the District that all major stationary sources subject to emission limitations that are owned or operated by the applicant or any entity controlling or under common control with the applicant in California, are in compliance or on a schedule for compliance with all applicable emission limitations and standards. The KRCDPP would not be subject to this requirement because it would not be a new major source.

REGULATION VIII – FUGITIVE PM-10 PROHIBITIONS

Limitations on PM_{10} in the SJVAPCD are rapidly evolving. In December 2003, there were a series of public meetings in the region regarding Draft Amendments to Regulation VIII (Fugitive PM_{10} Prohibitions). This is an analysis of the currently-applicable rules (adopted November 2001). These rules may be changed in the near future, and the future requirements may apply to KRCDPP.

Rule 8011 – General Requirements

Specifies the types of chemical stabilizing agents and dust suppressant materials that can (and cannot) be used to minimize fugitive dust from anthropogenic (man-made) sources. The rule also specifies test methods for determining compliance with visible

dust emission (VDE) standards, stabilized surface conditions, soil moisture content, silt content for bulk materials, silt content for unpaved roads and unpaved vehicle/equipment traffic areas, and threshold friction velocity (TFV). Records shall be maintained only for those days that a control measure was implemented, and kept for one year following project completion to demonstrate compliance. A fugitive dust management plan for unpaved roads and unpaved vehicle/equipment traffic areas is discussed as an alternative for Rule 8061 and Rule 8071.

Rule 8021 – Construction, Demolition, Excavation, Extraction and Other Earthmoving Activities

Requires fugitive dust emissions throughout construction activities (from pre-activity to active operations and during periods of inactivity) to comply with the conditions of a stabilized unpaved road surface and to not exceed an opacity limit of 20 percent, by means of water application, chemical dust suppressants, or constructing and maintaining wind barriers. A Dust Control Plan is also required and shall be submitted to the Air Pollution Control Officer (APCO) at least 30 days prior to the start of any construction activities on any site that include 40 acres or more of disturbed surface area, or will include moving more than 2,500 cubic yards per day of bulk materials on at least three days. As proposed, the KRCDPP site, including staging areas and linear facilities, would be approximately 21.5 acres and less than 2,500 cubic yards per day would likely be moved (Appendix 5.3-3 and Appendix 5.1-4, KRCD 2003a).

Rule 8031 – Bulk Materials

Limits the fugitive dust emissions from the outdoor handling, storage and transport of bulk materials. Requires fugitive dust emissions to comply with the conditions of a stabilized unpaved road surface and to not exceed an opacity limit of 20 percent. It specifies that bulk materials be transported using wetting agents, allow appropriate freeboard space in the vehicles, or be covered. It also requires that stored materials be covered or stabilized.

Rule 8041 – Carryout and Trackout

Limits carryout and trackout during construction, demolition, excavation, extraction, and other earthmoving activities (Rule 8021), from bulk materials handling (Rule 8031), and from unpaved vehicle and equipment traffic areas (Rule 8071) where carryout has occurred or may occur. Specifies acceptable (and unacceptable) methods for cleanup of carryout and trackout.

Rule 8051 – Open Areas

Requires fugitive dust emissions from any open area having 3.0 acres or more of disturbed surface area, that has remained undeveloped, unoccupied, unused, or vacant for more than seven days to comply with the conditions of a stabilized unpaved road surface and to not exceed an opacity limit of 20 percent, by means of water application, chemical dust suppressants, paving, applying and maintaining gravel, or planting vegetation. As proposed, the KRCDPP site, including staging areas and linear facilities, would be approximately 21.5 acres.

Rule 8061 – Paved and Unpaved Roads

Specifies the width of paved shoulders on paved roads and guidelines for medians. Requires gravel, roadmix, paving, landscaping, watering, and/or the use of chemical dust suppressants on unpaved roadways to prevent exceeding an opacity limit of 20 percent. Exemptions to this rule include "any unpaved road segment with less than 75 vehicle trips for that day."

Rule 8071 – Unpaved Vehicle/Equipment Traffic Areas

This rule intends to limit fugitive dust from unpaved vehicle and equipment traffic areas one acre or larger by using gravel, roadmix, paving, landscaping, watering, and/or the use of chemical dust suppressants to prevent exceeding an opacity limit of 20 percent. Exemptions to this rule include "unpaved vehicle and equipment traffic areas on any day which less than 75 vehicle trips occur."

Rule 8081 – Agricultural Sources

This rule intends to limit fugitive dust from off-field agricultural sources exempted from Rules 8031 (Bulk Materials), 8061 (Paved and Unpaved Roads), and 8071 (Unpaved Vehicle/Equipment Traffic Areas). Requires fugitive dust emissions to comply with the conditions of a stabilized surface and to not exceed an opacity limit of 20 percent.

SETTING

CLIMATOLOGY

The climate of the San Joaquin Valley is controlled by a semi-permanent subtropical high-pressure system that is located off the Pacific Ocean. In the summer, this strong high-pressure system results in clear skies, high temperatures, and low humidity. Very little precipitation occurs during the summer months because storms are blocked by the high-pressure system. Beginning in the fall and continuing through the winter, the high pressure weakens and moves south, allowing storm systems to move through the area. Temperature, winds, and rainfall are more variable during these months, and stagnant conditions occur more frequently than during summer months. Weather patterns include periods of stormy weather with rain and gusty winds, clear weather that can occur after a storm, or persistent fog. The project site receives an average of between 11 and 12 inches of rain annually (p. 5.1-5, KRCD 2003a).

Temperature, wind speed, and wind direction data were collected at the Fresno Airport, approximately 6 miles north and northeast of the project site. The predominant annual wind direction in the project area is from the northwest. The northwest quadrant wind direction is particularly predominating during the spring, summer, and fall. The winds during the winter show two almost equal, predominate directions, from the northwest quadrant and from the southeast quadrant (i.e. up and down valley directions). The wind speeds are generally higher during daylight hours and during the spring, summer, and fall. The winds are calm approximately 11 percent of the time annually.

Along with the wind flow, atmospheric stability and mixing heights are important factors in the determination of pollutant dispersion. Atmospheric stability reflects the amount of

atmospheric turbulence and mixing. In general, the less stable an atmosphere, the greater the turbulence, which results in more mixing and better dispersion. The mixing height, measured from the ground upward, is the height of the atmospheric layer in which convection and mechanical turbulence promote mixing. Good ventilation results from a high mixing height and at least moderate wind speeds with the mixing layer. Mixing heights are generally lowest during calm early morning hours.

AMBIENT AIR QUALITY

The project is located within the jurisdiction of the San Joaquin Valley Air Pollution Control District. The applicable federal and California ambient air quality standards are presented in **AIR QUALITY Table 1**. As indicated in this table, the averaging times for the various air quality standards (the duration over which they are measured) range from 1-hour to annual average. The standards are read as a mass fraction, in parts per million (ppm), or as a concentration, in milligrams or micrograms of pollutant per cubic meter of air (mg/m^3 or µg/m^3).

AIR QUALITY Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O_3)	1 Hour	0.12 ppm (235 µg/m^3)	0.09 ppm (180 µg/m^3)
	8 Hour	0.08 ppm (160 µg/m^3)	—
Respirable Particulate Matter (PM_{10})	24 Hour	150 µg/m^3	50 µg/m^3
	Annual Average	50 µg/m^3	20 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	65 µg/m^3	—
	Annual Average	15 µg/m^3	12 µg/m^3
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 µg/m^3)	—
	1 Hour	—	0.25 ppm (470 µg/m^3)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Sulfur Dioxide (SO_2)	Annual Average	0.03 ppm (80 µg/m^3)	—
	24 Hour	0.14 ppm (365 µg/m^3)	0.04 ppm (105 µg/m^3)
	3 Hour	0.5 ppm (1300 µg/m^3)	—
	1 Hour	—	0.25 ppm (655 µg/m^3)
Sulfates (SO_4^{2-})	24 Hour	—	25 µg/m^3
Lead	30 Day Average	—	1.5 µg/m^3
	Calendar Quarter	1.5 µg/m^3	—
Hydrogen Sulfide(H_2S)	1 Hour	—	0.03 ppm (42 µg/m^3)
Vinyl Chloride (chloroethene)	24 Hour	—	0.010 ppm (26 µg/m^3)
Visibility Reducing Particulates	1 Observation	—	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

The U.S. EPA, California Air Resource Board (CARB), and the local air district classify an area as attainment, unclassified, or nonattainment, depending on whether or not the

monitored ambient air quality data show compliance, insufficient data is available, or non-compliance with the ambient air quality standards, respectively. The KRCDPP is located within the San Joaquin Valley Air Basin and, as stated above, is under the jurisdiction of the San Joaquin Valley Air Pollution Control District. This area is designated as nonattainment for both the federal and state ozone and PM_{10} standards. **AIR QUALITY Table 2** summarizes federal and state attainment status of criteria pollutants for the San Joaquin Valley.

AIR QUALITY Table 2
Federal and State Attainment Status for the San Joaquin Valley Air Basin

Pollutant	Federal Classification	State Classification
Ozone (1 hour)	Severe Nonattainment (possibly Extreme, pending)*	Severe Nonattainment
PM_{10}	Serious Nonattainment	Nonattainment
$PM_{2.5}$	Nonattainment (Proposed)*	Nonattainment (Proposed)*
NO_2	Unclassified/Attainment	Attainment
CO	Unclassified/Attainment	Attainment
SO_2	Unclassified	Attainment
Lead	No Designation	Attainment

Source: 40 CFR 81 and SJVAPCD, http://www.valleyair.org/aqinfo/attainment.htm, accessed December 2003.
* The SJVAPCD has voluntarily requested that the status of the region be downgraded; U.S. EPA proposed approval in February 2004.
Federal-level PM2.5 designations were proposed by CARB in February 2004 for evaluation and adoption by U.S. EPA.
State-level PM2.5 designations are presently proposed for rulemaking by CARB in 2004.

The project site is in Fresno County, near the southern boundary of the City of Fresno and the Community of Malaga. Ambient air quality data is available from monitoring stations in Fresno. The Fresno Drummond site is located approximately one mile directly north of the site, near East Jensen Avenue. This station monitors ambient concentrations of ozone, PM_{10}, NO_2, and CO. For $PM_{2.5}$, the Fresno Pacific University station, at Hamilton and Winery about 2.5 miles directly north of the site, is the nearest source of ambient data. The nearest monitoring station currently measuring SO_2 is in Bakersfield, about 100 miles south of the project site. **AIR QUALITY Table 3** shows the current ambient air quality data from these monitoring stations near the KRCDPP site.

AIR QUALITY Table 3
Ambient Air Quality Monitoring Data, Fresno Area

Pollutant	Standard	1997	1998	1999	2000	2001	2002	Most Restrictive Standard
Ozone	Maximum 1-hour Average (ppm)	0.131	0.148	0.132	0.131	0.132	**0.149**	0.09 (CAAQS)
	Month of Maximum 1-hour	Jul	Aug	Sep	Sep	May	Aug	—
	# of days exceeding CAAQS	19	49	38	37	33	46	—
	Maximum 8-hour Average (ppm)	0.099	0.115	0.108	0.104	0.101	**0.113**	0.08 (NAAQS)
	Month of Maximum 8-hour	Aug	Jul	Sep	Sep	May	Sep	—
	# of days exceeding NAAQS	11	41	28	24	29	43	—
PM_{10}	Maximum 24-hour Average ($\mu g/m^3$)	121	132	162	130	**186**	106	50.0 (CAAQS)
	Month of Maximum 24-hour	Dec	Dec	Oct	Jan	Jan	Nov	—
	# of days exceeding CAAQS*	104	79	108	114	156	90	—
	Annual Average ($\mu g/m^3$)	46.7	39.3	47.5	41.4	50.2	**52**	20 (CAAQS)
$PM_{2.5}$	Maximum 24-hour Average ($\mu g/m^3$)	---	---	---	83.5	**88.2**	73.9	65 (NAAQS)
	Month of Maximum 24-hour	---	---	---	Dec	Jan	Feb	—
	# of days exceeding NAAQS	---	---	---	1	2	5	—
	Annual Average ($\mu g/m^3$)	---	---	---	18.4	18.6	**21.3**	12 (CAAQS)
NO_2	Maximum 1-hour Average (ppm)	0.083	0.088	0.108	0.083	0.078	**0.089**	0.25 (CAAQS)
	Annual Average (ppm)	0.020	0.020	0.024	0.020	0.020	**0.020**	0.053 (NAAQS)
CO	Maximum 1-hour Average (ppm)	6.3	6.6	**11.9**	9.0	5.2	---	20 (CAAQS)
	Maximum 8-hour Average (ppm)	4.1	4.4	4.9	3.5	**4.3**	3.5	9 (CAAQS)
SO_2	Maximum 1-hour Average (ppm)	0.011	---	0.011	0.019	**0.030**	---	0.25 (CAAQS)
	Maximum 24-hour Average (ppm)	0.004	---	**0.006**	0.003	0.005	---	0.04 (CAAQS)
	Annual Average (ppm)	0.002	---	0.003	**0.003**	0.002	---	0.03 (NAAQS)

Source: CARB web site: http://www.arb.ca.gov/adam/welcome.html, accessed January 2004.

Ozone, PM_{10}, NO_2, and CO data from Fresno Drummond, $PM_{2.5}$ data from Fresno Pacific (Hamilton and Winery), and SO_2 data from Bakersfield stations.

Highest background concentrations of the past three years shown in **bold**.

*Days above the state standard (calculated): Monitoring for the 24-hour PM_{10} standard is performed once every six days, and the number of days shown exceeding the standard is the actual number of measured days times six.

Ozone

In the presence of ultraviolet radiation, NOx and VOC go through complex chemical reactions to form ozone. Ozone formation is higher in spring and summer and lower in the winter.

AIR QUALITY Table 3 above summarizes the ambient ozone data collected from the Fresno Drummond monitoring station. Since the 1980s, the maximum ozone concentrations have declined, however, the highest recorded 1-hour concentration of recent years occurred in 2002.

The San Joaquin Valley is classified as a severe nonattainment area for both federal and state ozone standards. Recently, the SJVAPCD Governing Board voluntarily

requested that the U.S. EPA downgrade the District from its present 'severe' federal nonattainment status for ozone to 'extreme.' The U.S. EPA proposed approval of this designation in February 2004. Downgrading the nonattainment status allows the District more time to attain the ozone standards before incurring federal penalties. The SJVAPCD is in the process of revising the attainment plan to address the possible 'extreme' designation during 2004.

Respirable Particulate Matter (PM_{10})

Respirable, or inhalable, particulate matter (PM_{10}) can be emitted directly by a variety of sources, including combustion of any fossil fuel, and it can be formed many miles downwind from emission sources when various precursor pollutants interact in the atmosphere. The highest PM_{10} concentrations are measured in the fall and winter.

Given the right meteorological conditions, gaseous emissions of pollutants like NO_x, SO_x and VOC from turbines, and ammonia from NO_x control equipment, given the right meteorological conditions, can form particulate matter in the form of nitrates (NO_3^-), sulfates (SO_4^{2-}), and organic particles. These pollutants are known as secondary particulates, because they are not directly emitted but are formed through complex chemical reactions in the atmosphere.

Particulate nitrate (mainly ammonium nitrate) is formed in the atmosphere from the reaction of nitric acid and ammonia. Nitric acid in turn originates from NO_x emissions from combustion sources. In urbanized areas, the nitrate ion concentrations can be a significant portion of the total PM_{10}. Nitrate ions are only one component of particulate nitrate, which typically takes the form of ammonium nitrate or sodium nitrate.

As **AIR QUALITY Table 3** above shows, the project area annually experiences roughly one hundred days with concentrations over the state 24-hour PM_{10} standards. In all recent years, annual average PM_{10} concentrations have been well above the state standard, and annual average levels have been generally similar to the federal standard. The San Joaquin Valley is a nonattainment area for both federal (serious) and state PM_{10} standards.

Fine Particulate Matter ($PM_{2.5}$)

The U.S. EPA first identified ambient air quality standards for fine particulate matter ($PM_{2.5}$) in 1997. Implementation of the standards was delayed by lawsuits. In February 2004, CARB recommended to EPA that the SJVAPCD be designated as a federal nonattainment area for $PM_{2.5}$. U.S. EPA will provide final designations by December 15, 2004. States have three years from the time of final designation (December 2007) to provide $PM_{2.5}$ attainment plans. The SJVAPCD would be responsible for developing the $PM_{2.5}$ attainment plan when it becomes due. The area is also a proposed nonattainment area relative to the state $PM_{2.5}$ standards, which is subject to rulemaking by CARB in 2004.

The highest $PM_{2.5}$ concentrations occur in the winter. During wintertime high particulate matter episodes, the contribution of ground level releases to ambient concentrations is disproportionately high. The contribution of wood-smoke particles to the $PM_{2.5}$

concentrations may be even higher, considering that most of the wood-smoke particles are smaller than 2.5 microns.

As shown in **AIR QUALITY Table 3** above, the annual average $PM_{2.5}$ concentrations in Fresno have recently been well above the NAAQS and CAAQS. Although attainment for $PM_{2.5}$ will be determined on a review of data from the entire air basin, it is relatively clear that if attainment designations were to occur now using current ambient air quality data, the San Joaquin Valley would be a nonattainment area for $PM_{2.5}$.

Nitrogen Dioxide (NO_2)

Concentrations of NO_2 in the project area are lower than the federal and California Ambient Air Quality Standards. Approximately 75 to 90 percent of the NOx emitted from combustion sources is NO, while the balance is NO_2. NO is oxidized in the atmosphere to NO_2 but some level of photochemical activity is needed for this conversion. This is why the highest concentrations of NO_2 occur during the fall and not in the winter when there is a lack of significant photochemical activity (less sunlight). In the summer the conversion rates of NO to NO_2 are high but the relatively high temperatures and windy conditions (atmospheric unstable conditions) disperse pollutants, preventing the accumulation of NO_2. The formation of NO_2 in the summer in the presence of ozone is according to the following reaction.

$$NO + O_3 \rightarrow NO_2 + O_2$$

In urban areas, ozone concentration levels are typically high. These levels drop substantially at night as the above reaction takes place between ozone and NO. This reaction explains why, in urban areas, ozone concentrations at ground level drop at night, while aloft and in downwind rural areas (without sources of fresh NOx emissions) ozone concentrations can remain relatively high.

Carbon Monoxide (CO)

Concentrations of CO in the project area are lower than the federal and California Ambient Air Quality Standards. The most recent violation of the standards at the Fresno Drummond station was recorded in 1988. Carbon monoxide concentrations in the project area and the rest of the state have declined significantly due to two state-wide programs for mobile sources: 1) the 1992 wintertime oxygenated gasoline program, and 2) Phases I and II of the reformulated gasoline program. New motor vehicles with oxygen sensors and fuel injection systems have also contributed to the decline in CO levels in the state.

Sulfur Dioxide (SO_2)

Concentrations of SO_2 in the region are far below the federal and California SO_2 standards. Sulfur dioxide is typically emitted as a result of the combustion of a fuel containing sulfur. Fuels such as natural gas contain very little sulfur and consequently have very low SO_2 emissions when combusted. By contrast fuels high in sulfur content such as lignite (a type of coal) emit very large amounts of SO_2 when combusted. Sources of SO_2 emissions within the San Joaquin Valley come from every economic

sector and include a wide variety of fuels; gaseous, liquid and solid. The region is designated attainment for all the SO_2 state and federal ambient air quality standards.

PROJECT DESCRIPTION

This section describes the project design and criteria pollutant control devices as described in the application for the SPPE (KRCD 2003a), and responses to data requests filed (KRCD 2004f).

PROPOSED EQUIPMENT

The major equipment proposed in the application includes the following (Tables 2.2-1 and 2.2-2, KRCD 2003a):

- Two General Electric (GE) LM6000 combustion turbine generators (CTGs) in a simple-cycle configuration, with a combined generating capacity of approximately 97 MW. Total nominal heat input would be approximately 950 MMBtu/hr (higher heating value, HHV). Each CTG would be equipped with water injection and inlet air chilling for power augmentation, and an oxidation catalyst and selective catalytic reduction system for emission controls.
- A continuous emission monitoring (CEM) system for NO_x, CO, and oxygen.
- Two packaged inlet air chiller systems (one per turbine). Each chiller would include a 1,800-ton chiller and a 2-cell pre-fabricated, pre-engineered cooling tower. Each cooling tower would have a circulating water rate of 4,000 gallons per minute (gpm), with water containing up to 1,440 mg/l total dissolved solids (TDS) (DR6, KRDC 2004f).
- An optional onsite Zero Liquid Discharge (ZLD) system consisting of an electrically heated spray dryer with baghouse. The baghouse would have a flow rate of approximately 1,240 actual cubic feet per minute (acfm) and an exhaust rate of approximately 0.0091 grains per dry standard cubic feet (dscf) (DR7, KRDC 2004f).

FACILITY OPERATION

The proposed KRCDPP would occupy approximately 9.5 acres within an industrial area south of the City of Fresno and near the Community of Malaga in Fresno County. The KRCDPP would use two stationary, natural gas-fired combustion turbines for power production. Each combustion turbine generator (CTG) would generate approximately 50 MW at base load under average ambient conditions, and the net output of the plant, considering parasitic loads would be approximately 97 MW. The power-generating equipment would operate a maximum of 3,120 hours per year (p. 5.1-28, KRCD 2003a).

Each CTG would have water injection for enhancing power output and reducing NOx emissions, and an inlet air chilling system to maximize CTG performance during periods of high ambient temperatures (usually when greater than 55°F). A selective catalytic reduction (SCR) emission control system, using aqueous ammonia in the presence of catalyst, would also be used to reduce NOx in the exhaust gases. An oxidation catalyst would also be installed, upstream of the SCR system, to passively control carbon monoxide (CO) emissions.

Each packaged inlet air chiller system includes a pre-engineered evaporative cooling tower (one for each CTG). The chiller cooling towers would each have two cells and use potable water from the Malaga County Water District (MCWD) system. The cooling tower blowdown would be routed to the ZLD system.

For treating process wastewater, a variety of onsite and offsite ZLD technologies are proposed for the KRCDPP. One of the options (Option 1, ZLD Spray Dryer) includes a dryer for evaporating moisture from concentrated brine. With this option, an electrically-heated spray dryer system would be used to remove moisture from concentrated wastewater. The dryer exhaust to the atmosphere would be through an evaporative tower equipped with a baghouse-type fabric filter for controlling particulate matter. The other two options (Options 2 and 3) would treat the water using offsite technologies that do not have any air pollution emission sources (pp. 2-9 and 2-10, KRCD 2003a).

EMISSION CONTROLS

The exclusive use of pipeline-quality natural gas, a relatively clean-burning fuel, would limit the formation of VOC, PM_{10}, and SO_2 emissions. Natural gas contains very little noncombustible gas or solid residues and a small amount of reduced sulfur compounds including mercaptan. KRCD anticipates that the fuel sulfur content would be approximately 0.3 grains/100 scf, and all emission estimates assume a worst-case sulfur content of 0.41 grains/100 scf (Appendix 5.1-3, KRCD 2003a). There would be no liquid fuel (distillate oil) firing at KRCDPP.

The applicant proposes to use the selective catalytic reduction (SCR) system to reduce NOx emissions to 2.5 parts per million by volume, dry (ppmvd) at 15 percent oxygen at full load on a three-hour average basis (Appendix 5.1-2, KRCD 2003a; KRCD 2004l). An air dilution system would be used to cool hot exhaust gases when necessary to maintain the exhaust temperatures in the appropriate range for the SCR system. Ammonia slip would be limited to 10 ppmvd at 15 percent O_2 from the gas turbines (p. 2-5, KRCD 2003a). Carbon monoxide would be controlled upstream of the SCR system by an oxidation catalyst, which would limit CO to no more than 6 ppmvd at 15 percent oxygen. VOC emissions leaving the stacks would also be limited to 2.0 ppmvd at 15 percent oxygen through the use of the oxidation catalyst.

Continuous emission monitors (CEMs) would be installed on these stacks to monitor NO_x, CO, and oxygen concentrations to assure adherence with the proposed emission limits and to monitor exhaust flow rate for emission calculations. The CEMs system would generate reports of emissions data in accordance with permit requirements and send alarm signals to the plant's control room when the level of emissions approaches or exceeds pre-selected limits.

Emissions from the cooling towers would be limited by the maximum cooling water Total Dissolved Solid (TDS) levels. The cooling towers would use drift eliminators to achieve a controlled drift emission rate of 0.001% of the recirculating water flow (DR6, KRCD 2004f).

The ZLD system spray dryer has a baghouse as part of its integral design for the collection of the separated solids. The baghouse would provide a high efficiency control (99.94%) of the PM_{10} emissions from the spray drying process (DR7, KRCD 2004f).

ESTIMATED PROJECT EMISSIONS

The proposed project will generate air emissions during the construction, operation, and commissioning of the facility. The following is a summary of the air emissions from these sources:

Emissions During Construction Phases

Development of the KRCDPP would require improvement of approximately 21.5 acres for the entire facility, staging areas, and linear facilities. The KRCDPP would include the proposed 9.5 acre site, plus an adjacent 9.5 acre temporary staging area, and the following off-site corridors:

- Approximately 2,000 feet of water supply and wastewater discharge pipelines.
- Approximately 700 feet of natural gas fuel supply pipeline.
- Approximately 0.75 mile of a 115-kV transmission interconnection line including replacement of about 15 transmission line poles (Appendix 5.1-4, KRCD 2003a).

Construction activities, both on-site and off-site, would generate air emissions from earth-moving and construction equipment. Construction is expected to last approximately 26 weeks, over a 6-month period. Off-site construction of the water pipelines, natural gas pipeline, and transmission line interconnect would last for about two-to-three weeks each.

On-Site Construction Emissions

Project construction would consist of five main phases: 1) site preparation, 2) foundation work, 3) installation of major equipment, 4) construction/installation of major structures, and 5) startup and commissioning. Fugitive dust emissions during the construction of the project would result from dust entrained during site preparation and grading/excavation at the construction site, during onsite travel on paved and unpaved surfaces, and during aggregate and soil loading and unloading operations as well as wind erosion of areas disturbed during construction activities. The largest fugitive dust emissions would be generated during site preparation activities, where work such as clearing, grading, excavation of footings and foundations, and backfilling operations occur. These types of activities would require the use of large earth moving equipment, which generate combustion emissions, along with creating fugitive dust emissions. Combustion emissions during the construction of the project result from exhaust sources including diesel construction equipment used for site preparation, water trucks used to control dust emissions, cranes, diesel-powered welding machines, electric generators, air compressors, water pumps, diesel trucks used for deliveries, and automobiles and trucks used by workers to commute to and from the construction site.

Emission estimates for the worst-case day of construction emissions are shown in **AIR QUALITY Table 4**. The maximum daily emissions could occur any time during the third to sixth week of construction, when site preparation and grading occur. Annual average construction equipment exhaust and fugitive dust emission estimates are based on the average equipment mix during the 6-month construction period and shown in **AIR QUALITY Table 5**.

AIR QUALITY Table 4
KRCDPP, Maximum Daily Emissions During On-Site Construction (lb/day)

	NOx	PM_{10}	CO	SOx	VOC
On-Site					
Construction Equipment [a]	136.44	8.24	72.34	0.14	14.11
Fugitive Dust	---	26.88	---	---	---
Off-site					
Worker Travel and Truck Deliveries	35.43	1.48	199.52	0.85	16.49
Total Emissions	**171.87**	**36.4**	**271.87**	**0.99**	**30.6**

Source: Appendix 5.1-4, KRCD 2003a.

AIR QUALITY Table 5
KRCDPP, Annual Emissions During On-Site Construction (ton/year)

	NOx	PM_{10}	CO	SOx	VOC
On-Site					
Construction Equipment [a]	3.98	0.26	2.78	0.004	0.51
Fugitive Dust	---	0.66	---	---	---
Off-site					
Worker Travel and Truck Deliveries	2.27	0.16	10.34	0.06	0.87
Total Emissions	**6.25**	**1.08**	**13.12**	**0.06**	**1.38**

Source: Appendix 5.1-4, KRCD 2003a.
Notes:
a. Heavy diesel construction equipment emission factors are based on the EPA Nonroad model engine emission factors (U.S. EPA 2002), equipment greater than 50 hp meeting Tier 1 standards, and use of CARB ultra low-sulfur fuel (15 ppm sulfur).

Linear Facilities Construction Emissions

Construction of the linear facilities (water pipelines, natural gas pipeline, and transmission interconnect) would cause short-term off-site emissions along the alignments of the utilities. For each facility, the construction period would be about two to three weeks.

AIR QUALITY Table 6 shows maximum daily emissions expected from the construction of the natural gas pipeline, water supply pipeline and the subtransmission line interconnect.

AIR QUALITY Table 6
KRCDPP, Maximum Daily Emissions During Construction of Linear Facilities (lb/day)

	NOx	PM_{10}	CO	SOx	VOC
Water Pipelines Construction Equipment Fugitive Dust	70.50 ---	3.54 3.50	23.84 ---	2.43 ---	5.35 ---
Water Pipelines (Off-site) Truck Deliveries and Worker Travel	12.42	0.66	21.40	0.48	2.13
Total Emissions	**82.92**	**7.70**	**45.24**	**2.91**	**7.48**
Natural Gas Pipeline Construction Equipment Fugitive Dust	70.50 ---	3.54 2.51	23.84 ---	2.43 ---	5.35 ---
Natural Gas Pipeline (Off-site) Truck Deliveries and Worker Travel	12.42	0.66	21.40	0.48	2.13
Total Emissions	**82.92**	**6.71**	**45.24**	**2.91**	**7.48**
Transmission Line Construction Equipment Fugitive Dust	66.70 ---	3.06 0.97	14.21 ---	1.94 ---	4.29 ---
Transmission Line (Off-site) Truck Deliveries and Worker Travel	35.43	1.96	42.61	1.44	4.70
Total Emissions	**102.13**	**5.99**	**56.82**	**3.38**	**8.99**

Source: Appendix 5.1-4, KRCD 2003a.

Emissions During Routine Operation

Air emissions would be generated from operating the major project components. During normal operation, the plant will startup and shutdown periodically. While the turbine comes up to steady-state, the emission control equipment gradually reaches its level of full performance. As a result, startup and shutdown modes result in emissions higher than steady-state modes. Emissions during non-startup or shutdown conditions would be fully controlled because all combustion and post-combustion control systems would be operating at a steady state.

The emission tables do not show direct $PM_{2.5}$ emissions from any source because an established methodology does not exist for quantifying these emissions for all the sources. Although it is known that a substantial portion of the particulate matter formed during combustion will qualify within the $PM_{2.5}$ subset of PM_{10}, estimates of $PM_{2.5}$ emission rates are not available for the other sources.

The hourly emission rates for the combustion gas turbines, inlet air chiller cooling towers, and ZLD evaporative tower are provided in **AIR QUALITY Table 7**.

AIR QUALITY Table 7
KRCDPP, Hourly Operational Emissions (lb/hr)

Operational Source – Mode	NOx (lb/hr)	PM_{10} (lb/hr)	CO (lb/hr)	SO_2 (lb/hr)	VOC (lb/hr)
Each CTG (Startup or Shutdown Mode)	20.0	3.4	6.2	0.53	1.6
Each CTG (@ 103ºF w/ chillers)	4.25	3.4	5.1	0.53	1.4
Each CTG (@ 62ºF w/ chillers)	4.25	3.4	5.1	0.53	1.4
Each CTG (@ 62ºF w/o chillers)	4.17	3.3	4.0	0.53	1.4
Each CTG (@ 25ºF w/o chillers)	4.25	3.4	6.2	0.53	1.6
Each Cooling Tower for Chillers (2-cell)	---	0.035	---	---	---
ZLD Evaporative Tower	---	0.060	---	---	---

Source: Table 5.1-12 and Appendix 5.1-3 (KRCD 2003a); KRCD 2004l.

On an annual basis, KRCD expects to operate the plant about 2,500 hours per year (p. 2-3, KRCD 2003a), but KRCD plans to permit the facility to operate a maximum of 3,120 hours per year (p. 5.1-28, KRCD 2003a). Emissions for all equipment would therefore be limited to approximately 365 hours in startup or shutdown modes plus 2,755 hours in steady-state annually. The annual emission rates are provided in **AIR QUALITY Table 8**.

AIR QUALITY Table 8
KRCDPP, Annual Operational Emissions (tons per year, tpy)

Operational Source	NOx (tpy)	PM_{10} (tpy)	CO (tpy)	SO_2 (tpy)	VOC (tpy)
CTGs (Both Combined)	19.00	10.71	19.35	1.65	4.99
Cooling Towers for Chillers (Both)	---	0.11	---	---	---
ZLD Evaporative Tower	---	0.09	---	---	---
TOTAL	**19.00**	**10.91**	**19.35**	**1.65**	**4.99**

Source: Total annual operation of 3,120 hours per year (as on p. 5.1-28, KRCD 2003a and 2004l).

Emissions During Initial Commissioning

The initial commissioning of a power plant refers to the time frame between the completion of the construction and the reliable production of electricity for sale on the market. For most power plants, operating emission limits usually do not apply during the initial commissioning procedures.

Commissioning activities for the KRCDPP CTGs are expected to last approximately 96 hours per turbine. The range of tests anticipated for each CTG includes: 1) full speed, no load tests (4-hour); 2) minimum load tests; 3) full speed, no load tests (24-hour); and 4) multiple load tests. These tests would be performed prior to and during the installation of the SCR system and oxidation catalyst emission control systems. As a result, elevated levels of NOx, CO, and VOC emissions can be anticipated for some of the activities. **AIR QUALITY Table 9** shows the emissions anticipated during initial commissioning.

AIR QUALITY Table 9
KRCDPP, Commissioning Emissions (per CTG)

Commissioning Activities	Fuel Use	NOx	PM_{10}	CO	SOx	VOC
(per CTG)	(MMBtu/hr)	Hourly Emissions (lb/hr)				
Full Speed, No Load Test (4-hr)	84.0	30.5	3.4	33.4	0.53	4.8
Minimum Load Test (20-hr)	84.0	12.8	3.4	19.0	0.53	2.6
Full Speed, No Load Test (24-hr)	84.0	30.5	3.4	19.0	0.53	2.6
Multiple Load Test (48-hr)	420.1	24.8	3.4	6.2	0.53	1.6
Total Commissioning Emissions (tons per CTG, 96-hr total)	**---**	**1.15**	**0.16**	**0.63**	**0.03**	**0.11**

Source: Table 5.1-13 (KRCD 2003a).
Note: Each CTG will be commissioned separately. This means that only one CTG will be operational during any of the commissioning activities (KRCD 2003a, p. 5.1-26). Heating values in HHV.

IMPACTS

Following is the Environmental Checklist that identifies potential impacts in this issue area. Below the checklist is a discussion of each impact, and an explanation of the impact conclusion.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
AIR QUALITY – Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?				
Ozone Plan		X		
PM_{10} Plan		X		
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		X		
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?		X		
d) Expose sensitive receptors to substantial pollutant concentrations?		X		
e) Create objectionable odors affecting a substantial number of people?			X	

Significance Criteria

Staff has used two main significance criteria in evaluating this project. First, any project emissions of nonattainment criteria pollutants and their precursors (NOx, VOC, PM_{10} and SO_2) are considered to be significant because they would contribute to existing violations of air quality standards, and they would need to be mitigated to the extent feasible. Second, any violation of an ambient air quality standard caused by any project emissions is considered to be significant and must be mitigated to the extent feasible. For construction emissions, the mitigation that is considered is limited to controlling both construction equipment tailpipe emissions and fugitive dust emissions to the maximum feasible extent. For operating emissions, the mitigation includes both feasible emission controls and the use of emissions offsets for all nonattainment criteria pollutants and their precursors.

A. Conflict with Air Quality Plan: Less than Significant with Mitigation Incorporated

The proposed project is within the jurisdiction of the San Joaquin Valley Air Pollution Control District (District). The San Joaquin Valley region is a (state- and federally-designated) nonattainment area for both ozone and PM_{10}. The SJVAPCD is the lead agency for attaining timely compliance with federal standards and is responsible for developing and maintaining air quality management plans to achieve this goal. The air quality management plans include the measures necessary to achieve attainment. The California Air Resources Board (CARB) is responsible for maintaining the measures of each region's plan in the State Implementation Plan (SIP) required by U.S. EPA.

Ozone

Currently, the SJVAPCD does not have a federally-approved plan, or SIP, to attain federal ozone standards. The District did adopt an amended 2002 and 2005 Rate of Progress Plan on December 31, 2002. While there is no approved plan for the project to conflict or comply with, the project would be required to comply with all applicable District rules and regulations. The SJVAPCD rules and regulations specify the emissions control and offset requirements for new sources such as the KRCDPP. The KRCDPP would be required to use Best Available Control Technology (BACT) to control the project's emissions. Additionally, under the KRCD proposal, the operational emissions of NOx and VOC would be fully mitigated by KRCD obtaining and surrendering emissions reduction credits (ERCs) in sufficient quantities to fully offset project emissions. Staff would recommend Condition of Exemption **AQ-SC8** to ensure timely surrender of sufficient offsets to mitigate emissions of ozone precursors. Current District rules require KRCD to surrender about 9 tpy NOx of emission reductions to offset any emissions exceeding the District's 10 tpy NOx threshold and District rules do not require KRCD to surrender any VOC emission reductions. In the future, revisions to the SJVAPCD rules are foreseeable. The SJVAPCD needs to eventually gain federal approval of its 'extreme' nonattainment designation planning strategy, necessitating more stringent control of NOx and VOC. Although the SJVAPCD currently requires KRCD to surrender ERCs for only a fraction of its total NOx emissions and none of its VOC emissions, KRCD's mitigation proposal and staff's Condition of Exemption surpasses the SJVAPCD requirements. With Condition of Exemption **AQ-SC8**, KRCD project emissions of both NOx and VOC would be fully offset, and the project would not conflict with current or foreseeable ozone attainment planning efforts.

PM_{10}

The District is in the midst of the PM_{10} planning process. The District approved the 2003 PM_{10} Plan on June 19, 2003 and submitted it to CARB for final submittal to the U.S. EPA. Additional amendments to the plan were proposed in December 2003 in response to CARB's review. The plan specifies measures to attain the PM_{10} standards by the earliest practicable date, in 2010 (SJVAPCD 2003).

This plan has not yet been approved by U.S. EPA, but for the purposes of this assessment this plan is being considered as the applicable plan. Measures outlined in the Proposed 2003 PM_{10} Plan to reduce emissions during construction include amendments to Regulation VIII that would be implemented by September 2004 (SJVAPCD 2003). Construction of the KRCDPP may not be complete before September 2004. The applicant would be expected to comply with any applicable revisions to the Regulation VIII rules that would be implemented prior to the end of the project construction. Therefore, the KRCDPP project would not conflict or obstruct the implementation of the 2003 PM_{10} Plan.

During operation, the KRCDPP would be required to use Best Available Control Technology to minimize the project's emissions. This means that operational emissions of NOx, VOC, and PM_{10} would be controlled to levels that would be consistent with the PM_{10} plan. Additionally, these emissions would be fully mitigated under the applicant's proposal to obtain and provide emission reduction credits (ERCs). The applicant has proposed surrendering 10.91 tons of PM_{10} ERCs (DR8, KRCD 2004f) as mitigation.

Staff recommends Condition of Exemption **AQ-SC8** to ensure timely surrender of these ERCs. With this mitigation, the KRCDPP would cause no net increase of PM_{10} emissions, therefore it would not conflict or obstruct the implementation of the air quality management plan for PM_{10}.

B. Violate Air Quality Standard or Contribute to Violation: Less than Significant with Mitigation Incorporated

For this analysis, the impacts from construction emissions and operating emissions were quantified using air dispersion models, and the results of the modeling were compared to ambient air quality standards.

Modeling Approach

The applicant performed an air dispersion modeling analysis to evaluate the project's potential impacts on the existing ambient air pollutant levels, both during construction and operation. An air dispersion modeling analysis usually starts with a conservative screening level analysis. Screening models use conservative assumptions, such as for the meteorological conditions, which may or may not actually occur in the area. The impacts calculated by screening models, therefore, can be double or more than the actual or expected impacts. If the screening level impacts are significant, refined modeling analysis is performed. A major difference in the refined modeling is that hour-by-hour meteorological data collected in the vicinity of the project site is used.

The applicant used the U.S. EPA's Industrial Source Complex (ISC), Short-Term Model (ISCST3, Version 02035), to estimate the impacts of the project's NOx (in terms of NO_2), PM_{10}, CO, and SOx emissions resulting from project construction and operation. The ISC model is a steady-state Gaussian plume model, appropriate for regulatory use, used to assess pollution concentrations from a wide variety of emission sources.

The applicant used the SCREEN3 model to determine worst-case 1-hour NO_2, CO, and SO_2 impacts under fumigation conditions. The SCREEN3 model is a steady-state Gaussian plume model, appropriate for the screening-level modeling of single point sources to assess worst-case impacts.

For 1-hour average NOx modeling (construction), the applicant provided a refined modeling analysis using the ozone limiting method (OLM) model (ISC3_OLM, Version 96113). This method calculates the maximum NO to NO_2 conversion using ozone concentration data to determine maximum 1-hour NO_2 concentrations with a default assumption that 10 percent of the tailpipe NOx is NO_2 and that there is a 100 percent conversion of NO to NO_2 through a chemical reaction with the ground level ozone. This method is somewhat conservative in that it does not consider mixing or ozone consumption limitations in determining maximum NO_2 concentrations. This modeling method is accepted by the U.S. EPA and CARB for 1-hour NO_2 modeling.

A description of the applicant's modeling analyses is provided in Section 5.1.4.3 of the application for SPPE (KRCD 2003a), in Appendices 5.1-1 and 5.1-4 of the application (KRCD 2003a), with additional detail for construction modeling the responses to data requests (DR3 and DR4, KRCD 2004f). The applicant utilized hourly meteorological

data collected at the Fresno Airport, for the year 1989, with background ozone data from 1989, as recommended by SJVAPCD.

Construction Impacts

The following section discusses the project's short-term direct construction ambient air quality impacts, as estimated by the applicant.

Construction Modeling Impact Analysis

The applicant analyzed the impacts from emissions of construction activities in the application for SPPE (Appendix 5.1-4, KRCD 2003a). To determine the construction impacts on short-term ambient standards (i.e. 1-hour through 24 hours), the worst-case daily onsite construction emission levels shown in **AIR QUALITY Table 4** were used in the modeling analysis. For pollutants with annual average ambient standards, the annual onsite emissions levels shown in **AIR QUALITY Table 5** were used.

The annual emissions for construction activities are based on the anticipated 6-month schedule. The average construction area actively disturbed over the year, including the construction parking and staging areas, is anticipated to be about 9.2 acres (37,300 m^2), however on any given day this area may be roughly 14.2 acres (57,600 m^2). **AIR QUALITY Table 10** provides the results of this modeling analysis; results in **bold** show where the project would cause or contribute to violations of the standards.

AIR QUALITY Table 10
KRCDPP, Ambient Air Quality Impacts from Construction (µg/m^3)

Pollutant	Averaging Period	Project Impact	Back-ground	Total Impact	Limiting Standard	Type of Standard	Percent of Standard
PM_{10} (a)	24-hour	43.91	**186**	**230**	50	CAAQS	**460**
	Annual	3.03	**52**	**55**	20	CAAQS	**275**
NO_2 (b)	1-hour	280.1	167	448	470	CAAQS	95
	Annual	13.27	38	51	100	NAAQS	51
CO	1-hour	1032	13,685	14,717	23,000	CAAQS	64
	8-hour	459	4,778	5,237	10,000	NAAQS	52
SO_2	1-hour	2.1	78.6	81	655	CAAQS	12
	3-hour	0.9	78.6	80	1,300	NAAQS	6
	24-hour	0.2	15.7	16	105	CAAQS	15
	Annual	0.01	7.9	8	80	NAAQS	10

Source: Appendix 5.1-4, KRCD 2003a and Responses to DR3 and DR4, KRCD 2004f.

(a) Fugitive dust emissions based on analysis of area-type sources for wind-generated dust.

(b) NO_2 1-hour impacts based on ISC3-OLM analysis.

As can be seen from the modeling results provided in **AIR QUALITY Table 10**, the total concentrations of the 24-hour and annual average PM_{10} impacts exceed the ambient air quality standards and are therefore considered significant. The 24-hour PM_{10} construction impacts from only project activities at the fence line are approximately 44 µg/m^3. The maximum impact due to PM_{10} from solely construction equipment exhaust is approximately 10 µg/m^3.

The maximum 24-hour PM_{10} impacts occur along the southeastern property line and are highest at the fence line and decrease rapidly within a few hundred meters of the project

site (Appendix 5.1-4, KRCD 2003a). The 24-hour PM_{10} concentrations that would occur at the nearest residences (just east of the project site and staging areas, west of Chestnut Avenue) would be no more than 13 µg/m^3. At the Malaga Elementary School, the highest daily PM_{10} concentration would be approximately 2.9 µg/m^3. Staff would consider these impacts, which occur in an area that regularly exceeds the standards, to be a potentially significant impact that requires all feasible mitigation.

The potential ambient air quality impacts associated with the construction of the natural gas pipeline, water pipelines and the subtransmission line interconnect are expected to be minimal since construction would occur for a short duration and require minimal equipment. These linear facilities are each a maximum of three-quarters of a mile in length. These activities were not included in the applicant's dispersion modeling analysis for construction impacts.

Construction Mitigation

As described in the applicable LORS section, rules and requirements of District Regulation VIII would limit fugitive dust during the construction phase of a project. However, compliance with Regulation VIII is not sufficient to ensure that near field construction impacts will be less than significant. Compliance with these regulations is substantially tied to achieving a visual dust emissions (VDE) limit of 20 percent opacity (i.e., Rules 8021, 8031, 8051, 8061 for unpaved roads, 8071, and 8081). Additionally, there are exemptions to the Regulation VIII rules that would likely apply to construction of the KRCDPP that would nullify compliance with some of the requirements because of the small size of the project. Additionally, staff does not interpret a visual dust emissions threshold of 20 percent as sufficient to mitigate near-field PM_{10} impacts. Therefore, staff recommends that construction emission impacts be mitigated to the greatest feasible extent.

Applicant's Proposed Mitigation

In the application for the SPPE, KRCD proposes to implement the following measures to reduce emissions during construction activities (Appendix 5.1-4, KRCD 2003a). The construction emissions in **AIR QUALITY Tables 4 and 5** and modeling results in **Table 10** assume the use of these emission control measures.

To control exhaust emissions from heavy diesel construction equipment:

- Limit engine idling time and shut down equipment when not in use (a specific time limit was not provided).
- Perform regular preventative maintenance to reduce engine problems.
- Use CARB ultra-low sulfur content diesel fuel for all heavy construction equipment.
- Use low-emitting diesel engines meeting EPA emission standards for construction equipment, if available.

To control fugitive dust emissions:

- Use water application or chemical dust suppressant on unpaved travel surfaces and unpaved parking areas.
- Use vacuum sweeping and/or water flushing on paved travel surfaces and parking areas.
- Cover the contents of all trucks hauling loose material or maintain a minimum of two feet of freeboard.
- Limit traffic speed on unpaved roads to 25 miles-per-hour (mph).
- Install sandbags or other erosion control measures to prevent silt runoff.
- Re-plant vegetation in disturbed areas as soon as possible.
- Use gravel pads and wheel washers or wash truck tires leaving the construction site as needed.
- Use water or chemical dust suppressant and/or windbreaks to reduce wind erosion from disturbed areas.

Adequacy of Proposed Mitigation

The applicant's proposed mitigation measures were included in the results of the modeling analysis in **AIR QUALITY Table 10**. The emission estimates for construction assume very aggressive control efficiency factors for fugitive dust, and the impact analysis shows that mitigated construction PM_{10} impacts for the project alone would approach the 50 µg/m^3 level of the CAAQS. The impacts would be potentially significant because they would contribute to ongoing violations of the CAAQS and NAAQS. Ongoing compliance monitoring would be necessary to verify that the aggressive control measures are implemented. Staff is proposing additional construction measures to mitigate the potentially significant construction PM_{10} impacts.

Staff Proposed Mitigation

Staff is recommending construction PM_{10} emission mitigation measures that include some of the mitigation measures proposed by the applicant and several additional construction PM_{10} emission mitigation measures and compliance assurance measures specified in Conditions of Exemption **AQ-SC1** through **AQ-SC5**.

Staff recommends **AQ-SC1** to require the applicant to have an on-site air quality construction mitigation manager (AQCMM), who will be responsible for the implementation and compliance of the construction mitigation program. With **AQ-SC2**, staff recommends that an air quality construction mitigation plan (AQCMP) be prepared before any construction activity occurs. Documentation of the ongoing implementation and compliance with the construction mitigation program would be provided in the monthly compliance report (MCR) that is required in staff's recommended Condition of Exemption **AQ-SC3**. Staff also recommends a range of comprehensive fugitive dust and diesel engine mitigation measures in Condition of Exemption **AQ-SC3** that expands on those proposed by the applicant.

Staff recommends Conditions of Exemption **AQ-SC4** to limit visible emissions from construction activities at the construction sites, and force temporary shutdown of activities if visible dust is persistent.

Staff recommends Condition of Exemption **AQ-SC5** to limit the applicant to an 8-hour per day work schedule during the high emission site preparation activities. This would make explicit the schedule assumed in the dust emission calculations (Table CE5, Appendix 5.1-4, KRCD 2003a), and it would prevent around-the-clock work, which could significantly increase the quantity of daily emissions of dust and significantly increase the local impacts.

Staff believes that the construction air quality impacts will be less than significant with the implementation of the mitigation and compliance assurance measures contained in the recommended Conditions of Exemption.

Operation Impacts

The applicant performed direct impact modeling analyses, including steady-state operations, startup, and commissioning scenarios and impacts during fumigation conditions. When the District issues its Authority to Construct, the KRCDPP permit emission levels must be no greater than the emissions presented in this analysis in order for the impact assessment presented herein to remain valid.

Direct Impacts

Operations Modeling Impact Analysis

Screening and refined modeling analyses were performed for all operating scenarios of all project-related stationary sources using the ISCST3 model as described above. This analysis shows the facility impacts during the startup of both turbines to conservatively evaluate short-term impacts under startup conditions. Impacts during short-term averaging periods (e.g., 1-hour or 3-hour) would be less than those shown here if a startup or shutdown is not occurring in the period. The predicted maximum concentrations of the non-reactive pollutants from the routine operation of all stationary sources related to KRCDPP are summarized in **AIR QUALITY Table 11**.

AIR QUALITY Table 11
KRCDPP, Ambient Air Quality Impacts from Routine Operations (µg/m^3)

Pollutant	Averaging Period	Project Impact	Back-ground	Total Impact	Limiting Standard	Type of Standard	Percent of Standard
PM_{10}	24-hour	1.47	**186**	**187**	50	CAAQS	**375**
	Annual	0.26	**52**	**52**	20	CAAQS	**261**
NO_2	1-hour	4.6	167	172	470	CAAQS	37
	Annual	0.01	38	38	100	NAAQS	38
CO	1-hour	1.43	13,685	13,686	23,000	CAAQS	60
	8-hour	0.34	4,778	4,778	10,000	NAAQS	48
SO_2	1-hour	0.12	78.6	79	655	CAAQS	12
	3-hour	0.06	78.6	79	1,300	NAAQS	6
	24-hour	0.01	15.7	16	105	CAAQS	15
	Annual	0.001	7.9	8	80	NAAQS	10

Source: Table 5.1-16a, KRCD 2003a. Results include routine startup and shutdown.

The modeling results indicate that the project's operational impacts would not create violations of NO_2, SO_2, or CO standards, but they could further exacerbate violations of the PM_{10} standards. The location of the highest PM_{10} concentration caused by all sources (1.47 µg/m^3) would be near the southeast fence line. The location of the highest PM_{10} concentration caused by the combustion turbines by themselves would be approximately 3.5 miles (5.6 kilometers) to the southeast, far downwind, because of the buoyancy of the high temperature exhaust from the combustion turbines. At the nearest residence, approximately 1,000 feet east of the sources, the 24-hour PM_{10} project impact from just the combustion turbines would be very small (roughly one 100th of that at the maximum point of impact for the turbines), and the smaller PM_{10} sources (e.g., the chiller cooling towers) would overwhelmingly influence the concentrations near the project site. The highest 24-hour PM_{10} concentration at the Malaga Elementary School would be approximately 0.10 µg/m^3 and the highest concentration at the nearest residence would be approximately 0.11 µg/m^3, or less than one-tenth of the project maximum at the fence line.

In light of the existing PM_{10} nonattainment status for the area, staff considers the impact of the project's PM_{10} and PM_{10} precursor emissions to be significant and therefore the project emissions must be mitigated. The area is a proposed nonattainment area for the $PM_{2.5}$ CAAQS, and it is likely to be designated nonattainment for the $PM_{2.5}$ NAAQS. Similar to the PM_{10} emissions, staff considers the impact of the project's $PM_{2.5}$ emissions to be significant. Because $PM_{2.5}$ emissions are a subset of PM_{10} emissions, appropriate PM_{10} emissions controls and emissions mitigation can be used to mitigate the project's $PM_{2.5}$ impacts. The effectiveness of this depends on the applicant's PM_{10} offset package (discussed below).

Commissioning Modeling Impact Analysis

High-emissions scenarios would be possible during commissioning when NOx and CO emissions would be high because the emissions control systems would not be functioning and/or because the combustor would not be tuned for optimum performance. The applicant modeled the commissioning impacts using ISCST3 assuming both turbines would be operating under high-emissions commissioning scenarios at the same time. On an annual basis, total emissions from commissioning with the remainder of first year operations and the associated impacts would not differ from those that would occur during routine operations. The results of the commissioning emissions modeling analysis are shown in **AIR QUALITY Table 12**.

AIR QUALITY Table 12
KRCDPP, Ambient Air Quality Impacts from Commissioning Activities (µg/m^3)

Pollutant	Averaging Period	Project Impact	Back-ground	Total Impact	Limiting Standard	Type of Standard	Percent of Standard
PM_{10}	24-hour	0.08	**186**	**186**	50	CAAQS	**372**
NO_2	1-hour	7.01	167	174	470	CAAQS	37
CO	1-hour	7.68	13,685	13,693	23,000	CAAQS	60
	8-hour	1.81	4,778	4,780	10,000	NAAQS	48
SO_2	1-hour	0.12	78.6	79	655	CAAQS	12
	3-hour	0.06	78.6	79	1,300	NAAQS	6
	24-hour	0.01	15.7	16	105	CAAQS	15

Source: Table 5.1-16a, KRCD 2003a.

The modeling results indicate that the commissioning emissions would contribute to existing violations of the PM_{10} standards, and would otherwise not have the potential to cause significant ambient air quality impacts. These results are considered to be conservative, as the applicant has stated that each of the two CTGs would be commissioned separately (Table 5.1-13, KRCD 2003a).

Fumigation Modeling Impact Analysis

There is the potential that higher short-term concentrations may occur during fumigation conditions. During the early morning hours before sunrise, the air is usually very stable. During such stable meteorological conditions, emissions from elevated stacks rise through this stable layer and are dispersed. When the sun first rises, the air at ground level is heated, resulting in a vertical (both rising and sinking air) mixing of air for a few hundred feet or so. Emissions from a stack that enter this vertically mixed layer of air will also be vertically mixed, bringing some of those emissions down to the ground level. Later in the day, as the sun continues to heat the ground, this vertical mixing layer becomes higher and higher, and the emissions plume becomes better dispersed. The early morning pollution event, called fumigation, usually lasts approximately 30 to 90 minutes. Because fumigation conditions are short-term, fumigation impacts are only compared to 1-hour standards. The results of the analysis are shown in **AIR QUALITY Table 13**.

AIR QUALITY Table 13
KRCDPP, Ambient Air Quality Impacts during Fumigation Conditions (µg/m^3)

Pollutant	Averaging Period	Project Impact	Back-ground	Total Impact	Limiting Standard	Type of Standard	Percent of Standard
NO_2	1-hour	8.11	167	175	470	CAAQS	37
CO	1-hour	8.88	13,685	13,694	23,000	CAAQS	60
SO_2	1-hour	0.14	78.6	79	655	CAAQS	12

Source: Table 5.1-16b, KRCD 2003a. Results include commissioning and routine startup and shutdown.

Maximum fumigation impacts for the turbines would occur about 11 miles (18 km) from the facility (Table 5.1-15, KRCD 2003a). The results of the analysis indicate that impacts during fumigation would not exceed applicable short-term standards.

Secondary Pollutant Impacts

The project's gaseous emissions of NOx, SO_2, VOC and ammonia can contribute to the formation of the secondary pollutants, ozone and PM_{10}. There are air dispersion models that can be used to quantify ozone impacts, but they are used for regional planning efforts where hundreds or even thousands of sources are input into the modeling to determine ozone impacts. No regulatory agency models are approved for assessing single source ozone impacts. However, because of the known relationship of NOx and VOC emissions to ozone formation, it can be said that the emissions of NOx and VOC from the KRCDPP do have the potential (if left unmitigated) to contribute to higher ozone levels in the region.

Secondary particulate matter formation is the process of conversion from gaseous reactants to particulate products. The process of gas-to-particulate conversion is complex and depends on many factors, including local humidity and the presence of other compounds. Currently, there are no agency (U.S. EPA or CARB) recommended

models or procedures for estimating nitrate or sulfate formation. Nitrogen oxides first react to form nitric acid, which then reacts reversibly with ammonia to form ammonium nitrate. Sulfur oxides first react to form sulfuric acid, which then react irreversibly to form ammonium bisulfate and ammonium sulfate. Because of the known relationship of NOx and SO_2 emissions to secondary PM_{10} and $PM_{2.5}$ formation, these emissions, if left unmitigated, will contribute to higher PM_{10} and $PM_{2.5}$ levels in the region.

The ammonia emissions from the project would come from the SCR system, which controls the NOx emissions, as unreacted ammonia, or "ammonia slip," that remains in the exhaust after passing through the SCR catalyst system. While the ammonia emissions are recognized as a necessary by-product of the NOx control system, staff still encourages the applicant to control their ammonia slip emissions to the lowest possible extent, while maintaining the guaranteed NOx emission limit. CARB has indicated that districts should consider recommending an ammonia limit of 5 ppm for gas turbines (CARB 1999), and for large frame turbines with effective dry low-NOx combustors, staff agrees with the CARB recommendation. The simple cycle turbine system of KRCDPP would have a relatively high NOx concentration (about 25 ppm) before control. The 5 ppm ammonia slip limit would generally be recommended by staff for larger combined cycle projects that have substantially lower uncontrolled NOx concentrations (9 to 15 ppm guaranteed maximums). Since the KRCDPP project would use aero derivative turbines running in simple cycle mode, staff considers a 10 ppm ammonia limit to be acceptable.

The applicant is proposing to mitigate the project's NOx, VOC, and SO_2 emissions through the use of emission offsets. Providing a 1:1 offset ratio would address potential secondary pollutant impacts by resulting in no net increase of precursor emissions.

Operations Mitigation

Applicant's Proposed Mitigation

Emission Controls

As discussed above, the applicant proposes to employ a water injection system, SCR with ammonia injection, oxidation catalyst, and operate exclusively on pipeline quality natural gas to limit emission levels from each turbine. KRCD proposes the following BACT emission limits for each CTG:

- NO_x: 2.5 ppmvd at 15 percent O_2 and 4.3 lb/hr
- CO: 6.0 ppmvd at 15 percent O_2 and 6.6 lb/hr
- VOC: 2.0 ppmvd at 15 percent O_2 and 1.6 lb/hr
- PM_{10}: 3.4 lb/hr
- SO_2: 0.53 lb/hr with fuel sulfur content of 0.41 grains/100 scf
- NH_3: 10 ppmvd at 15 percent O_2 and 6.5 lb/hr

Emissions from the cooling towers are exempt from permitting and BACT requirements, but the cooling tower design is noted to have a controlled drift emission rate of 0.001% of the recirculating water flow (DR6, KRCD 2004f).

The ZLD system spray dryer has a baghouse as part of its integral design for the collection of the separated solids. The system, as proposed would be exempt from BACT requirement, but it is noted to have a fabric filter (99.94% efficiency) for controlling particulate matter (DR7, KRCD 2004f).

Emission Offsets

District Rule 2201 requires that the applicant provide emission offsets, in the form of surrendering banked ERCs, for the project's emissions of NOx. For CEQA compliance, the Energy Commission staff recommends that all nonattainment pollutants and their precursors be mitigated at a minimum 1:1 ratio (i.e. for KRCDPP these pollutants are NOx, PM_{10}, SO_2, and VOC). Staff is not recommending any emission offsets to mitigate the project's CO impacts as they do not have the potential to cause or contribute to nonattainment conditions. **AIR QUALITY Table 14** shows the emission liabilities that need to be mitigated.

AIR QUALITY Table 14
KRCDPP, Annual Emission Liability and Offset Proposal

	NOx	PM_{10}	SOx	VOC
KRCDPP Emissions (tpy)	19.00	10.91	1.65	4.99
Quarter 1, January-March (ton/quarter)	3.43	2.06	0.31	0.94
Quarter 2, April-June (ton/quarter)	3.03	1.71	0.26	0.78
Quarter 3, July-September (ton/quarter)	9.44	5.44	0.82	2.49
Quarter 4, October-December (ton/quarter)	3.08	1.71	0.26	0.78
CEQA Offset Mitigation Proposal (tpy)	**19.00**	**10.91**	**1.65**	**4.99**

Source: Table 5.1-18, KRCD 2003a and KRCD 2004l.

NOx Emission Offsets

KRCD proposes to use an option agreement to eventually provide emission reductions of NOx. The agreement is a Term Sheet, dated February 5, 2004, for the sale of 21.33 tpy of NOx ERCs from Advanced Energy Systems, Inc. to KRCD (KRCD 2004l). A smaller quantity, 19.00 tpy, would be needed to fully offset project emissions. Under the agreement, KRCD would purchase ERCs that are "banked, post-1990, unrestricted, useable and valid for a major source." At this time, the specific NOx ERCs are not known. The option agreement, however, commits the seller to providing suitable ERCs before October 1, 2004. There are about 550 tpy of NOx ERCs available for purchase in the Central Region of the SJVAPCD, and more than 6,700 tpy of NOx ERCs available in the entire SJVAPCD registry (SJVAPCD 2004). This means that there is a large quantity of NOx ERCs available for acquisition. By entering into the option agreement, KRCD demonstrates that they are likely to obtain ERCs from the seller in a timely fashion.

PM_{10} Emission Offsets

- ERC certificates #C-460-4 and C-479-4 (KRCD 2004f).

KRCD has identified these two PM_{10} ERCs that would be surrendered to offset the emissions caused by the project. These reductions occurred in Hanford and Fresno between 1995 and 2001. The original sites of the PM_{10} reductions were operated by Anderson Clayton Corp. (a cotton producing organization). The shut down facilities

included sources of PM_{10} and $PM_{2.5}$, related to cotton ginning and small combustion units. The PM_{10} emission reductions occurred exclusively in the winter season.

Wintertime reductions of PM_{10} and $PM_{2.5}$ are more valuable in the SJVAPCD than reductions during other seasons because particulate matter concentrations in the region are higher during the winter months (see **Setting** above). According to SJVAPCD Rule 2201, Section 4.13.7, winter reductions of PM_{10} may be used to offset increases in other seasons. As such, staff believes that the wintertime reductions would be beneficial, and they are of sufficient quantity to offset KRCDPP emissions during other times of the year. **AIR QUALITY Table 15** shows the PM_{10} offset strategy.

AIR QUALITY Table 15
KRCDPP, PM_{10} Mitigation Proposal

	KRCDPP Emissions (ton)	KRCDPP Emissions (lb)	PM10 ERC C-460-4 (lb)	PM10 ERC C-479-4 (lb)
Location of Mitigation	---	---	Hanford	Fresno
Date of Reduction	---	---	2001	1995
Quarter 1, January-March	2.06	4,120	1,460	0
Quarter 2, April-June	1.71	3,420	0	0
Quarter 3, July-September	5.44	10,880	0	0
Quarter 4, October-December	1.71	3,420	20,204	294
Annual Total	**10.91**	**21,840**	**21,958**	
Mitigation Balance	**---**	**---**	**+118**	

Source: Table 5.1-18, KRCD 2003a; KRCD 2004l; SJVAPCD ERC database.
Notes:
a. A positive mitigation balance indicates that sufficient emission reductions are available to fully mitigate project emissions.
b. SJVAPCD Rule 2201, Section 4.13.7 allows reductions of PM10 in Q1 and Q4 for offsetting increases in Q2 and Q3.

VOC Emission Offsets

- ERC certificates #N-416-1 and N-418-1, previously #N-394-1 and N-396-1 (KRCD 2004k).

KRCD has identified these two VOC ERCs that would be surrendered to offset the emissions caused by the project. These ERCs were acquired by KRCD in February 2004. They correspond with reductions that occurred in Lodi between 1992 and 1994 at Pacific Coast Producers (due to changes in can sealing operations). The VOC emission reductions occurred mainly in the summer season. SJVAPCD Rule 2201, 4.13.8 allows summer reductions of VOC to be used to offset increases in other seasons. **AIR QUALITY Table 16** shows the VOC offset strategy.

AIR QUALITY Table 16
KRCDPP, VOC Mitigation Proposal

	KRCDPP Emissions (ton)	KRCDPP Emissions (lb)	VOC ERC N-416-1 (lb)	VOC ERC N-418-1 (lb)
Location of Mitigation	---	---	Lodi	Lodi
Date of Reduction	---	---	1992	1994
Quarter 1, January-March	0.94	1,880	1,196	684
Quarter 2, April-June	0.78	1,560	0	3,120
Quarter 3, July-September	2.49	4,980	0	4,980
Quarter 4, October-December	0.78	1,560	0	0
Annual Total	**4.99**	**9,980**	**9,980**	
Mitigation Balance	**---**	**---**	**+0**	

Source: Table 5.1-18, KRCD 2003a; KRCD 2004l; SJVAPCD ERC database.
Notes:
a. A positive mitigation balance indicates that sufficient emission reductions are available to fully mitigate project emissions.
b. SJVAPCD Rule 2201, Section 4.13.8 allows reductions of VOC in Q2 and Q3 for offsetting increases in Q1 and Q4.

SOx Emission Offsets

KRCD proposes to use the aforementioned option agreement to eventually provide emission reductions of SOx. The Term Sheet agreement shows that ERCs would be obtained through the sale of 1.65 tpy of SOx ERCs from Advanced Energy Systems, Inc. to KRCD (KRCD 2004l). There are about 80 tpy of SOx ERCs available for purchase in the Central Region of the SJVAPCD, and more than 4,000 tpy of SOx ERCs available in the entire SJVAPCD registry (SJVAPCD 2004). This means that there is a large quantity of SOx ERCs available for acquisition. By entering into the option agreement, KRCD demonstrates that they are likely to obtain ERCs from the seller in a timely fashion.

Staff Proposed Mitigation

KRCD has provided an offset proposal that indicates they have obtained, or are likely to obtain, emission reduction credits sufficient to fully offset project-related emission increases of NOx, PM_{10}, SOx, and VOC. The SJVAPCD has not completed its review of the project, which includes a portion of the NOx offsets needed for fulfilling staff's mitigation goals. Staff recommends including Condition of Exemption **AQ-SC8** to ensure that the applicant complies with their promised offset proposal. Staff's recommended **AQ-SC8** would require the applicant to acquire and surrender the ERCs that staff has analyzed. This would provide full mitigation beyond the District's offset requirements on a timeframe similar to the District's requirements, and it would reduce project impacts from operation to a less than significant level.

C. Result in Cumulatively Considerable Increase in Criteria Pollutant in Non-Attainment Status: Less than Significant with Mitigation Incorporated

Staff requested that the applicant perform a cumulative modeling analysis to determine whether a cumulatively considerable net increase in emissions would occur (CEC 2003b). The analysis identifies whether the project, along with other identified air pollution sources known to be under development in the project area, would create a cumulative air quality impact (DR9 and DR10, KRCD 2004k).

Cumulative Impacts Modeling Analysis

To evaluate the cumulative impacts of the KRCDPP, the applicant and the District reviewed recent permitting records to determine whether other reasonably foreseeable sources may cumulatively impact the project area. The preliminary investigation revealed that more than forty recently-approved sources or modifications to sources in the nearby area would have the potential to cause more than five tons per year of criteria pollutants, a threshold discussed by Energy Commission staff and the District at the January 26, 2004 workshop (KRCD 2004h). Although many of these sources were in surrounding zip codes, only five facilities were found to be within six miles of the KRCDPP, making them inside the modeling domain. Of these, new sources at the Fresno Community Hospital and the Fresno/Clovis Waste Water Treatment Plant were recently approved for net emission increases. The modifications that were recently approved at the other remaining three facilities were accompanied by on-site emission reductions or pollution controls resulting in no increases. The cumulative analysis includes increases at the Fresno Community Hospital and the Fresno/Clovis Waste Water Treatment Plant along with the proposed KRCDPP (KRCD 2004k). Sources in the area that were operational before 2003 would be included in the background conditions.

The maximum concentrations modeled for each pollutant and averaging period from cumulative sources are shown in **AIR QUALITY Table 17**.

AIR QUALITY Table 17
KRCDPP, Ambient Air Quality Impacts from Cumulative Sources (µg/m^3)

Pollutant	Averaging Period	Project Impact	Back-ground	Total Impact	Limiting Standard	Type of Standard	Percent of Standard
PM_{10}	24-hour	2.1	**186**	**188**	50	CAAQS	**376**
	Annual	0.3	**52**	**52**	20	CAAQS	**262**
NO_2	1-hour	120.0	167	287	470	CAAQS	61
	Annual	3.0	38	41	100	NAAQS	41
CO	1-hour	531.2	13,685	14216	23,000	CAAQS	62
	8-hour	135.6	4,778	4913	10,000	NAAQS	49
SO_2	1-hour	40.1	78.6	119	655	CAAQS	18
	3-hour	22.9	78.6	102	1,300	NAAQS	8
	24-hour	5.1	15.7	21	105	CAAQS	20
	Annual	1.0	7.9	9	80	NAAQS	11

Source: DR10, KRCD 2004k.

The maximum combined impacts of the KRCDPP project and other foreseeable projects would not have the potential to cause new violations of the state or federal CO, SO_2, or NO_2 standards. However, because the federal and state PM_{10} and $PM_{2.5}$ standards are already exceeded in the area, any increase in ambient PM_{10} levels could contribute to existing violations. The maximum cumulative impacts would be similar to the impacts caused by KRCDPP individually. Potentially significant cumulative impacts would be fully mitigated because the impacts caused by the KRCDPP individually would be mitigated through Condition of Exemption **AQ-SC8**.

D. Expose Sensitive Receptors to Substantial Pollutant Concentrations: Less than Significant with Mitigation Incorporated

The project is located in an industrial area south of the City of Fresno, near the Community of Malaga. Within Malaga, there is an elementary school approximately 0.62 miles south and east of the KRCDPP project site. Additionally, there are residences and a church located along North Avenue and Chestnut Avenue surrounding the project site. The nearest sensitive receptor (residence) is approximately 1,000 feet east of the center of the KRCDPP (p. 5.1-3, KRCD 2003a).

Staff has reviewed Census 2000 information that shows the minority population is greater than fifty percent within a six-mile radius of the proposed KRCDPP (please refer to **Socioeconomics Figure 1**), and Census 2000 information that shows the low-income population is less than fifty percent within the same radius. Staff's air quality analysis has not identified any unmitigated significant direct or cumulative impacts resulting from the construction or operation of the project, and therefore there are no environmental justice issues related to air quality.

Mitigation identified in the analyses above and in the Conditions of Exemption below would reduce the potentially significant impacts for all receptors, including sensitive receptors, to a level of insignificance. As such, this analysis shows that there will be no significant direct or cumulative impact to sensitive receptors or an environmental justice population.

E. Create Objectionable Odors: Less than Significant Impact

Construction activities do not generally create strong or objectionable odors. There may be minor odors associated with the use or refueling of the diesel and gasoline powered equipment, or from painting or other surface treatments (i.e. roofing or roadway repaving). No significant impacts are expected from these temporary minor odor sources.

No odor impact is anticipated from the operation of the main power facilities, as no significant emissions of odorous compounds would result from the gas turbines, cooling towers, or ZLD system exhausts under normal operations. The power plant would fire exclusively natural gas, which causes no detectable odor. The odor threshold for ammonia is approximately 5 to 10 ppm, and the stack emissions of ammonia for the gas turbine exhaust would be limited to not exceed 10 ppm. There is the potential for instantaneous higher short-term ammonia emission concentrations, particularly during startup, shutdown, or load swings. However, dispersion of exhausted ammonia would dilute the concentrations so that at ground level they would be well below the odor threshold. Odors resulting from accidents could occur; please see the **HAZARDOUS MATERIAL MANAGEMENT** section for further discussion of the consequence analysis of ammonia storage and handling accidents.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

No written public or agency comments received to date.

CONCLUSIONS

The applicant has not yet acquired all of the emission reductions shown in its proposal, but it has established an agreement to acquire sufficient quantities of emission reductions (ERCs) that would fully mitigate the proposed project. The SJVAPCD has not yet completed its review of the proposed project, but one of the SJVAPCD requirements dictates surrender of approximately 9 tpy of NOx ERCs. Under the option agreement, staff believes that KRCD would be likely to acquire the ERCs needed for SJVAPCD approval, when needed. To fully mitigate emissions from project operations, and to fulfill the applicant's original proposal, staff recommends that KRCD surrender additional ERCs beyond those required by the SJVAPCD (see Condition of Exemption **AQ-SC8**). Staff also recommends conditions that would fully mitigate construction phase emissions (see Conditions of Exemption **AQ-SC1** through **AQ-SC5**).

Staff recommends the following Conditions of Exemption to address the foreseeable impacts associated with the construction and operation of the KRCDPP.

CONDITIONS OF EXEMPTION

STAFF CONSTRUCTION AND PRE-CONSTRUCTION CONDITIONS

AQ-SC1 The project owner shall designate and retain an on-site Air Quality Construction Mitigation Manager (AQCMM) who shall be responsible for directing and documenting compliance with **AQ-SC2** through **AQ-SC5** below for the entire project site and linear facility construction. The on-site AQCMM may delegate responsibilities to one or more air quality construction mitigation monitors. The AQCMM 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 AQCMM may have other responsibilities in addition to those described in this condition. The AQCMM shall not be terminated by the project owner until a successor AQCMM has been designated such that there is no interruption in monitoring.

Verification: At least 60 days prior to the start of ground disturbance, the project owner shall submit to the CPM for approval, the name, resume, qualifications, and contact information for the on-site AQCMM and any air quality construction mitigation monitors. The AQCMM and all delegated monitors must be approved by the CPM before the start of ground disturbance.

AQ-SC2 The project owner shall provide an Air Quality Construction Mitigation Plan (AQCMP), for approval, which details the steps that will be taken and the reporting requirements necessary to ensure compliance with **AQ-SC3** through **AQ-SC5** below.

Where measures identical to or similar to those provided in **AQ-SC3** through **AQ-SC5** below are required in District Rules 8021 through 8081, the most stringent requirement shall apply and be identified in the AQCMP; except when the requirements listed below would conflict with the implementation and compliance

with a District rule requirement. Any conflict between mitigation measures below and District Rules 8021 through 8081 will be identified in the AQCMP.

Verification: At least 60 days prior to the start of any ground disturbance, the project owner shall submit the AQCMP to the CPM for approval. The CPM will notify the project owner of any necessary modifications to the plan within 30 days from the date of receipt.

AQ-SC3 The AQCMM shall submit to the CPM, in the Monthly Compliance Report (MCR), a construction mitigation report that demonstrates compliance with the following mitigation measures for the purposes of preventing all fugitive dust from leaving the project site:

1. All unpaved roads and disturbed areas in the project and linear construction sites shall be watered as frequently as necessary to comply with the dust mitigation objectives of **AQ-SC4** (the prevention of fugitive dust plumes). The frequency of watering can be reduced or eliminated during periods of precipitation.

2. No vehicle shall exceed 10 miles per hour within the construction site.

3. The construction site entrances shall be posted with visible speed limit signs.

4. All construction equipment vehicle tires shall be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways.

5. Gravel ramps of at least 20 feet in length must be provided at the tire washing/cleaning station.

6. All unpaved exits from the construction site shall be graveled or treated to prevent track-out to public roadways.

7. All construction vehicles shall enter the construction site through the treated entrance roadways, unless an alternative route has been submitted to and approved by the CPM.

8. Construction areas adjacent to any paved roadway shall be provided with sandbags or other measures as specified in the Storm Water Pollution Prevention Plan to prevent run-off to roadways.

9. All paved roads within the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs to prevent the accumulation of dirt and debris.

10. At least the first 500 feet of any public roadway exiting from the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff from the construction site is visible on the public roadways.

11. All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered, or shall be treated with appropriate dust suppressant compounds.

12. All vehicles that are used to transport solid bulk material on public roadways 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.

13. Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) shall be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation.

14. Diesel-Fueled Engines

    a. 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.

    b. All diesel-fueled engines used in the construction of the facility shall have clearly visible tags issued by the on-site AQCMM showing that the engine meets the conditions set forth herein.

    c. All construction diesel engines, which have a rating of 100 hp or more, shall meet, at a minimum, the Tier 1 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless certified by the on-site AQCMM that such engine is not available for a particular item of equipment. In the event a Tier 1 engine is not available for any off-road engine larger than 100 hp, that engine shall be equipped with a catalyzed diesel particulate filter (soot filter), unless certified by engine manufacturers or the on-site AQCMM that the use of such devices is not practical for specific engine types. For purposes of this condition, the use of such devices is “not practical” if, among other reasons:

    d. There is no available soot filter that has been certified by either the California Air Resources Board or U.S. Environmental Protection Agency for the engine in question; or

    e. The construction equipment is intended to be on-site for ten (10) days or less.

15. The CPM may grant relief from this requirement if the AQCMM can demonstrate that they have made a good faith effort to comply with this requirement and that compliance is not possible.

16. The use of a soot filter 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 soot filter 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 backpressure.

    b. The soot filter is causing or is reasonably expected to cause significant engine damage.

    c. The soot filter is causing or is reasonably expected to cause a significant risk to workers or the public.

    d. Any other seriously detrimental cause which has the approval of the CPM prior to the termination being implemented.

    e. All heavy earthmoving equipment and heavy duty construction related trucks shall be properly maintained and the engines tuned to the engine manufacturer's specifications.

    f. No heavy construction equipment shall remain running at idle for more than five minutes, to the extent practical.

Verification: The project owner shall include in the MCR (1) a summary of all actions taken to maintain compliance with this condition, (2) copies of all diesel fuel purchase records, (3) copies of any complaints filed with the air district in relation to project construction, (4) a list of all heavy equipment used on site during that month, including the owner of that equipment and a letter from each owner indicating that equipment has been properly maintained, and (5) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition.

AQ-SC4 The AQCMM shall continuously monitor the construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be transported (1) off the project site or (2) 200 feet beyond the centerline of the construction of linear facilities or (3) within 100 feet upwind of any regularly occupied structures not owned by the project owner indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMM shall implement the following procedures for additional mitigation measures in the event that visible dust plumes are observed:

Step 1: The AQCMM shall direct more aggressive application of the existing mitigation methods within 15 minutes of making such a determination.

Step 2: The AQCMM shall direct implementation of additional methods of dust suppression if step 1 specified above, fails to result in adequate mitigation within 30 minutes of the original determination.

Step 3: The AQCMM shall direct a temporary shutdown of the activity causing the emissions if step 2 specified above fails to result in adequate

mitigation within one hour of the original determination. The activity shall not restart until the AQCMM is satisfied that appropriate additional mitigation or other site conditions have changed so that the visible dust plumes will not result upon restarting the shutdown source. The owner/operator may appeal to the CPM any directive from the AQCMM to shut down an activity, provided that the shutdown shall go into effect within one hour of the original determination, unless overruled by the CPM before that time.

Verification: The AQCMM shall include a section in the AQCMP detailing how the additional mitigation measures will be accomplished within the time limits specified.

AQ-SC5 During site mobilization, ground disturbance, and grading activities, the project owner shall limit the fugitive dust causing activities (i.e. scraping, grading, trenching, or other earth moving activities) to a eight hour per day schedule. Short excursions to this eight hour per day limit may be allowed, with CPM approval, if the site conditions and construction activities are such that this will not cause significant construction dust impacts.

Verification: The project owner shall provide records of compliance as part of a monthly report.

GENERAL CONDITIONS

AQ-SC6 The project owner shall provide the CPM copies of all Authority-to-Construct (ATC) and Permit-to-Operate (PTO) air quality permits received from the District.

Verification: The project owner shall submit copies of the ATCs and PTOs to the Energy Commission CPM upon receipt of those permits from the SJVAPCD.

AQ-SC7 The project owner shall submit to the CPM for review and approval any modification proposed by the project owner to any project air permit. The project owner shall submit to the CPM any modification to any permit proposed by the District or U.S. EPA, and any revised permit issued by the District or U.S. 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-SC8 The project shall surrender the emission offset credits listed below or a modified list, as allowed by this condition, at the time that surrender of offsets is required by the District. The project owner may request CPM approval for any substitutions of or modifications to ERC sources listed below. The CPM, in consultation with the District, may approve any such change to the ERC list provided that the project remains in compliance with all applicable laws, ordinances, regulations, and standards, the requested change(s) clearly will not cause the project to result in a significant adverse environmental impact, and each requested change is consistent with applicable federal and state laws and regulations.

- NOx: 38,000 lbs. Certificates provided in accordance with the Term Sheet agreement executed between the project owner and Advanced Energy Systems, dated February 5, 2004.
- PM10: 21,820 lbs. Certificates #C-460-4 and #C-479-4.
- SOx: 3,300 lbs. Certificates provided in accordance with the Term Sheet agreement executed between the project owner and Advanced Energy Systems, dated February 5, 2004.
- VOC: 9,980 lbs. Certificates #N-416-1 and #N-418-1.

Verification: The project owner shall submit to the CPM a list of ERCs to be surrendered to the District at least 60 days prior to initial startup. If the CPM, in consultation with the District, approves a substitution or modification, the CPM shall file a statement of the approval with the commission docket and mail a copy of the statement to every person on the post-certification mailing list. The CPM shall maintain an updated list of approved ERCs for the project.

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BIOLOGICAL RESOURCES

Testimony of Melinda Dorin

INTRODUCTION

This section of the Initial Study analyzes the potential impacts to biological resources from the construction and operation of the proposed Kings River Conservation District Peaking Plant (KRCDPP) in Malaga, Fresno County, California. The primary focus is on potential impacts to state and federally listed species, species of special concern, riparian areas, wetlands, and other areas of critical biological concern. This document presents information regarding the affected biotic community, the potential environmental impacts associated with the construction and operation of the proposed project, and where necessary, specifies mitigation planning and compensation measures to reduce potential impacts to less than significant levels.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Staff has identified the following LORS as useful significance criteria for evaluating whether the project as proposed will have a substantial adverse impact on biological resources.

FEDERAL

Endangered Species Act

Title 16, United States Code, section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq., designate and provide for protection of threatened and endangered plant and animal species, and their critical habitat.

Migratory Bird Treaty Act

Title 16, United States Code, sections 703-712, prohibit the take of migratory birds, including their eggs.

Clean Water Act of 1977

Title 33, United States Code, section 404 et seq., prohibit the discharge of dredged or fill material into the waters of the United States without a permit.

Bald and Golden Eagle Protection Act

Title 16, United States Code, section 668, protects bald and golden eagles from possession, selling, purchase, barter, offers to sell, purchase or barter, transport, export or import, at any time or in any manner, alive or dead, or any part, nest, or egg thereof of the foregoing eagles.

STATE

California Endangered Species Act

Fish and Game Code, sections 2050 through 2098, protect California's rare, threatened, and endangered species. California Code of Regulations, Title 14, sections 670.2 and 670.5, list California species designated as rare, threatened or endangered.

Migratory Bird Protection

Fish and Game Code section 3513 protects California's migratory birds by making it unlawful to take or possess any migratory non-game bird as designated in the Migratory Bird Treaty Act or any part of such migratory non-game bird.

Fully Protected Species

Fish and Game Code sections 3511, 4700, 5050, 5515 prohibit take of animals, or their habitat, that are classified as "Fully Protected" in California.

Significant Natural Areas

Fish and Game Code section 1930 et seq. designate certain areas such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitat.

Native Plant Protection Act of 1977

Fish and Game Code section 1900 et seq. designate state rare, threatened, and endangered plants.

Streambed Alteration Agreement:

Fish and Game Code section 1600, evaluates project impacts to waterways, including impacts to vegetation and wildlife from sediment, diversions, and other disturbances.

Nest or Eggs

Fish and Game Code section 3503 protects California's birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird.

Birds of Prey or Eggs

Fish and Game Code section 3503.5 protects California's birds of prey and their eggs by making it unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird.

LOCAL

Fresno County General Plan

Policies in the Fresno County Plan seek to protect natural areas and to preserve the diversity of habitat in the county. Open space and conservation elements of the plans contain policies that pertain to the preservation and protection of biological resources. Policies include county support for preserving wetland, riparian areas and vernal pools

and acquiring open space that is important fish and wildlife habitat. The County also supports measures to maintain and enhance special status species habitat (Fresno County Plan, Open Space and Conservation Element pp. 5-1 to 5-21).

SETTING

The proposed KRCDPP would be located in the Southern San Joaquin Valley, south of the City of Fresno in the community of Malaga. The area is characterized by a Mediterranean climate, long hot summers and mild winters. The San Joaquin Valley is located in the southern portion of the Central Valley and is drained by the San Joaquin River. Historically the San Joaquin Valley consisted of mainly riparian forests, fresh water marsh, native grasslands, and saltbush scrub habitats (Schoenherr p. 518). Conversion of much of those habitats to grazed land, agricultural crops, industry and urban areas has fragmented much of the historical habitat and eliminated the native species from much of their historical ranges. Natural communities have also been altered by the introduction of nonnative plants which now dominate many remaining areas (USFWS 1998). A list of the sensitive species that are known to occur within the vicinity of the proposed KRCDPP is contained in **Biological Resources Table 1**. The closest known location of any of the listed sensitive species is approximately 1.5 miles from the site (KRCD 2003a, Figure 5.15-1). Surveys of the site and along the linear facilities did not identify any sensitive species or habitats present in the project location (KRCD 2003a, Section 5.15.4.3 page 11).

POWER PLANT FACILITY AND LAYDOWN AREA

The 19 acre site consists of the 9.5 acre peaker plant site and a 9.5 acre temporary laydown area on a previously disturbed parcel in a mixed industrial complex. The vegetation present on the parcel is mainly nonnative species that have colonized the area between regular disking (KRCD 2003a, section 5.15 p.2). There are many small mammal burrows on site that could be used by burrowing owls although no burrowing owls were observed during reconnaissance level site surveys. There are some large trees that border the site and an abandoned vineyard south of the site and across the railroad tracks.

There is also a large borrow pit on the property about 4 acres in size that KRCD proposes to use as the storm water detention basin during construction and operation (KRCD 2003a, section 5.15 page 2). There are several Fremont cottonwood (*Populus fremontii*) narrow leaved willow (*Salix exigua*), Gooddings black willow (*Salix gooddingii*) and coyote brush (*Baccharius pilularis*) that have colonized the bottom of the borrow pit. Coyote dens were also observed in the sides of the burrow pit in several locations and appear to be active (Dorin 2003, site visit). The bottom of the borrow pit consists of sandy soils, and storm water is expected to percolate after rain events, without much standing water (see the **Water Resources** section for more information).

KRCD will have to stabilize and grade the sides of the detention basin to a 3:1 slope as project facilities will abut the detention basin on three sides. On the west side are the access road and the water and gas pipelines, on the south side is the switch station and along the east side will run the transmission lines. Fill material will be placed on the west side during construction of the access road. Several of the trees that are close to

the sides of the detention basin will be removed during regrading. The coyote dens will also be removed and the coyotes will be displaced. Although coyotes are not a protected species, KRCD has agreed to actively haze the animals to ensure removal prior to destruction of the dens (Workshop 2004).

BIOLOGICAL RESOURCES Table 1
Sensitive Species Known to Occur in the Project Vicinity

Common Name PLANTS	Scientific Name	STATUS*
PLANTS		
Succulent owl's clover	*Castilleja campestris ssp succulenta*	FT/SE/List 1B
Spiny-sepaled button celery	*Eryngium spinosepalum*	FSC/SE/List 1B
San Joaquin valley orcutt grass	*Orcuttia inaequalis*	FT/SE/List 1B
San Joaquin adobe sunburst	*Pseudobahia peirsonii*	FT/SE/List 1B
Sanford's arrowhead	*Sagittaria sanfordii*	--/--/List 1B
Greene's tuctoria	*Tuctoria greenei*	FE/SR/List 1B
INVERTEBRATES		
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT/--
California Linderiella	*Linderiella occidentalis*	FSC/--
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT/--
Molestan blister beetle	*Lytta molesta*	FSC/--
AMPHIBIANS		
California tiger salamander (Central California DPS)	*Ambystoma californiense*	FPT/CSC
Western spadefoot toad	*Scaphiopus hammondii*	FSC/CSC
BIRDS		
Bald Eagle	*Haliaeetus leucocephalus*	FPD/SE,FP
Swainson's hawk	*Buteo swainsoni*	FSC/ST
Peregrine falcon	*Falco peregrinus*	FD/SE, FP
Western burrowing owl	*Athene cunicularia*	
Western yellow billed cuckoo	*Coccyzus americanus occidentalis*	FC/SE
Tricolored blackbird	*Agelaius tricolor*	FSC/CSC
MAMMALS		
Fresno kangaroo rat	*Dipodomys nitratoides exilis*	FE/SE
San Joaquin pocket mouse	*Perognathus inornatus inornatus*	FSC/--
San Joaquin kit fox	*Vulpes macrotis mutica*	FE/ST
HABITATS		
Northern hardpan vernal pool		
Northern claypan vernal pool		

* Status Legend (Federal/State/CNPS lists, CNPS list is for plants only):
FE = Federally-listed Endangered; FT = Federally-listed Threatened; FSC = Federal Species of Concern; FC = Candidate Species for Listing; FPD = Federal Proposed Delisting; FD = Federally Delisted; SE = State-listed Endangered; ST = State-listed Threatened; SR = State-listed Rare; SCE = State candidate (Endangered); SCT = State candidate (Threatened); CSC = California Species of Special Concern; FP = State Fully Protected; List 1B = CNPS rare or endangered in California and elsewhere; -- = not listed in that category; DPS = Distinct Population Segment.

Source: California Natural Diversity Database (CNDDB 2004)

LINEAR FACILITIES

Natural Gas Pipeline

The natural gas pipeline would travel north approximately 700 feet from the site to tie into an existing PG&E gas transmission line that parallels North Avenue. No special status species or habitats were observed during surveys of the gas pipeline (KRCD 2003a, Section 5.15 pp. 12-13).

Water Pipeline

Water would be supplied from the Malaga County Water District. The proposed route is approximately 2,000 feet long and would run north from the project site and along the south side of North Avenue to the intersection of North and Chestnut Avenues. No sensitive habitats or species were observed during surveys of the water pipeline routes (KRCD 2003a, Section 5.15 p. 12). Areas disturbed during construction would be returned to their original condition after construction (KRCD 2003a, Section 5.6 p. 17).

Electric Transmission line

The electric transmission line route runs north from the project site to the PG&E Malaga substation on the northeast corner of North and Willow Avenues. The 115kv transmission line will be approximately three-quarters of a mile long, and would run along the eastern border of the construction laydown area to North Avenue and then continue along the south side of North Avenue to the Malaga substation. The existing poles would be upgraded to carry the new 115kv line above an existing 12kv line. The alignment occurs along the road shoulder and no sensitive habitats or species were observed during surveys (KRCD 2003a, Section 5.15 p. 12).

IMPACTS

The following Environmental Checklist identifies potential impacts to biological resources. Following the table is a discussion of the potential impacts and a discussion of proposed mitigation measures, if necessary.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
BIOLOGICAL RESOURCES -- Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?				X
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Staff's Environmental Checklist responses are discussed below:

A. Effect on Sensitive Species: Less than Significant with Mitigation Incorporated

The species and habitats listed in **Biological Resources Table 1** are all found within the vicinity of the KRCD project site, although none were observed on the project site during surveys (KRCD 2003a, Section 5.15). The project site does not provide suitable habitat for the mammal species or special habitats listed in the table. All of the plant species in the table are associated with vernal pool, wetland or valley and foothill grassland habitats. The project site does not support these habitats as it is an actively disked field in an industrial area. All of the special status invertebrate species listed in **Biological Resources Table 1** are also absent on the site due to the lack of suitable habitat. Since there are no elderberry bushes (*Sambucus* spp.) on site and valley elderberry longhorn beetles are completely dependent on their host plant it is unlikely that these are present. The molestan

blister beetle, known from vernal pools and grassland habitats, and the other vernal pool crustaceans do not have suitable habitat on site either.

The lack of vernal pools or other ponding water makes the site unsuitable as amphibian breeding habitat. From the location of the site in an industrial area, and because there is a high level of disturbance the parcel would not be considered amphibian aestivating habitat either.

Bird species listed in **Biological Resources Table 1** could be present near or on the site using the trees that border the site for nesting and foraging in the open areas. Red-tailed hawks (*Buteo jamaicensis*) were seen soaring to the west of the site on the site visit (Dorin pers. obs. 2003). Since the borrow pit will be re-graded, any birds actively nesting in the willow trees slated for removal will be impacted. To prevent adverse impacts to nesting birds using trees that will be removed, a preconstruction survey will be completed. Removal of the trees prior to nesting season, or after chicks have fledged will reduce adverse impacts to nesting birds to less than significant levels.

Adverse impacts to raptors can occur from collisions and electrocution with transmission lines. KRCD has submitted information on the transmission line design (KRCD 2004f data request response 11). PG&E will be constructing, operating and maintaining the transmission lines. They will be constructed to meet PG&E's raptor safe construction and Wildlife Protection guidelines. These guidelines also meet the Avian Powerline Interaction Committee Guidelines (1997). Construction of the transmission lines to meet these guidelines would mitigate potential impacts to raptors from electrocution and collision to less than significant levels.

Burrowing owls are known to nest in disturbed areas and use small mammal burrows that they enlarge. Although burrowing owls are not known to use the site either as nesting or wintering habitat, they could occupy the site at any time. If owls are present on the site construction activities would result in a significant impact to the owl. KRCD proposes to complete a preconstruction survey of the site, in order to confirm that owls are absent (KRCD 2003a, Section 5.15 page 14). If owls are present on the site, KRCD would implement the California Department of Fish and Game's (1994) guidelines (KRCD 2004f, data request response 12) (**Biological Condition of Certification BIO-1**). It is unlikely that burrowing owls would occupy the site as the area will be disked again in the spring. Staff believes that potential impacts to burrowing owls, if found, would be reduced to less than significant with the above mitigation.

B. Effect on Riparian Habitat or other Sensitive Community: No Impact

The KRCD project would not affect any riparian areas or sensitive communities. No vernal pools or other sensitive habitats were observed on site during surveys, or are known from CNDDB records (CNDDB 2004).

C. Effect on Wetlands: No Impact

There are no wetlands on the project site that would be impacted from construction of the KRCDPP. The only area that contains water is the borrow pit in the middle of

the parcel that will be used as a sediment and detention basin during project construction. The soils in the borrow pit are sandy and evidence of other wetland vegetation besides the willow trees was not present (Dorin site visit 2003).

KRCD construction of the preferred water pipeline route would cross under the Central Canal. The Central Canal contains water for delivery to users in the area, but is not protected as defined by Section 404 of the Clean Water Act (Hirkala, pers. com).

D. Interference with Wildlife Movement: No Impact

The KRCD project site does not serve as a wildlife corridor or a wildlife nursery site. There would be no impact from the construction and operation of the KRCDPP.

E. Conflict with Local Policies: No Impact

Staff concludes that the proposed project would not conflict with any local biological resources policies or ordinances.

F. Conflict with Adopted Habitat Plans: No Impact

Staff concludes that the proposed project would not conflict with any adopted Habitat Conservation Plans of Natural Communities Conservation Plans.

CUMULATIVE IMPACTS

Cumulative impacts result from the incremental impacts of an action added to other past, present, and reasonably foreseeable future action, regardless of who is responsible for such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The KRCDPP is being constructed in an industrial area on a disturbed lot. Projects that are constructed in already disturbed areas reduce the impacts of urbanization and industrialization of open space on biological resources. The largest impact to most sensitive species in California is habitat loss. Based on the location of the project, this project will not contribute to cumulative impacts from habitat loss.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

None received.

CONCLUSION

Construction and operation of the KRCDPP, as proposed, would result in less than significant impacts to biological resources.

STAFF'S PROPOSED CONDITION OF EXEMPTION

Biological Surveys

BIO-1 The project owner shall provide a copy of the results from the following preconstruction activities to CDFG and the CPM.

1. A preconstruction survey for burrowing owls shall be completed at least 14 days prior to site mobilization. If burrowing owls are present on the site or along the linear facilities then the CDFG guidelines (1995) shall be implemented.

2. If coyotes are found denning on the site, hazing of the dens shall be implemented to ensure evacuation prior to disturbance by construction.

3. Prior to removal of vegetation in the borrow pit a survey for nesting birds shall be completed. If active nests are observed in vegetation that needs to be removed, avoidance or protective measures will be implemented.

Verification: The written results of the above activities shall be submitted to the CPM within 14 days of the start of site mobilization. Information including when surveys were completed, what was observed, and any additional follow up measures shall be reported. If burrowing owls are found on the project site then a report on the mitigation measures implemented and the results of the relocation shall be provided to the CPM within 14 days of completion. If nesting burrowing owls are present, evidence of habitat compensation that meets the CDFG guidelines shall be provided.

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CULTURAL RESOURCES

Testimony of Dorothy Torres

INTRODUCTION

The cultural resources section identifies potential impacts of the proposed Kings River Conservation District Peaking Plant (KRCDPP) to cultural resources. Staff considers the realm of potential "cultural resources" to include anything created or affected by human beings. The term "cultural resources", as defined in law, includes buildings, sites, structures, objects, and historic districts. If it appears that a project can not avoid a potential cultural resource, the cultural resources must be evaluated for eligibility to the California Register of Historic Resources (CRHR). The primary purpose of the cultural resources analysis is to ensure that all potential impacts are identified, and that conditions of exemption are set forth that ensure impacts to eligible cultural resources are mitigated below a level of significance under the California Environmental Quality Act (CEQA).

Energy Commission staff designated all of the CEQA checklist items for cultural resources as "less than significant with mitigation incorporation." A brief cultural overview of the project is provided, as are comments regarding selected CEQA checklist items with respect to cultural resources. The section concludes with staff's proposed conditions of exemption respect to cultural resources that will be agreed to by the applicant.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

The following laws, ordinances, regulations, standards, and policies (LORS) have been identified by staff as relevant to assessing the significance of the impacts from the proposed project.

STATE

- California Code of Regulations, Title 14, section 4852 defines the term "cultural resource" to include buildings, sites, structures, objects, and historic districts.
- Public Resources Code, Section 5024.1 establishes a California Register of Historic Places; determines significance of and defines eligible resources.
- Public Resources Code section 5097.5 identifies any unauthorized removal or destruction of historic resources on sites located on public land as a misdemeanor. Public Resources Code section 5097.99 also prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn and establishes the penalty for possession of such artifacts with intent to sell or vandalize them as a felony. Public Resources Code Section 5097.98 defines procedures for the notification of discovery of Native American artifacts or remains. Public Resources Code section 5097.991 states that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated.
- Public Resources Code section 21083.2 states that the lead agency determines whether a project may have a significant effect on "unique" archaeological

resources; if so, an EIR shall address these resources. If a potential for damage to unique archaeological resources can be demonstrated, the lead agency may require reasonable steps to preserve the resource in place. Otherwise, mitigation measures shall be required as prescribed in this section. The section discusses excavation as mitigation; limits the Applicant's cost of mitigation; sets time frames for excavation; defines "unique and non-unique archaeological resources;" and provides for mitigation of unexpected resources.

- Public Resources Code section 21084.1 indicates that a project may have a significant effect on the environment if it causes a substantial adverse change in the significance of a historic resource; the section further defines a "historic resource" and describes what constitutes a "significant" historic resource.
- CEQA Guidelines, Title 14, California Code of Regulations, section 15126.4(b), prescribes the manner of maintenance, repair, stabilization, restoration, conservation, or reconstruction as mitigation of a project's impact on a historical resource; discusses documentation as a mitigation measure; and discusses mitigation through avoidance of damaging effects on any historical resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation in place is not feasible. Data recovery must be conducted in accordance with an adopted data recovery plan.
- CEQA Guidelines, section 15064.5 defines the term "historical resources," explains when a project may have a significant effect on historic resources, describes CEQA's applicability to archaeological sites, and specifies the relationship between "historical resources" and "unique archaeological resources." Subsection (f) requires that the lead agency make provisions for historical or unique archaeological resources accidentally discovered during construction.

LOCAL

The County of Fresno adopted the General Plan in October, 2000. The Open Space and Conservation Element of the General Plan, Section J seeks to preserve historical, archaeological, paleontological, geological and cultural resources through a variety of methods. Fresno County's goal is to identify, protect and enhance important historical, archaeological and cultural resources and their contributing environment. (County 2000 p. 5-31).

Section J. Historical, Cultural, and Geological Resources states that the county's goal is to identify, protect, and enhance their archeological, paleontological, geological; cultural sites and their contributing environment.

Fresno County policies from Policy OS-J.1 to Policy OS-J.8 provide a variety of specific means to accomplish their goal. The policies include, but are not limited to the following requirements. The County will require that discretionary projects identify and protect important archeological and cultural sites and their contributing environment from impacts. They will also maintain the confidentiality of archaeological sites. The County of Fresno also considers it important to solicit the concerns of the local Native American community. Fresno County will maintain an Index of Historic Properties in Fresno County and will encourage property owners to register properties with that index and with other appropriate registers. The County will provide for the placement of historic

markers or signs and will control access to these areas to prevent damage or vandalism. Moreover, the County will use the State Historic Building Code and existing legislation and ordinance to encourage preservation. The County will also support efforts of other organizations and agencies to preserve and enhance historic resources for educational and cultural purposes (CNTY 2000, pp 5-31, 32).

SETTING

The proposed power plant, water lines, gas line and electrical transmission lines will be located in the County of Fresno near the community of Malaga. The project will also include a zero-liquid discharge (ZLD) system for water treatment. Three alternative ZLDs have been proposed. One alternative will be located off-site. In addition, a 700 foot gas supply line will connect with PG&E's existing pipeline that parallels North Avenue. The electrical transmission line will be about 0.75 mile long and will connect with the PG&E Malaga Substation (KRCD2003a, Chap 2, pp. 7-12). The applicant is considering two alternative routes for interconnection into the MCWD supply system. The preferred water interconnection would run approximately 2000 feet from the project facilities along the south side of North Avenue, connecting with the existing MCWD supply line at the intersection of North and Chestnut Avenues. Land uses in the area of the preferred water interconnection include County easements.

The project area is in the southern San Joaquin Valley of the Central Valley of California (KRCD2003a, Sec 5.3, p.2). The proposed project would be located in an area that is zoned for a mixture of uses including but not limited to industrial, residential and commercial.

The area of the proposed KRCDPP is near the San Joaquin River and Kings River. The prehistoric environment would have been rich with marshes, river channels and wetlands. This was an environment subject to frequent flooding that established alluvial plains. It is likely that sites from the Paleo-Indian period (dating from 11,950 to 7,950 years ago) are buried under Holocene alluvial deposits (KRCDPP2003a, Sec. 5.13, p.2, 3). Few sites have been investigated and most of these date to the Late Prehistoric Period from approximately 950 to 150 years ago. The Southern Valley Yokuts were known to have established semipermanent villages in the vicinity of the proposed KRCDPP. Tule was used to make boats and lodges. Grass and tule seeds were important plant foods and mush was made from tule root. Acorns, fish and game animals formed the staples of their diet. Each tribal group of the Southern Yokuts had one or more permanent villages with smaller campsites used during the exploitation of specific resources (KRCD2003a, Sec. 5.13 p.p. 2 to 7). The smaller sites with a more restricted range of artifacts and subsistence remains, representing resource gathering camps, could be found anywhere in Yokuts territory that was on a mound or raised area, not subject to inundation.

Contact with European explorers late in the 1700s transmitted disease to the Yokuts population and by the mid 1800s they were nearly extinct. In 1848 Mexico ceded California and gold was discovered causing an influx of population. Early enterprise in the Fresno area was characterized by cattle ranching, orchards and agriculture. Fresno County was organized in 1865. Gravity irrigation was developed in Fresno and resulted in the ability to grow grapes, raisins, figs and cotton. The KRCDPP will be located

approximately one-half mile from the community of Malaga which extablished a post office in 1885. Malaga is named for a grape that is grown in the district. It was established by G.G. Briggs who extablished the raisin industry in the Central Colony Vineyards in 1865. Scorching sun dried out grapes on the vine and the raisin industry of the San Joaquin Valley was born (KRCDPP2003a, Sec. 5.13 pp. 7, 8).

IMPACTS

Following is the Environmental Checklist that identifies potential impacts in this issue area. Below the checklist are a discussion of each impact, and an explanation of the impact conclusion.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		X		
c) Disturb any human remains, including those interred outside of formal cemeteries?		X		

DISCUSSION OF IMPACTS

A. Effect on Historical Resources: Less than Significant with Mitigation Incorporated

The Golden State Boulevard Bridge is within one-mile of the project. It is listed on Caltrans' State and Local Bridge survey. It does not appear there will be an impact to the bridge. For the purpose of historic assessment, the following buildings, structures and linear features have been determined to be within the Area of Potential Effects (APE) of the KRCDPP. There are seven buildings constructed prior to 1959, located on property adjacent to the project property. A Quonset-type warehouse is adjacent to the project. There are 19 historic structures that were owned and developed by Producers Cotton Oil Company cotton seed oil plant located within the APE. In addition there are three linear features including two canals and a railroad spur. All of these potential historic resources were recorded on appropriate Department of Parks and Recreation (DPR) forms by JRP Historical Consulting. Copies of the forms have been docketed with the Energy Commission and filed with the CHRIS (KRCD2004k, DPR forms).

The residences and associated out buildings that are the subject of this discussion were all built between 1923 and 1958. Although some of them are good examples of particular styles of construction and several retain a good deal of integrity, they do not appear to meet the criteria for eligibility to the California Register of Historical Resources (CRHR) (KRCD2004k, DPR forms).

The 19 properties formerly owned by Producers Cotton Oil Company cotton seed oil plant do not appear to meet requirements for listing on either the CRHR or the Index of Historic Properties in Fresno County. The development of the plant coincided with the development of the expansion of cottonseed production in the south San Joaquin Valley from the mid 1920's to the mid 1930's. It also contributed to the economic development of the Fresno area. The cotton seed oil plant was established by Stanley Pratt who was an influential participant in cotton development in the San Joaquin Valley. The period of significance would span the time period from 1930 (plant established) to 1936 (Pratt's death). The existing buildings of Producers Cotton Oil Company cotton seed oil plant are composed of buildings that span a period of time from 1930 to the 1990's. Many of the original buildings, built in the period of significance have been demolished. Episodes of construction and modernization of the plant occurred after WW II and from 1960 to 1990. Information concerning Producers Cotton Oil Company was recorded and evaluated on the appropriate DRP forms by JRP Historical Consultants. The forms were docketed with the Energy Commission and filed with the CHRIS. The cottonseed oil plant is not recommended as eligible to the CRHR because the complex lacks integrity. Only four of the existing structures date prior to WW II (KRCD2004k, DPR forms).

The railroad spur, adjacent to the proposed project was built in the 1950's by Southern Pacific to serve the Producers Cotton Oil Company. It is not associated with industrial development or railroad history. It is not associated with an important person and does not embody a distinctive characteristic for type, period or method of construction. Moreover, it does not contain any unusual structures and does not appear eligible for the Fresno County Index of Historic Properties. The railroad spur is not recommended as eligible to the CRHR (KRCD2004k, DPR forms).

The Quonset-type warehouse that was built in the late1940's sits on a property that is adjacent to the proposed project. It has two additions that have been added in the past 20 years. It does not meet any of the criteria necessary of inclusion on the Index of Historic Properties in Fresno County or for inclusion on the CRHR (KRCD2004k, DPR forms).

The Central Canal is a conduit within Fresno Irrigation District (FID) The Central Canal was originally built to serve the Central California Colony, the first agricultural colony in Fresno County. Water began flowing in the canal in 1876. Although the Central Canal may be eligible to the CRHR as a contributing element of a historic district, the section of canal within the project APE lacks integrity to the period of significance of the Central Canal. The section within the project APE retains integrity of location, but wooden water control features have been replaced with concrete features. Many added features cause it to appear like a modern post-World War II canal rather than recalling its historic appearance to the time of its original construction (KRCD2004k, DPR forms).

The Fresno Colony Canal was originally constructed in the 1880's. However, the portion of the canal that is within the project APE was part of a realignment that was constructed sometime between 1932-1937. Although the Fresno Colony Canal is recommended eligible to the CRHR for its association with late nineteenth century

agricultural development of Fresno County and as an important pioneer era canal, the segment of the Canal within the project APE does not share those associations. This segment of the Fresno Colony Canal is not recommended for inclusion on the Fresno County Index of Historic Resources and it does not appear eligible to the CRHR (KRCD2004k, DPR forms).

None of the historic resources that were evaluated were determined to be eligible to the Fresno County Index of Historic Resources or to the CRHR. The project will not impact any significant historic resources.

B. Cause a Change in Significance of an Archaeological Resource: Less than Significant with Mitigation Incorporated

Five cultural resource surveys have been conducted within a one-mile radius of the project. No cultural resources were identified as a result of those surveys and no prehistoric sites have been reported within the one-mile radius of the KRCDPP.

Since a prehistoric wet environment was present in the project area, it is possible that buried archaeological sites may be discovered. Although no prehistoric archaeological sites were identified during surveys, the vicinity of the KRCD is covered with alluvium and there is a potential for the discovery of buried archaeological sites under layers of alluvium (KRCDPP2003a Sec. 5.13, p.23). It is likely that sites from the Paleo-Indian period (dating from 11,950 to 7,950) are buried under Holocene alluvial deposits (KRCDPP2003a, Sec. 5.13, p. 2, 3). Information from that time period is very limited and any discoveries that reflect that time period would be of considerable scientific interest. The average depth of construction excavation for power plant projects is ten to fifteen feet. Public Resources Code section 15064.5 (f) directs the lead agency to make provisions for historical or unique archaeological resources that are inadvertently discovered during project construction.

The applicant provided recommendations for mitigation. Staff concurs with most of the recommendations, but will expand upon or make additions to the applicant's recommendations. Staff's additional recommendations will be sufficient to ensure that impacts to archaeological discoveries would be mitigated to a level of insignificance. Recommendations that require mitigation measures in addition to those suggested by the applicant will be provided in the conditions of exemption.

Avoidance

The applicant recommends avoidance as the preferred mitigation. They have defined Environmentally Sensitive Areas (ESA) and suggest that the archaeologist and KRCDPP engineers demarcate these areas to ensure that they are avoided (KRCDPP2003a, Sec. 5.13, p. 22). Staff agrees that this is an acceptable mitigation measure. Staff would also caution the applicant that at times avoidance may include measures such as avoidance by more than 100 feet or redesigning the project site or a linear route.

Training

The applicant recommends that prior to beginning construction near a designated ESA, the construction crew should be informed of the resource values involved and of the regulatory protection afforded to the resources. The applicant recommends that the crew also be informed concerning procedures regarding designated ESAs. Moreover, the applicant recommends that the crew be cautioned not to collect artifacts and to inform their supervisor should cultural remains be uncovered (KRCDPP2003a, Sec. 5.13, p.22).

In addition to the applicant's recommendations, staff recommends that the Project Archaeologist develop a comprehensive training program that includes the issues raised in working near an ESA and possible identification of cultural resources. During the training the construction workers should be advised of penalties in law for collecting artifacts. The training should also inform the construction crew that cultural resources personnel have the authority to halt construction, in the event of a discovery.

Furthermore, the applicant recommends that a worker education program would be conducted to educate supervisors as construction begins. The education program might be presented in the form of a video. Staff recommends an expansion of the training program to ensure that **all** new employees are trained regarding the potential discovery of cultural resources. This training program may be discontinued when ground disturbance at the project site and linears is finished.

The training program should be conducted prior to beginning of ground disturbance rather than prior to beginning construction. The Project Archaeologist (PA) should also provide samples of artifacts that might be encountered in the area of the project. The samples should include historic and prehistoric artifacts. At a minimum, photos of artifacts from the local area should be provided.

Cultural Resources Monitoring

The applicant recommends that cultural resources monitoring be conducted on a part-time basis, to be determined at the discretion of the assigned PA or his/her designated Archaeological Monitor (AM) shall conduct the monitoring. The applicant suggests and staff concurs that the PA shall meet the Professional Qualification Standards (1983) that are part of the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation as published in Code of Federal Regulations, 36 CFR Part 61(KRCDPP2003a, Sec 5.13, p. 23). Staff also recommends that the PA shall also be a member of the Register of Professional Archaeologists with a minimum of three years of field work and lab experience in California and a minimum of one year field work experience in the southern San Joaquin Valley. The PA should also be qualified to evaluate the significance of the deposits, plan site evaluation and mitigation activities, and write a final report documenting the project. The PA shall oversee or conduct the recommended construction monitoring. A PA and AM can be the same person, if properly qualified. However, at a minimum, the AM shall have the following qualifications:

> A BS or BA degree in anthropology, archaeology, historic archaeology or a related field and one year experience monitoring in California; or

An AS or AA degree in anthropology, archaeology, historic archaeology or a related field and four years experience monitoring in California; or

Enrollment in upper division classes pursuing a degree in the field of anthropology, archaeology, historic archaeology or a related field, and two years of monitoring experience in California.

Under Construction Monitoring, the applicant recommends that in the event of a discovery, "the AM should immediately notify the PA and Site Superintendent, who should halt construction in the immediate vicinity of the find, as necessary." Staff asserts that the PA and the AM must have the ability to halt construction immediately, if there is a find. An archaeological site or human remains could easily be demolished in a matter of seconds by heavy equipment.

Construction Site Assessment

The applicant recommends a preliminary assessment of the construction site for the presence of cultural resources. Staff recommends that a preliminary reconnaissance survey be conducted at the project site and along the linears, if the PA has not examined the project area within the last five years. Initial ground disturbance and excavation should then be observed by the PA. After the PA has become knowledgeable regarding the area of the project and has examined the excavated soils, the PA should determine the necessary level and locations of monitoring and provide that information to the CPM for approval.

Native American Monitor

The applicant also recommended that an appropriate Native American monitor be present during any testing or data recovery of archaeological material that is Native American in origin (KRCDPP2003a, Sec. 5.13, p. 23). Staff recommends that a Native American monitor be retained to monitor in locations where Native American artifacts may be discovered, but will only require that a Native American monitor be retained if artifacts are discovered (KRCD2004l, p. 3).

Discoveries

If archaeological materials are discovered, the applicant recommends that construction be halted. Construction is not recommended in the vicinity of the find until the PA has examined the find. The PA shall then record the discovery on Department of Parks and Recreation Primary Record forms (Form DPR 523). The applicant also recommends avoidance if possible, mitigation by data recovery, curation; if necessary, and preparation of a final report (KRCDPP2003a, Sec. 5.13, p.24).

In Section 5.13, page 24, the applicant states that, "Under CEQA, a find would be considered significant (would be classified as an 'important archaeological resource') if it meets the necessary criteria for eligibility to the California Register of Historic Resources (CRHR)." Staff cautions the applicant that under CEQA an archaeological discovery may also be considered significant if it meets the criteria for eligibility to the CRHR as an historical resource. It is not necessary to classify a discovery as an important archaeological resource for a cultural resource to be eligible to the CRHR.

Under Mitigation Planning, the applicant suggests a procedure for conducting mitigation in accordance with state and federal guidelines. The applicant states that, "If avoidance is not possible, the recovery of a sample of the deposit from which the archaeologist can define scientific data to address archaeological research questions should be considered an effective mitigation measure for damage to or destruction of the deposit." Staff disagrees with this interpretation of effective mitigation. An effective mitigation would mitigate impacts to the data elements that make a cultural resource eligible to the CRHR. "A sample" may not be sufficient to address all data elements or research questions. Moreover, unusual discoveries that are not covered by the research design should not be ignored because they do not appear in a document.

The applicant states that construction should resume at the site as soon as the field data collection phase of any data recovery effort is completed. While recognizing that construction needs to resume as soon as possible, staff asserts that construction should resume after mitigation has been adequately completed. This would frequently be after the completion of data recovery, however staff recommends making the decision to resume construction on a site by site basis. (KRCDPP2003a, Sec. 5.13, p. 25).

The County of Fresno provides for recognition and protection of cultural resources in their General Plan (CNTY 2000). If an archaeological site is discovered, the discovery shall be reported to the CPM. To ensure compliance with CEQA, if an archaeological site is discovered, it must be evaluated for eligibility to the CRHR. If the site is determined eligible, then either avoidance or data recovery would be necessary. If materials are collected (as determined by the research design), they shall be curated in compliance with this document.

Curation

The applicant also makes a recommendation regarding curation. In addition to the applicants recommendations, staff recommends that items be curated in accordance with the State Historical Resources Commission's, "Guidelines for the Curation of Archaeological Collections" and Title 36 of the Federal Code of Regulations, Part 79, and that any necessary fees shall be paid by the applicant.

Cultural Resources Report

The applicant proposes providing a "Report of Findings" that discusses archaeological activities that occurred in relation to an archaeological discovery. The report shall be prepared at the end of the project in accordance with Archaeological Resource Management Reports (ARMR): Recommended Contents and Format. The final cultural resources report would address **all** cultural resources activities conducted for the project, **whether or not there was a discovery**. In the field of archaeology, identifying the methods used to determine that nothing was present in a particular location is just as important as identifying the methods used to determine that there is something present. Archaeologists or historians who obtained information from the California Historic Information System (CHRIS) signed a document stating that if any reports were written as a result of work completed for the project area they were researching at the CHRIS, a copy of that report would be provided to the CHRIS.

C. Disturb Human Remains: Less than Significant with Mitigation Incorporated

There is no record of interred human remains that would be disturbed by the proposed project. Public Resources Code section 15064.5 (f) instructs lead agencies to make provisions for historical or unique archaeological resources that are discovered during construction. In the event that interred human remains are encountered during project ground disturbance, mitigation will be achieved by following state law that requires notification of the county coroner and additional subsequent requirements. If the county coroner determines that human remains are Native American in origin, the Native American Heritage Commission will be notified and a Most Likely Descendant will be referred to the project to make recommendations to the property owner regarding the appropriate treatment of the remains and associated grave goods.

CUMULATIVE IMPACTS

Cumulative impacts to cultural resources in the project vicinity may occur if subsurface archaeological deposits (both prehistoric and historic) and the setting of historic structures are affected by other projects in the same vicinity as the proposed project. Although the Roosevelt Community Plan, adopted in 1979, lists a variety of planned commercial projects, the applicant states that conversations with Fresno County have advised that they have no plans to initiate development in the vicinity of KRCDPP (KRCDPP2003a Sec 5.5, p. 14).

Should development be initiated in the area, project proponents for future projects can mitigate impacts to as yet undiscovered subsurface archaeological sites to less than significant levels. Impacts can be mitigated by requiring construction monitoring, evaluation of resources discovered during monitoring, and avoidance or data recovery for resources evaluated as significant (eligible for the CRHR or NRHP). Impacts to human remains can be mitigated by following state law.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

None received.

CONCLUSIONS

Based on the discussion above, and in conjunction with the mitigation set forth and agreed to by the applicant, the proposed project will not cause any significant adverse impact to any known cultural resources. Potential impacts to cultural resources that may be discovered will be mitigated to below a level of significance by mitigation measures outlined in this document and provided in the conditions of exemption.

PROPOSED CONDITIONS OF EXEMPTION

CUL-1 Prior to the start of ground disturbance, the project owner shall provide the CPM with the name and resume of its proposed Cultural Resources Specialist (CRS), and alternate(s), if an alternate is proposed, for approval.

CULTURAL RESOURCES SPECIALIST

The resume for the CRS and alternate(s) shall include information demonstrating that the minimum qualifications specified in the U.S. Secretary of Interior Guidelines, as published in the Code of Federal Regulations, 36 CFR Part 61 are met. In addition, the CRS shall have the following qualifications:

1. The technical specialty of the CRS shall be appropriate to the needs of the project and shall include a background in anthropology, archaeology, history, architectural history or a related field; and

2. At least three years of archaeological or historic, as appropriate, resource mitigation and field experience in California and one year in southern San Joaquin Valley: and

3. The resume of the CRS shall include the names and telephone numbers of contacts familiar with the work of the CRS on referenced projects, and shall demonstrate that the CRS has the appropriate education and experience to accomplish the cultural resource tasks that must be addressed during ground disturbance, grading, construction and operation.

If the proposed qualifications deviate from the requirements identified, the qualifications must demonstrate that the proposed CRS is capable of implementing the conditions of exemption. No ground disturbance shall occur prior to CPM approval of the CRS, unless specifically approved by the CPM.

CULTURAL RESOURCES MONITOR

CRMs shall have the following qualifications:

1. BS or BA degree in anthropology, archaeology, historic archaeology or a related field, and one year experience monitoring in California; or

2. AS or AA degree in anthropology, archaeology, historic archaeology or a related field, and four years experience monitoring in California; or

3. Enrollment in upper division classes pursuing a degree in the field of anthropology, archaeology, historic archaeology or a related field, and two years of monitoring experience in California.

NATIVE AMERICAN MONITORS

If Native American artifacts are discovered, a Native American monitor shall be obtained to monitor ground disturbance. Informational lists of Native Americans and “Guidelines for Monitoring” shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that shall be monitored.

Verification: The project owner shall submit the resume for the CRS, and alternate(s) if desired, to the CPM for review and approval at least 45 days prior to the start of ground disturbance. If a termination or release of a CRS occurs, the project owner shall notify the CPM. The CRS may not assume duties prior to approval by the CPM.

CUL-2 If the CRS does not have recent (within five years) experience at the project location, prior to ground disturbance, the project owner shall ensure that the CRS conducts a reconnaissance survey of the project site and linears. If avoidance measures are determined to be necessary by the CRS, the CRS shall implement all avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas during construction and/or operation.

Cultural resource monitoring shall be conducted during the initial ground disturbance at the plant site and on project linears where project excavation exceeds three feet. At the locations where the initial ground disturbance exceeds three feet the potential for encountering buried deposits shall be assessed by the CRS based on observation of the soil at various depths during the start of excavation activity at the project site and project linears. The initial assessment of necessary monitoring shall prescribe the type (none, intermittent to full time) and duration for monitoring ground disturbance within the plant site and on project linears. After each assessment, monitoring may proceed at the discretion of the CRS.

Cultural resources monitoring activities are the responsibility of the CRS. When monitoring occurs, monitors shall keep a daily log of any monitoring or cultural resource activities. Logs shall be retained onsite.

The project owner shall grant authority to the CRS, alternate CRS, and CRMs to halt construction if there is a discovery of cultural resources. In the event cultural resources are found or impacts can be anticipated, the halting or redirection of construction shall remain in effect until all of the following have occurred:

1. The CRS has notified the project owner, and the CPM has been notified within 24 hours of the discovery and is provided, a description of the discovery (or changes in character or attributes) and a recommendation regarding significance.

2. The project owner and the CRS have conferred with the CPM and the CPM has determined what, if any, data recovery or other mitigation is needed; and

3. Any necessary data recovery and mitigation has been completed.

Verification: At least 10 days prior to the start of ground disturbance, the project owner shall provide the CPM with a letter confirming that the CRS, alternate CRS and CRMs have the authority to halt construction activities in the vicinity of a cultural resource find, and that the CRS or project owner shall notify the CPM within 24 hours of a discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 A.M. on Friday and 8:00 A.M. on Sunday morning. Copies of daily logs shall be retained on-site and made available for audit by the CPM upon request.

CUL-3 The project owner shall ensure that:

1. The project owner shall ensure, all cultural resources encountered shall be recorded on a Department of Parks and Recreation (DPR) form 523 and mapped (may include photos). In addition, all archaeological materials

collected as a result of the archaeological investigations (survey, testing, and data recovery) shall be curated in accordance with State Historical Resources Commission "Guidelines for the Curation of Archaeological Collections," into a retrievable storage collection in a public repository or museum. The public repository or museum must meet the standards and requirements for the curation of cultural resources set forth at Title 36 of the Federal Code of Regulations, Part 79. Copies of any DPR forms shall be provided to the CPM.

2. All applicable curation fees are paid by the project owner. Any agreements concerning curation shall be retained and available for audit for the life of the project.

3. The CRS prepare and present a training program (video or on-site presentation) to all employees hired during periods of ground disturbance. The training shall include applicable laws and at a minimum photos of artifacts that might be encountered in the local area.

Verification: At least one week prior to initiating ground disturbance, the project owner shall provide a letter to the CPM that states that the project owner will pay all curation fees, if curation is necessary.

CUL-4 The project owner shall require that the CRS prepare a Cultural Resources Report (CRR) in Archaeological Resource Management Report format (ARMR) following completion of ground disturbance activities. The CRR shall report on all field activities including dates, times and locations, findings, samplings and analysis. All survey reports, DPR 523 forms and additional research reports shall be submitted to the CPM, the California Historic Resource Information System (CHRIS) and the State Historic Preservation Officer (SHPO). If reports were submitted to the CHRIS during the siting phase of the project, provide an addendum that lists those reports. If reports were written but not submitted during the siting phase of the project, include them as attachments to this report.

Verification: The project owner shall submit the subject CRR within 90 days after completion of ground disturbance (including landscaping). Within 10 days after CPM approval, the project owner shall provide documentation to the CPM that copies of the CRR have been provided to the SHPO, the CHRIS and the curating institution (if archaeological materials were collected).

REFERENCES

CNTYOFFRESNO2000-County of Fresno. County of Fresno General Plan 2000. Approved October 3, 2000.

CNTYOFFRESNO1979-Roosevelt Community Plan. Adopted by Fresno County Board of Supervisors, December 1979.

KRCD2003a-Kings River Conservation District/Sinor (tn:30483). Submittal of the Application for Small Power Plant Exemption for the Kings River Conservation District. Submitted to CEC/Therkelsen/Dockets on 11/26/03.

KRCD2004k-Navigant Consulting (tn:30925). Data Request Responses in the Area of Air Quality, Cultural Resources and Visual Resources. Submitted to CEC/Caswell/Dockets on 2/13/04.

KRCD2004l - Navigant Consulting/Cuellar (tn:31005). Applicant's Comments on the Draft Initial Study for the Kings River Conservation Dist. POS. Submitted to CEC/J. Caswell/Dockets on 2/27/2004.

ENERGY RESOURCES

Testimony of Kevin Robinson

INTRODUCTION

The Energy Resources section examines energy use by the Kings River Conservation District Peaking Plant (KRCDPP) to ensure that the KRCDPP's consumption of energy will not result in significant adverse impacts on the environment. In this analysis, staff addresses the issue of inefficient and unnecessary consumption of energy.

In order to support the Energy Commission's findings, this analysis will:

- examine whether the facility will likely present any adverse impacts upon energy resources; and
- examine whether these adverse impacts are significant.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

No federal, state, or local LORS apply to the efficiency of this project.

SETTING

Kings River Conservation District (KRCD) proposes to construct and operate the 97 MW (nominal gross output) simple cycle KRCD Peaking Plant, providing peaking power to the Pacific Gas and Electric (PG&E) power grid system in the greater Fresno area. (Note that this nominal rating is based upon preliminary design information and generating equipment manufacturers' guarantees. The project's actual maximum generating capacity will differ from, and may exceed, this figure.) KRCD has executed a Power Purchase Agreement (PPA) with the California Department of Water Resources (CDWR) that requires KRCD to sell power from a natural gas fired simple cycle plant consisting of two GE LM6000 Sprint combustion turbine generators (CTG) (KRCD 2003a, SPPE §§ 1.2.1, 1.2.2, 4.1, 6.9). Each CTG will utilize an electric water chiller at its inlet to maintain output and efficiency during periods of high ambient temperatures. The CTGs will utilize water injection to reduce the formation of NOx and will incorporate a selective catalytic reduction system to further control the emissions of NOx from the plant (KRCD 2003a, SPPE §§ 1.2.3, 2.2.2, 2.2.3, 3.4.1, 3.5.1.3, 4.1).

IMPACTS

BACKGROUND

The CEQA Guidelines state that the environmental analysis"…shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy" (Cal. Code Regs., tit. 14 § 15126.4(a)(1)). Appendix F of the Guidelines further suggests consideration of such factors as the project's energy requirements and energy use efficiency; its effects on local and regional energy supplies and energy resources; its requirements for additional

energy supply capacity; its compliance with existing energy standards; and any alternatives that could reduce wasteful, inefficient and unnecessary consumption of energy (Cal. Code regs., tit. 14, § 15000 et seq., Appendix F).

The Warren-Alquist Act (Public Resources Code, § 25541) allows the Energy Commission to exempt electric generating power plants with generating capacity of up to 100 MW from the site certification process if it finds that the project construction and operation will not have substantial adverse impacts on the environment or energy resources. As illustrated below, KRCDPP will not have significant adverse impact on energy resources, and thus qualifies for this exemption from the energy resources standpoint.

The inefficient and unnecessary consumption of energy, in the form of non-renewable fuels such as natural gas, constitutes an adverse environmental impact. "(Cal. Code regs., tit. 14, § 15126.4(a)(1)), (Cal. Code regs., tit 14, § 15000 et seq., Appendix F). An adverse impact can be considered significant if it results in:

- adverse effects on local and regional energy supplies and energy resources;
- a requirement for additional energy supply capacity;
- noncompliance with existing energy standards; or
- the wasteful, inefficient and unnecessary consumption of fuel or energy.

Energy Requirements

Any power plant large enough to fall under Energy Commission siting jurisdiction will consume large amounts of energy. Under normal conditions, the KRCDPP will burn natural gas at a nominal rate up to 856 million Btu (MMBtu) per hour Lower Heating Value (LHV) (KRCD 2003a, SPPE § 4.2, Table 2.2-2). This is a substantial rate of energy consumption, and holds the potential to impact energy supplies.

Under expected project conditions, electricity will be generated at a full load efficiency of approximately 38.7 percent LHV with the combustion turbines operating at full load (KRCD 2003a, SPPE §§ 4.1, 4.2).

The applicant has described its sources of supply of natural gas for the KRCDPP (KRCD 2003a, SPPE §§ 2.3, 3.5.3, 4.2). The project will burn natural gas delivered to the site by PG&E via a new 700 foot interconnection to PG&E's existing local gas transmission line (KRCD 2003a, SPPE §§ 1.2.3, 2.3, 3.5.3, 4.2). The PG&E system is capable of delivering the required quantity of gas to the KRCDPP (KRCD 2004f). Furthermore, the PG&E gas supply infrastructure is extensive, offering access to vast reserves of gas in Canada and the Southwest United States. The applicant plans to provide gas supplies through a combination of firm gas contracts as well as procuring additional supplies on the spot market. This source represents far more gas than would be required for a project this size. It is therefore highly unlikely that the KRCDPP could pose a substantial increase in demand for natural gas in California.

There is no real likelihood that the KRCDPP will require the development of additional energy supply capacity.

Compliance with Energy Standards

No standards apply to the efficiency of the KRCDPP.

Alternatives To Reduce Wasteful, Inefficient And Unnecessary Energy Consumption

The KRCDPP could be deemed to create significant adverse impacts on energy resources if alternatives existed that would reduce the project's use of fuel. Evaluation of alternatives to the project that could reduce wasteful, inefficient or unnecessary energy consumption first requires examination of the project's energy consumption. Project fuel efficiency, and therefore its rate of energy consumption, is determined by the configuration of the power producing system and by the selection of equipment used to generate power.

PROJECT CONFIGURATION

The project objective is to generate peaking power for the PG&E power grid in the greater Fresno area (KRCD 2003a, SPPE §§ 4.1, 6.9). The KRCDPP will be configured as two simple cycle power plants in parallel, in which electricity is generated by two natural gas turbine generators (KRCDPP 2003a, SPPE §§ 1.2.2, 1.2.3, 2.2.2, 2.2.3, 4.1). This configuration, with its short start-up time and fast ramping[1] capability, is well suited to providing peaking power.

EQUIPMENT SELECTION

Modern gas turbines embody the most fossil-fuel-efficient electric generating technology available today. The applicant will employ two General Electric LM6000 Sprint gas turbine generators (KRCD 2003a, SPPE §§ 1.2.2, 2.2.2, 2.2.3, 3.5.1, 4.1, 6.8, 6.9). The LM6000 Sprint gas turbine to be employed in the KRCDPP represents one of the most modern and efficient such machines now available. The Sprint version of this machine is nominally rated at 50 MW and 40.3 percent efficiency LHV at ISO[2] conditions (GTW 2003). Alternative machines that can meet the project's objectives are the GTX100 and FT8, which like the LM6000 are aeroderivative machines adapted from Alstom and Pratt & Whitney aircraft engines, respectively.

The Alstom GTX100 gas turbine generator in a simple cycle configuration is nominally rated at 43 MW and 37 percent efficiency LHV at ISO conditions (GTW 2003).

Another alternative is the Pratt & Whitney FT8 Twin Pac gas turbine generator in a simple cycle configuration that is nominally rated at 51 MW and 38 percent efficiency LHV at ISO conditions (GTW 2003).

The use of comparable alternative machines, including the Alstom GTX100 and the Pratt & Whitney FT8 Twin Pac gas turbines, were not considered, since the GE LM6000 Sprint units were provided to KRCD for the development of this project. Under the terms of the Power Purchase Agreement with the California Department of Water

[1] Ramping is increasing and decreasing electrical output to meet fluctuating load requirements.

[2] International Standards Organization (ISO) standard conditions are 15°C (59°F), 60 percent relative humidity, and one atmosphere of pressure (equivalent to sea level).

Resources, the KRCD is required to utilize the two natural-gas fired GE LM6000 Sprint CTGs that were obtained by the State of California under terms of a settlement agreement with Williams Energy Marketing and Trading Company (Williams Energy). As discussed above, however, neither alternative machine would exhibit fuel efficiency as great as the chosen machines.

The LM6000 Sprint is further enhanced by the incorporation of spray intercooling (thus the name, SPRay INTercooling). This takes advantage of the aeroderivative machine's two-stage compressor.[3] By spraying water into the airstream between the two compressor stages, the partially compressed air is cooled, reducing the amount of work that must be performed by the second stage compressor. This reduces the power consumed by the compressor, yielding greater net power output and higher fuel efficiency. The benefits in generating capacity and fuel efficiency increase with rising ambient air temperatures. At temperatures above 90°F, the Sprint machine enjoys a four percent increase in both power output and efficiency (GTW 2000).

Efficiency of Alternatives to the Project

Alternative Generating Technologies

The applicant addresses alternative generating technologies in its application (KRCD 2003a, SPPE §§ 4.1, 6.9). Nuclear, hydroelectric, biomass, solar, and wind technologies are not possible and therefore not considered for the KRCDPP given the requirements of the PPA.

Natural Gas Burning Technologies

KRCD has executed a Power Purchase Agreement with the California Department of Water Resources that requires KRCD to sell power from a natural gas fired simple cycle plant consisting of two GE LM6000 CTGs. In addition, KRCD is required to utilize the two natural-gas fired GE LM6000 Sprint CTGs that were obtained by the State of California under terms of a settlement agreement with Williams Energy Marketing and Trading Company (KRCD 2003a, SPPE §§ 4.1, 6.8, 6.9). Given these requirements of the PPA, alternative generating technologies for the KRCDPP are not possible and therefore are not considered.

Inlet Air Cooling

A further choice of alternatives involves the selection of gas turbine inlet air-cooling methods.[4] The two commonly used techniques are the evaporative cooler or fogger, and the chiller; both devices increase power output by cooling the gas turbine inlet air. In general terms, a mechanical chiller can offer greater power output than the evaporative cooler on hot, humid days, but consumes electric power to operate its refrigeration process, thus slightly reducing overall net power output and, thus, overall efficiency. An absorption chiller uses less electric power, but necessitates the use of a

[3] The larger industrial type gas turbines typically are single-shaft machines, with single-stage compressor and turbine. Aeroderivatives are two-shaft (or, in some cases, three-shaft) machines, with two-stage (or three-stage) compressors and turbines.

[4] A gas turbine's power output decreases as ambient air temperatures rise. The LM6000 Sprint produces peak power at 50°F; this peak output can be maintained in much hotter weather by cooling the inlet air.

substantial inventory of ammonia. An evaporative cooler or a fogger boosts power output best on dry days; it uses less electric power than a mechanical chiller, possibly yielding slightly higher operating efficiency. The difference in efficiency among these techniques is relatively insignificant.

The LM6000 generating units received by KRCD were equipped with evaporative coolers to cool the turbine inlet air. To determine whether evaporative coolers or chillers would be most beneficial to the proposed KRCDPP, a detailed analysis of the performance with both systems was performed. The results of the analysis showed that it would be cost-effective for chillers to be installed on the proposed KRCDPP in lieu of evaporative coolers. Therefore, KRCDPP proposes to employ electric chilling to cool the combustion turbine inlet air (KRCD 2003a, SPPE §§ 1.2.3, 2.2.2, 2.2.3, 3.5.1.3, 6.8.1). Staff agrees that the applicant's approach will yield no significant adverse energy impacts.

Conclusions on Efficiency of Alternatives

In conclusion, the project configuration (simple-cycle) and generating equipment (LM6000 Sprint gas turbines) chosen appear to represent an effective means of satisfying the project objectives. Short start-up time and fast ramping capability associated with this configuration will serve the project in meeting its objective of providing peaking power to KRCD's customers. Energy Commission staff believes that operation of the KRCDPP does not constitute a significant impact on energy resources because the project represents the most fuel efficient means of achieving the project's objectives. There are no feasible alternatives that could significantly reduce energy consumption.

CUMULATIVE IMPACTS

There are no nearby power plant projects that hold the potential for cumulative energy consumption impacts when aggregated with the project. Staff knows of no other projects that could result in cumulative energy impacts.

Staff believes that construction and operation of the project will not bring about indirect impacts, in the form of additional fuel consumption, that would not have occurred but for the project. The older, less efficient power plants consume more natural gas to operate than the new, more efficient plants such as the KRCDPP. The high efficiency of the proposed KRCDPP should allow it to compete very favorably, running at a high capacity factor, replacing less efficient power generating plants, and therefore not impacting and possibly even reducing the cumulative amount of natural gas consumed for power generation.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

None received.

CONCLUSIONS

The KRCDPP, if constructed and operated as proposed, would generate a nominal 97 MW of electric power with the maximum overall project fuel efficiency of 38.7 percent LHV. While it will consume substantial amounts of energy, the KRCDPP will do so in an efficient manner. It will not create significant adverse effects on energy supplies or resources, will not require additional sources of energy supply, and will not consume energy in a wasteful or inefficient manner. No energy LORS apply to the project. Staff therefore concludes that the KRCDPP would present no significant adverse impacts upon energy resources.

PROPOSED CONDITIONS OF EXEMPTION

No conditions of exemption are proposed.

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GEOLOGY, MINERAL RESOURCES, AND PALEONTOLOGY

Testimony of Patrick A. Pilling, Ph.D., P.E., G.E.

INTRODUCTION

In the geology, mineral resources, and paleontology section, staff discusses potential impacts of the proposed Kings River Conservation District Peaking Plant (KRCDPP) project regarding geologic hazards, geologic (including mineralogic), and paleontologic resources. Energy Commission staff's objective is to ensure that there will be no substantial adverse impacts to significant geological and paleontological resources during project construction, operation and closure. A brief geological and paleontological overview of the project is provided. The section concludes with staff's proposed monitoring and mitigation measures with respect to geologic hazards and geologic, mineralogic, and paleontologic resources, with the inclusion of conditions of exemption.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

The applicable LORS are listed in the SPPE Application in Section 5.11.3 (KRCD, 2003). Staff has identified the following LORS for geologic hazards and resources, and paleontologic resources, as useful as significance criteria for evaluating whether the project as proposed will have a substantial adverse impact on the environment.

FEDERAL

The proposed KRCDPP is not located on federal land and does not involve any federal actions, as such, the National Environmental Policy Act (NEPA) does not apply to the proposed project. In addition, there are no other federal LORS for geological hazards and resources or grading that apply to the proposed project.

STATE AND LOCAL

The project shall be designed and constructed to the 2001 edition of the California Building Standards Code (CBSC). The CBSC includes a series of standards that are used in project investigation, design, and construction (including grading and erosion control).

Fresno County, through a general plan document, has outlined several goals and policies related to seismic and geologic hazards (Fresno County, 2000) for projects within the County:

- Goal HS-D (To minimize the loss of life, injury, and property damage due to seismic and geologic hazards)
  - Policy HS-D.2 – The County shall ensure that the General Plan and/or county ordinance code is revised, as necessary, to incorporate geologic hazard areas formally designated by the State Geologist.
  - Policy HS-D.3 – The County shall require that a soils engineering and geologic-seismic analysis be prepared by a California-registered engineer or engineering

geologist prior to permitting development … in areas prone to geologic or seismic hazards.

- Policy HS-D.4 – The County shall require all proposed structures, additions to structures, or public facilities situated within areas subject to geologic-seismic hazards as identified in the soils engineering and geologic-seismic analysis to be sited, designed, and constructed in accordance with the applicable provisions of the Uniform Building Code.
- Policy HS-D.8 – The County shall require a soils report by a California-registered engineer or engineering geologist for any proposed development … that requires a County permit and is located in an area containing soils with high "expansive" or "shrink-swell" properties.

CEQA

The California Environmental Quality Act Guidelines Appendix G provides a checklist of questions that a lead agency should normally address if relevant to a project's environmental impacts.

- Section (V) (c) asks if the project will directly or indirectly destroy a unique paleontological resource or site or unique geological feature.
- Sections (VI) (a), (b), (c), (d), and (e) pose questions that are focused on whether or not the project would expose persons or structures to geologic hazards.
- Sections (X) (a) and (b) pose questions about the project's effect on mineral resources.

The "Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources: Standard Procedures" (Society of Vertebrate Paleontology [SVP], 1995) is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. They were adopted in October 1995 by the Society of Vertebrate Paleontology (SVP), a national organization of professional scientists.

SETTING

The KRCDPP Project is a proposed 97-megawatt (MW) natural-gas-fired, simple-cycle generating facility to be located near Malaga, California on a vacant parcel of land that was previously used for truck parking and maintenance. The proposed KRCDPP will be a peaking facility to supplement electric supply for the Kings River Conservation District (KRCD) and the surrounding area.

KRCDPP will consist of:

- An 97 MW nominal, natural gas-fired, simple-cycle generating facility consisting of two combustion turbines;
- Approximately ¾-mile of new 115 kV transmission line;
- Approximately 700 feet of new natural gas pipeline; and
- Approximately 2,000 feet of water supply and waste water lines.

The Small Power Plant Exemption (SPPE) application (KRCD, 2003) provides limited documentation of potential geologic hazards at the KRCDPP plant site. Review of the SPPE and preliminary plant site geotechnical report (Twining, 2004), coupled with staff's independent research, indicates that potential geologic hazards at the site are moderate. Staff's independent research included review of available geologic maps, reports, and related data of the KRCDPP plant site and associated linear facility areas. Geological information was available from the California Geological Survey (CGS), U. S. Geological Survey (USGS), and other governmental organizations.

Detailed discussion and information about the geology along the linear facilities was not included in the SPPE (KRCD, 2003). However, given the similar mapped geology at the plant site and along the linear facilities, geologic hazards identified at the plant site from a geotechnical investigation are also likely along the linear facilities. In order to accurately access the potential for liquefaction, dynamic compaction, hydrocompaction, subsidence, and expansive soils along the linear facilities, subsurface exploration and associated laboratory testing and analyses should be performed during the design-level geotechnical investigation per Condition of Exemption **GEO-1**. Although there are no current standards that require these facilities to be designed to resist fault rupture or liquefaction, even when these facilities cross an active fault, it is prudent to address these constraints in the design-level investigations (Anderson, 2001).

SITE GEOLOGY

The proposed KRCDPP is located within the Great Valley geomorphic province near the central portion of the San Joaquin Valley, California. This area within the Great Valley is characterized by low alluvial plains and fans adjacent to the Sierra Nevada mountain range to the east. Sediments present in the area are derived from streams draining the Sierra Nevada. Major geologic units in the vicinity of the plant site and linears include Holocene sand dunes and Miocene to Holocene continental rocks and deposits (Page, 1986). The Holocene sand dunes were described as windblown sand and dune sand. The Miocene to Holocene continental rocks and deposits were described as a heterogeneous mix of generally poorly sorted clay, silt, sand, and gravel; some beds of siltstone, sandstone, and conglomerate and includes the Pleistocene Modesto, Riverbank, and Turlock Lake Formations. The Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service (SCS), has mapped the plant site and linears as passing through the Hesperia fine sandy loam and the Hanford sandy loam (NRCS, 1971). The Hesperia fine sandy loam has a Uniform Soil Classification System (USCS) classification of a silty sand to silt. The Hanford sandy loam was classified by the NRCS as silty sand.

FAULTING AND SEISMICITY

Energy Commission staff reviewed the California Geological Survey (CGS) publication "Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions," dated 1994 (Jennings, 1994), Geologic Map of California – Fresno Sheet (Matthews and Burnett, 1965), Alquist-Priolo Zones (CGS, 2000), the Simplified Fault Activity Map of California (Jennings and Saucedo, 2002), the Database of Potential Sources for Earthquakes Larger than Magnitude 6 in Northern California (USGS, 1996), and Maps of Known Active Fault Near-source Zones in California and

Adjacent Parts of Nevada (International Conference of Building Officials [ICBO], 1998). The project is located within Seismic Zone 3 as delineated on Figure 16-2 of the CBSC.

No active or potentially active faults are known to cross the power plant footprint or the transmission line and pipeline linears. The closest known active (Holocene age) fault is the Great Valley Thrust Fault System (Segment 12), approximately 41 miles west of the plant site. This fault is a blind thrust fault (no surface expression) and is divided into a number of segments. Segment 12 is the closest to the plant site; however, Segments 11 and 13 are only 41.6 miles and 42.2 miles, respectively, west of the plant site. Staff has calculated an estimated deterministic peak horizontal ground acceleration for the plant site in the range of 0.1g. This estimate is based upon a moment magnitude 6.5 earthquake on Segment 13 of the Great Valley Thrust Fault System. Other active faults within the vicinity of the site include the Foothills Fault System, located approximately 44 miles north-northwest of the plant site. The CBSC designates a minimum ground acceleration of 0.3g for the entire project. The closest known pre-Holocene fault is the Clovis Fault, located approximately 14 miles northeast of the plant site (KRCD, 2003). Pre-Holocene age faults are only considered potentially active.

LIQUEFACTION, SUBSIDENCE, HYDROCOMPACTION, AND EXPANSIVE SOILS

Liquefaction is a nearly complete loss of soil shear strength that can occur during an earthquake. During the seismic event, cyclic shear stresses cause the development of excessive pore water pressure between the soil grains, effectively reducing the internal strength of the soil. This phenomenon is generally limited to unconsolidated, clean to silty sand (up to 35 percent non-plastic fines) and very soft silts lying below the ground water table. The higher the ground acceleration caused by a seismic event, the more likely liquefaction is to occur. Severe liquefaction can result in catastrophic settlements of overlying structural improvements and lateral spreading of the liquefied layer when confined vertically but not horizontally. Exploration at the plant site generally encountered silty sand, poorly graded sand, sandy silt, and clayey sand with a depth to ground water in excess of 51-1/2 feet. Since the plant site is underlain by loose to very dense unsaturated sands, silts, and clays with a depth to ground water in excess of 50 feet, the potential for liquefaction is minimal.

Dynamic compaction of soils results when relatively unconsolidated granular materials experience vibration associated with seismic events or even large, vibrating machinery. The vibration causes a decrease in soil volume, as the soil grains tend to rearrange into a more dense state (an increase in soil density). The decrease in volume can result in settlement of overlying structural improvements. Since the plant site is underlain by surficial zones of loose silty sand and poorly graded sand, the potential for dynamic compaction is considered high in the near-surface soils.

Partially saturated soils can possess bonds that are a result of chemical precipitates that accumulate under semi-arid conditions. Such soluble compound bonds provide the soils with cohesion and rigidity; however, these bonds can be destroyed upon wetting. When destroyed, a substantial decrease in the material's void ratio is experienced even though the vertical pressure does not change. Materials that exhibit this decrease in void ratio and corresponding decrease in volume with the addition of water are defined as collapsible soils. Collapsible soils are typically limited to true loess, fine flash flood

deposits, clayey loose sands, loose sands cemented by soluble salts, and windblown silts. Since the site is underlain by loose, surficial poorly graded sands and silty sands that are not cemented, the plant site was previously used as irrigated cropland, and that previous hydrocollapse mapping by Bertoldi et al. (1991) did not identify collapsible soils, the potential for collapsible soils is low.

Ground subsidence is typically caused when ground water is drawn down by irrigation activities or municipal wells, such that the effective unit weight of the soil mass is increased, which in turn increases the effective stress on underlying soils, resulting in consolidation/settlement of the underlying soils. Subsidence may also be caused by regional tectonic processes. Typically, these forms of subsidence affect a large area. Since the KRCDPP will obtain cooling water from the Malaga County Water District (MCWD) water system, subsidence due to ground water withdrawal for the project is not expected to result in significant foundation settlement that would impact the plant. The KRCDPP plant site is not within a zone mapped by Bertoldi et al. (1991) as an area with ground subsidence greater than one foot due to water level decline or by Ireland et al. (1984) as an area with subsidence. Based on this information, subsidence is not expected to be of concern for this project.

Soil expansion occurs when clay-rich soils, with an affinity for water, exist in-place at a moisture content below their plastic limit. The addition of moisture from irrigation, capillary tension, water line breaks, etc. causes the clay soils to collect water molecules in their structure, which, in turn, causes an increase in the overall volume of the soil. This increase in volume can correspond to movement of overlying structural improvements. As reported in the boring logs, the plant site generally is underlain by poorly graded sand, silty sand, and sandy silt. As a result, the potential for expansive soils is negligible. In addition, previous soils mapping by the NRCS (1991) identified silty sand to silt soils, indicative of a negligible potential for expansive soils.

LANDSLIDES

Landslide potential at the KRCDPP plant site is considered to be negligible since the project is located on an alluvial plain that is essentially flat and there are no significant slopes adjacent to the site.

TSUNAMIS AND SEICHES

Tsunamis and seiches are earthquake-induced waves, which inundate low-lying areas adjacent to large bodies of water. The proposed KRCDPP plant site is situated approximately 293 feet above mean sea level. The closest large body of water is an unnamed impoundment located approximately 13 miles north-northeast of the plant site. In addition, Pine Flat Reservoir is located approximately 25.5 miles northeast of the plant site. No other large bodies of water are present near the plant site or associated linear facilities. As a result, the potential for tsunamis and seiches to affect the site is considered negligible.

GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

Energy Commission staff have reviewed applicable geologic maps and reports for this area (Kohler, 2002; Larose et al., 1999; Youngs and Miller, 1999; Cole and Fuller, 1988; DOGGR, 1982; and Tooker and Beeby, 1990). Based on this information and the

information contained in the SPPE application (KRCD, 2003), there are no known mineralogic resources located at or immediately adjacent to the proposed KRCDPP plant site.

The applicant's consultant conducted a paleontologic resources field survey and a sensitivity analysis for the proposed KRCDPP and the proposed linear facility improvements to support the KRCDPP. No significant fossil localities were identified at the KRCDPP site or directly under the associated linear facilities; however, ichnofossils (trace fossils, such as root casts) were found adjacent to the plant site at a storm water basin. The near-surface geologic unit, which includes the Miocene to Holocene continental rocks and deposits (Modesto, Riverbank, and Turlock Lake Formations), was assigned a "high" sensitivity rating with respect to potentially containing paleontological resources. Paleontologic sites serve as indicators in the sedimentary unit or formation in which they are found. As such, the continental rocks and deposits that include the Modesto, Riverbank, and Turlock Lake Formations are considered fossiliferous and have a high sensitivity rating for the potential occurrence of fossils in that unit. Based on the recommendations in the guidelines provided by the SVP, if an area is determined to have a high potential for containing paleontologic resources, a program for mitigation is developed. Based on a review of available information and since the geologic units exhibit a "high" sensitivity with respect to potential paleontologic resources, staff concludes that the proposed KRCDPP project has high potential to expose significant paleontologic resources during ground disturbance activities and, therefore, requires a mitigation plan.

IMPACTS

Following is the Environmental Checklist that identifies potential impacts in this issue area. Below the checklist is a discussion of each impact, and an explanation of the impact conclusion.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
GEOLOGY - Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving		X		
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	
ii) Strong seismic ground shaking?		X		
iii) Seismic-related ground failure, including liquefaction?		X		
iv) Landslides?				X
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse the loss of topsoil?		X		
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?		X		
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X
MINERAL RESOURCES - Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X
PALEONTOLOGICAL RESOURCES - Would the project:				
a) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		

DISCUSSION OF IMPACTS

Geology and Soils

A. Risk of Loss, Injury, or Death from Geologic Hazards: Less than Significant with Mitigation Incorporated

I. Rupture of Known Earthquake Fault: Less than Significant Impact

The proposed KRCDPP plant site and related linear facilities are not located on or cross an active fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Maps issued by the State Geologist.

II. Strong Seismic Ground Shaking: Less than Significant with Mitigation Incorporated

The KRCDPP project will be designed and constructed to conform to the CBSC (2001) requirements for Seismic Zone 3 and a horizontal peak ground acceleration value of up to 0.3g. Conditions of Exemption **GEO-1** will mitigate this impact by requiring the Applicant to follow the specific recommendations of the CBSC and prepare the soils engineering report.

III. Seismic Ground Failure or Liquefaction: Less than Significant with Mitigation Incorporated

The loose sandy soils identified in the boring logs indicate some potential for dynamic compaction. The final soils engineering report as required by **GEO-1** should specifically address mitigation measures with respect to dynamic compaction.

IV. Landslides: No Impact

Since the project facilities are located on a relatively flat alluvial plain, landslide potential is not considered to be a potential impact.

C. Unstable Soils: Less than Significant with Mitigation Incorporated

The loose sandy soils identified in the boring logs indicate some potential for dynamic compaction. The final soils engineering report as required by **GEO-1** should specifically address mitigation measures with respect to dynamic compaction.

D. Expansive Soils: Less Than Significant with Mitigation Incorporated

The soils present at the KRCDPP site have been classified as silty sands and silts. Condition of Exemption **GEO-1** requires the preparation of a soils engineering report, which will provide detailed information about the site's soils. If needed, engineering mitigation measures would be proposed to mitigate any soils impacts; however, this is not expected to be a significant issue.

E. Wastewater: See Hydrology and Water Quality Section

The KRCDPP project would use a zero liquid discharge (ZLD) system to process plant wastewater. Domestic wastewater will be discharged to the MCWD sewer system. Additional information about wastewater can be found in the **Hydrology and Water Quality** section of this report.

Mineral Resources

A. Loss of Mineral Resources: No Impact

There are no known geological or mineralogical resources located at or immediately adjacent to the proposed KRCDPP plant site or the linear facilities.

B. Loss of Identified Mineral Resource Recovery Sites: No impact

There are no known geological or mineralogical resources located at or immediately adjacent to the proposed KRCDPP plant site or the linear facilities.

Paleontology

A. Destruction of Paleontological Resource or Geologic Feature: Less Than Significant With Mitigation Incorporated

Based upon the literature search and field surveys performed by the Applicant for the project, the Applicant has proposed monitoring and mitigation measures to be followed during the construction of the plant and associated linear facilities. Energy Commission staff agrees with the Applicant that the scientific value of any vertebrate fossils encountered during construction of the plant and related features would be recovered with the implementation of a mitigation plan per the guidelines of the Society of Vertebrate Paleontology (SVP). As stated in the SPPE application, “direct impacts to potentially significant paleontological resources are expected to be construction-related, and during excavation activities at the site.” The applicant has committed to retaining a qualified paleontologist to design and implement a paleontological resources monitoring and mitigation program (PRMMP) during construction activities. With the implementation of a scientifically valid and accepted monitoring and mitigation program that includes curation of recovered paleontological resources, impacts to paleontologic resources will be less than significant.

CUMULATIVE IMPACTS

The KRCDPP site lies in an area that exhibits moderate geologic hazards and no known geologic or mineralogic resources at the plant site or linear facilities. Based on this information and the proposed condition of exemption to mitigate potential project specific impacts, it is staff’s opinion that the potential for significant adverse cumulative impacts to the project from geologic hazards, and to potential geologic, mineralogic, and paleontologic resources from the proposed project is low.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

None received.

CONCLUSION AND RECOMMENDATIONS

The proposed Condition of Exemption is to allow the Energy Commission Compliance Project Manager (CPM) and the applicant to adopt a compliance monitoring scheme that will ensure no substantial adverse impact to geological hazards and geological resources for the project.

With implementation of the noted mitigation measure, the project should have no adverse impact with respect to geological resources. Staff proposes to ensure compliance with applicable LORS for geological hazards with the adoption of the recommended Condition of Exemption listed below.

PROPOSED CONDITION OF EXEMPTION

GEO-1 The Soils Engineering Report required by the 2001 CBSC Appendix Chapter 33, Section 3309.5 Soils Engineering Report, should specifically include data regarding the liquefaction, dynamic compaction, expansion, and collapse potential of site soils. The liquefaction analysis shall be implemented by following the recommended procedures contained in Recommended Procedures for Implementation of California Division of Mines and Geology Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction Hazards in California dated March 1999.

Verification: At least 30 days prior to ground disturbance, the project owner shall submit a copy of Soils Engineering Report, which describes the liquefaction potential of the site foundation soils and a summary of how the results of the analyses were incorporated into the project foundation and grading plan design for review by the Compliance Project Manager (CPM).

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HAZARDOUS MATERIALS MANAGEMENT

Testimony of Geoff Lesh, P.E. and Rick Tyler

INTRODUCTION

This section provides a discussion of staff's evaluation of the potential impacts of the proposed Kings River Conservation District Peaking Plant (KRCDPP) associated with the handling of hazardous materials. Energy Commission staff's objective is to ensure that there will be no significant adverse impacts attributed to materials use or hazardous conditions during project construction, operation and closure. Energy Commission staff has determined that all CEQA checklist items for hazardous materials are either "less than significant impact" or "no impact." A brief hazards and hazardous materials overview of the project is provided, as are comments regarding selected CEQA checklist items with respect to hazards and hazardous materials. The section concludes with staff's proposed monitoring and mitigation measures with respect to hazards and hazardous materials, with the inclusion of three Conditions of Exemption.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

A framework, based on environmental laws, ordinances, regulations and standards (LORS), exists to reduce risks of accidents and reduce routine hazards. The following federal, state, and local laws generally apply to the protection of public health and the environment. Their provisions have established the basis for staff's determination regarding the significance of potential impacts and acceptability of the KRCDPP project.

FEDERAL

Superfund Amendments and Reauthorization Act of 1986

The Superfund Amendments and Reauthorization Act of 1986 (Pub. L. 99 - 499, §301,100 Stat. 1614 [1986]), also known as SARA Title III, and Clean Air Act (CAA) of 1990 (42 U.S.C. §7401 *et seq*. as amended), established a nationwide emergency planning and response program, and imposed reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials. Section 112(F) of the CAA, 42 U.S.C. §7412(F) requires the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility through preparation of Risk Management Plans. These requirements of the CAA are reflected in the California Health and Safety Code, section 25531 *et seq*.

STATE

California Health and Safety Code, Section 25534 and 25535.1

The California Health and Safety Code, section 25534 and 25535.1, direct owners of a stationary source, as defined in 40 C.F.R. §68.3, who store or handle acutely hazardous materials in reportable quantities, to develop a Risk Management Plan (RMP) and to submit it to appropriate local authorities, the United States Environmental Protection Agency (USEPA), and the designated local administering agency for review and

approval. The plan must include an evaluation of the potential impacts associated with an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure, any pre-existing evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. Fresno County Environmental Health Department is the local administering agency to determine the requirement for an RMP.

California Health and Safety Code, Section 41700

California Health and Safety Code, section 41700, requires that "No person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

California Government Code, Section 65850.2

California Government Code, section 65850.2, restricts the issuance of an occupancy permit to any new facility involving the handling of acutely hazardous materials until the facility has submitted an RMP to the administering agency with jurisdiction over the facility. Fresno County Environmental Health Department is the local administering agency.

LOCAL

Uniform Fire Code

The Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. These articles contain minimum setback requirements for the outdoor storage of ammonia.

California Building Code

The California Building Code also contains requirements regarding the storage and handling of hazardous materials. The Chief Building Official must inspect and verify compliance with these requirements prior to issuance of an occupancy permit.

SETTING

The proposed KRCDPP project site is at the southwest corner of the intersection of North Avenue with Chestnut Avenue, in an industrial area south of the city of Fresno and near the Community of Malaga, in Fresno County. The KRCDPP facility will occupy a total of approximately nineteen acres, while the plant would occupy approximately nine acres near the southern side of the site. The project site is immediately adjacent to industrial properties. Currently, the proposed project site is vacant and was previously used to park flatbed trucks and for truck maintenance. Existing uses within the immediate area of the project site include; heavy industrial manufacturing, warehouse/commercial and residential uses. There are also some agricultural parcels that exist in the project area.

The primary fuel source for the KRCDPP Project is natural gas. Selective Catalytic Reduction (SCR) is to be used to reduce nitrogen oxide (NO_x) emissions from the combustion of natural gas in the combustion turbine. Aqueous ammonia will be used in the SCR process to convert the NO_x into nitrogen and water vapor, requiring the installation of one above-ground storage tank for aqueous ammonia. A number of other hazardous chemicals will also be used at the new KRCDPP facility in small quantities.

Proposed safeguards and measures to greatly reduce the opportunity for, or the extent of, exposure to hazardous materials or other hazards would be put in place.

IMPACTS

Following is the Environmental Checklist that identifies potential impacts in this issue area. Below the checklist is a discussion of each impact, and an explanation of the impact conclusion.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport or use of hazardous materials?		**X**		
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		**X**		
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				**X**
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				**X**
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				**X**
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				**X**
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				**X**
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				**X**

DISCUSSION OF IMPACTS

The basis for the impact determinations in the checklist is discussed below.

A. Transport or Use of Hazardous Materials: Less than Significant with Mitigation Incorporated

A variety of hazardous materials are proposed for storage and use during the construction of the project and for routine plant operation and maintenance. A list of the hazardous materials to be used during operation of the facility is included in Table 5.10-4 of the SPPE application (KRCD2003a). One of these materials, aqueous ammonia, and natural gas, are addressed below.

The hazard characteristics of ammonia and natural gas and their proposed use in substantial amounts during the operation of the plant pose the principal risk of off-site impacts. The potential threats from the other hazardous materials are not as significant as they are to be stored, handled or used for routine purposes in relatively smaller quantities at the facility and also have lower toxicity and/or environmental mobilities.

Aqueous Ammonia

Selective Catalytic Reduction (SCR) is proposed to reduce nitrogen oxide (NO_x) emissions to meet the plant's air quality permit requirements. Aqueous ammonia reacts with a catalyst to convert the NO_x into inert water vapor and nitrogen in the SCR process. The aqueous ammonia proposed for use is a solution of approximately 29% ammonia and 71% water. Solutions containing more than 20% ammonia are considered regulated materials exceeding reportable quantities defined in the California Health & Safety Code section 25532(j). The proposed use of aqueous ammonia significantly reduces the risks that would otherwise be associated with use of the more hazardous anhydrous form of ammonia. The aqueous form eliminates the high internal energy associated with the more lethal anhydrous form, which is stored as a liquefied gas at elevated pressure. The high internal energy associated with the anhydrous form of ammonia can act as a driving force in an accidental release that can rapidly introduce large quantities of the material to the ambient air, where it can be transported in the atmosphere and result in high down-wind concentrations. Spills associated with the aqueous form are also much easier to contain than those associated with the anhydrous form. In addition, relatively slow mass transfer from the free surface of the spilled aqueous solution limits emissions from a spill of aqueous ammonia.

Aqueous ammonia is typically transported and handled safely and without incident. However, mishandling can result in impacts on public health, particularly during transfer from a delivery vehicle to a storage tank. It is during this transfer operation that the greatest risk of an accidental spill and release could occur. Thus, measures to prevent accidental releases and mixing with incompatible materials during transfer are extremely important and will be required as part of a Safety Management Plan for delivery of aqueous ammonia (see Condition of Certification HAZ-3).

A significant number of modern power plants routinely use aqueous ammonia and the Energy Commission has licensed many such plants. Much of the risks associated with using ammonia are already reduced through KRCDPP's proposed use of the aqueous

form of ammonia. Project compliance with LORS and staff's Conditions of Exemption make it unlikely that the use of aqueous ammonia will result in a significant threat to public health and the environment.

The transportation of hazardous materials including aqueous ammonia, particularly on California freeways, is routinely regulated and controlled by various federal and state laws, ordinances, regulations, and standards as discussed in the section titled Traffic and Transportation. There are a number of transportation accident studies that support the fact that such incidents and corresponding chances are highly dependent on the type of roadway and surroundings. It has been reported that the truck accident frequency for all types of trucks, not exclusively for trucks transporting hazardous materials, is highest for an undivided multilane road at 5.44 accidents per million miles compared to 0.93 accidents per million miles for a freeway in rural California (Davies et. al., 1992).

A recent study went even further by concluding that releases of hazardous materials on freeways rarely play a role in deaths or injuries (FMCSA, 2000). It is therefore reasonable to say that the likelihood of an accident involving a release of ammonia is probably higher on local roads than on freeways. This is supported in a report that observed that accident rates in general are typically much higher for two-lane rural roads compared to multilane highways (USDOT, 1998).

Staff has evaluated available routes for shipment of hazardous materials to the facility and concludes that the risk to the public from transportation of aqueous ammonia is less than significant with mitigation incorporated. Most of the transportation route is on State Route (SR) 99. Because the facility is located approximately one mile from SR 99 it is very unlikely that a serious release would occur in the project area.

Staff therefore concludes that any potential adverse impacts from the transport of aqueous ammonia can be easily limited to a level of insignificance through the Applicant's conformance to applicable standards and laws, reinforced by staff's proposed Conditions of Exemption.

Natural Gas

The primary fuel source for the proposed project is natural gas. Natural gas poses a fire and/or explosion risk as a result of its flammability. While natural gas will be used in significant quantities, it will not be stored on-site. The risk of a fire and/or explosion from natural gas can be reduced to insignificant levels through adherence to applicable codes and the development and implementation of effective safety management practices. The National Fire Protection Association (NFPA) Code 85A requires: 1) the use of double block and bleed valves for gas shut-off; 2) automated combustion controls; and 3) burner management systems (NFPA 1987). These measures will significantly reduce the likelihood of an explosion in gas-fired equipment. Additionally, start-up procedures will require air purging of the gas turbines prior to start-up, thus precluding the presence of an explosive mixture.

The facility will also require the installation of 700 feet of new natural gas pipeline to connect to the existing local Pacific Gas and Electric (PG&E) gas transmission line, that could result in accidental release of natural gas. In order to detect an accidental release

of natural gas, both PG&E's main pipeline and the gas in the proposed pipeline will be odorized. PG&E will prepare an operations and maintenance plan that addresses both normal procedures and conditions, and any upset or abnormal conditions that could occur. The pipeline segments will be under a continuous cathodic protection system and PG&E will perform periodic cathodic protection surveys. There will be markers to identify the pipeline locations, as well as a posting of the toll-free number to call prior to any excavation that may occur around the pipeline

The proposed new pipeline segment will be designed, constructed, owned and operated by PG&E in accordance with national safety codes and the safety standards for new gas pipelines stated in the California Public Utility Commission's General Order (G.O.) 112-E.

It is staff's belief that design and operation of these pipelines in accordance with applicable standards will result in an insignificant risk of impact to the public as a result accidental release of natural gas from the new pipelines.

B. Accidental Release of Hazardous Materials: Less than Significant with Mitigation Incorporated

Aqueous ammonia is being proposed for use in controlling NO_x emissions created during the combustion of natural gas at the facility. As stated in section A) above, the preparation of an aqueous ammonia Safety Management Plan will address potential impacts which may occur during the transfer of aqueous ammonia from the delivery vehicle to the storage tank.

Staff reviewed the applicant's proposal to use aqueous ammonia. The applicant's modeling showed that the downwind distance to the CEC's diminimus concentration level, 75 ppm, for a worst-case spill would be beyond the site's fence line. Staff's own modeling using the SLAB (Ermak) computer model, shows that there is a potential for a worst-case spill to have downwind concentrations of 200 ppm to reach 110 feet (at the site's nearest fence line) and for a 75 ppm concentration to reach approximately 270 feet downwind from the storage tank, falling well short of the nearest sensitive receptor, a residence at a distance of 1100 feet.

Staff considers this analysis to be conservative in that it is likely to be over-predicting of the downwind distance that a potential spill plume might travel for the following reasons:

- The berm providing secondary containment of the spill will reduce the effect of the ambient wind over the surface of the spill. The resulting mass flow coefficient for ammonia escaping into the air will be reduced by approximately a factor of 10, thus reducing the downwind plume concentrations.
- The near-saturation solution of ammonia in water will rapidly deplete and cool, reducing the duration of significant release of ammonia to approximately ten to fifteen minutes, although release durations used in modeling were 60 minutes.

Compliance with applicable LORS, existing safeguards, and staff's Conditions of Exemption will greatly reduce the opportunity for, or extent of, exposure to ammonia vapors by the public.

C. Emission or Handling Hazardous Substances near a School: No Impact

There are no known schools within a ¼ mile radius of proposed project.

D. Site Listed as Hazardous: No Impact

The KRCDPP project is not located on a hazardous waste site.

E. Airport Hazard Area: No Impact

The KRCDPP project is not located within an airport land use plan.

F. Private Airstrip Hazard Area: No Impact

There are no private airstrips in the vicinity of the project. Therefore, there are no impacts anticipated to a private airstrip.

G. Impair Emergency Response Plan: No Impact

It appears that the construction and operation of the project would improve upon the reliability of the local power system and therefore benefit the local emergency response capabilities. No interference with emergency response plans or emergency evacuation plans is anticipated.

H. Exposure to Wildland Fires: No Impact

The proposed site would be mostly paved and hence clear of substantial vegetation. The immediate area around the site could be landscaped with limited brush, shrubs, or trees and maintained and irrigated so as not to colonize the site.

Fire hazard from vegetation is not a concern since any landscaped trees, brush, or grass surrounding the KRCDPP site would be maintained and irrigated on a regular basis.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is greater than fifty percent within a six-mile radius of the proposed KRCDPP power plant (please refer to Socioeconomics Figure 1 in this Staff Assessment), and Census 2000 information that shows the low-income population is less than fifty percent within the same radius. Based on the Hazardous Materials Management analysis, which included consideration of information supplied by participants at staff workshops, staff has not identified significant direct or cumulative impacts resulting from the construction or operation of the project, and therefore there are no Hazardous Materials Management environmental justice issues related to this project.

CUMULATIVE IMPACTS

Although the presence of the KRCDPP facility will increase the amounts of hazardous materials in the local project area, the quantities present and mitigating measures proposed will result in no expected significant cumulative impacts.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

Public Comments

None received.

Agency Comments

The Fresno County Department of Community Health, Environmental Health System (reference tn:31049-3/4/04) questioned the applicant's input values and results obtained from their SLAB-based modeling of potential ammonia spills. Staff's review of the input data found that an adjustment of the source temperature to ambient conditions was appropriate. This change increased the modeled distance for the 200 ppm concentration from approximately 50 feet to 100 feet downwind for a potential worst-case spill.

Applicant's modeling for the alternative case made use of the RMP*Comp (EPA 2001) computer model which does not allow for the mitigating effects of the bermed secondary containment area at the modeled ambient temperature of 81 degrees Fahrenheit. When allowing for the bermed secondary containment area the distances for both the worst-case and alternative-case scenarios were reduced to less than 0.1 miles – the lowest possible output from RMP*Comp, consistent with the SLAB model results for the 200 ppm concentration.

Staff finds that through the Applicant's conformance to applicable standards and laws, reinforced by staff's proposed Conditions of Exemption, risks of impact to the public are limited to a level of insignificance.

CONCLUSIONS

By incorporating the appropriate Conditions of Exemption, the routine transport to and use of hazardous materials at the KRCDPP project site will not result in significant impacts to the public or the environment. Analysis shows that there will be no significant direct or cumulative impact to an environmental justice population.

PROPOSED CONDITIONS OF EXEMPTION

HAZ-1 The project owner shall direct all vendors delivering aqueous ammonia to the site to use only tanker truck transport vehicles, which meet or exceed the specifications of DOT Code MC-307.

Verification: At least 30 days prior to receipt of aqueous ammonia onsite, the project owner shall submit copies of the notification letter to supply vendors indicating the transport vehicle specifications to the CPM for review and approval.

HAZ-2 The project owner shall not use any hazardous material in reportable quantities, as specified in Title 40, Code of Federal Regulations, section 355.50, not listed included in Table 5.10-4 of the SPPE application (KRCD2003a), unless approved in advance by the CPM.

Verification: The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials contained at the facility in reportable quantities.

HAZ-3 The project owner shall develop and implement a Safety Management Plan for delivery of aqueous ammonia and submit the plan to the CPM for review and approval. The plan shall include procedures, protective equipment requirements, training and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of aqueous ammonia with incompatible hazardous materials.

Verification: At least 30 days prior to the delivery of aqueous ammonia to be used at the facility, the project owner shall provide a safety management plan as described bove to the CPM for review and approval.

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HYDROLOGY AND WATER QUALITY

Testimony of Tony Mediati

INTRODUCTION

This analysis examines water resources issues related to the proposed Kings River Conservation District Peaking Plant (KRCDPP) project. The purpose of staff's analysis is to determine whether potential impacts from the project as proposed, are substantial and adverse to water resources. An evaluation of relevant laws, ordinances, regulations, and standards (LORS) has been included to assist in Staff's analysis. All potentially substantial impacts are evaluated and summarized in respect to significance thresholds established in the CEQA Environmental Checklist. The proposed KRCDPP project specifically involves the following topics:

- How the project's water demand affects the local water supplies;
- Whether construction or operation will lead to significant wind or water erosion and sedimentation; and
- Whether project construction or operation will lead to degradation of surface or groundwater quality.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

Staff is charged with evaluating whether the project as proposed has a substantial adverse impact on the environment or public health and safety. Staff has identified the following LORS as useful as additional significance criteria for evaluating whether the project as proposed will have a substantial adverse impact on water resources.

FEDERAL

Clean Water Act

The Clean Water Act (33 USC § 1257 et seq.) requires states to set standards to protect water quality through the regulation of point source and certain non-point source discharges to surface water. These discharges are regulated through requirements set forth in specific or general National Pollutant Discharge Elimination System (NPDES) permits. Storm water discharges during construction and operation of a facility, and incidental non-storm water discharges associated with pipeline construction also fall under this act, and are addressed through a general NPDES permit. In California, requirements of the Clean Water Act regarding regulation of point source discharges and storm water discharges are delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCB).

STATE

California Constitution, Article X, Section 2

This section requires that the water resources of the State be put to beneficial use to the fullest extent possible. The waste, unreasonable use or unreasonable method of use of

water is prohibited. The conservation of such waters is to be exercised with a view to the reasonable and beneficial use in the interest of the people and for the public welfare. The right to water or to the use or flow of water in or from any natural stream or water course in the State is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use, or unreasonable method of use, or unreasonable method of diversion of water.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1967, Water Code Section 13000 et seq., requires the State Water Resources Control Board and the nine regional RWQCBs to adopt water quality criteria to protect the State's waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. The criteria for the KRCDPP project area are contained in the Central Valley Region Water Quality Control Plan. This plan sets numerical and/or narrative water quality standards controlling the discharge of wastes to the State's waters. These standards are applied through the issuance of Waste Discharge Requirements (WDRs) by the RWQCB.

California Water Code

Section 13146 of the Water Code specifies that State offices, departments and boards in carrying out activities which affect water quality, shall comply with state policy for water quality control unless otherwise directed or authorized by statute, in which case they shall indicate to the state board in writing their authority for not complying with such policy.

Recycling Act of 1991

The Water Recycling Act of 1991 (Water Code § 13575 et seq.) encourages the use of recycled water whenever possible.

Water Recycling Criteria

Under Title 22 of the California Code of Regulations § 60301 et seq., the California Department of Health Services (DHS) reviews and approves wastewater treatment systems to ensure they meet tertiary treatment standards allowing use of reclaimed water for industrial processes such as steam production and cooling water.

POLICIES

SWRCB Resolution 75-58

The SWRCB has also adopted a number of policies that provide guidelines for water quality protection. The principal policy of the State Board, which addresses the specific siting of energy facilities, is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (adopted by the Board on June 19, 1976 by Resolution 75-58). This policy states that use of fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. This SWRCB policy requires that power plant cooling water should come from (in order of priority): wastewater being

discharged to the ocean, ocean water, brackish water from natural sources or irrigation return flow, inland waste waters of low total dissolved solids, and other inland waters. This policy goes on to address cooling water discharge prohibitions. Resolution 75-58 is not administered through a permitting process by the State Water Resources Control Board.

SWRCB Resolution 77-1

State Water Resources Control Board Resolution 77-1 encourages and promotes reclaimed water use for non-potable purposes.

LOCAL

County of Fresno

Policy OS-A.23: the County shall protect groundwater resources from contamination and overdraft.

Policy OS-A.25: The County shall minimize sedimentation and erosion through control of grading, cutting of trees, removal of vegetation, placement of roads and bridges, and use of off-road vehicles. The county shall discourage grading activities during the rainy season unless adequately mitigated to avoid sedimentation of creeks and damage to riparian habitat.

Policy OS-A.27: The County shall monitor water quality regularly and take necessary measures to prevent contamination, including the prevention of hazardous materials from entering the wastewater system.

City of Fresno

G-2. OBJECTIVE: Maintain a comprehensive, long-range water resource management plan that provides for appropriate management of all sources of water available to the planning area and ensures that sufficient and sustainable water supplies of good quality will be economically available to accommodate existing and planned urban development.

G-3. OBJECTIVE: Protect water resources in the area from further degradation in quality.

G-4. OBJECTIVE: Manage, use, and replenish water resources to maintain a balanced “water budget” in the Fresno area.

SETTING

The KRCDPP project would occupy 9.5 acres within a 19-acre parcel near the community of Malaga in Fresno County. The other 9.5 acres within the parcel would be used for construction laydown and parking and storm water detention. The project would be a peaking facility consisting of two combustion turbine generators to be integrated into PG&E’s system at the Malaga Substation. After construction the area used for laydown and parking during construction would be available for other uses.

GROUNDWATER

The KRCDPP site is located within the aquifer system of the Central Valley of California. The Central Valley is composed of three main hydrographic sub-basins. The northernmost sub-basin is the Sacramento Valley and is drained by the Sacramento River. The San Joaquin Valley, making up the southern two-thirds of the Central Valley is divided into two sub-basins: the San Joaquin Basin, drained principally by the San Joaquin River, and the Tulare Basin at the southern end with interior drainage into the aquifer system below the now-dry Tulare lake bed. The KRCDPP site is located near the boundary between the San Joaquin and Tulare Basins.

The aquifer system of the Central Valley is composed of interlayered gravel, sand, silt, and clay derived from the surrounding mountains. The shallow part of the aquifer has unconfined water table conditions and the deeper part is semiconfined to confined. The thickness of sediments comprising the fresh water aquifer averages about 2900 feet in the San Joaquin Valley. The numerous lenses of fine-grained (silt and clay) sediments are distributed throughout the valley and in most places constitute over 50 percent of the total thickness penetrated by wells (USGS, 1991). Most of these fine-grained lenses are not extensive; however, a notable major one is the Corcoran Clay Member of the Tulare Formation. This clay unit underlies an area of approximately 5,000 square miles and ranges in thickness from near zero to at least 160 feet. Prior to development of the valley, the Corcoran Clay Member acted as an effective confining unit; however, the drilling of numerous large diameter wells through the Corcoran Clay and the practice of perforating wells above and below it has reduced the effectiveness of the Corcoran Clay as a confining unit (USGS, 1991).

Groundwater has been and is a large portion of the water supply for the San Joaquin Valley for both irrigation and domestic uses. Extensive groundwater pumping in the San Joaquin Valley since the turn of the century has resulted in widespread land subsidence. Subsidence began in the mid-1920's as groundwater was pumped for irrigation and more than 5,000 square miles has subsided by more than one foot, with local areas of subsidence of greater than 20 feet (USGS, 1991). Land subsidence due to groundwater withdrawal is caused by compaction of clay units within the aquifer system as the hydraulic head declines and water is released from the clays into the aquifer system. Subsidence has slowed considerably since the late 1970s; however, significant increases in groundwater pumping and lowering of water levels could cause subsidence to resume (USGS, 1989; USGS, 1991). Groundwater overdraft occurs near the major cities of Fresno and Clovis. Extensive groundwater use by irrigation districts (including Raisin City Water District and Mid-Valley Water District) and individual property owners also substantially adds to the existing overdraft problem in the Central Valley. Several large depressions exist within Fresno County, mainly near Raisin City and under the City of Fresno. These are caused by a large amount of groundwater overdraft in those areas of the Central Valley. The California Department of Water Resources (CDWR) has estimated groundwater overdraft of 650,000-acre feet for 1990 in the Tulare Lake Region. Overdraft varies year to year, depending on surface water availability for much of Fresno County. Long-term projections indicate a continuing annual overdraft of the basin underlying most of Fresno County.

Groundwater quality in the San Joaquin Valley is generally good in the deeper semi-confined and confined aquifers. The shallow aquifers, however, generally have poor water quality with high dissolved solids, chloride, and sulfate concentrations (USGS, 1989). Additionally, pesticides and fertilizers that have been applied to the land have leached into the shallow aquifers via irrigation water. Regional groundwater conditions vary from eastern to western Fresno County. Groundwater in the Fresno area is generally deep and alkaline. Aquifers east of the valley trough are semi-confined to unconfined. Water quality is good, with exceptions of some localized areas. The majority of the project area is industrial and several sources of groundwater contamination have been discovered and catalogued. Groundwater contaminants of regional concern include a full range of industrial and agricultural chemicals, including volatile organic compounds, petroleum hydrocarbons, chlorinated solvents, pesticides, metals, gross alpha and beta radiation, and other industrial compounds. In particular, the now banned agricultural pesticide, dibromochloropropane (DBCP) and ethylene dibromide (EBD) are considered widespread contaminants that were previously utilized to control nematodes and fumigate citrus crops.

Groundwater below the site as reported in the KRCD Annual Groundwater Report 2000 is approximately 50 feet below ground surface and flows in a northwesterly direction. Local groundwater levels fluctuate to a small degree annually depending upon precipitation, runoff, and groundwater pumping.

The Malaga County Water District (MCWD) gets its entire water supply from groundwater. All customers, whether residential, commercial or industrial within the MCWD service territory and/or served by MCWD get their supply from the MCWD system, which is supplied by groundwater.

SURFACE WATER

The project area is located on an elevated alluvial plain situated between the San Joaquin River and Kings River systems. The San Joaquin River is located approximately 18 miles north of the KRCDPP, while the closest section of the Kings River is located about 15 miles south of the KRCDPP. There are no significant natural water features on or adjacent to the project area. There are abundant man-made canals that deliver irrigation water originating from the Kings River and capture irrigation tail water. Canals crisscross the fields, parallel the roads, and cross the locations of the proposed linear facilities (i.e. transmission, gas, sewer and water). Within a 2-mile radius of the proposed KRCDPP there are no natural surface waters, however, there are several canals and drainage ponds in the area. The only major surface waters in the project vicinity are the Central Canal and one of its diversions, the Fresno Colony Canal, which are owned and operated by Fresno Irrigation District (FID). Portions of these canals are in close proximity to the project site.

The Central Canal is a narrow, 30 foot wide by 5 foot deep canal operated and maintained by FID. This surface water has been diverted from the Kings River through Fresno Main Canal to be used for beneficial agricultural uses. Water is usually only found in this canal during high periods of storm water runoff, or during irrigation seasons. The canal typically carries a capacity of 13,420 acre-feet per month during July. Some places along the canal are concrete lined with some areas showing bare compacted soil bottom. The canal walls and subsequent levee are generally barren

with the exception of a few cottonwood trees and native vegetation that isn't controlled by FID's vegetation abatement program.

The Federal Emergency Management Agency (FEMA) has mapped the project area as being located outside the 100-year flood hazard zone. Only two narrow areas along the Central Canal and west of State Route 99 are considered susceptible to a 100-year flood event. These areas are within the project vicinity, but are not adjacent to the proposed KRCDPP. The remainder of the project vicinity is protected through existing drainage pipelines and ponding basins (KRCD2003a).

WATER SUPPLY AND USE

The proposed KRCDPP will use water supplied by the Malaga County Water District, which currently serves the local area near the project site and has an existing 10-inch supply line located along Chestnut Avenue. MCWD has a single distribution system that delivers water for both potable and non-potable uses in the area. The source of supply is entirely from groundwater. Water from the MCWD would serve the domestic, cooling, and process water demands of the proposed KRCDPP. The peak water demand for the KRCDPP is estimated at 210 gallons per minute (gpm).

KRCD is proposing a route for interconnection into the MCWD system. The route would interconnect at the intersection of North and Chestnut. The proposed interconnection is approximately 2000 feet and would run north from the project site and along the south side of North Avenue to the intersection of North and Chestnut Avenues.

A copy of the "will serve" letter from MCWD is included in Appendix 5.3-2 of the SPPE application. The proposed KRCDPP site is presently located within the Sphere of Influence of the MCWD, however, it is outside the existing MCWD boundary. The property would be required to annex to the MCWD to receive water and sewer service. KRCD and MCWD would enter into an "Out-of-District" Service Agreement to provide services while the annexation process is being completed. Annexation of the site would not be a pre-requisite to obtaining water and sewer services (KRCDPP 2003a).

SWRCB Resolution 75-58 requires that power plant cooling water should come from (in order of priority): wastewater being discharged to the ocean, ocean water, brackish water from natural sources or irrigation return flow, inland waste waters of low total dissolved solids, or other inland waters. Such water supply alternatives were evaluated for the proposed project (KRCDPP2003a, Chapter 6) but were considered infeasible. Ocean water and wastewater discharges to the ocean are locally unavailable. Irrigation return flows are only available approximately eight months out of the year, and are of poor quality which would require more water volume, treatment, and result in fewer cycles of concentration to be usable for the proposed project. Adequate quantities of treated wastewater are not readily available. The only wastewater source near KRCDPP project is the secondary or tertiary treated effluent from Malaga Waste Water Treatment Facility (MWWTF). The MWWTF is owned and operated by the MCWD and is located approximately one mile south and west of the proposed KRCDPP project site. The tertiary facilities at the MWWTF do not operate on a 24 hour schedule, nor does it operate year-round. The MWWTF operates approximately 8 hours per day. It does not operate during holidays or weekends. The typical annual operating period for the tertiary facility is from March to October. To provide effluent discharge reliability of the

tertiary system for the applicant's needs, the applicant would be responsible in keeping the tertiary plant of the MCWD in operation. The MWWTF does not have a redundant filtering system, chlorine contact chambers, pumping facility or chemical feed lines, therefore cannot guarantee that all effluent water leaving the plant will be treated to tertiary standards. This would require the KRCDPP to develop redundant treatment facilities at the MWWTF or at the KRCDPP site to meet the water quality needs of the plant and allowable water quality standards at the point of discharge from the MWWTF tertiary facility (KRCDPP2004f).

WASTEWATER DISCHARGE

Process Wastewater

A zero liquid discharge (ZLD) system is proposed to treat process wastewater and thus eliminate process wastewater discharge from the KRCDPP. Solid waste that could cause a significant impact to the water quality will be properly disposed. Two on-site ZLD technologies and one off-site ZLD technology are currently being considered. Waste from the on-site ZLD technologies will be collected and transported off-site for proper disposal. The off-site ZLD technology will utilize a portable water treatment system, which is periodically replaced as the treatment system is consumed. The ZLD will result in less potential for impacts than with the discharge of power plant cooling water to either land or other surface waters. The ZLD system also has the advantage of making the maximum use of water supplies. Final selection of the ZLD system will depend on a cost and reliability analysis provided during the final design process.

The applicant has proposed three options for waste discharge, included in **Soil & Water Resources Table 1** below.

Soil & Water Resources Table 1
Proposed ZLD Options

Option	Conceptual Description	Final Waste Product
1	Reverse Osmosis/Brine Concentrator/Spray Dryer	Dry Solid
2	Reverse Osmosis/Crystallizer	Highly Concentrated Liquid
3	Mobile ion exchange resin bed	Depleted resin bed (rechargeable)

The following is a brief description of each of the ZLD options that KRCD is considering:

Option 1 – ZLD Reverse Osmosis/Brine Concentrator/Spray Dryer

This ZLD option consists of a reverse osmosis (RO) system, a brine concentrator and an electric air-heated spray dryer. The process would involve sending raw water through the RO system to generate deionized (DI) water. The DI water would be sent to a 200,000 gallon DI water tank, while the wastewater streams from the RO reject water and the RO multi-media filter backwash water would be sent to an 80,000 gallon wastewater storage tank. The wastewater from the wastewater storage tank would be sent to a brine concentrator spray dryer system for processing. The brine concentrator process involves concentrating and evaporating wastewater from the KRCDPP. Recovered distillate (pure water) from the brine concentrator would be sent back to a small storage tank for reuse as makeup water. The small amount of highly concentrated brine solution, which represents the only process wastewater stream not reclaimed for reuse, would be sent to an electrically heated spray dryer system where it would be evaporated, leaving a dry solid suitable for landfill disposal.

Option 2 – ZLD High Efficiency Reverse Osmosis/Crystallizer

This ZLD option utilizes a conventional water softener, and a high efficiency RO system, followed by a final crystallizer. The process involves sending raw water to a water softener system upstream of the RO system to remove hardness and alkalinity. This pretreatment process essentially increases the overall efficiency of the RO process, which results in smaller quantities of wastewater compared to Option 1. The DI water would be sent to a 200,000 gallon water tank, while the wastewater would be sent to an 80,000 gallon wastewater tank and then to a ZLD final crystallizer. The ZLD final crystallizer process generates a highly concentrated liquid brine waste that is trucked off-site for disposal.

Option 3 – ZLD Off-Site Regeneration

In this ZLD option, raw water would be sent to a mobile ion exchange resin bed trailer to produce DI water. No RO system or other onsite permanent water treatment systems are required for this option. When a resin bed trailer is due for regeneration, it would be trucked off and replaced with a recharged resin bed trailer. The KRCDPP would have a minimum of two resin bed trailers on-site at all times to maintain reliability for uninterrupted water treatment service. The DI water would be sent to a 200,000 gallon storage tank. Because the resin beds are regenerated off-site, this option does not require a wastewater tank. With option 3 there is also the potential to use DI water as inlet air chiller cooling tower makeup water instead of raw water. Using DI water as makeup water reduces the amount of chemicals required in the inlet air chiller cooling towers, results in very little blowdown to be sent back to the resin trailers and mixed with incoming raw water, and produces very little particulate emissions from the cooling tower compared to the other options. However, capital costs are higher because the cooling towers and associated equipment must be constructed of special non-corrosive materials.

The final specifications of the ZLD system have not been determined by the applicant at this time. In the case of Option 1, the solid or cake will be disposed of at an appropriately licensed landfill, and if Option 2 is selected, the highly concentrated waste will be required to be stored on-site with adequate secondary containment until it is trucked off-site to an appropriately licensed facility. If option 3 is selected the resin bed will be rejuvenated at an

appropriate facility. In all cases, however, the wastewater discharge concerns are eliminated as there will no longer be a potential for ground or surface water contamination from process wastewater discharge during standard operating conditions.

Other Waste Streams

While process waste is the primary wastewater stream associated with the project, other discharges include domestic/sanitary waste, and stormwater.

Domestic sanitary waste produced at the KRCDPP will be sent to the existing MCWD sanitary system. The MCWD sanitary sewer pipeline is located on Chestnut Avenue. The sewer pipeline from the KRCDPP will follow the same route as the water supply pipeline to Chestnut Avenue where it will interconnect with the MCWD sewer line. MCWD's existing sewer system has sufficient capacity for receiving the domestic waste from the KRCDPP. The proposed KRCDPP will not result in any significant impacts to the existing sewer system.

The Fresno Metropolitan Flood Control District (FMFCD) is the agency responsible for storm water management at the KRCDPP. An existing storm water basin is located just north of the project site and the KRCDPP will use the basin as a storm water retention pond for use during project construction. The basin has a capacity of 22 acre-feet. A 100-year event on the 19 acre parcel would be approximately 9 acre feet of water; therefore, the basin would support a 100 year rain event.

Storm water runoff will be controlled during construction and KRCDPP operations by adhering to the requirements of the General Construction Permit and General Industrial Permit that will be obtained from the CVRWQCB. The Construction storm water pollution prevention plan (SWPPP) identifies specific measures and Best Management Practices (BMPs) that will be implemented to control storm water runoff. The proposed KRCDPP will not result in any significant increase in storm water runoff.

KRCDPP equipment areas that possess a potential for storm water contamination, such as the chemical storage areas or transformer areas, shall be designed with secondary containment basins to prevent contaminates from entering the storm water system. The ammonia tank and generator step-up transformer containment basins shall be designed with automatic sump pumps equipped with ammonia sensors and oil minder switches to prevent accidental discharge of contaminated water to the storm water system (KRCDPP2004f).

KRCDPP process water that may be contaminated will be collected and sent to an oily water separator and then recycled for plant use. The design will prevent this water from being discharged to the storm system (KRCDPP2004f).

IMPACTS

The Environmental Checklist below identifies impacts in the Hydrology and Water Quality issue area that could potentially result from the KRCDPP project. A discussion of each impact and an explanation of the impact conclusion follows the checklist.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
HYDROLOGY AND WATER QUALITY -- Would the project:				
a) Violate any water quality standards or waste discharge requirements?				X
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?		X		
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?			X	
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				X
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X	
f) Otherwise substantially degrade water quality?			X	
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j) Inundation by seiche, tsunami, or mudflow?				X
k) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
l) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
HYDROLOGY AND WATER QUALITY -- Would the project:				
m) Require or result in the construction of new storm water drainage facilities or expansion existing facilities, the construction of which could cause significant environmental effects?			X	
n) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
o) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X

DISCUSSION OF IMPACTS

A. Violation of Water Quality Standards or Waste Discharge Requirements: No Impact

The applicant has identified three options for ZLD, outlined above in the **Process Wastewater** discussion. Whether the resultant waste from the project is a solid, a low volume-high concentration liquid waste or a rechargeable resin bed, the project will avoid discharges to land or water bodies. Whichever option the applicant adopts, in the absence of discharge to land or water, the project will have no impact to water resources.

Regarding construction and operational related impacts to groundwater and surface water quality, the project will implement best management practices (BMPs) to control pollution of ground and surface water. The project will comply with applicable stormwater requirements, such that no degradation of water quality as a result of stormwater runoff or erosion occurs. Staff addresses stormwater quality concerns regarding drainage alteration and stormwater in more detail within the following checklist sections.

B. Depletion of Groundwater Supplies or Recharge: Less than Significant with Mitigation Incorporated

The project would use local ground water for all process and domestic water needs. The wells intended to serve the project are operated by the MCWD. MCWD has the well capacity to supply the project with water. The ground water aquifer from which the water would be supplied is significantly overdrafted. The additional withdrawal of 75 to 100 acre-feet per year of ground water from this basin is a potential significant cumulative impact due to the already impaired nature of this system. The applicant proposes the use of 75 to 100 acre-feet of surface water runoff from the Kings and San Joaquin Rivers to reduce the potential impact the

KRCDPP may impose on the overdrafted ground water basin. The applicant will work conjunctively with the Fresno Irrigation District (FID) to generate and facilitate a plan to recharge purchased surface water into a basin(s) located in the Kings River service area every year for the operational life of the KRCDPP. The sites the applicant is considering for this recharge water would have a direct local benefit to the basin that underlies Malaga. FID is a local agency developed to protect and manage the surface and groundwater resources of the FID in order to meet the present and future water needs of the people and lands within the FID.

The ZLD system allows the project to utilize water at a greater efficiency, reducing project water demand by approximately 25%. With the implementation of the proposed mitigation no significant adverse impacts to ground water supplies or recharge are expected.

C. Substantial Alteration of Drainage Patterns or Causing Erosion: Less Than Significant Impact

The construction and operation of the proposed KRCDPP project and associated linear elements would not substantially impact the existing drainage pattern or involve significant impacts to any streams or other water bodies.

Construction of the proposed KRCDPP project would occur on 19 acres of land. The proposed project will occupy 9.5 acres for the plant site, 4 acres for the storm water basin and 5.5 acres for construction laydown and parking.

During construction and operation, stormwater runoff and erosion will be controlled through adherence to the conditions of a CVRWQCB Stormwater Permit. The permit requires two Stormwater Pollution Prevention Plans (SWPPPs), one for construction activities and one for operation activities, that specify measures that would be used to control erosion and sedimentation.

The SWPPPs would include the following measures:

- BMPs to minimize erosion during and after construction. Surface soil protection may include the use of mulches, synthetic netting material, riprap, and the compacting of native soil.
- Conduct all construction activities in accordance with California's General Permit for Storm Water Discharge Associated with Construction Activity, including the erosion control measures in the SWPPP and BMPs to reduce erosion and the transport of increased suspended sediment from construction areas.
- In the construction area soil should be graded and compacted to ensure that soil is not left in irregular piles that are more susceptible to water and wind erosion. Seeding will be performed in the areas where natural vegetation has been distressed or removed by construction activity.

Construction activities related to the gas and water pipelines would involve trenching, pipe installation, and backfilling. Specific BMPs that are appropriate to minimize wind and water erosion associated with these trenching and boring activities would be developed in accordance with a SWPPP. Erosion and sediment

controls would be implemented and BMPs would achieve compliance with the NPDES General Permit for Storm Water Discharge Associated with Construction Activity and all other applicable LORS.

The Applicant has indicated that adequate sedimentation and erosion controls will be employed, and has provided a draft SWPPP for the construction phase of the project. The Applicant must provide these documents for all project phases to the appropriate authorities as required by law. Accordingly, the project's impact on drainage patterns and erosion will be less than significant.

D. Alteration of Drainage Resulting in Flooding: No Impact

As described above, the construction and operation of the KRCDPP project would not impact the existing drainage pattern or involve significant impacts to any streams or other water bodies, nor would the proposed project result in substantial increases in surface runoff or cause flooding. The project is located outside of the 100-year floodplain and is therefore not expected to result in any flood events.

Stormwater discharges from the project will be routed to the storm water detention/percolation basin. The detention/percolation basin is designed for a 100-year storm event with 22 acre-feet of capacity. This system should provide adequate stormwater coverage for the facility, as the project should not significantly add to runoff in the project vicinity.

E, M. Excess Runoff or Stormwater Drainage: Less than Significant Impact

As stated above, storm water discharges from the project will be routed to the storm water detention/percolation basin. The detention/percolation basin is designed for a 100-year storm event with 22 acre-feet of capacity. The increase in runoff that will be created as a result of the addition of impervious area to the site will be contained on-site in the storm water basin or reused within the plant. This system should provide adequate storm water coverage for the facility, as the project should not significantly add to runoff in the project vicinity.

F. Degradation of Water Quality: Less Than Significant Impact

As described above, the proposed project's waste will be discharged in accordance with applicable laws and local permits.

KRCDPP equipment areas that possess a potential for storm water contamination, such as the chemical storage areas or transformer areas, shall be designed with secondary containment basins to prevent contaminates from entering the storm water system. The ammonia tank and generator step-up transformer containment basins shall be designed with automatic sump pumps equipped with ammonia sensors and oil minder switches to prevent accidental discharge of contaminated water to the storm water system.

KRCDPP process water that may be contaminated will be collected and sent to an oily water separator and then recycled for plant use. The design will prevent contaminated water from being discharged to the storm system. This will reduce

any potential significant groundwater contamination and will result in a level of impact less than significant.

G, H, I, J. Housing in 100-Year Flood Zone: No Impact

The existing KKRCDPP project footprint is not located within a Federal Emergency Management Agency designated 100-year flood zone. No housing or structures would be created that would impede or redirect 100-year flood flows. Storm water discharge would be routed to the storm water basin, which has adequate capacity as described above, and therefore should not cause or contribute to flooding potential. As an inland project not near any large water body or hillslope, inundation by seiche, tsunami, or mudflow is not likely to occur.

K, L, N, O. Water service and Sewer and treatment plant capacity: No impact

The applicant has provided a "will-serve" letter from the MCWD stating the district has the capacity to serve the project (KRCDPP2003a, Appendix 5.3-3).

CUMULATIVE IMPACTS

The project has the potential to cumulatively add to the groundwater overdraft that currently exists in the basin. The mitigation proposed by the applicant (to import surface water for recharge) will mitigate the project's portion of the cumulative impact. The project is not expected to contribute to cumulative hydrology or water quality impacts.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

None received.

CONCLUSIONS

Staff has determined that this project complies with Energy Commission Policy regarding the use of fresh water for power plant cooling and the use of ZLD technology. Staff has determined that the use of fresh water is consistent with policy since other sources of water are not available and the use of dry cooling is not appropriate for this project. The project will use ZLD technology and therefore, is consistent with this portion of the policy.

The proposed KRCDPP project as proposed and regulated by the responsible government authorities would result in less than significant impacts to the public and the environment.

PROPOSED CONDITIONS OF EXEMPTION

WATER-1 The project owner shall install metering devices and record on a monthly basis the amount of water used by the project. The report on the monthly water use shall include the monthly range and monthly average of daily usage in gallons per day, and total water used by the project on a monthly and annual basis in acre-feet. Following the first full year of operation and in subsequent

years, the annual summary will also include the yearly range and yearly average water use by the project.

Verification: The project owner shall include a water summary use report in the Annual Compliance Report submitted to the CPM for the life of the project.

WATER-2 The project owner shall purchase and recharge 100 acre-feet of surface water prior to the start of commercial operation. For each year of operation the project owner shall purchase and recharge an amount of water equal to the amount of water used by the project in the previous year. The project owner may purchase and recharge water in addition to the amount used in the previous year to bank water ahead for subsequent years. The project owner shall prepare an annual recharge report that states the amount of water purchased and recharged as well as a running balance of any banking.

Verification: The project owner shall include a water recharge report in the Annual Compliance Report submitted to the CPM for the life of the project.

REFERENCES

KRCD2003a – Kings River Conservation District/Sinor (tn:30483). Submittal of the Application for Small Power Plant Exemption for the Kings River Conservation District. Submitted to CEC/Therkelsen/Dockets on 11/26/03.

KRCD2004f – Kings River (tn:30750). Response to Data Requests. Submitted to Dockets on 1/16/2004.

KRCD2004j - Kings River Conservation District/Redelfs/Caswell (tn:30864). Kings River Conservation District Peaking Plant Submittal on Water Resources, Response to Data Request 29 - Letter of Mitigation Confirmation. Submitted to CEC/Mediati on 2/9/2004.

KRCD2004l - Navigant Consulting/Cuellar (tn:31005). Applicant's Comments on the Draft Initial Study for the Kings River Conservation Dist. POS. Submitted to CEC/J. Caswell/Dockets on 2/27/2004.

USGS (United States Geological Survey), 1989. Ground-Water Resources for the Central Valley of California. Open File Report 89-251.
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USGS, 1991. Ground Water in the Central Valley, California – A Summary Report. U.S. Geological Survey Professional Paper 1401-A.
Cited in text as (USGS 1991)

AGRICULTURE AND SOIL RESOURCES

Testimony of Tony Mediati

INTRODUCTION

The agriculture and soil resources section discusses potential impacts of the proposed Kings River Conservation District Peaking Plant (KRCDPP) regarding agricultural lands. Energy Commission staff's objective is to ensure that there will be no significant adverse impacts to agricultural land resources during project construction, operation and closure. Energy Commission staff designated all of the CEQA checklist items for agricultural resources as "less than significant impact" or "no impact". A brief overview of the project is provided, as are comments regarding selected CEQA checklist items with respect to agricultural resources. The section concludes with the staff's determination that conditions of exemption are not required.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

FEDERAL

Clean Water Act

The Clean Water Act (33 USC § 1257 et seq.) requires states to set standards to protect water quality through the regulation of point source and certain non-point source discharges to surface water. These discharges are regulated through requirements set forth in specific or general National Pollutant Discharge Elimination System (NPDES) permits. Storm water discharges during construction and operation of a facility, and incidental non-storm water discharges associated with pipeline construction also fall under this act, and are addressed through a general NPDES permit. In California, requirements of the Clean Water Act regarding regulation of point source discharges and storm water discharges are delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCB).

STATE

California Land Conservation Act of 1965

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses. The landowner commits the parcel to an annually renewing ten-year period wherein no conversion out of agricultural use is permitted. In return, the land is taxed at a rate based on the actual use of the land for agricultural purposes, as opposed to its unrestricted market value. Participation in the Williamson Act program is dependent on county adoption and implementation of the program, and is voluntary for landowners.

The Farmland Security Zone is additional agricultural land conservation legislation that went into effect August 24, 1998. This program allows local governments and landowners to rescind a Williamson Act contract and simultaneously place the farmland

under a Farmland Security Zone contract, which has an initial term of at least 20 years. A Farmland Security Zone contract offers landowners greater property tax reduction than the Williamson Act by valuing enrolled real property at 65 percent of its Williamson Act valuation, or 65 percent of its Proposition 13 valuation, whichever is lower.

Farmland Mapping and Monitoring Program

The California Department of Conservation established the Farmland Mapping and Monitoring Program (FMMP) in 1982 in response to a critical need for assessing the location and quantity of agricultural lands and conversion of these lands to other uses. It is the only statewide land use inventory conducted on a regular basis that identifies the conversion of agricultural land to urban and other uses. Every even numbered year FMMP issues a Farmland Conversion Report. FMMP data is used in elements of some county and city general plans, in environmental documents as a way of assessing project impacts on Prime Farmland and in regional studies on agricultural land conversion, and in assessing impacts of proposed projects reviewed through the process.

LOCAL

County of Fresno General Plan

One of the central goals of the County General Plan is to help maintain its agricultural economy and reduce the conversion of productive agricultural land. For this reason the county has developed a goal and policy framework to protect agricultural activities from incompatible uses and to maintain agriculturally designated areas for agriculture uses. This is accomplished by promoting long-term conservation of productive and potentially productive agricultural lands and accommodating agricultural support services and agriculture related activities that support the viability of agriculture and promote the county's economic development goals.

City of Fresno General Plan – Resources Element

The proposed KRCDPP will also comply with the City of Fresno General Plan Resources Element, which is important to the long-term development potential of Fresno and depends heavily on the quantity, quality and cost-effective availability of resources to support expected population growth and development.

SETTING

The KRCDPP project would occupy 9.5 acres within a 19-acre parcel near the community of Malaga in Fresno County. The other 9.5 acres within the parcel would be used for construction laydown, and parking and storm water detention. The project would be a peaking facility consisting of two combustion turbine generators to be integrated into PG&E's system at the Malaga Substation. After construction the area used for laydown and parking during construction would be available for other uses. Linear facilities associated with the KRCDPP include an electric transmission interconnection, a gas interconnection, and preferred and alternative water and sewer interconnections. An access road and right-of-ways for the gas, alternative water, alternative sewer and electric transmission interconnections would cross the 9.5 acres

to the north of the proposed KRCDPP site. The project site is currently vacant and is zoned industrial (M-3).

IMPACTS

Following is the Environmental Checklist that identifies potential impacts in this issue area. Below the checklist is a discussion of each impact, and an explanation of the impact conclusion.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
AGRICULTURE RESOURCES -- In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?			X	
d) Result in substantial soil erosion or the loss of topsoil?			X	
e) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				X
f) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X

DISCUSSION OF IMPACTS

A. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance: No Impact

Prime Farmland

Prime Farmland is land, that has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and

moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime Farmland must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.

Based on the above descriptions and soil characteristics, the KRCDPP project site could be classified as Prime Farmland. According to a recent Phase I Environmental Assessment, however, the site has not been farmed or irrigated in nearly 70 years and therefore doesn't meet the requirements above for the classification of Prime Farmland. Within the project area, at approximately 0.5 miles to the northeast of the project site are some properties denoted by the United States Department of Conservation as Prime Farmland. The agriculture in that area is mixed with single-family residential and warehouse structures. Typical agriculture in the area northeast of the project site consists of olives, corn, cotton and vineyards.

There is also an area along the southern border of the project site that is denoted as Prime Farmland. This 19-acre parcel generally grows vineyards. To receive this designation, the property has been surface irrigated for at least the last two mapping cycles. The Fresno County General Plan lists the project site parcel as zoned Industrial with a primary land use designation for a warehouse(KRCDPP2003a).

Farmland of Statewide Importance

Farmland of Statewide Importance is land other than Prime Farmland, which has a good combination of physical and chemical characteristics for the production of crops. It must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use. Based on the above descriptions, the site soil characteristics along the transmission route could be classified as Prime Farmland or Farmland of Statewide Importance. The proposed KRCDPP transmission line route will proceed along the existing right-of-way of North Avenue. Wooden distribution poles currently exist along the north and south sides of North Avenue. There is no agricultural land in the area in or around the proposed transmission line route, nor has the area been irrigated for agriculture in recent years; therefore the area doesn't meet the requirements above for the classification of Prime Farmland or Farmland of Statewide Importance.

There is no Farmland of Statewide Importance identified at or near the project site or its associated linear facilities (KRCDPP2003a).

Unique Farmland

Unique Farmland is land which does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, but that has been used for the production of specific high economic value crops at some time during the two update cycles prior to the mapping date. It has a special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality and/or high yields of a specific crop when treated and managed according to current farming methods. Examples of such crops may include oranges, olives, avocados, rice, grapes, and cut

flowers. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use. There is no Unique Farmland identified within the project area including the project site and its associated linear facilities (KRCDPP2003a).

The proposed project will not impact farmland.

B. Conflict with Existing Zoning: No Impact.

The project site is currently vacant and is zoned industrial (M-3).

Williamson Act

The California Land Conservation Act of 1965 (or the Williamson Act) established a voluntary tax incentive program for preserving both agricultural and open space lands. The act reduces property taxes in return for the guarantee that the property will remain in agriculture for not less than 10 years, thereby slowing down the conversion of agricultural land. In Fresno County, 1.5 million acres of farmland are within Williamson Act agricultural preserves, primarily within the unincorporated areas of the county. The proposed KRCDPP is not subject to the Williamson Act.

There are several parcels that are under Williamson Act contracts within 2 miles of KRCDPP. These parcels are primarily to the north and east of the KRCDPP project site. The closest Williamson Act land is 1 mile to the east of the KRCDPP (KRCDPP2003a).

The proposed KRCDPP is consistent with the County of Fresno's goals and policies related to the protection of agricultural lands and will not impact or result in the conversion of any lands that are used for agricultural purposes.

The project will not have an impact on Zoning.

C. Conversion of Farmland: Less than Significant Impact.

The proposed project is consistent with the General Plan designation and established zoning for the areas affected by the proposed project, and would not involve the extension of urban services to new properties beyond the project site. The project would not involve other changes that could result in conversion of farmland to non-agricultural uses, and the impact is, therefore, less than significant.

D. Soil Erosion or the Loss of Topsoil: Less than Significant Impact

The overall potential for soil loss from water erosion is minimal since proposed activities would occur within previously developed and disturbed areas. In addition, all construction activities will employ mitigation and sedimentation/erosion control measures consistent with construction Best Management Practices (BMPs). Due to the relatively flat nature of the project site and the soil types, problems with off-site soil movement are not anticipated. BMPs will be imposed during and after construction to minimize the potential for soil erosion and sedimentation associated with construction of the KRCDPP. These BMPs would be implemented to prevent erosion and sedimentation from exposed soil areas during precipitation events to minimize the potential for significant off-site soil movement. These BMPs are further described in the project's draft construction SWPPP. All construction

activities will be conducted in accordance with the General Construction Permit. Typical BMP activities will include:

1. Reseeding distressed or lost natural vegetation;
2. Grading and compacting construction areas;
3. Minimizing stockpiling of soil to prevent wind erosion;
4. Surfacing disturbed soils;
   a) Netting,
   b) Rip rap,
   c) Dust control,
   d) Mulches,
   e) Soil compaction, and
5. Stabilizing and covering stockpiles of soils if left onsite for a long period of time.

   Permanent erosion control measures would also be addressed as part of the KRCDPP Erosion Control and Revegetation Mitigation and Monitoring Plan. A Geotechnical Report and Soils Analysis will be completed on the project site prior to construction activities and additional mitigation will be implemented as necessary based on the results of the analysis.

   With the implementation of BMPs the potential impacts from the project on soil erosion and loss of topsoil will be less than significant.

E. Expansive soil: No Impact

Soils containing a high clay content often exhibit a relatively high potential to expand when saturated, and contract when dried out. This shrink/swell movement can adversely affect building foundations, often causing them to crack or shift, with resulting damage to the buildings they support. The KRCDPP project site has a convergence of three soil series types including Hanford fine sandy loam (Ho), Hanford sandy loam (Hc) and Hesperia fine sandy loam (Hst). Descriptions of the soil types on the project site and in the project area are provided in Table 5.6-1 of the SPPE. These soils do not have a high clay content that would cause adverse effects to building foundations, therefore there will be no impact from expansive soils.

F. Soils incapable of supporting septic tanks: No Impact

The KRCDPP proposes to connect to the Malaga County Water District sewer line. Septic tanks are not proposed therefore there will be no impact.

CUMULATIVE IMPACTS

The KRCDPP project site is currently zoned industrial and is not currently being used for agriculture nor has it been farmed in the recent past. The site is not subject to the Williamson Act and the use of this site for the project will not have an impact on zoning. This project will not result in the removal of land from agriculture.

The project has proposed to use BMP's to control wind and water soil erosion. These BMP's will be incorporated into the SWPPPs that are required for construction and industrial operations. Storm water will be contained on-site during construction. The project will not result in significant soil loss from the site.

Staff concludes there are no cumulative soils or agricultural impacts associated with this project

RESPONSE TO PUBLIC AND AGENCY COMMENTS

None received.

CONCLUSIONS

Based on the discussion above, impacts on agricultural and soil resources will be less than significant.

PROPOSED CONDITIONS OF EXEMPTION

None proposed.

REFERENCES

KRCD2003a – Kings River Conservation District/Sinor (tn:30483). Submittal of the Application for Small Power Plant Exemption for the Kings River Conservation District. Submitted to CEC/Therkelsen/Dockets on 11/26/03.

KRCD2004f – Kings River (tn:30750). Response to Data Requests. Submitted to Dockets on 1/16/2004.

KRCD2004l - Navigant Consulting/Cuellar (tn:31005). Applicant's Comments on the Draft Initial Study for the Kings River Conservation Dist. POS. Submitted to CEC/J. Caswell/Dockets on 2/27/2004.

LAND USE

Testimony of Ken Peterson

INTRODUCTION

The land use analysis of the Kings River Conservation District Peaking Plant (KRCDPP) focuses on the project's compatibility with existing and planned land uses, and its consistency with applicable land use plans, ordinances, and policies.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

The project site is located in unincorporated Fresno County approximately .75 mile to the south and one mile east of the City of Fresno, but outside of the City of Fresno's sphere of influence. Land use laws, ordinances, regulations, and standards (LORS) applicable to the proposed project are contained in Fresno County's General Plan and Zoning Ordinance.

FRESNO COUNTY ZONING ORDINANCE

Zoning is the specific administrative tool used by a jurisdiction to regulate land use and development, and is one of the primary tools for implementing the goals and policies of the local general plan. Zoning is typically more specific than the general plan and includes detailed land use regulations and development standards. The County's Zoning Ordinance divides the land in the County into zones that permit different types of uses and imposes development standards appropriate to the uses permitted in each zoning district. **LAND USE Figure 1** shows the zoning districts in the area of the proposed project site. The project site is located in the Heavy Industrial (M-3) zoning district. M-3 zoning requires adherence to the property development standards of M-1 zoning, and requires County site plan approval. The KRCDPP is a permitted use in the M-3 zoning district with the granting of an unclassified conditional use permit (CUP) by Fresno County. Although the applicant stated that the proposed project does not need discretionary review, two County planners informed staff on January 13 and 14, 2004 that the discretionary review CUP process would be necessary for this project in spite of the fact that the applicant is a public entity.

FRESNO COUNTY GENERAL PLAN

Land use is controlled and regulated by a system of plans, policies, goals, and ordinances that are adopted by the various jurisdictions with land use authority over the area encompassed by the proposed project. The general plan is a broadly scoped planning document and defines large-scale planned development patterns over a relatively long timeframe.

The Fresno County General Plan includes specific policies to preserve and enhance existing development and to provide for orderly and appropriate new development of the County. Actions and approvals required by the County Planning Department must be consistent with the County General Plan.

The County General Plan covers the following elements of planning: Economic Development, Agriculture and Land Use, Transportation and Circulation, Public Facilities and Services, Open Space and Conservation, Health and Safety, and Housing. Each element contains goals, policies, and implementation measures that may be pertinent to the proposed project, including the linear facilities.

The County General Plan contains the following Agriculture and Land Use Element goals and one policy applicable to the proposed project:

- Goal LU-F. To encourage mixed-use development that locates residences near compatible jobs and services.
    - Policy LU-F.29 This policy allows the County to approve rezoning requests and discretionary permits for new industrial development or expansion of existing industrial uses subject to conditions concerning the following criteria or other conditions adopted by the Board of Supervisors:
        a. Protection of health, safety, and welfare;
        b. Provisions for adequate off-street parking;
        c. Protection of adjacent properties from impact by the proposed industrial use;
        d. Limitations on the proposed industrial project's size, time of operation, or length of permit.
- Goal LU-G. To direct urban development within city spheres of influence to existing incorporated cities and to ensure that all development in city fringe areas is well planned and adequately served by necessary public facilities and infrastructure and furthers countywide economic development goals.

Roosevelt Community Plan

The proposed project site exists within the geographic area named in the County General Plan as the Roosevelt Community Planning District, one of the 9 geographic planning areas assessed in the County General Plan. The Roosevelt Community Plan covers the area of this district. The land use designation for the project site is General Industrial. The General Industrial (GI) designation allows for "…the full range of manufacturing, processing, and storage activities", and therefore the proposed project is an allowable use with the granting of a CUP.

Analysis of land use policies for the proposed project focuses on the policies directly linked to the characteristics of the proposed project, such as the siting of a utility facility and linear features, energy and infrastructure planning, public utilities, land supply, and economic development. The Roosevelt Community Plan contains the following Land use objective applicable to the proposed project:

- Maintain land use regulations in existing unincorporated urban fringe and in-fill areas which will stabilize or enhance existing patterns of development.

LAND USE Figure 2 shows the Fresno County General Plan's designated land uses for the project vicinity.

ENCROACHMENT PERMITS

The portion of North Avenue that comprises the northern boundary of the project site is the boundary of the City of Fresno's sphere of influence. The applicant would need to obtain encroachment permits for the water and sewer interconnection, natural gas connection and electrical transmission interconnection line from the City and County as necessary.

Because the preferred and alternative water and sewer routes would cross an easement belonging to the Fresno Irrigation District (FID) along its Central Canal, FID requires review of the project site plan. The results of the FID site plan review would indicate necessary FID permits, such as a structure permit, an encroachment agreement, and a Construction of Work within Right-of-Way permit.

SETTING

PROJECT LOCATION

KRCDPP Site

The proposed project would be situated on the southern 9.5 acres of a 19-acre site located on the south side of North Avenue near Chestnut Avenue in Fresno County. The northern 9.5 acres would be used for construction staging and parking. The facility would occupy approximately six acres of the southern 9.5 acres of the site. The applicant has obtained a purchase option for the site. Currently the property is vacant. Previous use of the site included commercial vehicle parking and maintenance. Previous agricultural use ended in 1950.

Linear Facilities

Electrical Transmission Line

A new single-circuit 115 kV Pacific Gas & Electric (PG&E) transmission interconnection line approximately .75 mile in length would be installed north along the eastern border of the project site to North Avenue, and then east along the south side of North Avenue to the intersection of North and Willow Avenues, where it would cross North Avenue into the PG&E Malaga Substation. The area to the south of the transmission interconnection's North Avenue route is zoned for commercial and industrial uses.

Natural Gas

A new 700-foot natural gas pipeline interconnection would be installed by PG&E from the project facilities north through the project site to the existing local PG&E gas transmission line that runs along North Avenue.

Water and Sewer

The project site is located in the Malaga County Water District (MCWD), which would supply water for the project. The applicant is considering two alternative routes for interconnection into the MCWD supply system. The preferred water interconnection would run approximately 2000 feet from the project facilities along the south side of

North avenue, connecting with the existing MCWD supply line at the intersection of North and Chestnut Avenues. Land uses in the area of the preferred water interconnection include County easements.

The project would include a zero liquid discharge (ZLD) system to treat and eliminate process wastewater. The applicant is considering two onsite ZLD technologies and one offsite ZLD technology. For wastewater from domestic waste, a sewer interconnection would run within the same right-of-way as the selected water interconnection.

SURROUNDING LAND USE

The project site is located in a predominantly industrial area. Nearby industrial uses include a cotton delinting facility and a glass manufacturing plant that includes its own small power plant. Existing land uses in the vicinity of the project site include:

- North: The area to the north across North Avenue contains warehouses on industrially zoned land. To the northeast is a truck shop facility which is presently unused. Further northeast across the Central Canal on the eastern side of Chestnut Avenue are 6 residences located on industrially zoned land. There are 8 residences and a church along the north side of North Avenue and 2 residences on the south side of North Avenue between the project site and the PG & E Malaga Substation, which is approximately .65 mi. from the project site.
- South: To the south is a 19 acre parcel of industrially zoned land that has been farmed in the past and is designated as Prime Farmland by the California Department of Conservation. There is a manufactured home park approximately one mile to the southwest.
- East: The FID's Central Canal borders the project on the east. There is a parcel to the east between Central Canal and Chestnut Avenue, presently occupied by an industrial production use. Directly to the east and west of Chestnut Avenue there are 5 residences; and
- West: To the west is a vacant 60-acre parcel of industrially zoned land that has been used for industrial purposes in the past. Further to the west are industrial warehouse buildings. The Union Pacific Railroad line is approximately .25 mi. to the south and west of the project site. Highway 99 is approximately .50 mi. to the south and west of the project site. There are four residential uses located to the southwest on the opposite side of Golden State Boulevard.

The unincorporated community of Malaga is approximately one-half mile to the southeast of the project site. This area contains approximately 60 acres of medium-high density single family homes and apartments, and is the largest residential area in the area of the proposed project. The community of Malaga includes an elementary school, places of worship, a community center/park complex, and a County Sheriff's substation. The Fresno County Local Agency Formation Commission is presently reviewing an application for incorporation of the community of Malaga. If incorporation occurs, the City of Malaga would adopt the Fresno County general plan and then prepare its own general plan. The KRCDPP site is within the boundaries of the proposed City of Malaga.

RECREATIONAL FACILITIES

Within the project's vicinity the only park is the Malaga Community Park in the Community of Malaga, approximately .6 mi. from the project site.

IMPACTS

Following is the Environmental Checklist that identifies potential impacts in this issue area. Below the checklist is a discussion of each impact, and an explanation of the impact conclusion.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
LAND USE AND PLANNING -- Would the project:				
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X
RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?				X

DISCUSSION OF IMPACTS

Land Use and Planning

A. Division of an Established Community: No Impact

The proposed project would be located in an area within Fresno County designated for industrial development, and the site is currently surrounded by similar industrial uses. The facility would comply with existing zoning, and neither the size nor nature of the project would result in a physical division of an established community. No new physical barriers would be created by the project (public access across the site is not currently allowed) and no existing roadways or pathways would be blocked. Given the proposed development's consistency with on-site land use and zoning designations and its compatibility with the industrial characteristic of the project area,

the proposed project would not alter land use patterns. Therefore, no impacts would occur.

The proposed routes for the electric transmission line and the natural gas pipeline are in existing public right-of-ways (ROWs) currently used for the public streets. Construction and operation of the transmission line and gas line would be consistent with established zoning, and would not divide or disrupt existing land uses or an established community.

The proposed water interconnection would run 2000 feet north through the project site and along a public ROW along the south side of North Avenue to an existing water line at the intersection of North and Chestnut Avenues. Construction and operation of the water line would be consistent with established zoning, and would not divide or disrupt existing land uses or an established community.

Electric transmission, natural gas, and water linear construction would involve temporary disruption to land uses along the proposed ROWs, which are industrial uses. No aboveground structures would be built, and operation of the linears would not preclude existing or planned uses in the vicinity.

The wastewater discharge system would not require construction of offsite linears. Given the temporary nature of construction activities associated with construction of transmission line poles and the natural gas and water pipelines, and the fact that these linear facilities would be placed within existing public and private ROWs, the linear facilities would not disrupt or physically divide an established community. Therefore, no impacts would occur.

B. Conflict with Land Use Plans or Policies: No Impact

As described above, the project would be located in an area intended for industrial development based on its land use and zoning designation. Furthermore, the site is adjacent to existing similar industrial uses which would be compatible with the proposed project. The project is consistent with the County's General Plan goals and policies.

The proposed water, electric transmission and natural gas route would occur in existing public ROWs currently used for public roadways. Installation of these linears is consistent with the County's policy on the use of public ROWs for public utility activities typically found in public ROWs. In general, linear facilities associated with the project are permitted or conditionally permitted uses for the zoning districts within which they will exist. The objective of the proposed project is to meet the electricity demand of local KRCD customers. Given this objective, and the proposed project's consistency with the applicable LORS of the County, there would be no impact.

C. Conflict with Habitat or Natural Community Conservation Plans: No Impact

There are no habitat conservation plans or natural community conservation plans adopted by the County that would be affected by the proposed project. Therefore, the proposed project would not conflict with existing plans and there would be no impact.

Recreation

A. Increased Use of Recreational Facilities: No Impact

Physical impacts to public services and facilities such as recreational facilities are usually associated with population inmigration and growth in an area, which increase the demand for a particular service. An increase in population in any given area may result in the need to develop new, or alter existing, government facilities in order to accommodate increased demand.

The proposed project is not expected to result in an increase in the population of the area. Staff has concluded that since the regional workforce will likely be able to accommodate the KRCDPP construction labor needs, the project will not increase the area's population (See the Socioeconomics Section for an analysis of the construction workforce). Therefore, staff has concluded that the proposed project would not increase the use of existing recreational facilities or result in their deterioration. No impacts would occur.

B. Construction of Recreational Facilities: No Impact

As a power generation project, the proposed project does not include recreational facilities or require the construction or expansion of existing recreational facilities. As described above, the proposed project would not result in an increase in the area's population that would require new or expanded recreational facilities. No impacts would occur.

CUMULATIVE IMPACTS

Cumulative impacts may be caused if a project would have effects that are individually limited but cumulatively considerable when viewed together with the effects of related projects. County staff stated that there is one proposed project in the vicinity of the KRCDPP: an application for the rezoning of 40 acres at the northwest corner of Willow and North Avenues from Agriculture to Industrial use, approximately ½ mile to the northeast of the KRCDPP site. City of Fresno staff has indicated that there are no proposed projects in the City within the vicinity of the project.

As described in this Initial Study, the proposed power plant project would not result in any significant land use impacts. In addition, the KRCDPP does not appear to make a significant contribution to regional impacts related to new development and growth, such as population immigration, increased demand for public services, expansion of public infrastructure, or loss of open space. Therefore, the proposed project's contribution to land use impacts resulting from past, present, and probable future projects also is not expected to be cumulatively considerable. The KRCDPP has compatible land uses with the County project discussed above which is proposed in the vicinity. Staff concludes there are no cumulative land use impacts.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is greater than fifty percent within a six-mile radius of the proposed KRCDPP (please refer

to **Socioeconomics Figure 1** in this Initial Study), and Census 2000 information that shows the low-income population is less than fifty percent within the same radius. Based on the land use analysis, which included consideration of information supplied by participants at a staff workshop on January 26, 2004, staff has not identified significant direct or cumulative impacts resulting from the construction or operation of the project, and therefore there are no land use environmental justice issues related to this project.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

None received.

CONCLUSIONS

The project would not physically divide an established community, conflict with any applicable land use plan, policy, or regulation, and would not conflict with any applicable habitat conservation plan. The proposed use would be consistent with the provisions of the Fresno County General Plan and zoning ordinance, and it would be compatible with surrounding land uses. The project would not significantly increase the use of public parks or recreational facilities, nor would it necessitate the construction or expansion of recreational facilities. Therefore, there are no impacts associated with Land Use and Planning Policies.

PROPOSED CONDITIONS OF EXEMPTION

None proposed.

REFERENCES

Aguilar, Albert, Planning Resource Analyst, Development Services, County of Fresno. Phone conversation with staff, Ken Peterson, California Energy Commission. January 14, 2004.

Bruzee, Joe, Planning Resource Analyst, Development Services, County of Fresno. Phone conversation with staff, Ken Peterson, California Energy Commission. December 4, 2003.

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Johnson, Brett, Engineer, Fresno Irrigation District. Phone conversation with staff, Ken Peterson, California Energy Commission. January 14, 2004.

Kings River Conservation District. Application for Small Power Plant Exemption, Kings River Conservation District Peaking Plant (03-SPPE-2). Submitted to the California Energy Commission, November 26, 2003.

Kings River Conservation District. Data Request Response. Submitted January 16 2004.

Kings River Conservation District. Comments on the Draft Initial Study. February 27, 2004.

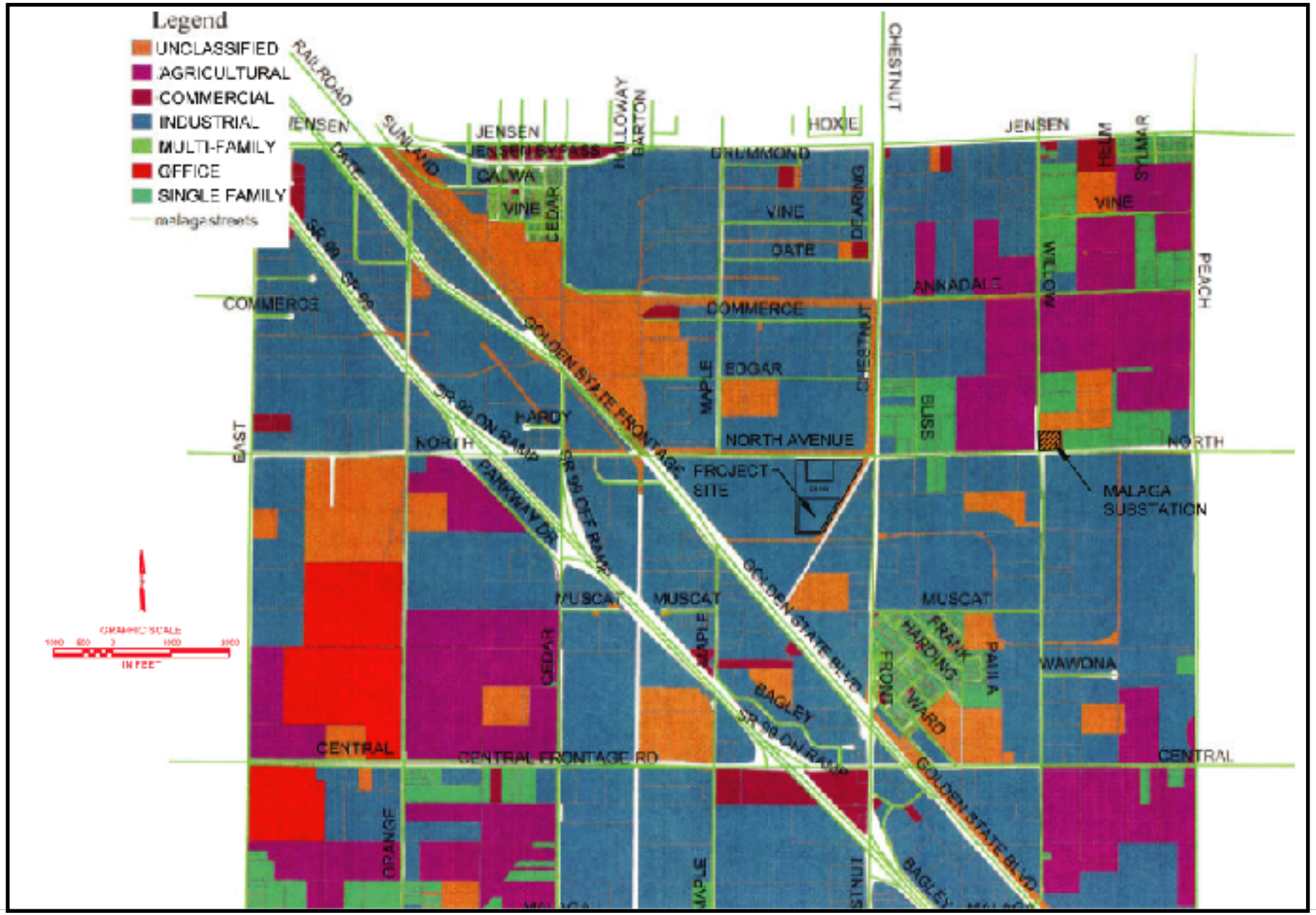
Lewis, Robert. Supervising Planner, City of Fresno Planning Department. E-mail. January 23, 2004.

Pond, Lew, Planning Resource Analyst, Fresno County Development Services, Phone conversation with staff, Ken Peterson, California Energy Commission. January 13, 2004.

Waiczis, Mike, Executive Officer, Local Agency Formation Commission. Phone conversation with staff, Ken Peterson, California Energy Commission. January 7, 2004.

LAND USE - FIGURE 1

Kings River Conservation District Peaking Plant - Fresno County Zoning



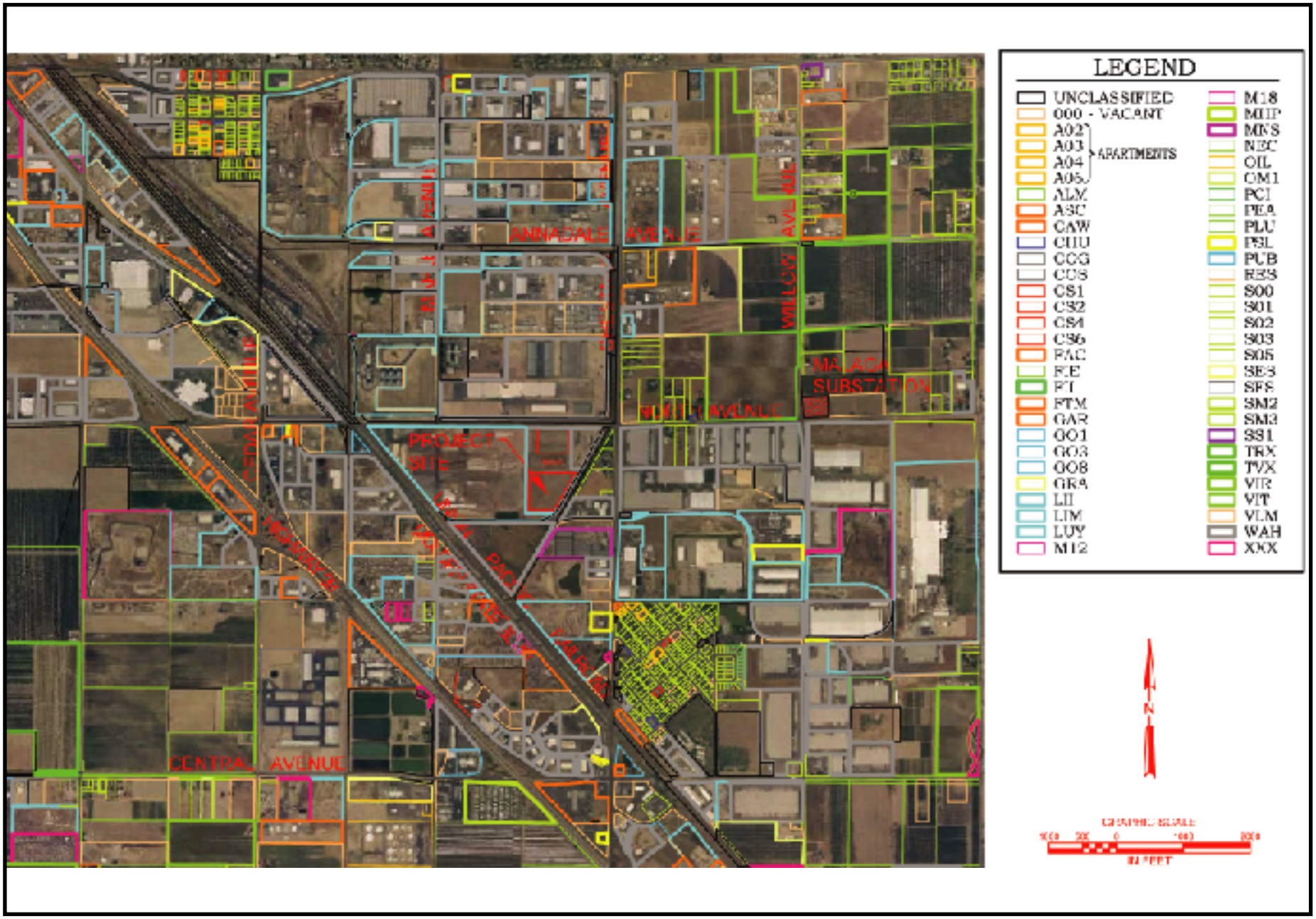
LAND USE

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

SOURCE: KRCD - SPPE 2003 - Figure 5.5-2

LAND USE - FIGURE 2

Kings River Conservation District Peaking Plant - Fresno County General Plan Designations



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SOURCE: KRCD - SPPE 2003 - Figure 5.5-1

NOISE AND VIBRATION

Testimony of Shahab Khoshmashrab and Steve Baker

INTRODUCTION

The construction and operation of any power plant creates noise, or unwanted sound. The character and loudness of this noise, the times of day or night that it is produced, and the proximity of the facility to sensitive receptors combine to determine whether the facility would meet applicable noise control laws and ordinances, and whether it would cause significant adverse environmental impacts. In some cases, vibration may be produced as a result of power plant operation or construction practices, such as pile driving. The ground-borne energy of vibration has the potential to cause structural damage and annoyance.

The purpose of this analysis is to identify and examine the likely noise and vibration impacts from the construction and operation of the Kings River Conservation District Peaking Plant (KRCDPP) Project, and to recommend any procedures necessary to ensure that the resulting noise and vibration adverse impacts would be adequately mitigated to comply with applicable laws, ordinances, regulations, and standards (LORS).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

Under the Occupational Safety and Health Act of 1970 (OSHA) (29 U.S.C. § 651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations (29 C.F.R. § 1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise exposure levels as a function of the amount of time to which the worker is exposed (see **NOISE Appendix A**, **Table A-4**, immediately following this section). The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, assuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.

There are no federal laws governing off-site (community) noise.

The Federal Transit Administration (FTA) has published guidelines for assessing the impacts of ground-borne vibration associated with construction of rail projects, which have been applied by other jurisdictions to other types of projects. The FTA-recommended vibration standards are expressed in terms of the "vibration level," which is calculated from the peak particle velocity measured from ground-borne vibration. The FTA measure of the threshold of perception is 65 VdB, which correlates to a peak particle velocity of about 0.002 inches per second (in/sec). The FTA measure of the threshold of architectural damage for conventional sensitive structures is 100 VdB, which correlates to a peak particle velocity of about 0.2 in/sec.

STATE

California Government Code Section 65302(f) encourages each local government entity to perform noise studies and implement a noise element as part of its General Plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure.

The California Occupational Safety and Health Administration (Cal-OSHA) has promulgated Occupational Noise Exposure Regulations (Cal. Code Regs., tit. 8, §§ 5095-5099) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards.

LOCAL

City of Fresno

KRCDPP Project and all sensitive residential receptors surrounding the project site lie entirely within an unincorporated area of Fresno County; the County LORS thus apply .

Fresno County

The Fresno County General Plan Noise Element and Noise Control Ordinance establish noise level criteria for varying land uses. In general, these LORS use the 24-hour average, or L_{dn} noise level descriptor (**NOISE Appendix A, Table A-1**) for evaluating transportation-related noise sources such as roadway traffic and aircraft operations. These LORS use the hourly median level, or L_{50} (level not to be exceeded 30 minutes in any hour time period) to evaluate stationary on-site or non-transportation exterior noise levels. The Applicant uses these L_{50} criteria to evaluate noise levels related to KRCDPP. The criteria contained within the Fresno County Noise Element and Noise Ordinance for exterior noise sources is provided in the SPPE (KRCDPP 2003a, SPPE Table 5.2-5). According to these criteria, the threshold for nighttime noise levels for residential receptors and churches is 45 dBA L_{50}.

SETTING

PROJECT BACKGROUND

The KRCDPP Project would be an approximately 97 MW natural gas-fired, simple cycle peaking power plant, composed of two General Electric LM6000 Sprint gas turbine generators equipped with inlet air chillers and two natural gas fuel compressors. Included in the project would be approximately 0.75 miles of electric transmission interconnection line, a 700 foot natural gas interconnection line, preferred and alternative water and sewer interconnections (KRCDPP 2003a, SPPE §§ 1.2.3, 2.1, 2.2.2, 2.2.3, 2.3, 2.8.1, 5.3.2, 5.3.2.3, 6.5).

EXISTING LAND USE

The KRCDPP would be located in a chiefly industrial area in Fresno County, south of the City of Fresno and near the community of Malaga, on land zoned Heavy Industrial (KRCDPP 2003a, SPPE §§ 1.2.3, 1.3.5, 2.2.1, 5.2.3, 5.2.4.1, 5.5.2.3, 5.5.2.8; Figures

5.5-1, 5.5-2, 5.5-3; Table 1.2-1). Sensitive noise receptors in the vicinity of the project include approximately 21 residential uses, one motel, one church, and a major subdivision, within close proximity to the project site (KRCDPP 2003a, SPPE §§ 5.2.4.1, 5.5.2.4; Table 5.2-4). The residences at noise measurement location 1 (see below), approximately 950 feet NE of the site, are the sensitive receptors of greatest interest in the following analysis, as they are located nearest the project site, and would thus be exposed to the greatest noise levels.

EXISTING NOISE LEVELS

In order to predict the likely noise effects of the project on nearby sensitive receptors, the Applicant commissioned ambient noise surveys of the area. The surveys were conducted using commonly accepted techniques and equipment. The existing noise environment is composed of traffic noise from Highway 99 and local streets and roads; railroad trains on the Union Pacific Railroad line that parallels Highway 99; and commercial and light industrial operational noise (KRCDPP 2003a, SPPE §§ 5.2.4.2, 5.5.2.4, 5.7).

Noise was monitored continuously for 25 hours at each of the following three locations (KRCDPP 2003a, SPPE Table 5.2-4):

- Location 1 consists of five residences located directly to the east and west of Chestnut Avenue, about 950 feet from the center of the site. (It is assumed that the project's noise will emanate from the center of the site.)
- Location 2 consists of approximately six residences and one church, located to the east and north of North Avenue, about 2,300 feet from the center of the site.
- Location 3 is a major subdivision to the southeast of the site and near the railroad tracks, about 2,100 feet from the center of the site.

Refer to **NOISE: Figure 1** for the locations of these monitoring sites.

NOISE: Table 1 is the applicant's summary of these ambient noise measurement results (KRCDPP 2003a, Table 5.2-4).

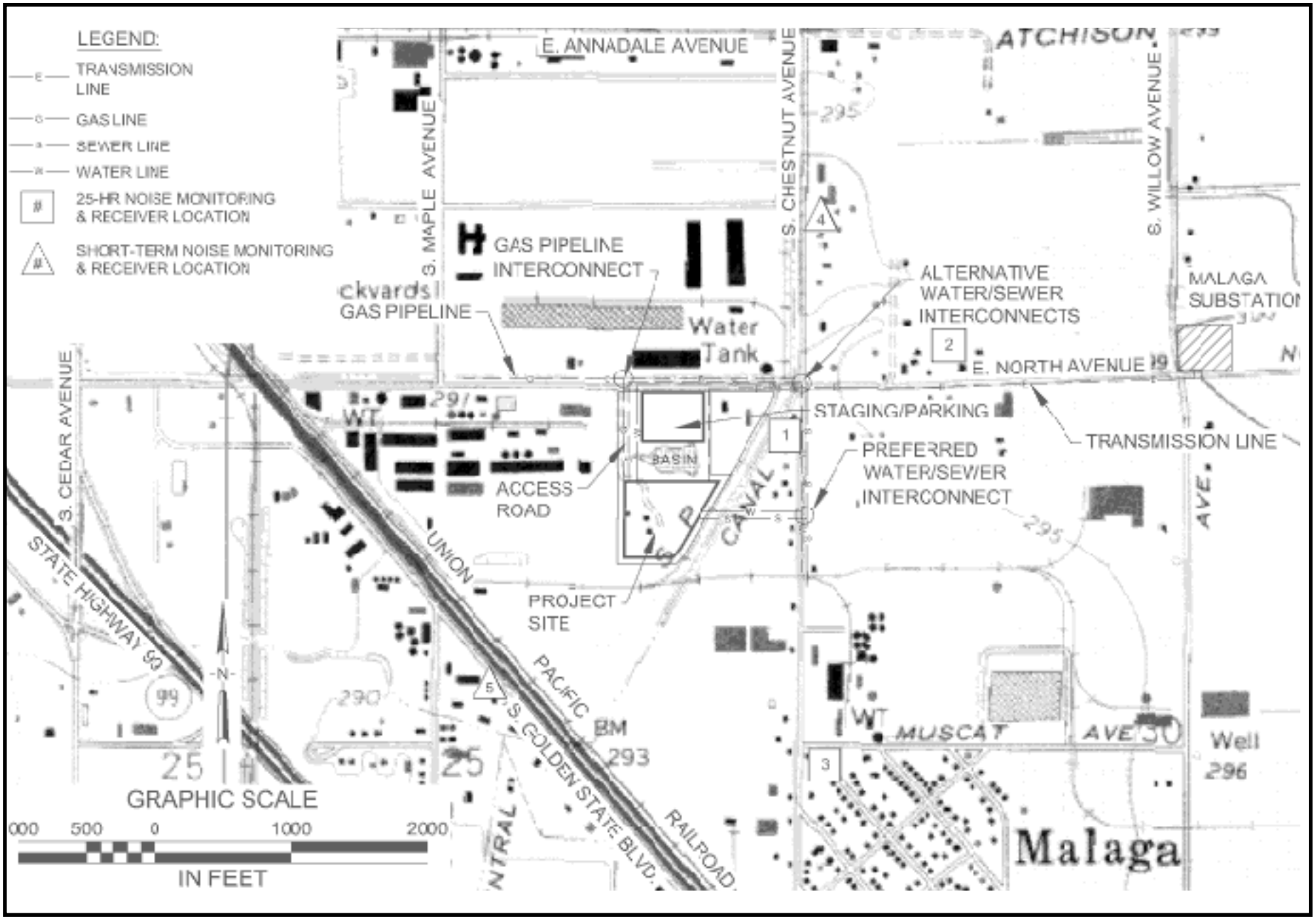
NOISE: Table 1
Applicant's Summary of Measured Ambient Noise Levels

Measurement Sites	Measured Noise Levels, dBA[1]					
	Daytime (7 a.m.—10 p.m.)			Nighttime (10 p.m.—7 a.m.)		
	L_{eq}	L_{50}	L_{90}	L_{eq}	L_{50}	L_{90}
1	56	52	48	57	56	53
2	59	53	48	56	52	50
3	54	51	48	55	53	50

[1] Averaging the four quietest consecutive hours (KRCDPP 2003a, Table 5.2-4).

NOISE - FIGURE 1

Kings River Conservation District Peaking Plant - Noise Measurment and Receiver Locations



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

SOURCE: KRCD - SPPE 2003 - Figure 5.2-1

The applicant also reported noise monitoring data for all three sites, graphically, showing the hourly L_{eq}, L_{max}, L_{50} and L_{90} values (KRCDPP 2003a, Appendix 5.2-1). In general, the noise environment in the immediate vicinity of the project site is fairly loud, typical of an industrial neighborhood, with the added characteristic that noise levels are greater at night than in the daytime. This is common where the noise regime is dominated by a freeway, on which longhaul truck traffic creates more noise at night than during the day. The noise environment at Location 1, representing a nearby residential neighborhood, is very similar to that at the project site. Note that even without considering KRCDPP, the existing ambient noise levels at the sensitive receptors have already exceeded the 45 dBA threshold established by the County LORS (KRCDPP 2003a, SPPE Table 5.2-5).

IMPACTS

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires that significant environmental impacts be identified, and that such impacts be eliminated or mitigated to the extent feasible. Section XI of Appendix G of CEQA Guidelines (Cal. Code Regs., tit. 14, App. G) sets forth some characteristics that may signify a potentially significant impact. Specifically, a significant effect from noise may exist if a project would result in:

- exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies;
- exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The Energy Commission has interpreted the CEQA criteria such that noise produced by the permitted power-producing facility that causes an increase of more than 10 dBA in the background noise level (L_{90}) at a noise sensitive receiver during the quietest hours of the day is usually considered a significant effect. An increase of less than 5 dBA is typically considered an insignificant impact, while an increase from 5 to 10 dBA may be considered significant, depending on the specific circumstances.

Noise due to construction activities is usually considered to be insignificant in terms of CEQA compliance if:

- The construction activity is temporary;
- Use of heavy equipment and noisy activities is limited to daytime hours; and
- All feasible noise abatement measures are implemented for noise-producing equipment.

ANALYSIS OF IMPACTS

Noise impacts associated with the project can be created by construction activities, and by normal long-term operation of the power plant. Following is the Environmental Checklist that identifies potential impacts in this issue area. Below the checklist is a discussion of each impact, and an explanation of the impact conclusion.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
NOISE – Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b) Exposure of persons to or generation of excessive ground borne vibration noise levels?				X
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the area to excessive noise levels?				X

DISCUSSION OF IMPACTS

A. Noise in Excess of Standards or Ordinances: Less Than Significant with Mitigation Incorporated

General Construction Noise

Construction noise is usually considered a temporary phenomenon. In this case, the construction period for the KRCDPP will be approximately six months. Construction of an industrial facility such as a power plant is typically noisier than permissible under usual noise ordinances. In order to allow the construction of new facilities, construction noise during certain hours is commonly exempt from enforcement by local ordinances.

The County Noise Control Ordinance § 8.40.06(C) restricts construction activities to occur between the hours of 6 a.m. and 9 p.m. on any day except Saturday and Sunday, or between 7 a.m. and 5 p.m. on Saturday and Sunday. The Applicant states that these

activities for the KRCDPP and its associated linear facilities will occur between the hours of 7 a.m. and 10 p.m. (KRCDPP 2003a, § 5.2.6.3). Such extended hours of construction may constitute a significant adverse impact. In order to avoid such a potential significant impact, and to ensure compliance with the County LORS, Energy Commission staff proposes Condition of Exemption **NOISE-1**, below, to restrict construction activities to the schedule set forth in the County Ordinance. Upon Applicant's compliance with this condition, and due to the temporary nature of the project construction, Energy Commission staff believes KRCDPP construction noise will not constitute a significant adverse impact.

Power Plant Operation

During its operating life, the KRCDPP would represent essentially a steady, continuous noise source day and night (see the complete analysis under section C below). The applicable County LORS establishes a threshold of 45 dBA (L_{50}) noise level for nighttime hours. However, this level has already been exceeded in the project area (**NOISE: Table 1** above).

The Applicant has projected cumulative noise levels (plant plus ambient) at the nearest sensitive receptors, those residences near noise monitoring location 1, of 56 dBA L_{50} (see **NOISE: Table 2** below). This is only 1 dBA above the existing ambient noise level at this location. Energy Commission staff considers this increase insignificant, since an increase of 1 dBA will not be audible. At monitoring locations 2 and 3, the increase in the existing ambient level would be zero.

B. Excessive Vibration: No Impact

The primary source of vibration noise associated with a power plant is the operation of the turbines. The plant's turbines must be maintained in optimal balance to minimize excessive vibration that can cause damage or long term wear. Consequently, no discernible vibration would be experienced by adjacent land uses.

Another potential source of significant vibration is pile driving during construction. The Applicant has not proposed to use pile driving. Therefore no pile driving noise or vibration impacts are expected.

C. Permanent Increase in Ambient Noise Level: Less Than Significant with Mitigation Incorporated

Power Plant Operation

During its operating life, the KRCDPP would represent essentially a steady, continuous noise source day and night. Occasional brief increases in noise levels would occur during load changes, or during startup or shutdown as the plant transitions to and from steady-state operation. At other times, such as when the plant is shut down for lack of dispatch or for maintenance, noise levels would decrease.

The primary noise sources anticipated from the facility include the gas turbine generators, transformers, and fuel gas compressors. The noise emitted by power plants during normal operations is generally broadband, steady state in nature. The resulting hourly average noise levels are typically dominated by the steady-state noise sources.

The Applicant performed acoustical calculations to determine the facility noise emissions. The calculations were based on specific manufacturer noise data for the major equipment planned for the facility (KRCDPP 2003a, SPPE Table 5.2-11). Specific noise mitigation measures evaluated include gas turbine air inlet silencers; gas turbine acoustic weather enclosures; and gas turbine exhaust stack silencers (KRCDPP 2003a, SPPE § 5.2.7).

NOISE: Table 2 lists the predicted project noise levels during plant operation in terms of the background (L_{90}) and L_{50} values:

NOISE: Table 2
Summary of Predicted Operational Noise Levels

Measurement Sites	Noise Levels, dBA						
	Nighttime Ambient		Project*	Cumulative		Change	
	L_{50}	L_{90}		L_{50}	L_{90}	L_{50}	L_{90}
1	56	53	51.2	57	55	+1	+2
2	52	50	36.4	52	50	0	0
3	53	50	43.4	53	51	0	+1

* Applicant's estimate (KRCDPP 2003a, SPPE Table 5.2-11).

It is seen from these figures that the increase in background noise level (L_{90}) at noise monitoring location 1 (nearest to the project site), during the four quietest consecutive nighttime hours, due to the project would be 2 dBA, an unnoticeable increase. (This considers the incorporation of the mitigation measures described above and committed to by the Applicant (KRCDPP 2003a, SPPE § 5.2.7)). This level is less than 5 dBA above the ambient noise level. Energy Commission staff considers this increase an insignificant impact and finds the project in compliance with CEQA guidelines.

Linear Facilities

The project's linear facilities would all be effectively silent in operation. No significant noise impacts are likely.

Tonal and Intermittent Noises

One possible source of annoyance would be strong tonal noises. Tonal noises are individual sounds (such as pure tones) that, while not louder than permissible levels, stand out in sound quality. The Applicant has indicated that based on 1/3 octave band noise level measurements of a gas-fired power plant in Klamath Falls, in 2001, the noise levels are fairly broadband, and absent of discrete tonal noise. Therefore the project is not expected to result in tonal noise impacts at the nearest residences (KRCDPP 2003a, SPPE § 5.2.6.3, p. 5-2-17).

Worker Effects

The Applicant recognizes the need to protect plant operating and maintenance personnel from noise hazards, and has committed to comply with applicable LORS (KRCDPP 2003a, SPPE §§ 5.2.5.1, 5.2.5.2). Signs would be posted in areas of the plant with noise levels exceeding 85 dBA (the level that OSHA recognizes as a threat to workers' hearing), and hearing protection would be required. The Applicant would implement a comprehensive hearing conservation program.

D. Substantial Temporary Increase in Noise Level: Less Than Significant with Mitigation Incorporated

General Construction Noise

Applicable LORS (Fresno County General Plan Noise Element and Noise Ordinance) do not limit the loudness of construction noise, but staff compares the projected noise levels to the ambient. In this case, since construction will be restricted to daytime (see Condition **NOISE-1**), it is compared to daytime ambient levels. Because construction noise is not constant, but varies with time, staff customarily compares it with the ambient L_{eq} level, a measure appropriate for evaluating varying noise levels.

The Applicant has prepared an analysis of construction noise impacts, listing predicted noise levels due to specific types of equipment and of generalized construction activities (KRCDPP 2003a, SPPE Table 5.2-8). The Applicant predicts plant construction noise levels of about 60 dBA at the nearest residential receptors to the site (KRCDPP 2003a, SPPE § 5.2.6.3, p. 5.2-13).

NOISE: Table 3
Summary of Predicted Construction Noise Levels

Measurement Site	Noise Levels L_{eq}, dBA			
	Ambient*	Project	Cumulative	Change
1	56	60	61	+5

*Applicant's estimate (KRCDPP 2003a, SPPE Table 5.2-4).

Compared to the existing daytime L_{eq} levels during the four quietest consecutive hours of the day (see **NOISE: Table 3** above), the predicted plant construction noise levels would result in a cumulative noise level of 61 dBA, about 5 dBA higher than under the ambient conditions, at the nearest residence. However, this resulting cumulative noise level is within normally acceptable limits for short-term noise exposures. Because construction noise is temporary in nature, and because construction noise will be restricted to daytime hours, the noise effect of plant construction is considered to be insignificant.

Linear Facilities

Construction of the linear facilities will produce noise, due to the operation of heavy powered equipment. The Applicant has provided a listing of typical construction equipment, and the expected noise levels at a reference distance of 50 feet. The use of powered equipment in proximity to residences will cause increases in ambient noise levels. However, because the increase in noise levels is of a temporary nature, and

because construction noise will be restricted to daytime hours, the noise effect of linear facilities construction is considered to be insignificant.

Worker Effects

The Applicant acknowledges the need to protect construction workers from noise hazards. The Applicant recognizes the applicable LORS that would protect construction workers, and commits in general to complying with them (KRCDPP 2003a, SPPE §§ 5.2.5.1, 5.2.5.2).

E. Airport Noise Impacts: No Impact

The project is not within an airport zone. Therefore there are no impacts related to noise near an airport.

F. Private Airstrip Impacts: No Impact

The project is not near a private airstrip, therefore there would be no impacts related to private airstrips.

CUMULATIVE IMPACTS

Cumulative impacts may be caused if a project would have effects that are individually limited but cumulatively considerable when viewed together with the effects of related projects. The Applicant has indicated that there are no development plans currently under review in the project area and Fresno County currently has no plans to initiate new development or growth in the area in the near future (KRCDPP 2003a, SPPE § 5.5.6). Therefore, the project will not result in cumulative noise impacts in the area.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is greater than 50 percent within a six-mile radius of the proposed KRCDPP project (please refer to **Socioeconomics Figure 1** in this Initial Study), and Census 2000 information that shows the low-income population is less than 50 percent within the same radius. Because staff has determined there to be greater than 50 percent minority population within the six-mile radius, staff has conducted a focused environmental justice analysis for **Noise and Vibration**.

Based on the **Noise and Vibration** analysis, which included consideration of information supplied by participants at staff workshops, staff has not identified significant direct or cumulative impacts resulting from the construction or operation of the project, and therefore there is no **Noise and Vibration** environmental justice issues related to this project.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

Fresno County Department of Community Health:

The Fresno County Department of Community Health (the County) proposes a condition to require the Applicant to perform an acoustical analysis addressing potential impacts

to nearby noise sensitive receptors from the operation of the KRCDPP, including an evaluation of the facilities' operation during nighttime hours, as specified in the Fresno County Noise Ordinance (CNTYOFFRESNO 2004a). The County further recommends that this acoustical analysis be submitted to the Department of Community Health for review and approval.

According to CEQA guidelines, as described above, staff must determine if exposure to noise levels in excess of local LORS will exist at the sensitive receptors. If yes, staff then must determine if these excessive noise levels would create significant adverse impacts on the sensitive receptors. And if so, then staff must require the applicant to employ the appropriate mitigation measures to mitigate the noise impacts to less than significant. At that point, staff could find it appropriate to require acoustical analysis during the operation of the project in order to ensure the mitigation measures are being employed. As explained above, staff's analysis shows that there will be an increase of 1 dBA at the nearest sensitive receptors (location A) resulting from the project's operation. Staff considers this increase insignificant, since an increase of 1 dBA will not be audible, and finds the project's operational noise levels in compliance with CEQA guidelines.

The Fresno County Noise Ordinance limits project noise at residential receptors to 45 dBA L_{50} at night. The KRCDPP is projected to produce noise levels of 51.2 dBA at the nearest (and most affected) residences (KRCD 2003a, Table 5.2-9). This would constitute a clear violation of the LORS were it not for the fact that the existing noise regime at these residences already exceeds the LORS limit, at 56 dBA L_{50} (KRCD 2003a, Table 5.2-4). The KRCDPP will be 5 dBA quieter than the existing noise level; its addition will increase noise at the nearest residences by only 1 dBA (KRCD 2003a, Table 5.2-11), an unnoticeable amount.

Where existing noise levels exceed the LORS limits, the Noise Ordinance allows new noise sources that do not increase existing noise levels more than 3 dBA above existing levels where the existing level is between 60 and 65 dBA L_{dn} (the case at the nearest residences). Since the KRCDPP will increase noise levels only 1 dBA, staff believes it will comply with this LORS. For this reason, staff does not believe it is necessary to include the condition suggested by Fresno County.

CONCLUSIONS AND RECOMMENDATIONS

Energy Commission staff concludes that, if the limitation on hours during which construction work may be performed specified in the Fresno County LORS is enforced, the KRCDPP project is not expected to produce significant adverse noise impacts. Staff further concludes that the project would not result in cumulative impacts when viewed together with another project, and would not create significant direct or cumulative noise impacts to an environmental justice population.

In order to ensure that construction work is performed during the hours specified in the applicable LORS, staff recommends the adoption of Condition of Exemption **NOISE-1**, below.

PROPOSED CONDITION OF EXEMPTION

CONSTRUCTION TIME RESTRICTIONS

NOISE-1 Heavy equipment operation and noisy construction work relating to any project features that lie within 300 feet of residentially zoned property shall be restricted to the times of day delineated below, unless exceptions are approved, in advance, by the County of Fresno:

Monday through Friday	6 a.m. to 9 p.m.
Saturday and Sunday	7 a.m. to 5 p.m.

Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

Verification: Prior to ground disturbance, the project owner shall transmit to the County of Fresno a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

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NOISE APPENDIX A
FUNDAMENTAL CONCEPTS OF COMMUNITY NOISE

To describe noise environments and to assess impacts on noise sensitive area, a frequency weighting measure, which simulates human perception, is customarily used. It has been found that A-weighting of sound intensities best reflects the human ear's reduced sensitivity to low frequencies and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. Decibels are logarithmic units that conveniently compare the wide range of sound intensities to which the human ear is sensitive. **Noise Table A-1** provides a description of technical terms related to noise.

Noise environments and consequences of human activities are usually well represented by an equivalent A-weighted sound level over a given time period (L_{eq}), or by average day and night A-weighted sound levels with a nighttime weighting of 10 dBA (L_{dn}). Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. Outdoor day-night sound levels vary over 50 dBA depending on the specific type of land use. Typical L_{dn} values might be 35 dBA for a wilderness area, 50 dBA for a small town or wooded residential area, 65 to 75 dBA for a major metropolis downtown (e.g., San Francisco), and 80 to 85 dBA near a freeway or airport. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be levels of noise adverse to public health.

Various environments can be characterized by noise levels that are generally considered acceptable or unacceptable. Lower levels are expected in rural or suburban areas than what would be expected for commercial or industrial zones. Nighttime ambient levels in urban environments are about seven decibels lower than the corresponding average daytime levels. The day-to-night difference in rural areas away from roads and other human activity can be considerably less. Areas with full-time human occupation that are subject to nighttime noise, which does not decrease relative to daytime levels, are often considered objectionable. Noise levels above 45 dBA at night can result in the onset of sleep interference effects. At 70 dBA, sleep interference effects become considerable (Effects of Noise on People, U.S. Environmental Protection Agency, December 31,1971).

In order to help the reader understand the concept of noise in decibels (dBA), **Noise Table A-2** has been provided to illustrate common noises and their associated sound levels, in dBA.

Noise Table A-1 Definition of Some Technical Terms Related to Noise	
Terms	**Definitions**
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a Sound Level Meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this testimony are A-weighted.
L_{10}, L_{50}, & L_{90}	The A-weighted noise levels that are exceeded 10%, 50%, and 90% of the time, respectively, during the measurement period. L_{90} is generally taken as the background noise level.
Equivalent Noise Level, L_{eq}	The energy average A-weighted noise level during the Noise Level measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 4.8 decibels to levels in the evening from 7 p.m. to 10 p.m., and after addition of 10 decibels to sound levels in the night between 10 p.m. and 7 a.m.
Day-Night Level, L_{dn} or DNL	The Average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10 p.m. and 7 a.m.
Ambient Noise Level	The composite of noise from all sources, near and far. The normal or existing level of environmental noise at a given location.
Intrusive Noise	That noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Pure Tone	A pure tone is defined by the Model Community Noise Control Ordinance as existing if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the two contiguous bands by 5 decibels (dB) for center frequencies of 500 Hz and above, or by 8 dB for center frequencies between 160 Hz and 400 Hz, or by 15 dB for center frequencies less than or equal to 125 Hz.

Source: Guidelines for the Preparation and Content of Noise Elements of the General Plan, Model Community Noise Control Ordinance, California Department of Health Services 1976, 1977.

Noise Table A-2 Typical Environmental and Industry Sound Levels			
Noise Source (at distance)	A-Weighted Sound Level in Decibels (dBA)	Noise Environment	Subjective Impression
Civil Defense Siren (100')	140-130		Pain Threshold
Jet Takeoff (200')	120		Very Loud
Very Loud Music	110	Rock Music Concert	
Pile Driver (50')	100		
Ambulance Siren (100')	90	Boiler Room	
Freight Cars (50')	85		
Pneumatic Drill (50')	80	Printing Press Kitchen with Garbage Disposal Running	Loud
Freeway (100')	70		Moderately Loud
Vacuum Cleaner (100')	60	Data Processing Center Department Store/Office	
Light Traffic (100')	50	Private Business Office	
Large Transformer (200')	40		Quiet
Soft Whisper (5')	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing

Source: Handbook of Noise Measurement, Arnold P.G. Peterson, 1980

Subjective Response to Noise

The adverse effects of noise on people can be classified into three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction.
- Interference with activities such as speech, sleep, and learning.
- Physiological effects such as anxiety or hearing loss.

The sound levels associated with environmental noise, in almost every case, produce effects only in the first two categories. Workers in industrial plants can experience noise effects in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction, primarily because of the wide variation in individual tolerance of noise.

One way to determine a person's subjective reaction to a new noise is to compare the level of the existing (background) noise, to which one has become accustomed, with the level of the new noise. In general, the more the level or the tonal variations of a new noise exceed the previously existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual.

With regard to increases in A-weighted noise levels, knowledge of the following relationships can be helpful in understanding the significance of human exposure to noise.

Except under special conditions, a change in sound level of one dB cannot be perceived.
Outside of the laboratory, a three dB change is considered a barely noticeable difference.
A change in level of at least five dB is required before any noticeable change in community response would be expected.
A ten dB change is subjectively heard as an approximate doubling in loudness and almost always causes an adverse community response. (Kryter, Karl D., The Effects of Noise on Man, 1970)

Combination of Sound Levels

People perceive both the level and frequency of sound in a non-linear way. A doubling of sound energy (for instance, from two identical automobiles passing simultaneously) creates a three dB increase (i.e., the resultant sound level is the sound level from a single passing automobile plus three dB). The rules for decibel addition used in community noise prediction are:

Noise Table A-3
Addition of Decibel Values

When two decibel values differ by:	Add the following amount to the larger value
0 to 1 dB	3 dB
2 to 3 dB	2 dB
4 to 9 dB	1 dB
10 dB or more	0
Figures in this table are accurate to ± 1 dB.	

Source: Architectural Acoustics, M. David Egan, 1988

Sound and Distance

Doubling the distance from a noise source reduces the sound pressure level by six dB.

Increasing the distance from a noise source ten times reduces the sound pressure level by 20 dB.

Worker Protection

OSHA noise regulations are designed to protect workers against the effects of noise exposure, and list permissible noise level exposure as a function of the amount of time to which the worker is exposed:

Noise Table A-4
OSHA Worker Noise Exposure Standards

Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115

Source: 29 C.F.R. § 1910.95

PUBLIC HEALTH

Testimony of Obed Odoemelam, Ph.D.

INTRODUCTION

The purpose of staff's public health analysis is to determine if toxic air contaminants from the proposed Kings River Conservation District Peaking Plant (KRCDPP) will have the potential to cause significant adverse public health impacts. If potentially significant health impacts are identified, staff will evaluate the mitigation measures necessary to reduce such impacts to insignificant levels. The section is organized to include a description of the method for analyzing potential health impacts and the criteria used to determine their significance, and a brief characterization of KRCDPP along with discussions regarding selected checklist items with respect to the topical areas of concern. It concludes with staff's recommended conditions of exemption to monitor and mitigate the project, as staff considers necessary.

METHOD OF ANALYSIS

Staff is concerned about toxic air contaminants to which the public could be exposed during project construction and routine operation. Following the release of toxic contaminants into the air or water, people may come into contact with them through inhalation, dermal contact, or ingestion via contaminated food or water.

Air pollutants for which no air quality standards have been set are called noncriteria pollutants. Unlike criteria pollutants such as ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide, noncriteria pollutants have no ambient (outdoor) air quality standards that specify levels considered safe for everyone.

Since noncriteria pollutants do not have such standards, a process known as health risk assessment is used to determine if people might be exposed to those types of pollutants at unhealthy levels. The risk assessment procedure consists of the following steps:

1. Identifying the types and amounts of hazardous substances that KRCDPP could emit into the environment.
2. Estimating worst-case concentrations of project emissions into the environment using dispersion modeling.
3. Estimating the amounts of pollutants to which people could be exposed through inhalation, ingestion, and dermal contact.
4. Characterizing the potential health risks by comparing worst-case exposure to safe standards based on known health effects.

Initially, a screening level risk assessment is performed using simplifying assumptions that are intentionally biased toward protection of public health. That is, an analysis is designed that overestimates public health impacts from exposure to project emissions. In reality, it is likely that the actual risks from the power plant would be much lower than the risks estimated from the screening level assessment. This conservative estimation

is accomplished by examining conditions that would lead to the highest, or worst-case risks, and then assuming those conditions for the study. Such conditions include:

- using the highest levels of pollutants that could be emitted from the plant;
- assuming weather conditions that would lead to the maximum ambient concentration of pollutants;
- using the type of air quality computer model which predicts the greatest plausible impacts;
- calculating health risks at the location where the pollutant concentrations are calculated to be the highest;
- using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses); and
- assuming that an individual's exposure to cancer-causing agents occurs for 70 years.

A screening level risk assessment will, at a minimum, include the potential health effects from inhaling hazardous substances. Some facilities may also emit certain substances, which could present a health hazard from non-inhalation pathways of exposure (see California Air Pollution Control Officers Association (CAPCOA) 1993, Table III-5). When these substances are present in facility emissions, the screening level analysis would include the following additional exposure pathways: soil ingestion, dermal exposure, and mother's milk (CAPCOA 1993, p. III-19).

The risk assessment process addresses three categories of health impacts: acute (short-term) health effects, chronic (long-term) noncancer effects, and cancer risk (also long-term). Acute health effects result from short-term (1-hour) exposure to relatively high concentrations of pollutants. Acute effects are temporary in nature, and include symptoms such as irritation of the eyes, skin, and respiratory tract.

Chronic health effects are those which arise from long-term exposure to lower concentrations of pollutants. The exposure period is considered to be approximately from ten to one hundred percent of a lifetime (from seven to seventy years). Chronic health effects include diseases such as reduced lung function and heart disease.

The analysis for noncancer health effects compares the maximum project contaminant levels to safe levels called "reference exposure levels" or RELs. These are the amounts of toxic substances to which even sensitive individuals can be exposed and suffer no adverse health effects (CAPCOA 1993, p. III-36). These exposure levels are designed to protect the most sensitive individuals in the population, such as infants, the aged, and people suffering from illness or disease, which makes them more sensitive to the effects of toxic substance exposure. The RELs are based on the most sensitive adverse health effects reported in the medical and toxicological literature, and include specific margins of safety incorporated to address the uncertainties associated with inconclusive scientific and technical information available at the time of standard setting. They, therefore, are meant to provide a reasonable degree of protection against hazards that research has not yet identified. Each margin of safety is designed to prevent pollution levels that have been demonstrated to be harmful, as well as to prevent lower pollutant

levels that may pose an unacceptable risk of harm, even if the risk is not precisely identified as to nature or degree. Health protection is achieved if the estimated worst-case exposure is below the relevant reference exposure level. In such a case, an adequate margin of safety is assumed to exist between the predicted exposure and the estimated threshold dose for toxicity.

Exposure to multiple toxic substances may result in health effects that are equal to, less than, or greater than effects resulting from exposure to the individual chemicals. Only a small fraction of the thousands of potential combinations of chemicals have been tested for the health effects of combined exposures. In conformance with CAPCOA guidelines, the health risk assessment assumes that the effects of each substance are additive for a given organ system (CAPCOA 1993, p. III-37). In those cases where the actions may be synergistic (where the effects are greater than the sum), this approach may underestimate the health impact of concern (Id).

For carcinogenic substances, the health assessment considers the risk of developing cancer and assumes that continuous exposure to the cancer-causing substance occurs over a 70-year lifetime. The risk that is calculated is not meant to project the actual expected incidence of cancer, but rather as a theoretical upper-bound number based on worst-case assumptions. In reality, the risk would be generally too small to actually be measured. For example, a ten in one million significant risk level represents a ten in one million increase in the normal risk of developing cancer over a lifetime, at whatever location is estimated to have the worst-case risk.

Cancer risk is expressed in terms of chances per million, and is a function of the maximum expected pollutant concentration, the probability that a particular pollutant will cause cancer (called “potency factor” and established by the California Office of Environmental Health Hazard Assessment), and the length of the exposure period. Cancer risks for the individual carcinogens are added together to yield a total cancer risk. The conservative nature of the screening level assumptions used means that actual cancer risks would likely to be lower or even considerably lower than those estimated.

The screening analysis was performed for the proposed KRCDPP to assess the worst-case risks to public health as possible from its operation. Whenever the screening analysis predicts no significant risks, no further analysis would be required. However, if risks were above the significance level, then further analysis, using more realistic site-specific assumptions, would be performed to obtain a more accurate assessment of health risks in question.

SIGNIFICANCE CRITERIA

Commission staff assesses the health effects of exposure to toxic emissions based on the potential impacts on the maximally exposed individual. This is a person hypothetically exposed to project emissions at a location where the highest ambient impacts were calculated using worst-case assumptions, as noted above.

As described earlier, noncriteria pollutants are evaluated for short-term (acute) and long-term (chronic) noncancer health effects, as well as cancer (long-term) health

effects. The potential significance of project-related health impacts is determined separately for each of the three categories of health effects.

Acute and Chronic Noncancer Health Effects

Staff assesses the significance of noncancer health effects by calculating a "hazard index" for the exposures in question. A hazard index is a ratio obtained by comparing exposure from facility emissions to the reference (safe) exposure level. A ratio of less than one signifies a worst-case exposure potentially below the safe level. The hazard indices for all toxic substances with the same types of health effect are added together to yield a total hazard index for all exposures. The total hazard index is calculated separately for acute and chronic effects. A total hazard index of less than one suggests that cumulative worst-case exposures would be less than the reference exposure levels (safe levels). Under these conditions, health protection would be assumed likely even for sensitive members of the population. In such a case, staff would assume that there would be no significant noncancer project-related public health impacts.

Cancer Risk

Staff relies upon regulations implementing the provisions of Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986 (Health & Safety Code, §§ 25249.5 et seq.) for guidance in assessing the potential for a significance cancer risk. Title 22, California Code of Regulations, § 12703(b) states that "the risk level which represents no significant risk shall be one which is calculated to result in one excess case of cancer in an exposed population of 100,000, assuming lifetime exposure." This level of risk is equivalent to an incremental cancer risk of ten in one million, or 10×10^{-6}. An important distinction is that the Proposition 65 significance level applies separately to each cancer-causing substance, whereas staff determines significance based on the total risk from all cancer-causing chemicals. Thus, the manner in which the significance level is applied by staff is more conservative (health-protective) than that which applies to Proposition 65.

The significant risk level of ten in one million is consistent with the level of significance adopted by the San Joaquin Valley Air Pollution Control District (SJVAPCD) pursuant to Health and Safety Code § 44362(b), which requires notification of nearby residents when an Air Quality Management District determines that there is a significant health risk from a given facility. The recommended threshold of significant impact for emitted hazardous air pollutants is ten in one million. In general, SJVAPCD would not approve a project with a cancer risk exceeding ten in one million.

As noted earlier, the initial risk analysis for a project is typically performed at a screening level, which is designed to overstate actual risks, so that health protection can be assured. When a screening level analysis shows cancer risks to be above the significance level, using refined assumptions would likely result in a lower, more realistic risk estimate. If facility risk, based on refined assumptions, exceeds the significance level of ten in one million, staff would require appropriate measures to reduce the risk to less than significant. If, after all risk reduction measures had been considered, a refined analysis identifies a cancer risk of greater than ten in one million, staff would deem such risk to be significant, and would not recommend project approval.

SETTING

This section describes the environment in the vicinity of KRCDPP from the public health perspective. Features of the natural environment, such as meteorology and terrain, affect the project's potential for causing impacts on public health. For example, emissions plume from a facility may impact elevated areas before lower terrain areas, because of a reduced opportunity for atmospheric mixing. Consequently, areas of elevated terrain can often be subjected to increased pollutant impacts. Also, the types of land use near a site can influence the surrounding population distribution and density, which in turn, can affect public exposure to project emissions. Additional factors affecting potential public health impact include existing air quality and site contamination.

SITE AND VICINITY DESCRIPTION

The proposed KRCDPP site comprises approximately 9.5 acres in an industrial area south of the City of Fresno, near the Community of Malaga, in Fresno County. The site topography is relatively flat, with an average elevation of 295 feet above mean sea level (KRCD 2003a, Ch. 5.1, p. 5).

Currently, land at the proposed site is classified as industrial land. The surrounding area is also generally industrial with a few scattered residences, the nearest of which is approximately 1,000 feet to the northeast (KRCD 2003a, Ch. 5.1, p. 3).

As mentioned above, the location of sensitive receptors near the proposed site is an important factor in considering potential public health impacts. There are a few such locations (schools, places of worship, medical facilities, convalescent homes, and day care facilities) within a two-mile radius of the project site. The applicant has identified these locations along with their respective distances from the site (KRCD 2003a, Ch. 5.1, pp. 3-4, and 5 and Ch. 5.8, pp. 3-5).

METEOROLOGY

Meteorological conditions, including wind speed, wind direction, and atmospheric stability, affect the extent to which pollutants are dispersed into ambient air as well as the direction of pollutant transport. This, in turn, affects the level of public exposure to emitted pollutants and associated health risks. When wind speeds are low and the atmosphere is stable, for example, dispersion is reduced and localized exposure may be increased.

As part of the San Joaquin Valley, the climate at the project site is dominated by the influence of mountains on three sides and the Pacific high-pressure system, which is a semi-permanent, subtropical high-pressure system located off the coast. The size and strength of the Pacific high is at a maximum during the summer when it is at its northernmost position, and results in strong northwesterly air flows and negligible precipitation. During this period, inversions become strong, winds lighter, and the pollution potential high. The Pacific high's influence weakens during the fall and winter when it moves southwestward, allowing the storms from the Gulf of Alaska to reach northern California. About 80 percent of the region's annual rainfall occurs between

November and March. During the winter, inversions are weak, winds often moderate, and the potential for air pollution is low.

Atmospheric stability is a measure related to turbulence, or the ability of the atmosphere to disperse pollutants due to convective air movement. Mixing heights (the height above ground level through which the air is well mixed and in which pollutants can be dispersed) are lower during mornings due to temperature inversions and increase during the warmer afternoons. Staff's **Air Quality** section presents a more detailed assessment of the area's meteorological conditions.

EXISTING AIR QUALITY

The proposed KRCDPP site is within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD), which includes all or portions of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Kern counties. The California Air Resources Board conducts toxic air contaminant monitoring in San Joaquin Valley.

By combining average toxic concentration levels with cancer risk factors specific to each contaminant, lifetime cancer risk can be calculated to provide a background risk level for inhalation of ambient air.

The toxic air monitoring station closest to the KRCDPP site is on Fourteenth Street in Modesto. Based on levels of toxic air contaminants measured at this station in 1999, the average background cancer risk for the project area is 163 in one million (CARB 2001). For comparison purposes, it should be noted that the overall lifetime cancer risk for the average individual in the U.S. is about 1 in 4, or 250,000 in a million.

SITE CONTAMINATION

Site disturbances will occur during facility construction from excavation, grading, and earth moving. Such activities have the potential to adversely affect public health through various mechanisms, such as the creation of airborne dust, material being carried off-site through soil erosion, and uncovering buried hazardous substances.

A Phase I Environmental Site Assessment (ESA) was conducted at the proposed project site in May 2003 to identify any indications of chemical contamination that might have resulted from past industrial activities at the site. While the applicant reported that no signs of significant contamination were discovered (KRCD 2003a, Ch. 5.10, pp. 19-20), the California Department of Toxic Substances Control (CDTSC) pointed (in a February 18,2004 memorandum to staff) to the need for further investigations to more fully characterize the site for such contamination. Staff is in agreement with DTSC and proposes a specific condition of exemption (WASTE-1) in the **Waste Management** section to ensure further additional site characterization as well as any necessary mitigation. Staff considers this requirement as adequate protection against significant health risks from construction and other ground-disturbing activities at the project site.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
PUBLIC HEALTH – Would the project cause the surrounding population to be exposed to airborne diseases and/or toxic air contaminants at levels hazardous to health during:				
a) Construction		X		
b) Operations		X		

ANALYSIS AND DISCUSSION OF IMPACTS

The proposed KRCDPP would be considered to have significant impacts related to public health if it would cause the surrounding population to be exposed to airborne diseases and/or toxic air contaminants at levels that cause hazardous health effects.

The basis for the outcome noted in the checklist is discussed below.

A. Construction: Less than Significant with Mitigation Incorporated

Potential risks to public health during construction may be associated with exposure to toxic substances in contaminated soil disturbed during site preparation, as well as from emissions from heavy equipment operation. Criteria pollutant impacts from such equipment and particulate matter from earth moving are examined in staff's **Air Quality** analysis.

As noted above and more fully discussed in the **Waste Management** section of this Initial Study, staff recommends a specific condition of exemption (WASTE-1) to ensure additional site investigation and any remediation that would be necessary to minimize the potential for human contact with any soil contaminants that could be identified at the site.

The Construction equipment emissions will include both the noted criteria pollutants and the noncriteria pollutants, all of which are associated with all diesel-fueled engines. The criteria component includes nitrogen oxides, carbon monoxide, and sulfur oxides. The noncriteria pollutant fraction includes a complex mixture of thousands of gases and fine particles. These particles are primarily made up of aggregates of spherical carbon particles coated with organic and inorganic substances. Studies have shown that diesel exhaust contains over 40 substances that are listed by the U.S. EPA as hazardous air pollutants and by the Air Resources Board (ARB) as toxic air contaminants.

Exposure to diesel exhaust can cause both short-term and long-term adverse health effects. The short-term effects can include increased coughing, labored breathing, chest tightness, wheezing, and eye and nasal irritation. Long-term effects can include increased coughing, chronic bronchitis, reductions in lung function, and inflammation of the lung. Epidemiological studies also strongly suggest a causal relationship between occupational diesel exhaust exposure and lung cancer.

Based on a number of health effects studies, the Scientific Review Panel on Toxic Air Contaminants (SRP) recommended a chronic REL (see REL discussion in

Method of Analysis section above) for diesel exhaust particulate matter of 5 $\mu g/m^3$ and a cancer unit risk factor of 3x10-4 $(\mu g/m^3)^{-1}$ (SRP 1998, p. 6). The SRP did not recommend a value for an acute REL, since available data in support of a value was deemed insufficient. On August 27, 1998, the ARB listed particulate emissions from diesel-fueled engines as a toxic air contaminant and approved SRP's recommendations regarding health effect levels.

Construction of the KRCDPP is anticipated to take place over a period of 6 months (KRCD 2003a, Appendix 5.1-4). As noted earlier, assessment of chronic (long-term) health effects assumes continuous exposure to toxic substances over a significantly longer time period, typically from seven to seventy years.

Details of the exhaust emission levels for the varying construction activities were also provided in Appendix 5.1-4. The main sources would include trucks, graders, cranes, welding machines, electric generators, air compressors, and water pumps. The maximum carcinogenic risk from exposure to diesel emissions during construction activities is estimated as approximately 1.25 in one million, which is significantly below the 10 in one million level considered significant by staff and under the SJVAPCD guidelines.

In order to mitigate potential impacts from particulate emissions during the operation of diesel-powered construction equipment, **Air Quality** staff recommends the use of ultra low sulfur diesel fuel and California Tier 1 diesel engines. As reflected in the information from the applicant, there are no sensitive receptors in the project's immediate impact area. The impacts from such construction activities typically occur within a very short distance of its operation, often within the fenceline of a project.

B. Operation: Less than Significant with Mitigation Incorporated

Emissions Sources

The major emissions sources for the proposed KRCDPP are its two simple cycle gas turbines, the cooling towers, and the evaporative tower (KRCD 2003a, Ch. 1, p. 3 and Ch. 5.1, p. 28). During operations, potential public health risks would be related to natural gas combustion emissions from the gas turbines and trace contaminants present in the raw, non –potable water being emitted through the cooling tower.

As noted earlier, the first step in a health risk assessment is to identify the potentially toxic compounds that may be emitted from the facility. The applicant has provided a listing of the noncriteria pollutants that may be emitted along with the toxicity values used to characterize cancer and noncancer health impacts from project pollutants (KRCD 2003a, Ch. 5.8 pp. 12 and 13). These toxicity values are the ones published in the CAPCOA Guidelines (CAPCOA 1993) together with the applicable reference exposure levels. It is from these that the short-term and long-term noncancer health risk can be calculated along with the potential cancer risk. **Public Health Table 1** lists toxic emissions and itemizes the potential health impacts of each. For example, the first row shows that oral exposure to acetaldehyde is not of concern, but if inhaled, the chemical may have cancer and chronic (long-term) noncancer health effects, but not acute (short-term) effects.

Emissions Levels

Once potential emissions are identified, the first step is to quantify them by conducting the previously noted "worst case" analysis to assess the need for further analysis. Maximum hourly emissions are required to calculate acute (one-hour) noncancer health effects, while estimates of maximum emissions on an annual basis are required to calculate cancer and chronic (long-term) noncancer health effects.

PUBLIC HEALTH Table 1
Types of Health Impacts and Exposure Routes Attributed to Toxic Emissions

Substance	Oral Cancer	Oral Noncancer	Inhalation Cancer	Noncancer (Chronic)	Noncancer (Acute)
Acetaldehyde			✓	✓	
Acrolein				✓	✓
Ammonia				✓	✓
Benzene			✓	✓	
Chromium		✓	✓	✓	
1,3-Butadiene			✓		
Ethylbenzene				✓	
Hexane				✓	
Formaldehyde			✓	✓	✓
Napthalene		✓		✓	
PAHs	✓		✓		
Propylene				✓	
Propylene oxide			✓	✓	✓
Sulfate					✓
Toluene				✓	
Xylene				✓	✓
Diesel Particulate			✓	✓	

Source: KRCD 2003a, Ch 5.8, pp. 9,14.

The next step in the health risk assessment process is to estimate the ambient concentrations of toxic substances in question. For the proposed KRCDPP, air dispersion modeling was used to estimate the ambient concentrations of these substances. These the ambient concentrations were then used in conjunction with RELs and cancer unit risk factors to estimate health effects, which might occur from exposure to facility emissions. Exposure pathways, or ways in which people might come into contact with toxic substances, include inhalation, dermal (through the skin) absorption, soil ingestion, consumption of locally grown plant foods, and mother's milk.

The above method of assessing health effects is consistent with the California Air Pollution Control Officers Association (CAPCOA) Air Toxics "Hot Spot" Program

Revised 1992 Risk Assessment Guidelines (October 1993) referred to earlier, and results in the following health risk estimates.

Impacts

The screening health risk assessment for the project, including combustion and noncombustion emissions, resulted in a maximum acute hazard index of 0.02. The chronic hazard index at the point of maximum impact is 0.0004. As **Public Health Table 2** shows, both of these acute and chronic hazard indices are far below the reference exposure level of 1.0, indicating that no short-term or long-term adverse health effects are expected.

Total worst-case individual cancer risk from facility operation as shown in **Public Health Table 2** is estimated to be 0.008 in one million. As discussed earlier, this is the risk at the location where long-term pollutant concentrations are calculated to be the highest.

PUBLIC HEALTH Table 2
Operation Hazard/Risk

Type of Hazard/Risk	Hazard Index/Risk for Project	Standard Significance Level	Significant?
Acute Noncancer	0.0214	1.0	No
Chronic Noncancer	0.0004	1.0	No
Individual Cancer	0.008×10^{-6}	10×10^{-6}	No

Source: KRCD2003a, Ch5.8, pp. 13 - 17.

Cooling Tower

The possibility exists for bacterial growth to occur in the cooling tower, including Legionella. Legionella is a bacterium that is ubiquitous in natural aquatic environments and is also widely distributed in man-made water systems. It is the principal cause of legionellosis, otherwise known as Legionnaires ' disease, which is similar to pneumonia. Transmission to people results mainly from inhalation or aspiration of aerosolized contaminated water. Untreated or inadequately treated cooling systems, such as industrial cooling towers and building heating, ventilating, and air conditioning systems, have been correlated with outbreaks of legionellosis. The Cooling Technology Institute (CTI 2000) found that 40-60 percent of industrial cooling towers tested were found to contain Legionella.

Legionella can grow symbiotically with other bacteria and can infect protozoan hosts. The U.S. EPA noted that Legionella survival is enhanced by symbiotic relationships with other microorganisms, particularly in biofilms (layers of bacteria that are typically loosely attached to a surface) and that aerosol-generating systems such as cooling towers can aid in the transmission of Legionella from water to air (EPA 1999). This provides Legionella with protection from adverse environmental conditions, including making it more resistant to water treatment with chlorine, biocides, and other disinfectants. Thus, if not properly maintained, cooling water systems and their components can amplify and disseminate aerosols containing Legionella.

The American Society of Heating, Refrigerating and Air-Conditioning Engineers concluded that "Design and good operations, maintenance, and housekeeping procedures that prevent amplification and dissemination of Legionella should be formulated and implemented before systems are operated" (ASHRAE 1998). The Cooling Technology Institute stated that "it is best to assume that any given system can harbor the organism, and that routine, continuous microbiological control practices should be implemented to minimize the risk of Legionella amplification and associated disease" (CTI 2000). Staff notes that most power plant cooling tower water treatment programs are designed to minimize scale, corrosion, and biofouling, and not to control Legionella.

To minimize the risk from Legionella, the CTI noted that consensus recommendations included minimization of water stagnation, minimization of process leads into the cooling system that provide nutrients for bacteria, maintenance of overall system cleanliness, the application of scale and corrosion inhibitors as appropriate, the use high-efficiency mist eliminators on cooling towers, and the overall general control of microbiological populations.

The Applicant has proposed the use of sodium bromide as a cooling tower biocide (KRCD 2003a, Ch. 5.10, p. 9). Its efficacy, however, in ensuring that bacterial and in particular Legionella growth, is kept to a minimum, is contingent upon a number of factors including proper dosage amounts, appropriate application procedures and effective monitoring. Staff has therefore proposed Condition of Exemption **Public Health-1** that would require the project owner to prepare and implement a biocide and anti-biological growth agent-monitoring program. The program would ensure that proper levels of biocide and other agents are maintained within the cooling tower water at all times, that periodic measurements of Legionella levels are conducted, and that periodic cleaning is conducted to remove bio-film buildup. Staff believes that with the use of an aggressive antibacterial program coupled with routine monitoring and bacteria removal, the chances of Legionella growing and dispersing would be reduced to insignificant.

CUMULATIVE IMPACTS

The maximum impact location would be where pollutant concentrations from KRCDPP would theoretically be the highest. Even at this location, staff does not expect any significant change in lifetime risk to any person, and the increase of 0.008 in a million does not represent any real contribution to the noted average lifetime cancer risk of 250,000 in a million. Modeled facility-related risks are lower at all other locations, and actual risks are expected to be much lower, since worst-case estimates are based on conservative assumptions, and overstate the true magnitude of the risk expected. Therefore, staff does not consider the incremental impact of the additional risk posed by the KRCDPP to be either significant or cumulatively considerable.

The worst-case chronic noncancer health impact from the KRCDPP (0.0004 hazard index) is well below the significance level of 1.0 at the location of maximum impact. Similarly, the worst-case acute health impact of 0.02 is below the significance level of 1.0. At these levels, staff does not expect any cumulative health impacts to be

significant. As with cancer risk, long-term hazard would be lower at all other locations and cumulative impacts at other locations would also be less than significant.

Even in the unlikely event that worst-case emissions from an existing facility were to coincide both geographically and temporally with kRCDPP's emissions at the location of maximum impact, the overall long-term health outlook would not change for anyone. Thus, the KRCDPP will not result in any significant cumulative cancer or chronic noncancer health impacts.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the area's minority population is greater than 50 percent within a six-mile radius of the proposed KRCDPP (please refer to the **Socioeconomics Figure 1** in this Staff Assessment). Staff also reviewed Census 2000 information that shows the low-income population is less than 50 percent within the same radius.

Based on the **Public Health** analysis, which included consideration of information supplied by participants at staff workshops, staff has not identified significant direct or cumulative impacts resulting from the construction or operation of the project and, therefore, concludes that there would be no public health environmental justice issues related to this project.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

None received.

CONCLUSIONS

Staff has analyzed potential public health risks associated with construction and operation of the proposed KRCDPP. Staff does not expect there to be any significant adverse cancer, or short or long-term noncancer health effects from project emissions.

Implementation of staff's proposed Condition of Exemption would also ensure that the risk of Legionella growth and dispersion is reduced to less than significant.

PROPOSED CONDITION OF EXEMPTION

Public Health-1: The project owner shall develop and implement a cooling tower Biocide Use, Biofilm Prevention, and Legionella Control Program to ensure that cooling tower bacterial growth is controlled. The Program shall be consistent with CEC's guidelines or the Cooling Tower Institute's guidelines for control of Legionella.

Verification: At least 30 days prior to the commencement of cooling tower operations, the Biocide Use, Bio-film Prevention, and Legionella Control Program to the CPM for review and approval.

REFERENCES

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SOCIOECONOMICS

Testimony of Joseph Diamond

INTRODUCTION

This California Energy Commission (Energy Commission) staff socioeconomic impact analysis evaluates the project induced changes on community services and/or infrastructure and related community issues such as Environmental Justice (EJ) and facility closure. Direct and cumulative impacts are also included. Staff discusses the estimated impacts of the construction and operation of the Kings River Conservation District Peaking Plant (KRCDPP) project on local communities, community resources, and public services, pursuant to Title 14, California Code of Regulations, Section 15131. The KRCDPP project power plant will be owned and operated by Kings River Conservation District (KRCD), a local public agency.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

CALIFORNIA GOVERNMENT CODE, SECTIONS 65996-65997

These sections include provisions for school district levies against development projects. As amended by SB 50 (Stats. 1998, ch. 407, sec.23), these sections state that public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities.

SETTING

DEMOGRAPHIC CHARACTERISTICS

The project site is located in the community of Malaga south of Fresno in Fresno County. The study area will consist of Fresno County.

Fresno County's population was 799,407 in 2000, is projected to be 893,300 in 2005, and is expected to increase 27 percent from 2005 to 2020. The City of Fresno had a 2000 population of 427,652. **SOCIOECONOMICS Table 1** shows the historical and projected populations for the study area and the state.

SOCIOECONOMICS Table 1
Historical and Projected Populations

Area	1990 Population	2000 Population	2010 Population	2020 Population
Malaga	N/A	2,032	N/A	22,582
Fresno County	667,490	799,407	970,900	1,134,600
City of Fresno	354,202	427,652	N/A	N/A
California	29,760,021	33,871,648	40,262,400	42,711,200

Source: Department of Finance (DOF), and US Census, 1990 & 2000

SOCIOECONOMICS Table 2 shows the minority and low-income populations within the six-mile radius of the proposed project, the City of Fresno, Fresno County, and the state.

SOCIOECONOMICS Table 2
2000 Minority and Person below Poverty Level

Area	% Minority	% Persons below poverty level
Six-mile radius	81.62	38.04
City of Fresno	62.7	23.0
Fresno County	60.3	22.9
California	53.30	14.20

Source: US Census 2000

The minority population within six-miles of the site is 81.62 percent, which is somewhat higher than the 62.7 percent minority population of the City of Fresno and significantly higher than that of the state. The population below the poverty level is 38.04 percent within six miles of the site, which is higher than the 23.0 percent for the City of Fresno and somewhat more than that of the state.

EMPLOYMENT AND ECONOMY

SOCIOECONOMICS Table 3 shows employment data for the study area and the state. Data from the Employment Development Department (EDD) show that the unemployment rate for Fresno County is substantially higher than the unemployment rate for the state.

SOCIOECONOMICS Table 3: Employment Data October 2003

Area	Labor Force	Employment	Unemployment	Unemployment Rate (%)
Fresno County	406,700	353,600	53,100	13.0
California	17,694,400	16,533,500	1,160,900	6.6

Source: EDD 2003 (Fresno County not seasonally adjusted while California is).

Data from EDD for 2002 show that the highest employment sectors in Fresno County are government (21.2 percent), agriculture (15.2 percent), education and health services (10.5 percent), and retail trade (9.8 percent). In 2002, the construction sector employed 18,500 persons, or five and one half percent of the workforce in Fresno County region (EDD 2002). The labor pool is within 60 miles of the project site. This area has a large population, including a labor force with adequate members of the trades required for construction of an energy facility.

PROJECT WORK FORCE

Construction Work Force

According to the Small Power Plant Exemption (SPPE) application, construction of the KRCDPP facility would require six months of labor, average 68 workers on-site, and require a maximum of 101 workers during the fifth (peak) month of construction. The tentative schedule would begin in June 2004, with completion in December 2004. **SOCIOECONOMICS Table 4** shows the distribution of workers by craft and month required for the construction. **SOCIOECONOMICS Table 5** shows the annual averages, the average growth rate for the trades in Fresno County, and the maximum needed by KRCDPP per month. According to the application and labor data obtained

from the EDD, there is generally sufficient labor force availability in Fresno County to find the required construction trades.

SOCIOECONOMICS: Table 4
Project Monthly Construction Labor By Craft

Job Category	Construction Month						Totals
	1	**2**	**3**	**4**	**5**	**6**	
Boilermakers				4	8		12
Carpenters	2	8	8	6	2	1	27
Cement Mason		6	6	4			16
Electrician	2	8	12	21	21	21	85
Iron Worker		6	6	6			18
Laborer	8	10	12	12	10	6	58
Millwright				4	6	4	14
Operator	6	6	9	6	6	2	35
Painter						4	4
Pipe Fitter		5	10	10	10	5	40
Insulator					2	4	6
Lineman					18		18
Total Craft Labor	18	49	63	73	83	47	333
Field Start-up				4	10	10	24
Field Non-Manual	3	3	5	5	8	8	32
Total On-Site Labor	**21**	**52**	**68**	**82**	**101**	**65**	**389**

Source: Kings River Conservation District Peaking Plant Application, 2003

SOCIOECONOMICS: Table 5
Available Labor by Skill in the Fresno County Region per Year and Maximum Needed By KRCDPP per Month

Occupational Title	1999 Annual Average	2006 Annual Average	Absolute Change	Percentage Change	Maximum Needed By KRCDPP Per Month
Welders & Cutters	760	820	60	7.9	N/A
Carpenter	2,520	2,880	360	14.3	8
Cement Mason	50	60	10	12	6
Electrician	1,250	1,440	190	15.2	21
Structural Metal Workers	320	360	40	12.5	6
Laborer-Helper	560	640	80	14.3	12
Power Maintenance Mechanic	340	370	30	8.8	N/A
Power Plant Operator	140	160	20	14.3	9
Painter	660	740	80	12.1	4
Pipe Fitter	830	940	110	13.3	10
Sheet Metal Duct Installer	160	210	50	31.3	4
Millwright	110	120	10	9.1	14
Boiler Maker	N/A	N/A	N/A	N/A	12
Lineman	N/A	N/A	N/A	N/A	18

Source: EDD 2003 and Kings River Conservation District Peaking Plant Application, 2003.

Staff accepts the applicant's position that Fresno County is the local labor market and 70 percent of the construction workers will be local as reported by the labor union (CEC2003d – CEC/Diamond (tn:30633)).

Plant Operations Workforce

According to the application, KRCD will increase its current operation workforce by three full-time employees to meet the operational needs of the KRCDPP.

IMPACTS

Following is the Environmental Checklist that identifies potential impacts in this issue area. Below the checklist is a discussion of each impact, and an explanation of the impact conclusion.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
SOCIOECONOMICS: POPULATION, HOUSING, AND ECONOMIC (FISCAL AND NON-FISCAL)-- Would the project:				
a) Have substantial non-fiscal effects on employment and economy?				X
b) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
c) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
d) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X
e) Have substantial fiscal effects on local government expenditures, property and sales taxes?				X
f) Have a significant minority or low-income population within a six-mile radius that may be subject to disproportionate adverse effects of the project?				X
Public Services – Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered facilities, the construction of which could cause significant environmental impacts, or result in an inability to maintain acceptable service ratios, response times, or other performance objectives for the following:				
g) police protection?				X
h) schools?				X
i) medical and other public services and facilities?				X

DISCUSSION OF IMPACTS

A. Non-Fiscal Effects on Employment and Economy: No Impact

The proposed KRCDPP project will require approximately six months for construction, average 68 workers on-site, and require a maximum of 101 workers during the fifth (peak) month of construction. The majority of construction workers are expected to reside in the Fresno County region, and, if necessary, additional workers can commute from surrounding counties and regions. A small number of construction workers may require temporary lodging in Fresno County. Staff accepts the applicant's estimate that 70 percent of the work force will be local. According to current data from the EDD, sufficient numbers of workers within the specialty trades needed for project construction reside in Fresno County. Thus, the project will not directly or indirectly cause a significant impact on local employment resources in the area.

B. Induced Population Growth: No Impact

For reasons listed in **A.** above, staff does not expect any major in-migration of construction workers and none of their families to accompany them for this project. Thus, the project will not directly or indirectly induce substantial population growth in the area.

C. Displacement of Housing: No Impact

Staff does not expect housing to be displaced because of the project. Sufficient vacant housing exists if any construction workers seek temporary housing for the nine-month construction period. According to the 2000 US Census, total housing stock for Fresno County totaled 279,874. The vacancy rate was almost seven percent. The realty industry considers an average vacancy rate to be five percent. An average of only 68 workers will be on-site during construction. Construction workers and workers in the specialty trades are largely available within the Fresno County region. Some workers will commute from surrounding counties and regions with a few workers requiring temporary lodging which should be available from motel or rental units. Staff does not expect any construction workers to relocate to the area.

The proposed KRCDPP is not likely to significantly alter the location, distribution, density, or growth rate of the population of the community of Malaga, the City of Fresno, or Fresno County since construction impacts are of short duration and only three new full-time employees will be hired to operate the facility.

D. Displacement of People: No Impact

No housing or population will be displaced by the proposed project.

E. Fiscal Effects on Local Government Expenditures, Property and Sales Tax: No Impact

The applicant estimates the KRCDPP capital cost to be $40 million, with the value of materials and supplies purchased locally (within Fresno County) estimated at about $2 million. Because KRCD is a local public agency, it is exempt from property taxes. Therefore, the project will not generate any property tax revenues for Fresno County.

F. Adversely Affect Minority or Low-Income Populations: No Impact

Staff has reviewed Census 2000 information that shows the minority population is greater than fifty percent within a six-mile radius of the proposed KRCDPP project (please refer to **Socioeconomics Figure 1** in this Staff Assessment), and Census 2000 information that shows the low-income population is less than fifty percent within the same radius. Based on the socioeconomics analysis, which included consideration of information supplied by participants at staff workshops, staff has not identified any significant, adverse direct or cumulative impacts resulting from the construction or operation of the project, and therefore there are no socioeconomic environmental justice issues related to this project.

Based on this Socioeconomic analysis, staff has not identified significant direct or cumulative impacts resulting from the construction or operation of the project, and therefore there are no Socioeconomic environmental justice issues related to this project.

G. Police Protection: No Impact

Because there will be little or no in-migration of construction workers, staff does not expect significant impacts to police services. Furthermore, staff notes that the KRCDPP will include appropriate site security measures, including fencing and locked gates that will minimize the potential need for assistance from the Fresno County Sheriff's department.

H. Schools: No Impact

Because there will be no in-migration of construction worker families, staff does not expect significant impacts to schools. Also, the KRCD is a local public agency, and is exempt from school impact fees (CEC2003c – CEC/Diamond (tn:30632)). Therefore, the project will not be required to pay school impact fees normally assessed for commercial and industrial projects under Senate Bill 50.

I. Medical and Other Public Services: No Impact

Because there will be no in-migration of construction workers, staff does not expect significant impacts to medical and other public services.

CUMULATIVE IMPACTS

Staff concludes that there are no cumulative impacts.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

None received.

CONCLUSIONS

Based on the fact that there are no other development projects anticipated to occur during construction of the KRCDPP, staff concludes that there are no socioeconomic impacts.

PROPOSED CONDITIONS OF EXEMPTION

None proposed.

REFERENCES

CEC2003c – CEC/Diamond (tn:30632). Report of Conversation between Joseph Diamond/CEC and Amy Cuellar/Navigant Consulting regarding KRCD Payment of School Impact Fees and Property Taxes. Submitted to Navigant/Cuellar/Dockets on 12/19/03.

CEC2003d – CEC/Diamond (tn:30633). Report of Conversation between Joseph Diamond/CEC and Amy Cuellar/Navigant Consulting regarding Additional Socioeconomic Data for the KRCDPP. Submitted to Navigant/Cuellar/Dockets on 12/19/03.

Department of Finance, State of California. 2000. Internet Website, City/County Population and Housing Estimates http://www.dof.ca.gov/HTML/DEMOGRAP/repndat.

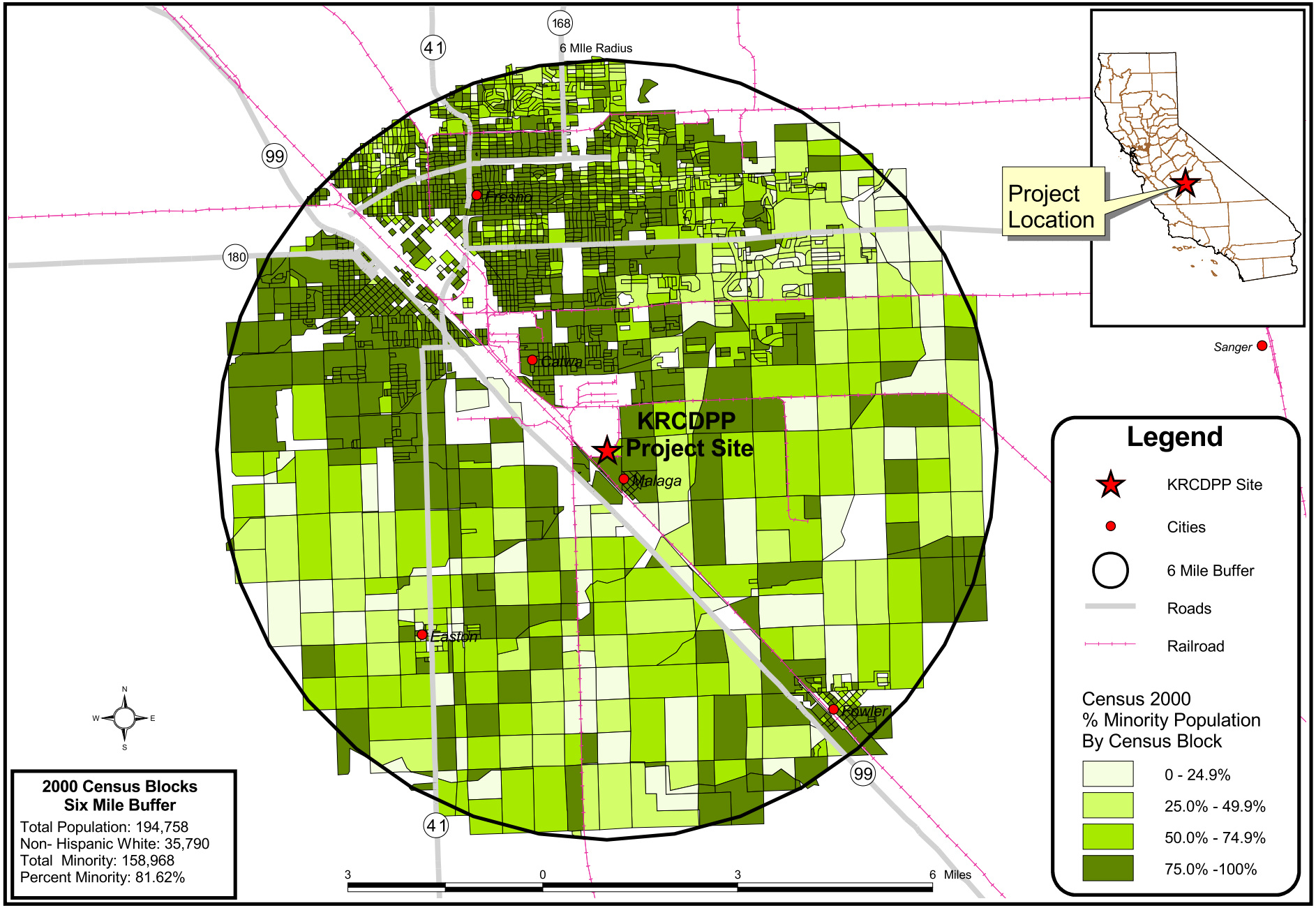
Employment Development Department, State of California. 2003. Internet Website, http://www.calmis.ca.gov and http://www.lmi4ed.ca.gov.

KRCD2003a – Kings River Conservation District/Sinor (tn:30483). Submittal of the Application for Small Power Plant Exemption for the Kings River Conservation District. Submitted to CEC/Therkelsen/Dockets on 11/26/03.

United States Bureau of the Census. 1990 and 2000 Census of Population and Housing. WebPages http://venus.census.gov.

SOCIOECONOMICS - FIGURE 1

Kings River Conservation District Peaking Plant (KRCDPP) - Census 2000 Minority Population by Census Block - Six Mile Buffer



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

SOURCE: California Energy Commission Statewide Transmission & Power Plant Maps 2003, Census 2000 PL 94-171 Data - Matrix PL2

SOCIOECONOMIC DATA AND INFORMATION – TABLE 2[1]

Project Capital Costs	$40 million
Estimate of Locally Purchased (Within Fresno County) **Equipment and Material**	
Construction	About $2 million
Operation	N/A
Estimated Annual Property Taxes	None. Exempt since KRCD is a local public agency.
Estimated School Impact Fees	None. Exempt since KRCD is a local public agency.
Direct Employment	
Construction (Average)	68 jobs
Operation	3 jobs
Secondary Employment (indirect and induced impacts)	
Construction	N/A
Operation	N/A
Payroll	
Construction	Total: $4.5 million
Operation	Total: $210,000 annually
Estimated Sales Taxes	
Construction	$150,000 (i.e., 7.875 percent of local sales for Fresno County).
Operation	N/A
Existing/Projected Unemployment Rates	Existing -13 percent in October 2003, (not seasonally adjusted for Fresno County) Projected - N/A
Percent Minority Population (6 mile radius)	81.62 percent
Percent Poverty Population (6 mile radius)	38.04

[1] Table 2 uses 2003 dollars (CEC2003d – CEC/Diamond (tn:30633)) and construction is for 6 months.

TRAFFIC & TRANSPORTATION

Testimony of James Adams

INTRODUCTION

The Traffic and Transportation Analysis of the Kings River Conservation District Peaker Plant (KRCDPP) focuses on the project's transportation systems in the vicinity of the project. This analysis examines the projects compatibility with applicable laws, ordinances, regulations, and standards (LORS). This assessment also analyzes and identifies potential impacts related to the construction and operation of the project on the surrounding transportation systems and roadways, and potential mitigation measures to avoid or lessen those impacts. It includes the evaluation of the influx of large numbers of construction workers, and how, over the course of the construction phase, the movement of these workers can increase roadway congestion and also affect traffic flow and public safety.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Federal, state, and local regulations that are applicable to the proposed project are listed below. The Applicant has indicated its intent to comply with all federal, state, and local regulations related to the transport of hazardous materials. This issue is also addressed in the section entitled **HAZARDOUS MATERIALS**.

FEDERAL

- Title 49, Code of Federal Regulations, Sections 171-177, governs the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.
- Title 49, Code of Federal Regulations, Sections 350-399, and Appendices A-G, Federal Motor Carrier Safety Regulations, address safety considerations for the transport of goods, materials, and substances over public highways. Section 353 defines hazardous materials.

STATE

- California Vehicle Code, Sections 31303-31309, regulates the highway transportation of hazardous materials, the routes used, and restrictions thereon.
- Sections 31600-31620 regulate the transportation of explosive materials.
- Sections 32000-32053 regulate the licensing of carriers of hazardous materials and include noticing requirements.
- Sections 32100-32109 establish special requirements for the transportation of substances presenting inhalation hazards and poisonous gases.
- Sections 34000-34100 establish special requirements for the transportation of flammable and combustible liquids over public roads and highways.

- Sections 34500, 34501, 34501.2, 34501.3, 34501.4, 34501.10, 34505.5-7, 34506, 34507.5 and 34510-11 regulate the safe operation of vehicles, including those which are used for the transportation of hazardous materials.
- Sections 2516 et seq. address the safe transport of hazardous materials.
- Sections 2500-2505 authorize the issuance of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials including explosives.
- Sections 13369, 15275, and 15278 address the licensing of drivers and the classifications of licenses required for the operation of particular types of vehicles. In addition, the possession of certificates permitting the operation of vehicles transporting hazardous materials is required.
- California Streets and Highways Code, Sections 117 and 660-72, and California Vehicle Code, Sections 35780 et seq., require permits for the transportation of oversized loads on county roads.
- California Streets and Highways Code, Sections 660, 670, 1450, 1460 et seq., 1470, and 1480, regulates right-of-way encroachment and the granting of permits for encroachments on state and county roads.
- All construction within the public right-of-way will need to comply with the "Manual of Traffic Controls for Construction and Maintenance of Work Zones" (Caltrans, 1996).

LOCAL

The Transportation and Circulation Element of the 2000 Fresno County General Plan describes existing transportation services and facilities, including highway, transit, bikeway, rail, and aviation facilities and related programs (Fresno County General Plan, 2000). It identifies roadway definitions, level of service[1] (LOS) standards for traffic, and various transportation modes. Fresno County's policies related to traffic and circulation needs are identified.

The 2001 Fresno County Regional Transportation Plan is a comprehensive long-range planning document that serves as a blueprint to guide public policy decisions regarding transportation expenditures and financing (Council of Fresno County Governments, 2001).

SETTING

The major highway in the area of the project site is State Route 99 (SR), which is a four to six lane freeway that runs through the western side of the City of Fresno and the unincorporated area of Fresno County. The local roadways potentially affected by the proposed project are East North Avenue, South Chestnut Avenue, South Golden State Boulevard, and East Central Avenue. East North Avenue and South Chestnut Avenue

[1] When evaluating a project's potential impact on the local transportation system, staff uses levels of service measurements as the foundation on which to base its analysis. LOS measurements represent the flow of traffic. In general, LOS ranges from "A" with free flowing traffic, to "F" which is heavily congested with flow stopping frequently.

would provide the primary connection to the project site from SR 99 (see **Traffic and Transportation Figure 1**).

The project site is located near the intersection of East North Avenue and South Chestnut Avenue in an unincorporated area south of the City of Fresno, and near the community of Malaga. South Chestnut Avenue has a recently completed overcrossing at Golden State Boulevard, which parallels the Union Pacific Railroad west of the project site. East North and South Chestnut Avenues are two lane arterial roads with a LOS rating of A. South Golden State Boulevard (LOS A) is also classified as an arterial road north of East Central Avenue, and becomes a super arterial south of East Central Avenue (KRCDPP Application for Small Power Plant Exemption (KRCDPP SPPEa), Section 5.7, pg. 7, November, 2003).

SR 99 is the primary north-south travel route in the project vicinity. It provides access to the site via East North and South Chestnut Avenues, and is under the jurisdiction of the California Department of Transportation (Caltrans). SR 99 carries approximately 49,000 vehicles per day at the East North and South Chestnut Avenues segment and is rated LOS D.

Public and private transit options for the Fresno-Clovis Metropolitan Area include fixed-route transit service, demand-responsive service for elderly and disabled persons, and regional linkages with Amtrak and Greyhound bus service. As noted above, the Union Pacific railroad parallels Golden State Boulevard and provides spur tracks throughout the project area. There are two airports within the general area: the Fresno Chandler Downtown Airport is five miles northwest, and the Fresno International Airport is about six miles north of the KRCDPP. There are no bikeways in the KRCDPP area.

The Fowler United School District's Malaga Elementary School is about .6 miles southeast of the project site (see **Traffic and Transportation Figure 1**). The bus route to and from the school follows South Chestnut and East North Avenues. The typical school bus travel day is 7:30AM to 6:30PM.

The proposed KRCDPP site is located on the west side of the Central Canal, which is owned by the Fresno Irrigation District. The project site is about 4000 feet from the Malaga Substation, which is on the corner of East North and South Willow Avenues.

PROJECT FEATURES

This project would include the construction of an electric transmission line, water and sewer lines, and a natural gas pipeline which will be built, owned, and operated by PG&E. An access road and rights-of-way for the gas, alternative water and sewer lines, and the electric transmission line would cross the 9.5 acres to the north of the proposed KRCDPP site (KRCDPP SPPEa, Section 5.7, pg. 4). The applicant has decided to add a zero-liquid discharge system (ZLD) to the project to treat process water and thus eliminate wastewater discharge. The proposed new .75 of a mile 115-kV interconnection line would run along the south side of East North Avenue to the intersection with South Willow Avenue. It will then cross over East North Avenue and connect to the Malaga Substation.

IMPACTS

Following is the Environmental Checklist that identifies potential impacts in this issue area. Below the checklist is a discussion of each impact, and an explanation of the impact conclusion.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
TRANSPORTATION/TRAFFIC -- Would the project:				
a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?		X		
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?				X
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?		X		
e) Result in inadequate emergency access?		X		
f) Result in inadequate parking capacity?				X
g) Create a significant hazard to the public or the environment through the routine transportation of hazardous material?		X		

DISCUSSION OF IMPACTS

A. Increase in Traffic: Less Than Significant With Mitigation Incorporated

The project is expected to generate 68 daily round trips during the average construction period for six months, and 101 daily round trips during the peak construction period, which will occur during the fifth month of construction. Operation of the KRCDPP will require three additional full-time staff (KRCDPP SPPEa, Section 5.7, pg. 15). Approximately 5 truck deliveries will occur daily during the construction of the KRCDPP and associated linear facilities.

The level of service at the East North and South Chestnut Avenues intersection would remain at LOS A with the addition of project construction traffic. Staff recommends that the construction contractor prepare a construction traffic control plan and implementation program that addresses school bus travel routes, timing of heavy equipment and building material deliveries, signing, lighting, traffic control device placement, and establishes work hours outside of peak traffic periods. This should be

done in coordination with the Fresno County Department of Public Works and Caltrans as appropriate.

The traffic control plan mentioned above would also cover the construction of the project's linear features such as the ZLD system, and a natural gas pipeline. It would also include a discussion about the use of flagmen and signage for temporary lane closures. In addition, this traffic control plan should include timing of linear facilities' construction to take place outside peak traffic periods to avoid traffic flow disruptions.

B. Exceed Established Level of Service Standards: No Impact

The addition of the KRCDPP project will have no traffic impacts on the existing average levels of service (LOS D) on SR 99 (between East North and Central Avenues), or on South Chestnut Avenue and Golden State Boulevard in the immediate vicinity of the proposed project site. These roads are expected to operate at an acceptable level of service (LOS A) with the addition of project construction traffic. Staff has concluded that these affected roadways will experience no significant and/or adverse impacts from this project as both have sufficient capacity to absorb all project-generated traffic. The applicant has agreed to repair any road that is damaged during construction to its original condition to the extent possible (KRCDPP SPPEa, Section 5.7, pg. 15).

The potential for a decrease in service levels resulting from temporary lane closures related to construction of linear facilities would also be discussed in the construction traffic control plan to offsets these traffic impacts. Staff has reviewed utility traffic control components submitted by the applicant in a data response. These should be part of the traffic control and implementation program.

No traffic impacts would result during operation of the KRCDPP since a negligible amount of additional employee trips (i.e., three additional trips) are expected. Depending on which option (onsite or offsite) is selected for the ZLD system, there may be one to four truck trips per year. These additional trips will not result in any significant adverse impact on the local roads.

C. Change in Air Traffic Patterns: No Impact

As noted earlier, the KRCDPP has two commercial airports in the area. They are the Fresno-Yosemite International Airport (six miles north), and the Fresno Chandler Downtown Airport (5 miles northwest). The exhaust stack height (105 feet) will not penetrate the aviation "regulatory surface" as defined by the Federal Aviation Administration (FAA); therefore, the KRCDPP should not impact air traffic safety.

D. Increase in Traffic Hazards: Less Than Significant With Mitigation Incorporated

Some delays and traffic congestion (i.e., blockage of through traffic) may occur with heavy construction vehicles driving east and west on East North Avenue and South Chestnut Avenue. This issue would be addressed in the traffic control plan (see **Condition of Exemption TRANS-1**). As noted above, the school bus route uses South Chestnut and East North avenue. The applicant assumes that East North Avenue, Golden State Boulevard, and South Chestnut Avenue will be used during

construction and operation of the KRCDPP (KRCDPP SPPEa, Section 5.7, pg. 6, November 2003). The increased traffic, particularly truck deliveries, that uses South Chestnut Avenue would be a potentially significant adverse impact related to the busing of children to and from Malaga Elementary School. The activity of picking up and dropping off school children, along with the potential for these children to be pedestrians in the bus stop vicinity, increases the possibility of traffic accidents. The school principal has expressed concern about the potential traffic safety issue (CEC2004). Therefore, staff is recommending **Condition of Exemption TRANS-1** that would restrict construction traffic from using South Chestnut Avenue. The restriction would also apply to operational truck traffic.

The Applicant has indicated its intent to comply with all weight and load limitations on state and local roadways and would seek permits from the Fresno County and Caltrans as needed.

E. Inadequate Emergency Access: Less Than Significant With Mitigation Incorporated

Fire Station #87 is located at 4706 East Drummond Avenue, about 1.2 miles from the KRCDPP site. There are two hospitals in relatively close proximity to the project site; Community Medical Center (eight minute response time), and University Medical Center (nine minute response time). The project will not lead to inadequate emergency access, because intersections impacted by construction will be maintained at an acceptable service level by Caltrans and Fresno County with the implementation of a construction traffic control plan identified in **Condition of Exemption TRANS-1**. Therefore, no traffic congestion affecting emergency access is expected on East North and South Chestnut Avenues near the project site.

F. Inadequate Parking Capacity: No Impact

Ample parking for construction site personnel and visitors will be provided on the northern portion of the 9.5 acre parcel adjacent to the project site. There is also sufficient room for temporary construction staging and laydown area during construction (KRCDPP SPPEa, Section 5.7, pg. 13).

G. Transportation of Hazardous Material: Less Than Significant With Mitigation Incorporated

The construction and operation of the plant will require the transportation of various hazardous materials, including: aqueous ammonia, solvents, lube oils, paint, paint thinners, adhesives, batteries, construction gases, etc. The transport of hazardous materials over city streets has the potential to result in an increase in traffic hazards. KRCDPP has indicated that the transportation of hazardous materials to and from the site will be conducted in accordance with California Vehicle Code Sections 31303-31309. It is anticipated that the route for delivery of hazardous materials would be SR-99 to East North Avenue, and proceed east to the project site. As noted in **Condition of Exemption TRANS-1**, if the Applicant follows the LORS for handling and transportation of hazardous materials (as discussed further in the Hazardous Materials section of the Initial Study), no significant impact is expected.

CUMULATIVE IMPACTS

There are no projects planned in the vicinity that would occur during the same period as the construction of the KRCDPP project. Therefore, staff concludes that there will be no significant cumulative impacts.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is greater than 50 percent within a six-mile radius of the proposed KRCDPP (please refer to **Socioeconomics Figure 1** in this Initial Study), and Census 2000 information that shows the low-income population is less than 50 percent within the same radius. Based on the traffic and transportation analysis, staff has not identified significant direct or cumulative impacts resulting from the construction or operation of the project, and therefore there are no traffic and transportation environmental justice issues related to the project.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

None received.

COMPLIANCE WITH LORS

If the project owner implements all of the measures discussed above and complies with staff's recommended conditions of exemption, the KRCDPP would be in compliance with all applicable LORS.

CONCLUSIONS

Provided that the project developer creates a construction traffic control and implementation program and follows all LORS acceptable to Caltrans and Fresno County for the handling of hazardous materials, the project will result in less than significant impacts.

PROPOSED CONDITION OF EXEMPTION

TRANS-1 The project owner shall develop and implement a construction traffic control plan for the project in coordination with Fresno County, Caltrans and the Fowler Unified School District, as appropriate. Specifically, the overall traffic control plan shall be designed to:

a) prevent potential adverse health and safety impacts on children who are bussed to Malaga Elementary School via South Chestnut Avenue. The project owner shall restrict construction workers and truck drivers from using South Chestnut Avenue to access the project site. Alternate routes to the project site shall be identified in the traffic control plan. This shall also apply to truck deliveries during operation of the power plant.

b) schedule heavy vehicle equipment and building materials deliveries to occur during off-peak hours to the extent feasible; and

c) encourage heavy vehicles and vehicles transporting hazardous materials to access the project site from SR 99 from via East North Avenue.

The construction traffic control plan shall include measures to minimize traffic impacts associated with the construction of the associated linear facilities and shall include information on:

- signing, lighting, and traffic control device placement;
- temporary travel lane closures;
- maintaining access to adjacent residential and commercial properties;
- emergency access.

Verification: At least 45 days prior to the start of ground disturbance the project owner shall provide to Fresno County and Caltrans for review and comment, and to the CPM for review and approval, a copy of its construction traffic control plan.

REFERENCES

CEC2004, Personal Communication with Danelle Stepp, Principal, Malaga Elementary School, and James Adams, California Energy Commission, on January 22, 2004.

Fresno County General Plan, Revised Public Review Draft, Background Report, General plan Update, January 2000.

2025 Fresno General Plan and related Draft Environmental Impact Report, City of Fresno, Planning and Development Department, February 1, 2002.

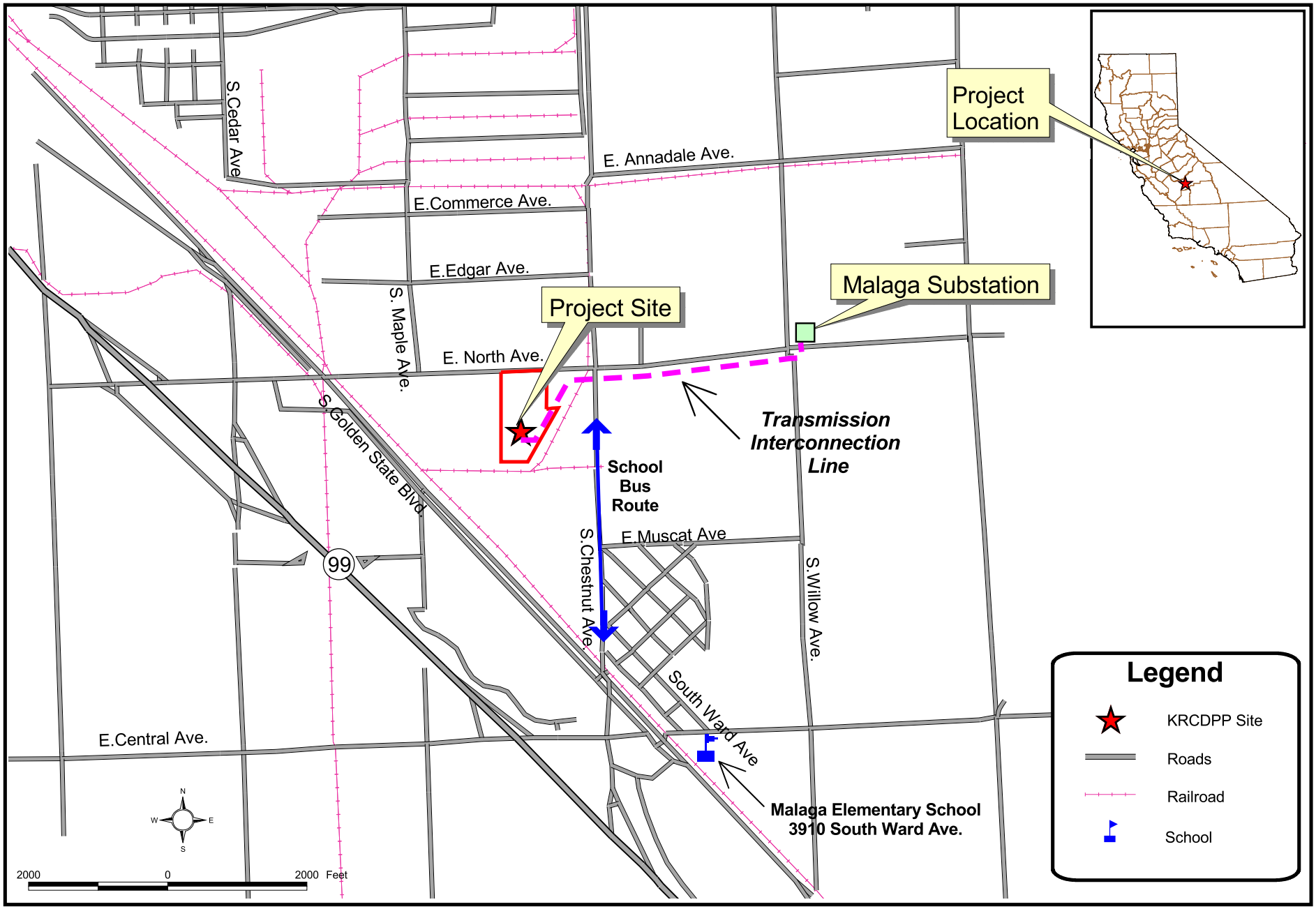
KRCD 2003a – Kings River Conservation District/Sinor (tn30483). Submittal of the Application for Small Power Plant Exemption for the Kings River Conservation District. Submitted to CEC/Therkelsen/Dockets on 11/26/03.

KRCD 2004f – Kings River (tn30750). Response to Data Requests. Submitted to Dockets on 1/16/2004.

Rippole, Ivonne, Fresno County Public Works Department. Personal Communication with James Adams, California Energy Commission, on January 22, 2004.

TRAFFIC AND TRANSPORTATION - FIGURE 1

Kings River Conservation District Peaking Plant (KRCDPP) - Regional Area



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

SOURCE: California Energy Commission Statewide Transmission & Power Plant Maps 2003, TOPO Maps

TRANSMISSION LINE SAFETY AND NUISANCE

Testimony of Obed Odoemelam, Ph.D.

INTRODUCTION

The Kings River Conservation District Peaking Plant (KRCDPP) as proposed by the applicant, Kings River Conservation District (KRCD) is a 9.5-acre site in an industrial area south of the City of Fresno and near the Community of Malaga in Fresno County. According to information from the applicant (KRCD 2003a, Ch. 1, p. 4, and Ch. 2, pp.12 and 16), power from the proposed project would be delivered to the Pacific Gas and Electric (PG&E) power grid through a new, 115 kV overhead transmission line extending approximately three-quarters of a mile from the project site to PG&E's Malaga Substation to the north. The line would be built, owned, and operated by PG&E. The route was chosen to facilitate the sharing of existing transmission line rights-of-way in keeping with present state policy on the location of new high-voltage power lines. As detailed by the applicant, the proposed line would be located on wooden poles as presently utilized by PG&E for lines of the proposed transmission voltage. The basic structure of these support poles, and the proposed line configurations, have been provided by the applicant as related to safety and electric and magnetic field (EMF) reduction efficiency (KRCD 2003a, Ch. 2, p. 20).

Since the proposed KRCDPP line would be built owned and operated by PG&E, it would be designed according to existing PG&E design guidelines and construction practices reflecting compliance with applicable safety laws, ordinances, regulations, and standards (LORS), and California Public Utilities Commission's (CPUC) general orders on electric and magnetic field (EMF) reduction (KRCD 2003a, CH 2, p. 16). The purpose of this analysis is to assess environmental impacts of the proposed project under CEQA and the incorporation of the measures necessary for such compliance.

Staff's analysis focuses on the following issues, which relate primarily to the physical presence of the line, or secondarily to the physical interactions of line electric and magnetic fields:

- aviation safety;
- interference with radio-frequency communication;
- audible noise;
- fire hazards;
- hazardous shocks;
- nuisance shocks; and
- EMF exposure.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

AVIATION HAZARD

The physical presence of the proposed line could pose an aviation hazard to area aviation if the line protrudes high enough into the navigable air space or is located close enough to area airports. The potential for such a hazard is addressed through the following LORS:

- Title 14, Part 77 of the Federal Code of Regulations (CFR), "Objects Affecting Navigable Airspace." Provisions of these regulations specify the criteria used by the Federal Aviation Administration (FAA) for determining whether a "Notice of Proposed Construction or Alteration" is required for potential obstruction hazards. The need for such a notice depends on factors related to the height of the structure, the slope of an imaginary surface from the end of nearby runways to the top of the structure, and the length of the runway involved. Such notification allows the FAA to ensure that the structure is located to avoid any significant hazards to area aviation.
- FAA Advisory Circular (AC) No. 70/460-2H, "Proposed Construction and or Alteration of Objects that may Affect the Navigation Space." This circular informs each proponent of a project that could pose an aviation hazard of the need to file the "Notice of Proposed Construction or Alteration" (Form 7640) with the FAA.
- FAA AC No. 70/460-1G, "Obstruction Marking and Lighting." This publication describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.

AUDIBLE NOISE AND RADIO INTERFERENCE

The physical interactions of electric fields from transmission lines could produce audible noise and interfere with radio-frequency communication in the area. Such impacts are prevented or mitigated through compliance with the following regulations and practices:

- Federal Communications Commission (FCC) regulations in Title 47 CFR, Section 15.25.
- General Order 52 (GO-52), California Public Utilities Commission (CPUC). Industry design standards and maintenance practices.

FIRE HAZARDS

Fire hazards from overhead transmission line operation are mostly related to sparks from conductors of overhead lines or direct contact between the line and nearby trees and other combustible objects. Such fires are prevented through compliance with the following regulations:

- General Order 95 (GO-95), CPUC, "Rules for Overhead Electric Line Construction" specifies tree-trimming criteria to minimize the potential for power line-related fires.
- Title 14, Section 1250 of the California Code of Regulations; "Fire Prevention Standards for Electric Utilities" specifies utility-related measures for fire prevention.

SHOCK HAZARD

All transmission and subtransmission line operations pose a risk of hazardous or nuisance shocks to humans. The hazardous shocks are those possible from direct or indirect contact between an individual and the energized line. Such shocks are capable of serious physiological harm or death and remain a driving force in the design and operation of transmission and other high-voltage lines. The nuisance shocks by contrast, are caused by current flow at levels generally incapable of causing significant physiological harm. They result most commonly from contact with a charged metallic object in the transmission line environment. The following regulations are intended to prevent such shocks:

- GO-95, CPUC. "Rules for Overhead Line Construction". These rules specify uniform statewide requirements for overhead line construction regarding ground clearance, grounding, maintenance and inspection. Implementing these requirements ensures the safety of the general public and workers working on or around the line.
- Title 8, California Code of Regulations, Section 2700 et seq., "High Voltage Electric Safety Orders". These safety orders establish essential requirements and minimum standards for safely installing, operating, and maintaining electrical installations and equipment.
- National Electrical Safety Code, Part 2: Safety Rules for Overhead Lines. Provisions of this code are intended to minimize the potential for direct or indirect contact with the energized line.
- The National Electrical Safety Code and the joint guidelines of the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE).

IMPACTS

The following Environmental Checklist identifies the potential significance of the proposed line operations with respect to Transmission Line Safety and Nuisance. Following the checklist is a discussion of each impact, and an explanation of the conclusion on its potential significance.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Potentially Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
TRANSMISSION LINE SAFETY AND NUISANCE -- Would project operation:				
a) Pose an aviation hazard to area aircraft?			**X**	
b) Lead to interference with radio-frequency communication?			**X**	
c) Pose a hazardous or nuisance shock hazard?			**X**	
d) Pose a fire hazard?			**X**	
e) Expose humans to higher electric and magnetic field levels than justified by existing knowledge?			**X**	

DISCUSSION OF IMPACTS

A. Aviation Hazard: Less than Significant Impact

As noted by the Applicant (KRCD 2003a, Ch. 2.0, p. 16), the proposed KRCDPP site is approximately 5.5 miles from the Fresno Chandler Downtown Airport and approximately 10 miles from the Fresno-Yosemite International Airport. Given that such distances are much further than specified by the FAA, staff is in agreement with the applicant that the proposed line route is too far from these and the other smaller area airports to pose a significant hazard to area aviation. This means that a Notice of Construction or Alteration would not be required.

B. Radio Frequency Interference: Less than Significant Impact

As discussed by the applicant (KRCD 2003a, Ch. 2, p.15), the electric fields from the proposed and other 115 kV lines are not strong enough to produce the radio noise or television interference possible from lines of 345 kV or higher (as noted by EPRI 1982). However, as a PG&E line, PG&E would be responsible (as with all lines in its transmission system) for mitigating complaints from any operation-related field effects whenever reported along the route.

C. Shock Hazard: Less than Significant Impact

Since PG&E will design the proposed line according to existing PG&E guidelines against hazardous or nuisance shocks (KRCD 2003a, Ch. 2, p. 16), staff does not expect a significant shock hazard since PG&E lines of the same design, voltage and current-carrying capacity do not exhibit such hazard.

D. Fire Hazard: Less than Significant Impact

The issue of concern to staff is the likelihood of fire from operating the proposed line. As noted by the applicant (KRCD 2003a, Ch. 2, p. 17) PG&E would design and build the line to comply with applicable regulations intended to ensure that the line is adequately located away from trees and other combustible objects and materials to prevent fires or minimize such fires when they occur.

E. Electric and Magnetic Field Exposure: Less than Significant Impact

Exposure to power-frequency electric and magnetic fields is considered by some researchers to be capable of biological impacts at high levels. As reflected in the applicant's discussions, (KRCD 2003a, Ch. 2, pp. 15 and 16), power line and other such fields have not been established as capable of significant biological effects in humans at normal environmental levels. The CPUC has established specific design measures as adequate for dealing with such fields in light of present knowledge about possible health effects. Staff considers implementation of such measures as constituting compliance with present CPUC policy on field management.

CUMULATIVE IMPACTS

Staff concludes that there will be no significant cumulative impacts.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the area's minority population is greater than 50 percent within a six-mile radius of the proposed KRCDPP (please refer to the **Socioeconomics Figure 1** in this Staff Assessment). Staff also reviewed Census 2000 information that shows the low-income population is less than 50 percent within the same radius.

Based on this Transmission Line Safety and Nuisance analysis staff concludes that no significant direct or cumulative impacts would result from operation of the project, and therefore, that no transmission Line Safety and Nuisance-related environmental justice issues would apply.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

None received.

CONCLUSIONS

Staff has determined that the proposed project transmission line would have less than significant environmental impacts and would be operated in compliance with CEQA guidelines and all applicable health and safety LORS.

REFERENCES

Electric Power Research Institute (EPRI) 1982. Transmission Line Reference Book: 345 kV and Above.

Energy Commission Staff 1992. High Voltage Transmission Lines: Summary of Health Effects Studies. California Energy Commission Publication, P700-92-002

KRCD (Kings River Conservation District) 2003a. Application for Small Power Exemption for Kings River Conservation district Peaking Plant. Submitted to the California Energy Commission on November 26, 2003.

National Institute of Environmental Health Services 1998. An Assessment of the Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields. A Working Group Report, August, 1998.

TRANSMISSION SYSTEM ENGINEERING

Testimony of Ajoy Guha, P.E. and Al McCuen

SUMMARY OF CONCLUSIONS

Staff concludes that the proposed power plant switchyard and interconnection facilities to the PG&E electric system are in accordance with good utility practices and are acceptable in accordance with Laws, Ordinances, Regulations and Standards (LORS). No additional new downstream transmission facilities are required to accommodate interconnection of the Kings River Conservation District Peaking Plant (KRCDPP).

The System Impact Study reveals that the interconnection of the power plant would have some adverse impacts in the PG&E 115 kV transmission system. The recommended relay protection for the project generators and the mitigation measures selected and planned would be effective in eliminating the adverse impacts of the project and would provide adequate system reliability.

INTRODUCTION

Staff is charged with evaluating whether the project as proposed has a substantial adverse impact on the environment or energy resources. The Transmission System Engineering (TSE) analysis identifies whether or not the transmission facilities associated with the proposed project conform to all applicable requirements for safe and reliable electric power transmission, and assesses whether or not the applicant has accurately identified all interconnection and downstream facilities required for the addition of the project to the electric grid.

Staff's analysis evaluates the power plant switchyard, outlet line, termination and downstream facilities identified by the applicant.

Additionally, under the California Environmental Quality Act (CEQA), the Energy Commission must conduct an environmental review of the "whole of the action," which may include facilities not licensed by the Energy Commission (California Code of Regulations, title 14, §15378). Therefore, the Energy Commission must identify and evaluate the environmental effect of construction and operation of any new or modified transmission facilities required for the project's interconnection to the electric grid and also for any construction or operation of transmission facilities that are required as a result of the power plant's addition to the California transmission system but are beyond the project's interconnection with the existing transmission system. The California Independent System Operator (Cal-ISO) is responsible for ensuring electric system reliability for all participating transmission owning utilities and determines both the standards necessary to achieve reliability and whether the proposed project conforms to those standards.

The Kings River Conservation District (applicant) filed an application for a Small Power Plant Exemption (SPPE) with the California Energy Commission to construct a nominal 97-megawatt (MW) (see definition of Terms) natural gas-fired simple cycle combustion turbine generating facility to be located in the southern portion of the City of Fresno at

Fresno County. The applicant proposes to connect their project, Kings River Conservation District Peaking Plant (KRCDPP), to the Pacific Gas & Electric (PG&E) existing Malaga Substation through a new 115 kV transmission line approximately three-quarters of a mile in length. The project is expected to be on line by spring of 2005. (KRCD2003a, Sections 1.2.3 and 1.2.5).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

Staff is charged with evaluating whether the project as proposed has a substantial adverse impact on the environment or energy resources. The staff has identified the following LORS as useful as significance criteria for evaluating whether the project as proposed will have a substantial adverse impact on the environment or energy resources, and provides for reliable electric power transmission.

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), "Rules for Overhead Electric Line Construction," formulates uniform requirements for construction of overhead lines. Compliance with this order ensures adequate service and safety to persons engaged in the construction, maintenance and operation or use of overhead electric lines and to the public in general.
- California Public Utilities Commission (CPUC) General Order 128(GO-128), "Rules for Construction of Underground Electric Supply and Communications Systems," formulates uniform requirements and minimum standards to be used for underground supply systems to ensure adequate service and safety to persons engaged in the construction, maintenance and operation or use of underground electric lines and to the public in general.
- The National Electric Safety Code, 1999 provides electrical, mechanical, civil and structural requirements for overhead electric line construction and operation.
- The North American Electric Reliability Council (NERC) and Western Systems Coordinating Council (WSCC) Planning Standards were merged. The combined Planning Standards are now referred to as the NERC/WSCC Planning Standards and provide the system performance standards used in assessing the reliability of the interconnected system. Certain aspects of the NERC/WSCC standards are either more stringent or more specific than the NERC standards. These standards provide planning for electric systems so as to withstand the more probable forced and maintenance outage system contingencies at projected customer demand and anticipated electricity transfer levels, while continuing to operate reliably within equipment and electric system thermal, voltage and stability limits. These standards include the reliability criteria for system adequacy and security, system modeling data requirements, system protection and control, and system restoration. Analysis of the WSCC system is based to a large degree on Section I.A of the standards, "NERC and WSCC Planning Standards with Table I and WSCC Disturbance-Performance Table" and on Section I.D, "NERC and WSCC Standards for Voltage support and Reactive Power". These standards require that the results of power flow and stability simulations verify defined performance levels. Performance levels are defined by specifying the allowable variations in thermal loading, voltage and frequency, and loss of load that may occur on systems during various disturbances. Performance levels range from no significant adverse effects inside and outside a

system area during a minor disturbance (loss of load or a single transmission element out of service) and to a level that seeks to prevent system cascading and the subsequent blackout of islanded areas during a major disturbance (such as loss of multiple 500 kV lines in a right of way and/or multiple generators). While controlled loss of generation or load or system separation is permitted in certain circumstances, their uncontrolled loss is not permitted (WECC 2001).

- NERC Planning Standards provide national policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system. The NERC planning standards provide for system performance levels under normal and contingency conditions. With regard to power flow and stability simulations, while these Planning Standards are similar to WSCC Standards, certain aspects of the WSCC standards are either more stringent or more specific than the NERC standards for Transmission System Contingency Performance. The NERC planning standards apply not only to interconnected system operation but also to individual service areas (NERC 1998).
- Cal-ISO Grid Planning Standards also provide standards, and guidelines to assure the adequacy, security and reliability in the planning of the Cal-ISO transmission grid facilities. The Cal-ISO Grid Planning Standards incorporate the WSCC and NERC Planning Standards. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC and the NERC Planning Standards for Transmission System Contingency Performance. However, the Cal-ISO Standards also provide some additional requirements that are not found in the WSCC or NERC Planning Standards. The Cal-ISO Standards apply to all participating transmission owners interconnecting to the Cal-ISO controlled grid. They also apply when there are any impacts to the Cal-ISO grid due to facilities interconnecting to adjacent controlled grids not operated by the Cal-ISO (Cal-ISO 2002a).

EXISTING FACILITIES AND RELATED SYSTEMS

The KRCD, a multi-county special district public agency, provides flood protection, water supply and power resources in its service areas of Fresno, Kings and Tulare counties. The proposed KRCDPP would be located in its service territory. The project area is served by the 115 kV transmission networks of PG&E, which includes Malaga, McCall, Sanger and West Fresno Substations. The two General Electric generating units for the project were provided to the KRCD by the State of California as a part of the Settlement Agreement between California Department of Water resources and Williams Energy Marketing & Trading Company. The project is proposed to be interconnected to the nearest Malaga Substation. In addition to providing 55 MW of hydropower from the KRCD's Pine Flat power plant, the new plant with a net output capacity of 97 MW would allow the KRCD to provide a more efficient and reliable local power resource especially during peak seasons in the load centers of the community of Malaga in Fresno County. Staff believes that the project would also provide additional local reactive power, steady voltage and reduce PG&E system losses in the local network during peak hours (KRCD 2003a, Section 1.2).

PROJECT DESCRIPTION

SWITCHYARD AND INTERCONNECTION FACILITIES

The applicant proposes to construct and operate the KRCDPP as a nominal 97-meagwatt (MW) natural gas-fired simple cycle power plant to be located in the City of Fresno at Fresno County. The KRCDPP would consist of two General Electric (GE) combustion turbine generators (CTG), each with a gross maximum output of approximately 49.7 MW, for a total maximum plant net output of 97 MW. Each generating unit would be connected to a dedicated 46/56/70 MVA, 13.8/115 kV step-up transformer through a 13.8 kV 3000-ampere breaker and 13.8 kV, 750 MCM underground cables, and the high voltage terminals of each transformer would be connected to the new KRCDPP switchyard by overhead conductors. The KRCDPP 115 kV switchyard will have a single bus configuration with a dedicated 1200-ampere Disconnect Switch connected to the high voltage side of each generator. The switchyard would be constructed, owned and operated by the applicant (KRCD2003a, Sections 2.2.2, 2.2.3, 3.11.2, and Figures 3.11-1 & 3.11-2).

The switchyard would be interconnected to the PG&E Malaga Substation by a new 115 kV line approximately three-quarters of a mile in length with 2000-ampere disconnect switches and circuit breakers at both ends. The line would be constructed on wood poles and 795 kilocircular mills (Kcmil) aluminum cable steel reinforced (ACSR) conductor (KRCD2003a, Section 2.8.1, Figure 2.8-1). The 115 kV Malaga Substation would be enlarged by a new 2000-ampere bus sectionalizing circuit breaker and an new switching bay with a 2000-ampere breaker where the existing 115 kV line to Sanger Substation would be moved. The released breaker of the existing Sanger 115 kV line would be replaced with a new SF6 2000-ampere breaker which would accommodate the new 115 kV line to the KRCDPP (KRCD2003b, Facility Study by PG&E, Section 5, Appendix B). The line and its terminating facilities at the Malaga Substation would be constructed, owned and operated by PG&E. The terminating facilities for the line at the KRCDPP switchyard would be designed by the KRCD, the breaker and a disconnect switch would be owned and operated by the KRCD and the disconnect switch close to the line would be owned and operated by PG&E (KRCD2004f, Attachment Transmission DR-36).

The configuration of the switchyard and the new interconnecting transmission line is in accordance with good utility practices and is acceptable to staff.

ANALYSIS AND IMPACTS

SYSTEM RELIABILITY

Introduction

A System Impact Study (SIS) for connecting a new power plant to the existing power system grid is performed to identify the interconnection facilities to the grid, downstream transmission system impacts and their mitigation measures in conformance with system performance levels as required in Utility reliability criteria, NERC planning standards,

WSCC reliability criteria and Cal-ISO reliability criteria. The study determines both positive and negative impacts, and for the reliability criteria violation cases (for the negative impacts) determines the alternate and preferred additional transmission facilities or other mitigation measures. The study is conducted with and without the new generation project and its interconnection facilities by using the computer model base case for the year the generator project would come on-line. The study normally includes a Load Flow study, Transient Stability study, Post-transient Load Flow study and Short Circuit study. The study is focused on thermal overloads, voltage deviations, system stability (excessive oscillations in the generators and transmission system, voltage collapse, loss of loads or cascading outages) and short circuit duties. The study must be conducted under the normal condition (N-0) of the system and also for all credible contingency/emergency conditions, which include the loss of a single system element (N-1) such as a transmission line, transformer or a generator and the simultaneous loss of two system elements (N-2), such as two transmission lines or a transmission line and a generator. The study may also be conducted for credible simultaneous loss of multiple (more than two) system elements. In addition to the above analysis, the studies may be performed to verify whether sufficient active or reactive power margins are available in the area system or area sub-system to which the new generator project would be interconnected. The SIS is followed by supplemental studies conducted by the participating transmission owner with details of facilities and costs provided in a Facility Study (DIFS) or a Facility Cost Report (FCR).

Any new transmission facilities such as the power plant switchyard, the outlet line, and downstream facilities required for connecting a project to the grid are considered part of the project.

Scope of System Impact Study (SIS)

The SIS was performed by the participating transmission owner, PG&E. The study included a Power Flow Analysis, a Dynamic Stability Analysis and a Short Circuit Analysis. In addition the study included a Reactive Power Deficiency Analysis, a System Protection Study, and a Bus Loading Evaluation. The Power Flow Study was conducted with and without the KRCDPP with three base cases, a 2005 summer peak base case, a 2005 summer off-peak base case and a 2005 heavy spring base case. The three base cases modeled all queue generation and approved system upgrades that would be operational by December 31, 2004. The dynamic stability study was conducted with the KRCDPP using a 2005 summer off-peak base case to determine whether the KRCDPP would create instability in the system following certain selected outages. The short circuit studies were conducted with and without the KRCDPP to determine if the KRCDPP would result in overstressing existing Substation facilities. A preliminary Protection study was performed to evaluate system protection requirements (KRCD2003c, System Impact Study by PG&E).

Power Flow Study Results

The SIS indicates that due to the addition of the KRCDPP, there would be no adverse impacts on the transmission facilities during normal conditions and during single contingencies for 2005 system conditions studied. However, some marginal adverse impacts were observed following double contingencies and they are listed in the Table 6-2 of the study report. (KRCD2003c, SIS by PG&E, Section 6.2.3,Table 6-2, page 8).

Normal (n-0) Conditions

There are no overload criteria violations identified during normal conditions due to the addition of the KRCDPP project under 2005 summer peak, summer off-peak and heavy spring conditions.

Contingency (n-1/cal-iso category b) Conditions

The study identified no overload criteria violations on the transmission facilities due to the addition of the project following single contingencies or Cal-ISO category B contingencies under three 2005 system conditions studied.

Contingency (n-2/cal-iso category c) Conditions and Mitigation

Following double contingencies or Cal-ISO category C contingencies, the study identified the following overload criteria violations due to the addition of the KRCDPP:

1. During 2005 summer peak conditions for an outage of the Reedley Substation 115 kV bus, the pre-project overloads on two sections of the Sanger-Reedley 70 kV line and on the Sanger substation 115/70 kV transformer bank#1 would increase. The Sanger-Reedley 70 kV line loading between Parlier and Reedley increased from 113 percent to 115 percent and between Parlier and Sanger Junction increased from 142 percent to 143 percent. The loading on the Sanger Substation transformer bank#1 would increase from 120 percent to 122 percent.

2. During 2005 summer off-peak conditions for an outage of the Sanger substation 115 kV bus, the Tivy Valley-Reedley 70 kV line loading would increase from 92 percent to 101 percent and the Gates-Gregg 230 kV line loading between Gregg and Henrietta Tap would increase from 119 percent to 121 percent.

3. During 2005 heavy spring conditions for outage of the Helm-McCall and the Panoche-Kearney 230 kV lines, the Helm-Kerman 70 kV line loading would increase from 104 percent to 109 percent. Following outage of the Gates-Gregg and the Panoche-Kearney 230 kV lines, the Helms-Kerman 70 kV line loading would also increase from 100 percent to 103 percent.

Mitigation: PG&E concluded that since such marginal adverse impacts can be mitigated by planned load shedding or generator dropping, the applicant is not required to mitigate overloads caused by Cal-ISO Category C outages at this time by upgrading facilities. However, in the future PG&E and/or Cal-ISO may require the new generator to participate and be responsible for costs of operating procedures or special protection systems which could be planned to mitigate these rare events. Staff considers the mitigation plan effective (KRCD2003c, System Impact Study, Section 6.2.3, Page 8).

Dynamic Stability Study Results and Mitigation

The Dynamic Stability Study was conducted by PG&E using 2005 summer off-peak base case to determine if the KRCDPP would cause any adverse impact on the stable operation of the transmission grid following the selected Cal-ISO category B (N-1) & C (N-2) outages (KRCD2003c, SIS by PG&E, Section 7, Pages 8-11). The results indicated that for integration of the KRCDPP there would no transient stability concerns

on the transmission system within the Cal-ISO/WECC reliability guidelines following the selected disturbances except during two Category C contingencies. The simulation indicated that following a three-phase bus fault at the Sanger Substation 115 kV north or south bus, the KRCDPP generators would lose synchronism with the power system.

Mitigation: To minimize the possibility of damage, the generators should be tripped, preferably during first half-slip cycle of a loss of synchronism condition. PG&E recommended that the KRCD should install Out-of-step relays to protect the generators against this condition. Staff finds the mitigation effective.

Short Circuit Study Results and Mitigation

The Short Circuit Study for Substation evaluation performed by PG&E identified that the addition of the KRCDPP would overstress eight breakers at the Sanger Substation and exacerbate the existing overstressed conditions of eight 115 kV breakers at the McCall Substation.

Mitigation: PG&E has plans to replace the eight breakers at the McCall Substation and convert the 115 Substation bus to a Breaker and a Half (BAAH) scheme configuration. If the KRCDPP connects to the Malaga Substation as proposed, PG&E would like to accelerate their schedule of breaker replacement before the on-line date of the project.

Since the overall breaker overstressed level at Sanger Substation is marginal and PG&E has the desire to convert the Sanger 115 kV bus to BAAH configuration, PG&E is considering including the Sanger Substation 115 kV breaker conditions as part of PG&E's overall overstressed breaker/BAAH conversion/Automation program. If the KRCDPP connects to the Malaga Substation as proposed, PG&E would continue to evaluate the situation and determine the timing of the replacement of eight breakers at Sanger Substation and BAAH conversion. Staff considers the mitigation measures effective.

System Protection Study and Mitigation

The preliminary System Protection Study shows that since the Malaga 115 kV Substation is a looped one, the loss of either the McCall-Malaga or the Sanger-Malaga 115 kV line has the potential to leave the project on a radial feed. Under these conditions the generator could not detect a fault near McCall or Sanger Substation.

Mitigation: PG&E recommends that Direct Transfer Trip (DTT) be installed from the McCall Circuit Breaker (CB) 592 and the Sanger CB 542 to trip Malaga 115 kV breaker that will connect to the new 0.75 mile 115 kV line to the KRCDPP. This would also prevent inadvertent islanding of the project generation with the Malaga Substation when one of the 115 kV breakers on the lines into the Malaga Substation is out of service for maintenance. Staff considers the mitigation effective.

Reactive Power Deficiency Analysis

The power flow studies under Cal-ISO category B and C contingencies indicated that the project did not cause voltage drops of 5 percent or more from the pre-project levels,

or cause the PG&E system to fail to meet applicable voltage criteria (KRCD2003c, SIS by PG&E, Section 10, Page 14).

Bus Loading Evaluation

A bus loading analysis was performed on the Malaga Substation 115 kV bus to identify any overload that would occur due to the addition of the project. The evaluation determined that the Malaga 115 kV bus 2 inch aluminum tubing with a normal thermal rating of 1180 amperes and an emergency rating of 1455 amperes is large enough to accommodate the addition of the KRCDPP.

Cal-ISO Review

The Cal-ISO reviewed the SIS performed by PG&E and issued a preliminary Interconnection Approval letter dated November 7, 2003 (Cal-ISO 2004a). After reviewing the Facilities Study conducted by PG&E, the Cal-ISO provided the final Interconnection Approval letter dated February 4, 2004 (Cal-ISO 2004b).

NEW TRANSMISSION LINE AND SYSTEM MODIFICATIONS

Besides the interconnection facilities and the new 115 kV transmission line between the KRCDPP switchyard and PG&E Malaga Substation, accommodating the power output of the KRCDPP would not require any other new downstream transmission facilities.

System modification requirements would include enlarging the Malaga Substation by installing a new Bus Sectionalizing breaker and a new switching bay, the replacement of eight 115 kV breakers with higher capacity at each of the McCall Substation and the Sanger Substation with conversion of the Substations' 115 buses to BAAH configuration.

CUMULATIVE IMPACTS

Depending on loads in the City of Fresno and the amounts of local hydroelectric generation (Pine Flat Power plant (50 MW) owned by the KRCD) surrounding Fresno City, staff believes that the project should have minimal or no cumulative impacts on the transmission system. The cumulative marginal impacts due to the KRCDPP, as identified in the SIS, will be mitigated. Also, staff believes that there are some positive impacts as voltages are improved and system losses in the local network would decrease.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

None received.

ALTERNATIVE TRANSMISSION ROUTES

The applicant did not consider any interconnection alternative other than the proposed interconnection to the Malaga 115 kV Substation, since the site is close to the nearest

PG&E transmission substation and involved the shortest possible interconnection with low environmental impacts (KRCD2003a, Section 1.4).

CONCLUSIONS

Staff concludes as follows:

1. The System Impact Study complies with the NERC/WECC, NERC and Cal-ISO planning standards and reliability criteria. After reviewing the Power Flow analysis, staff finds that interconnection of the KRCDPP would not cause any adverse impacts on the transmission facilities under normal conditions of the system. No overload criteria violations were also found under single contingencies or Cal-ISO Category B emergency conditions. However, some marginal overload violations were observed under double contingencies or Cal-ISO Category C emergency conditions and to offset these rare violations PG&E/Cal-ISO may require the new generator to participate in operation procedures, generation dropping or special protection systems.

2. The Dynamic simulation indicated no transient stability concerns on the transmission system. However, the simulation also indicated that following a three-phase bus fault at the Sanger Substation 115 kV north or south bus, the KRCDPP generators would lose synchronism with the power system. PG&E recommends and the Cal-ISO concurs that the KRCD should install Out-of-Step relays to protect the generators against this condition.

3. The Short Circuit Study for Substation evaluation identified that the addition of the KRCDPP would overstress eight breakers at the Sanger Substation and exacerbate the existing overstressed conditions of eight 115 kV breakers at the McCall Substation. PG&E have plans to replace the eight breakers at the McCall Substation and convert the 115 Substation bus to a Breaker and a Half (BAAH) scheme configuration. PG&E is also considering including the Sanger Substation breaker conditions as part of breaker replacement/BAAH conversion plan in a timely manner.

4. The preliminary System Protection study shows that the loss of either the McCall-Malaga or the Malaga-Sanger 115 kV line has the potential to leave the project generation on a radial feed or to cause inadvertent islanding of the generation. PG&E recommends that Direct Transfer Trip (DTT) be installed from the McCall and the Sanger Substation Breakers to trip the Malaga 115 kV breaker that will connect the new 0.5 mile transmission line to the KRCDP.

5. The recommended relay protection for the project generators and the mitigation measures selected and planned will be effective in eliminating the adverse impacts of the project and ensure system reliability.

6. The new plant with a net output capacity of 97 MW would allow the KRCD to provide a more efficient and reliable local power resource especially during peak seasons in the load centers of the community of Malaga in Fresno County. Staff believes that

the project would also provide additional local reactive power, steady voltage and reduce PG&E system losses in the local network during peak hours.

7. The proposed KRCDPP switchyard and the new interconnecting transmission facilities to the PG&E electric system are in accordance with good utility practices and are acceptable to staff according to LORS.

8. The Cal-ISO has reviewed the System Impact Study and issued a preliminary approval letter. The Cal-ISO final approval letter ensures system reliability and conformance with LORS.

REFERENCES

Cal-ISO (California Independent System Operator) 1998a. Cal-ISO Tariff Scheduling Protocol posted April 1998, Amendments 1,4,5,6, and 7 incorporated.

Cal-ISO (California Independent System Operator) 1998b. Cal-ISO Dispatch Protocol posted April 1998.

Cal-ISO (California Independent System Operator) 2002a. Cal-ISO Grid Planning Standards, February 7, 2002.

Cal-ISO (California Independent System Operator) 2004a. Cal-ISO Review of the System Impact Study by PG&E, Cal-ISO preliminary approval letter of November 7, 2004. Submitted to CEC/Caswell/Dockets on 1/5/04.

Cal-ISO (California Independent System Operator) 2004b. Cal-ISO Review of the Facilities Study by PG&E, Cal-ISO final interconnection approval letter of February 4, 2004. Submitted to PG&E /Vardanian/CEC/Dockets on 2/5/04.

KRCD2003a – Kings River Conservation District/Sinor (tn: 30483). Submittal of the Application for Small Power Plant Exemption for the Kings River Conservation District. Submitted to CEC/Therkelsen/Dockets on 11/26/03.

KRCD2003c – Navigant/Cuellar (tn:30518). System Impact Study by PG&E. Submitted to CEC/Caswell/Dockets on 12/04/03.

KRCD2003b – Navigant/Cuellar (tn:30517). Facilities Study by PG&E. Submitted to CEC/Caswell/Dockets on 12/04/03.

KRCD2004f – Navigant/Cuellar (tn:30750). Responses to Data Requests.. Submitted to CEC/Caswell/Dockets on 1/16/04.

CEC2003f – CEC/Caswell (tn: 30647). Data Requests Round 1- POS. Submitted to KRCD/Sinor/Dockets on 12/19/03.

NERC (North American Electric Reliability Council) 1998. NERC Planning Standards, September 1997.

WSCC (Western Systems Coordinating Council) 2001. NERC/WSCC Planning Standards, June 2001.

DEFINITION OF TERMS

ACSR Aluminum cable steel reinforced.

SSAC Steel Supported Aluminum Conductor.

AAC All Aluminum conductor.

Ampacity Current-carrying capacity, expressed in amperes, of a conductor at specified ambient conditions, at which damage to the conductor is nonexistent or deemed acceptable based on economic, safety, and reliability considerations.

Ampere The unit of current flowing in a conductor.

Kiloampere (kA) 1,000 Amperes

Bundled Two wires, 18 inches apart.

Bus Conductors that serve as a common connection for two or more circuits.

Conductor The part of the transmission line (the wire) that carries the current.

Congestion Management
Congestion management is a scheduling protocol, which provides that dispatched generation and transmission loading (imports) would not violate criteria.

Emergency Overload
See Single Contingency. This is also called an L-1.

Kcmil or KCM
Thousand circular mil. A unit of the conductor's cross sectional area, when divided by 1,273, the area in square inches is obtained.

Kilovolt (kV)
A unit of potential difference, or voltage, between two conductors of a circuit, or between a conductor and the ground. 1,000 Volts.

Loop An electrical cul de sac. A transmission configuration that interrupts an existing circuit, diverts it to another connection and returns it back to the interrupted circuit, thus forming a loop or cul de sac.

Megavar One megavolt ampere reactive.

Megavars Megavolt Ampere-Reactive. One million Volt-Ampere-Reactive. Reactive power is generally associated with the reactive nature of motor loads that must be fed by generation units in the system.

Megavolt ampere (MVA)
A unit of apparent power, equals the product of the line voltage in kilovolts, current in amperes, the square root of 3, and divided by 1000.

Megawatt (MW)
A unit of power equivalent to 1,341 horsepower.

Normal Operation/ Normal Overload
When all customers receive the power they are entitled to without interruption and at steady voltage, and no element of the transmission system is loaded beyond its continuous rating.

N-1 Condition
See Single Contingency.

Outlet Transmission facilities (circuit, transformer, circuit breaker, etc.) linking generation facilities to the main grid.

Power Flow Analysis
A power flow analysis is a forward looking computer simulation of essentially all generation and transmission system facilities that identifies overloaded circuits, transformers and other equipment and system voltage levels.

Reactive Power
Reactive power is generally associated with the reactive nature of inductive loads like motor loads that must be fed by generation units in the system. An adequate supply of reactive power is required to maintain voltage levels in the system.

Remedial Action Scheme (RAS)
A remedial action scheme is an automatic control provision, which, for instance, would trip a selected generating unit upon a circuit overload.

SF6 Sulfur hexafluoride is an insulating medium.

Single Contingency
Also known as emergency or N-1 condition, occurs when one major transmission element (circuit, transformer, circuit breaker, etc.) or one generator is out of service.

Solid dielectric cable
Copper or aluminum conductors that are insulated by solid polyethylene type insulation and covered by a metallic shield and outer polyethylene jacket.

Switchyard A power plant switchyard (switchyard) is an integral part of a power plant and is used as an outlet for one or more electric generators.

Thermal rating
See ampacity.

TSE Transmission System Engineering.

TRV Transient Recovery Voltage

Tap
A transmission configuration creating an interconnection through a sort single circuit to a small or medium sized load or a generator. The new single circuit line is inserted into an existing circuit by utilizing breakers at existing terminals of the circuit, rather than installing breakers at the interconnection in a new switchyard.

Undercrossing
A transmission configuration where a transmission line crosses below the conductors of another transmission line, generally at 90 degrees.

Underbuild
A transmission or distribution configuration where a transmission or distribution circuit is attached to a transmission tower or pole below (under) the principle transmission line conductors.

VISUAL RESOURCES

Testimony of Matt Trask

INTRODUCTION

Visual resources are the natural and man-made features of the environment that can be viewed. Such resources are also often called "scenic resources," though these generally focus on highly-valued landscapes such as parks, mountains and seashores; "aesthetic resources" is also used synonymously with scenic or visual resources, though aesthetics covers the use of all senses, not just sight. This analysis focuses on whether construction and operation of the Kings River Conservation District Peaking Plant (KRCDPP) project would cause unacceptable impacts to visual resources in the vicinity of the project. This analysis complies with the California Environmental Quality Act (CEQA), which requires that government agencies make a determination of the potential for visual impacts resulting from a proposed project.

ORGANIZATION OF ANALYSIS

This analysis is organized as follows:

- description of analysis methodology;
- description of the project aspects that may have the potential for significant visual impacts;
- assessment of the visual setting of the proposed power plant site and linear facility routes;
- evaluation of the visual impacts of the proposed project on the existing setting;
- identification of measures needed to mitigate any potential significant adverse impacts of the proposed project; and,
- conclusions and recommendations.

ANALYSIS METHODOLOGY

Visual resources analysis has an inherently subjective aspect. However, the use of generally accepted criteria for determining impact significance and a clearly described analytical approach aid in developing an analysis that can be readily understood.

Significance Criteria

Energy Commission staff considered the following criteria in determining whether a visual impact would be significant.

The CEQA Guidelines define a "significant effect" on the environment to mean a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including...objects of historic or aesthetic significance" (Cal. Code Regs., tit.14, § 15382).

Appendix G of the CEQA Guidelines, under Aesthetics, lists the following four questions to be addressed regarding whether the potential impacts of a project are significant.

1. Would the project have a substantial adverse effect on a scenic vista?

2. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

3. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

4. Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Evaluation Process

For the Visual Resources analysis, staff first examined the planning documents, such as General Plans and Specific Plans, applicable to the project area to gain insight as to the type of land uses intended for the area, and the guidelines given for the protection or preservation of visual resources. Staff then considered the existing visual setting within the project viewshed, which is defined as the geographical area in which the project can be seen. Staff estimated the visual changes that the project would cause to determine impact significance, following the four CEQA Guidelines checklist questions listed above. Please refer to Appendix VR-1 at the end of this section of the Draft Initial Study for a more complete description of staff's Visual Resources evaluation process.

Before beginning the analysis, staff first determined which parts of the project could create an impact to visual resources. In this case, both the power plant itself and its planned transmission line could create an impact to visual resources, and staff examined potential impacts of both the power plant and the transmission line using a Key Observation Point (KOP) analysis, among other tools and information sources. Existing condition photographs, and visual simulations of those same views after project development, were prepared for each KOP.

KOPs were selected to be representative of the most critical locations from which the project would be seen, but they are not the only locations that staff considered in each view area. Before the Kings River Conservation District (KRCD, or "applicant") filed its Application for a Small Power Plant Exemption (SPPE), staff visited the project area with KRCD's consultants for the purpose of selecting the KOPs. At that time, staff advised the applicant to select three KOPs; the applicant eventually chose four KOPs for analysis, which were included in the KRCDPP application. Following the examination of the SPPE Application, and personal observation of land uses in the area, staff has determined that only two of the previously chosen KOPs are needed for the Visual Resources analysis: one that represents the only viable viewpoint of the project site by local residents, and another that represents views along the planned transmission line route.

Once all potential impacts are examined, staff makes the determination as to whether any impacts reach a significant level and thus require mitigation beyond that proposed by the applicant. Any required mitigation must be specific to an identified impact, and must be feasible.

SETTING

EXISTING LANDSCAPE

The proposed KRCDPP would be located in an industrial area in a highly urbanized portion of Fresno County just south of the city limits of Fresno. The area surrounding the project site has historically been dominated by large industrial structures, such as the now-abandoned, large cottonseed oil processing plant located adjacent to the project site to the west, and an abandoned truck repair facility to the north. The project site is part of a large, planned industrial complex that occupies much of the south-central portion of the City of Fresno and areas of Fresno County immediately adjacent and to the south of the City. Planning for the complex is covered under the Roosevelt Community Plan, which was produced as a joint effort by the City of Fresno and Fresno County, as well as under the General Plans for both the individual governments.

The project area is surrounded by a mix of uses, from dilapidated cottonseed processing facilities to modern tilt-up warehouses. The abandoned cottonseed processing plant adjacent to the western border of the project site characterizes much of the area to the west and north of the plant site.

The project site is an open area containing several uncovered concrete pads of various sizes previously used for drying cottonseeds during warmer months. The site is bordered by North Avenue to the north, the abandoned cottonseed processing plant to the west, a Union Pacific (UP) Railway spur to the south, beyond which is a small agriculture area, and the Central Canal and another UP spur on the east, beyond which is Chestnut Avenue and a mix of industrial and residential uses further to the east (please see Visual Resources Figure 1, KRCDPP Viewshed and KOP Locations). Approximately 1,000 feet to the northeast of the site's northeast corner are five residences.

VIEWING AREAS AND KEY OBSERVATION POINTS

Visual Resources Figure 1 (all of the visual resources figures are presented at the end of this analysis) shows the areas from which the project would be visible (project viewshed) and the location and view direction of the two KOPs selected to represent two sensitive viewing areas that would be most affected by the proposed project. These KOPs are:

- KOP 1 – Behind the cluster of five residences located southwest of the intersection of North Avenue and Chestnut Avenue, looking towards the project site.
- KOP 2 – On North Avenue near Willow Avenue, covering the planned transmission line that would run on the south side of North Avenue.

KOP 1 – Residences Near the Intersection of North Avenue and Chestnut

KOP 1 is located behind a cluster of five residences on Chestnut Avenue, just southwest of the intersection of Chestnut Avenue and North Avenue, approximately 1,000 feet northeast of the northeast corner of the project site. The KOP was selected to represent the view out of the backyards of the five residences. Bordering the backyards of the residences is the Central Canal, which is approximately 15 feet wide, a crude dirt road next to the canal, an unused railroad spur, a line of mature shade trees, and a security fence with cyclone barbed-wire on top. The area near the canal and railroad tracks appears to regularly be used for illegal dumping, and shows no signs of recreational use. **Visual Resources Figure 2A** shows the current view from KOP 1, taken from the dirt road next to the Central Canal behind the middle of the five houses, looking to the southwest in the direction of the KRCDPP site.

The residences lie within an area zoned for industrial use, and are a non-conforming use; the structures can remain residential only as long as the present owners own the properties, and the County will not issue any new residential building permits for the sites, nor allow refurbishment of the present structures. Their status as non-conforming has little bearing on the analysis of potential impacts to visual resources, other than to show that the County has the intention of eventually converting the residences to industrial uses once property ownership changes hands. There are no other residences within the viewshed of the project site.

Only two of the five houses near KOP 1 appear to have a view of the project site out of their backyards, while none appear to have a view of the project site from the houses. The most prominent features in the existing landscape are a barbed-wire security fence in the foreground bordering a large, poorly maintained concrete yard associated with an abandoned medium-sized warehouse near the intersection of North Avenue and Chestnut Avenue. Beyond the large concrete area, in the middleground of the view from KOP 1, are the flat fields of the KRCDPP site, which are covered with grass as shown in **Visual Resources Figure 2**; several concrete pads of various sizes and orientation used for drying cottonseeds dot the empty fields, and a fairly large, normally dry settling pond lies just to the north of the planned power plant site. Beyond the vacant fields of the project site in the background of the view from KOP 1 are several warehouses and other buildings of various sizes, the most prominent being the large wooden abandoned sheds of the former cottonseed facility to the west of the project site.

The present visual quality of the view towards the power plant site from KOP 1 is low. There are essentially no pleasing aspects to the aesthetics of the view, other than the limited benefit of the line of cottonwood trees that line the Central Canal behind the five houses. The only discernable shapes are the low-lying abandoned structures of the former cottonseed processing plant in the background, and the only contrast in the view is that of grass compared to asphalt or concrete paving. There are very few if any pleasing or interesting lines of sight that would draw the viewer to examine the view for any length of time.

KOP 2 – North Avenue Between Chestnut and Willow Avenues

KOP 2 is located on North Avenue about 700 feet west of the intersection of North Avenue and Willow Avenue, and approximately 1,500 feet east of the intersection of

North Avenue and Chestnut Avenue. This KOP was chosen to represent the view of the transmission line needed to connect the KRCDPP to PG&E's Malaga substation, which is near the intersection of North Avenue and Willow Avenue. The transmission line would run due north from the northwest corner of the project site to North Avenue, where it would turn east and run on the south side of the street all the way to Willow Avenue, where it would cross the street and terminate in the Malaga Substation.

The viewpoint as depicted in **Visual Resources Figure 4** looks to the east towards Willow Avenue. The centerline of the street marks the border between the city and the county, with the City of Fresno to the north and Fresno County to the south. North Avenue is lined with a mixture of commercial/industrial uses, primarily modern tilt-up warehouses on the north side, and residences on the south side. Many of the residences on the south side of the street have landscaping that blocks views of the street. Development tends to be more dense closer to Chestnut Avenue, becoming less dense as North Avenue approaches Willow Avenue, and there are some areas of open agricultural fields on the north side near Willow Avenue. Electrical distribution or transmission lines already run on both sides of North Avenue along the planned transmission line route, with shorter poles carrying a single 12kV circuit on the south side and taller poles on the north side carrying both a 12kV circuit near the middle of the poles and a 113kV circuit at the top of the poles.

From the viewpoint, the most prominent features in the existing landscape are the structures that line either side of the street, and the transmission lines and poles on either side of the street. Many of the residences have mature, attractive landscaping, such as large oleander bushes, that block views of the relatively busy street from the houses and their front yards. The commercial/industrial development along the route is relatively modern and has reasonably attractive landscaping, offering at least some pleasing contrast with the hard lines of modern tilt-up warehouse construction, if not screening out much of the development.

Views along the planned transmission line route are generally of low to moderately low quality. Other than the landscaping planted at the various residences and warehouses along the route, there are no aesthetically pleasing aspects of the views that can be experienced along the routes. Many residences have planted large screening vegetation along their property lines near the street, presumably to block views and noise from the comparatively busy street. There was little to no evidence that residences in the area regularly enjoyed views along North Avenue from their houses or their front yards. Though the Sierra foothills may be visible to the east from the street over the existing development for many days of the year, the views would be distant and broken, and no such view would be available from inside the houses.

IMPACTS

Following is the Environmental Checklist that identifies potential impacts in this issue area. Below the checklist is a discussion of each impact, and an explanation of the impact conclusion.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect on a scenic vista?				X
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?		X		

DISCUSSION OF IMPACTS

The following discussion explains the responses to the questions in the environmental checklist.

A. Scenic Vistas: No Impact

Staff did not identify any scenic vistas within the project viewshed, nor are any identified in either the Fresno County General Plan or City of Fresno General Plan. Thus, the project would have no impact under this criterion.

B. Scenic Resources: No Impact

Neither the KRCDPP site nor the associated transmission line route contain any scenic resources such as trees or rock outcroppings that could be damaged by the proposed project. Grass and weeds are the only vegetation growing on the site, and no existing structures are on the site. The proposed project is not within view of a State Scenic Highway. The proposed project would not block views of any identified or observed important view areas as seen from residences in the area of KOP 1 or KOP 2. Thus, the project would have no impact under this criterion.

C. Visual Character or Quality: Less than Significant Impact

The project aspects that were evaluated under this criterion include project construction, the power plant structures' the electric transmission line, water and gas supply pipelines, and stack and cooling tower plumes.

Construction Impacts

The proposed power plant would occupy 9.5 acres within a 19-acre parcel located south of the intersection of Maple Avenue and North Avenue. Approximately 9.5 acres of the parcel would be used during construction for storage of equipment and materials and for parking by construction personnel. Construction of the proposed power plant and associated facilities would cause temporary visual impacts due to the presence of equipment, materials, and workforce. Construction would involve the use of cranes,

heavy construction equipment, temporary storage and office facilities, and temporary laydown/staging areas.

The KRCDPP project would interconnect with the existing Malaga Substation located approximately 0.75 miles northeast of the site via a new 115-kV transmission line. The new line would require the installation of new wood or metal poles replacing the existing shorter poles on the south side of North Avenue. Construction of the new line would require use of mobile cranes to lift the poles into place, as well as several large trucks to supply and pull the new and existing transmission lines along the new poles, and several smaller support trucks. PG&E would construct and own the line. Construction of similar lines typically last approximately 2 to 3 weeks, and construction activities would be visible from each of the residences along the route for approximately 3 or 4 days of that time.

A 700 foot-long pipeline would be constructed to deliver natural gas to the project. The pipeline would extend to the KRCDPP site from an existing PG&E main gas line that parallels North Avenue. Gas pipeline construction activities may be visible to some of the five residences located near KOP 1. Except for these residences, the majority of the uses in the area are industrial, and are dominated by abandoned facilities. A typical construction spread for pipelines would include a bulldozer, backhoe, boom trucks, excavation diggers, material delivery trucks, welding trucks and inspection vehicles. Typically, pipeline construction activities (from site preparation to restoration) could potentially be viewed from any one residence for up to two weeks, with decreasing levels of visual clarity as the distance to construction activities increases.

Construction of the power plant is expected to last for 6 months. Due to the temporary nature of project construction activities, the very low number of residences with unobstructed views of the KRCDPP site and laydown area, the 1,000-foot distance to the nearest of these residences, and the low overall visual quality of the viewshed, no substantial visual degradation of the sites or their surroundings would occur as a result of construction of the KRCDPP. After installation of the linear facilities, the areas disturbed by construction activities would be returned to their pre-construction condition, thereby minimizing the impact on the landscape.

KRCD is not anticipating the need for nighttime construction, outside the hours of 7 am to 10 pm. In the unlikely event that nighttime construction does occur, the applicant would take measures to minimize the off-site visibility of this lighting, which would be limited to the nighttime hours between sunset and 10 pm. These measures would include using the minimal lighting required for operations and safety, and using lighting that is shielded and highly directional. The mitigation measures proposed by KRCD would ensure that construction lighting impacts, if they occur, are kept to less than significant levels.

Power Plant Structures

The power plant structures would include two 105-foot-tall exhaust stacks, two 38-foot-tall cooling tower packages, and a 78-foot tall stack associated with the zero liquid discharge system planned for the facility. A non-reflective chain-link fence with vinyl slating would surround the project. The tallest structures on the site, the exhaust stacks, would be located approximately 1,250 feet from the nearest residence or

roadway. Travelers along North Avenue would not likely normally view the project site, as it would generally be out of their cone of vision about a quarter of a mile away at a greater than 45-degree angle to the roadway. Travelers along other roadways in the heavily industrialized area are even less likely to see the project site during normal travel because existing structures and trees block the views from these roads of the project site. Therefore, the analysis of potential impacts to visual resources created by the power plant structures of the KRCDPP is limited to the view of the power plant site from KOP 1, behind the five residences near the intersection of North Avenue and Chestnut Avenue.

Visual Resources Figure 3 presents a visual simulation of the proposed project as viewed from KOP 1. From KOP 1, a medium-sized abandoned warehouse lies in the foreground of the view directly to the west, just out of the picture to the right as represented in Figure 3. Other structures with complex industrial character are visible in the background of the views from KOP 1. The simple geometric forms and straight lines of the project structures would be similar to the forms and lines of the industrial warehouse-type structures to the west and north of the KRCDPP site. Except for the exhaust stacks, the horizontal form of the project structures would be consistent with the horizontal form of the undeveloped field in the foreground and horizontal warehouse development in the background. Although the vertical elements of the project (stacks) would contrast with the flat, horizontal field, vertical man-made features have been established in the landscape, such as a grain silo and a water tower, which are visible from residences farther north on Chestnut Avenue. The medium gray color depicted on the majority of the structures would contrast moderately with the seasonally changing colors of the field (green to brown) and the seasonally green trees in the foreground.

The power plant structures would appear comparable in size to the industrial buildings to the north and west of the KRCDPP site. The project would occupy a small portion of the landscape visible from KOP 1. The majority of the power plant structures would not extend above the line of existing development in the background. The exhaust stacks and the cooling tower could be seen against the sky from some angles, thereby increasing the conspicuousness of the proposed project. However, the structures would not even partially block any valued views. Views of existing trees along the Central Canal would not be affected.

Visual Impact Significance

The view from the backyards of the residences near KOP 1 is of low quality. There are essentially no pleasing aesthetic elements of the view, with the exception of a line of trees that border the Central Canal immediately behind the houses. The view is dominated by the canal, dirt road, railroad tracks and security fence in the foreground, followed by a concrete yard and a field that is only seasonally covered in greenery in the middle ground, and industrial structures of low visual quality in the background. There are no pleasing textures, areas of contrast or lines of sight in the view, and only the open sky above could be considered a natural feature.

In addition to personal observation, staff searched for other information or evidence of how the community would value the view from KOP 1, both without and with the project. The information found during this search reveals that the community in the local area clearly intends that the project area be used for responsible industrial development.

The community also clearly has identified much of the project area as an eyesore, and has planned for new development as the best manner in which to improve the appearance of the area. As noted in the Roosevelt Community Plan, "[A] substantial portion of the older industrial developments in the areas of South Van Ness Avenue and Maple-Olive avenues (immediately to the north of the project site) suffer from blight, due to age, deferred maintenance and a lack of planning. These areas were built without landscaping or concern for the proximity of nearby sensitive uses. The problem is exacerbated by poorly maintained local streets serving both industrial and residential areas and increased illegal dumping, especially of old tires" (County of Fresno, 1993).

When considered within the context of the low visual quality of the existing landscape, the low number of viewers of the site, the distance between the viewers and the prominent features of the planned power plant, and that KRCD intends to install landscaping to comply with local ordinances, the low degree of visual change that would be perceived from viewers in the area of KOP 1 would not substantially degrade the existing visual quality or character in the area, and therefore would be a less than significant visual impact.

Electric Transmission Line

Visual Resources Figure 5 is a visual simulation of the new transmission line along North Avenue as it would be seen from KOP 2, which represents views of the line from the street or from the front yards of the approximately 18 houses that line the street. The new poles replacing the poles on the south side of North Avenue would be roughly the same height as the existing poles on the north side of North Avenue. Following construction, the poles and lines on the south side of the street would essentially look identical to those on the north side of the street. The area surrounding the transmission line route is mixed commercial/industrial and residential in character, with a small amount of agricultural acreage near the eastern end of the route. Staff could find no evidence that the residents along North Avenue regularly enjoy a view that would be disrupted or substantially altered by the new transmission line. The transmission poles would be similar in form, line, and scale to existing power poles or other vertical elements visible from houses along North Avenue, and would cause a low degree of view disruption. The new transmission line would not substantially degrade the existing visual quality of the area, and therefore the resulting visual impact of the transmission line on the views from KOP 2 would be less than significant.

Combustion Exhaust and Cooling Tower Plumes

The KRCDPP project is proposed to be a simple cycle power plant that would include two 105-foot tall combustion exhaust stacks and two 40-foot-tall chiller/cooling tower packages. The cooling towers would be used for process cooling for the turbine inlet chiller units, and not to reject heat from a steam condenser where heat rejection loads are much greater, creating larger plumes. The cooling towers would be very small, in comparison to cooling towers used at larger power plants, and their cooling load would be directly dependent on ambient temperature (i.e., the higher the temperature, the higher the cooling load), which would reduce the potential for creating visible water vapor plumes. As a peaking plant, the KRCDPP would likely operate primarily in warmer months, when electricity demand is higher because of air conditioning loads. Therefore, the KRCDPP cooling towers would typically be operated during warmer

ambient conditions (i.e. likely greater than 60 degrees Fahrenheit), when the potential for visible plumes is greatly reduced. Though staff did not conduct detailed modeling to estimate the size and frequency of visible plumes resulting from operation of the KRCDPP, modeling of similar projects (CEC Staff, 2001) has shown that simple-cycle power plants in California have little to no potential for creating significant visible plumes. In the few instances when visible plumes would appear above the KRCDPP, the plumes would not block any view of important visual resources in the area, because no such resources exist in the project area, and the plumes would not greatly contrast with the surroundings because of their relatively small size, and reasonable similarity to natural clouds. The plumes from the KRCDPP cooling towers are not expected to be substantial in size, and are not likely to have a significant effect on visual resources.

The combustion exhaust temperature from the two 105-foot-tall stacks is expected to range from about 670 to 850 degrees Fahrenheit (KRCDPP 2003a). At such high temperatures, little or no visible water vapor plumes would be expected to form above the exhaust stacks except during extremely cold conditions, which occur very rarely in the Fresno area, or during turbine startup operating conditions. Because of the very low frequency of occurrence of water vapor plumes from the exhaust stacks, no substantial visual effects are anticipated.

The overall visual change to the local viewshed caused by KRCDPP cooling tower and exhaust stack plumes would be low because of the relative infrequency of occurrence, and because during the few times that plumes would occur they would have a low degree of contrast with the existing setting, and low degree of view disruption. When considered within the context of the low visual quality of the existing landscape and viewing characteristics, the low degree of visual change caused by the KRCDPP cooling tower plumes would not substantially degrade the existing visual quality or character of the area, and therefore would result in a less than significant impact.

D. Light or Glare: Less than Significant Impact with Mitigation Incorporated

Currently there are no sources of nighttime lighting at the KRCDPP site; however, there are numerous sources of nighttime lighting in the vicinity of the site that are visible from KOPs 1 and 2. Industrial night lighting sources in the vicinity of the KRCDPP site include streetlights along North Avenue, Chestnut Avenue and Golden State Boulevard, and area and perimeter lighting of existing commercial and industrial development along those same streets. Some of the nearby abandoned industrial facilities also appear to have night lighting for security reasons.

The KRCDPP project would require nighttime lighting for operational safety and security. If project lighting were uncontrolled it could cause adverse visual impacts on nearby sensitive visual receptors, such as the residences near KOP 1. KRCD has committed to minimizing offsite lighting impacts. Specifically, KRCD proposes to install lights that are shielded and directed downward, and install switches for the lights on the tallest structures, such as the combustion stacks, so they would be turned off except for maintenance activities. Because of the existing character of the project area at night and the applicant's commitment to minimize light emissions offsite, the KRCDPP project would not create a substantial new source of light or glare that could adversely affect nighttime views.

The applicant intends to provide a surface treatment plan to the County addressing plans for surface treatment for all KRCDPP structures and buildings visible to the public. The intent of the surface treatment plan will be to: 1) utilize colors that will minimize visual intrusion and contrast by blending with the surrounding landscape; and 2) utilize finishes that will not create excessive glare. At a minimum the surface treatment plan will include elevation drawings with proposed colors and finishes (as shown on color brochures or color chips) keyed to major project structures, buildings, and tanks that are visible to the public. The applicant will maintain the surface treatment for the life of the project. With the applicant's commitment to treat project structures in a manner that minimizes visual contrast and glare, the project would not be a source of substantial glare that could adversely affect daytime views.

CUMULATIVE IMPACTS

As defined in Section 15355 of the CEQA Guidelines (Cal. Code Regs., tit. 14), a cumulative impact is created as a result of the combination of the project under consideration together with other existing or reasonably foreseeable projects causing related impacts. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. In other words, though any one project in a given area may not create a significant impact to visual resources, the combination of the new project with all existing or planned projects in the area may create significant impacts. The significance of the cumulative impact would depend on the degree to which (1) the viewshed is altered; (2) visual access to scenic resources is impaired; or (3) visual quality is diminished.

According to the Fresno County Planning Department, there are no projects under construction, nor any approved and probable future projects in the area surrounding the KRCDPP project site. The project site is part of an existing industrial area that dates back more than 50 years. Because of the cumulative effect of past industrial development in the area, and the lack of visually important landmarks, existing visual quality is low. However, few residents have views of the project site, or much of the surrounding area. Additionally, the project site itself is now largely open space, consisting primarily of grass fields and open concrete pads. Few dominant industrial structures currently exist in the view of the project site from KOP-1, or from any other viewpoint from which the project site would regularly be seen, and no dominant structures are currently located near the proposed KRCDPP project site, meaning that the addition of the KRCDPP project into the site viewshed would not combine with other structures in the area to create a cumulatively considerable impact. Therefore, because of the low number of viewers in the area, because the site is currently open space with few dominant structures near it, and because the surrounding area farther out from the power plant site has been dominated by planned and unplanned industrial development for decades, the visual impacts of the KRCDPP project in combination with existing development would not be cumulatively considerable.

Though its contribution to existing cumulative visual impacts would not be considerable, KRCD has proposed to plant landscaping along the site boundary, both to comply with local zoning ordinances and planning guidelines, and to make the project a "showcase" for the community (Sinor 2004). KRCD intends to use fast growing, tall evergreen

species planted at a sufficient density to provide maximum effective screening of the project structures within the shortest feasible time after the start of commercial operation. **Visual Resources Figure 6** shows KRCD's Conceptual Landscape Plan for the power plant site. The landscaping plan includes: 1) a list of the proposed plant species; 2) installation sizes; 3) expected growth rates; and 4) plant spacing. KRCD will maintain the landscaping, including monitoring for and replacement of unsuccessful plantings, and routine annual or semiannual debris removal, for the life of the project.

Though not needed for the Visual Resources analysis in the Final Initial Study, the applicant also prepared a visual simulation, shown as **Visual Resources Figure 8**, to illustrate the effect of planting trees along the site boundary, showing the project with five-year-old landscaping as it would be seen from North Avenue near its intersection with Maple Avenue. **Visual Resources Figure 7** shows the existing view from that same viewpoint The landscaping simulation shows that the planting would likely soften the appearance of the KRCDPP project. It is staff's opinion that with this level of visual screening, the project's contribution to existing cumulative impacts would be even further reduced, further ensuring that the residual visual impacts of the project, when combined with the impacts of the existing, planned, and probable future projects, would not be cumulatively considerable. Staff considers visual impacts lasting less than five years to be short-term impacts and less than significant. In the long term (e.g., 10 years), the landscaping would be even more effective at reducing visual impacts by substantially screening the project from view from the surrounding area.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is greater than 50 percent within a six-mile radius of the proposed KRCDPP power plant (please refer to **Socioeconomics Figure 1** in this Initial Study). Staff also reviewed Census 2000 information that shows the low-income population is less than 50 percent within the same radius. Based on the visual resources analysis, staff has not identified unmitigated significant direct or cumulative impacts resulting from the construction or operation of the project, and therefore there are no visual resources environmental justice issues related to this project.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

None received.

CONCLUSIONS

With effective implementation of KRCD's proposed mitigation measures as described in the SPPE Application and supplements thereto, the proposed KRCDPP project would cause less than significant direct and cumulative visual impacts. Implementation of the mitigation measures proposed by KRCD would be ensured through Fresno County's permit review and mitigation monitoring and reporting processes.

PROPOSED CONDITIONS OF EXEMPTION

KRCD has sited and designed the KRCDPP project to avoid or mitigate any impacts from project structures and building surfaces visible to the public. The project's location away from potential viewers, along with installation of planned landscaping along the site boundaries and implementation of an appropriate nighttime lighting plan, would clearly ensure that no significant direct or cumulative impact on the environment would occur. Furthermore, staff is confident that Fresno County will ensure through their Conditional Use Permit review and mitigation monitoring and reporting processes that the measures proposed by KRCD are effectively implemented. Therefore, no visual resources Conditions of Exemption are proposed by staff.

REFERENCES

CEC Staff, 2001. Los Esteros Critical Energy Facility Staff Assessment, December 31, 2001.

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Sinor 2003a – Personal conversation between Matt Trask, consultant to Energy Commission Staff, and Jack Sinor, KRCDPP Project Manager, on 1/12/04.

Smardon, Richard C., James E. Palmer, and John P. Felleman. 1986. Foundations for Visual Project Analysis. John Wiley & Sons. New York.

APPENDIX VR-1: STAFF'S VISUAL RESOURCES EVALUATION METHODOLOGY

Staff's analysis of potential impacts to Visual Resources caused by construction or operation of any power plant or related facility largely involves answering the four questions found in Appendix G of the CEQA Guidelines, under Aesthetics. The four questions that must be addressed regarding whether the potential impacts of a project are significant are:

1. Would the project have a substantial adverse effect on a scenic vista?

2. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

3. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

4. Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

The visual analysis typically distinguishes between three different impact durations: temporary impacts, typically lasting no longer than two years; short-term impacts, generally last no longer than five years; and long-term impacts, which are impacts with a duration greater than five years. In general, short-term impacts are not considered significant.

In addition to visiting the project area for personal observation of how and whether a particular view is experienced, staff also searches for other evidence to determine if the local community values a particular view that might be affected by the project. This includes searching the applicable planning documents covering the area produced by local governments and community groups, as well as searches for any other type of evidence showing whether valued scenic vistas exist within the project's viewshed. Staff relies primarily on personal observation of the project site to make initial determinations of visual character or quality of the area, in comparison with all other landscapes in California, but also gives due deference to official statements by elected governmental bodies concerning the value of visual resources within the project area.

Staff answers each of the four checklist questions for each part of the project both during construction and during operation, including any related facility such as a transmission line or gas pipeline. To answer the first checklist question (Would the project have a substantial adverse effect on a scenic vista?), staff must determine if any such scenic vista exists within the viewshed of the various aspects of the project, and then determine if the project would have a substantial adverse effect on that vista.

To help make these determinations, visual resource professionals often answer a series of questions developed to help focus the analysis, and examine various ways that the project could create an impact to scenic vistas. The Energy Commission's Visual Resources staff has developed such a list for each of the four CEQA guideline questions, drawing upon published methodologies and academic resources (Smardon,

et al.), as well as on past experience with other power plant siting cases. Questions developed to help determine whether the project would significantly affect a scenic vista include:

1. Is the project located in the scenic view of a local/state/federal-designated scenic vista?

2. Is there compelling evidence to show that the view is designated/valued by the local community?

3. Would the project create a water vapor plume exceeding a 10 percent frequency threshold that could have an adverse effect on a state/federal/local-designated scenic vista?

4. Will the project eliminate or block views of valuable visual resources?

To help answer the second CEQA checklist question above (Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?), staff developed the following sub-questions:

1. Is the project located in the scenic view from a local/state/federal-designated scenic highway?

2. Would the project create a water vapor plume exceeding a 10 percent frequency threshold that could have an adverse effect on the view from a local/state/federal-designated scenic highway?

3. Does the project site or its immediate vicinity contain scenic resources, such as trees, rock outcroppings, or historic structures that could be damaged by the project?

To answer the third question (Would the project substantially degrade the existing visual character or quality of the site and its surroundings?), staff assesses the existing visual character and quality of the project area, and then determines how the project would affect the character and quality of the project viewshed. To assess whether the project has the potential to substantially degrade the present visual character or quality, staff uses personal observation and such tools as visual simulations to determine if an impact is significant and mitigation is required to reduce the impact to a less-than-significant level. To make that determination, staff examines many factors, such as: how many viewers can see a particular view and for how long, collectively called “viewer exposure”; and to what degree would the project change the aspects of a given view, such as whether the project’s components would block a particular view.
To help determine how the community rates and values the visual character and quality of a given site, and whether the project would substantially alter the present visual character or quality, staff developed the following sub-questions:

1. Is the project site properly zoned?

2. Is a conditional use permit and/or height variance required from the city/county (if so what conditions would the city/county place on the power plant)?

3. Does the project conform to the clear written declarations of local/state/federal agencies to protect designated visual resources of importance or the valued aesthetic character of a neighborhood (said declaration must be clear, concise, and uncompromised by conflicting declarations, and be an official action of the governing body (City Council/Board of Supervisors) such as a General Plan element, zoning ordinance, or design guideline)?

4. Will the project substantially alter the existing viewshed, including any changes in natural terrain?

5. How many residential, recreational, and traveling (motorist) viewers have views of the project?

6. Does the project's degree of visual contrast, dominance, and view blockage exceed acceptable levels given the viewing characteristics of the existing setting?

7. Would the project create a water vapor plume exceeding a 10 percent frequency threshold that could have an adverse effect from a KOP view?

8. Will the project deviate substantially from the form, line, color, and texture of existing elements of the viewshed that contribute to visual quality?

9. Has the applicant proposed landscaping?

The process of answering these questions includes an examination of the present views within the project viewshed in terms of aesthetics – i.e., by examining the various aspects that together define the quality of a view – followed by an assessment of how the various aspects of the aesthetics of the view would be affected by the project, which conversely could be described as an analysis of how well the project area can absorb the various aspects of the project into the landscape.

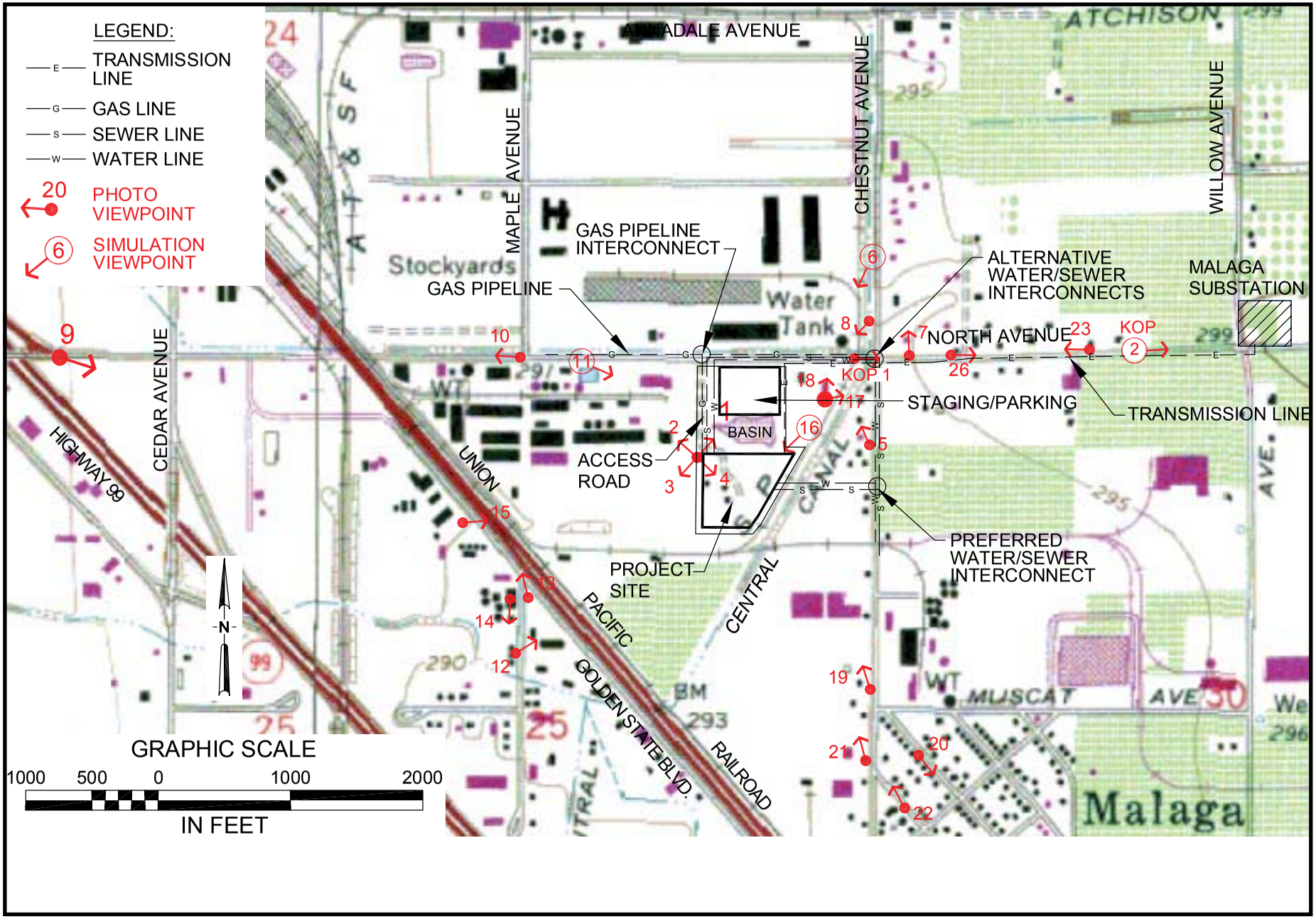
To answer the fourth CEQA Guidelines checklist question (Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?), staff analyzes the project's lighting plans to ensure they fit with established norms for low-impact lighting designs, and then answers the following sub-questions to determine if a potential for impact from night-lighting exists:

1. With the Energy Commission's standard condition of certification for lighting control, would light or glare be reduced to acceptable levels?

2. Will the project result in significant amounts of backscatter light into the nighttime sky?

VISUAL RESOURCES - FIGURE 1

Kings River Conservation District Peaking Plant - Location of Photo View Points Near the Project Site



VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

SOURCE: KRCD - SPPE 2003 - Figure 5.4-1

VISUAL RESOURCES - FIGURE 2

Kings River Conservation District Peaking Plant - Existing view from Central Canal looking southwest (View 16).

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

SOURCE: KRCD - SPPE 2003 - Figure 5.4-5

VISUAL RESOURCES - FIGURE 3

Kings River Conservation District Peaking Plant - Visual simulation of proposed project.

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

SOURCE: KRCD - SPPE 2003 - Figure 5.4-5

VISUAL RESOURCES - FIGURE 4

Kings River Conservation District Peaking Plant - Existing view from North Avenue looking east (View 24).

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

SOURCE: KRCD - SPPE 2003 - Figure 5.4-6

VISUAL RESOURCES - FIGURE 5

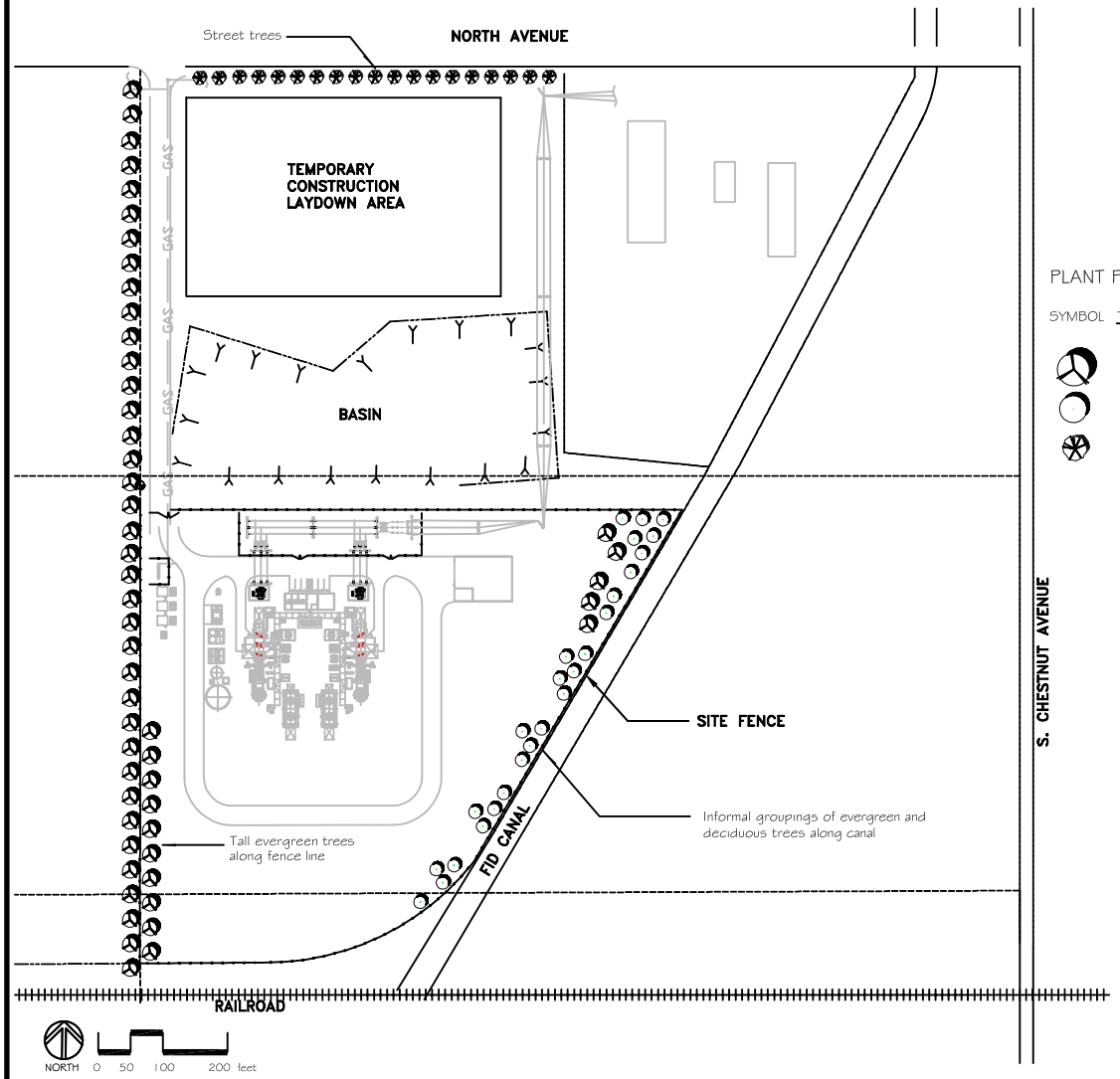
Kings River Conservation District Peaking Plant - Visual simulation of proposed project.

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

SOURCE: KRCD - SPPE 2003 - Figure 5.4-6

VISUAL RESOURCES - FIGURE 6

Kings River Conservation District Peaking Plant - Conceptual Landscape Plan



PLANT PALETTE LEGEND

SYMBOL	TYPE OF PLANT	SUGGESTED SPECIES	NUMBER SHOWN	SIZE	GROWTH RATE*	APPROX. HEIGHT AT PLANTING	APPROX. HEIGHT AT 10 YRS.
	Tall evergreen tree	Pinus eldanca	52	15 gal.	3 ft./yr.	6 ft.	36 ft.
	Tall deciduous tree	Ulmus americana "Frontier"	26	15 gal.	3 ft./yr.	5 ft.	35 ft.
	Street tree	Pyrus calleryana 'Bradford'	19	15 gal.	2-3 ft./yr.	5 ft.	25 ft.

* Source for growth rate information:
Reimer, Jeffrey L. and W. Mark. "SelecTree: A Tree Selection Guide."
http://selectree.calpoly.edu/ (Date Visited: January. 2003).

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

SOURCE: KRCD Data Responses, February 2004

VISUAL RESOURCES - FIGURE 7

Kings River Conservation District Peaking Plant - Existing view from North Avenue near Maple Avenue looking southwest (View 11)

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

SOURCE: KRCD - 03-SPPE-02

VISUAL RESOURCES - FIGURE 8

Kings River Conservation District Peaking Plant - Visual Simulation of Project with Proposed Landscaping at 10 years.

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, FEBRUARY 2004

SOURCE: KRCD Data Responses

WASTE MANAGEMENT

Testimony of Ellie Townsend-Hough

INTRODUCTION

The purpose of this section is to assess the potential impacts associated with the Kings River Conservation District Peaking Plant (KRCDPP) project's proposed generation and management of hazardous and nonhazardous wastes. Energy Commission staff's objective is to ensure that there will be no significant adverse impacts from wastes generated during the project's life-cycle. A brief overview of the project is provided, as are discussions regarding important checklist items with respect to hazardous and nonhazardous wastes. A discussion of additional items listed in the Hazards and Hazardous Materials portion of the checklist can be found in the **Hazardous Materials Management** section of this Initial Study (IS). The section concludes with staff's proposed conditions of exemption.

SETTING

Kings River conservation District (KRCD) proposes to construct, own, and operate an electric generating facility located near the community of Malaga in Fresno County (KRCD 2003a). The proposed facility would consist of two, natural-gas fired, simple-cycle combustion turbine electric generators (CTG) rated at a nominal gross generating capacity of 97 megawatts (MW). Zero liquid discharge (ZLD) technology would be employed to enable KRCD to reclaim project-generated wastewater. Such an approach would enable KRCD to utilize generated wastewater as a beneficial resource, thereby eliminating the wastewater stream entirely. KRCD is presently evaluating three options for the ZLD system. Option 1 would utilize brine concentrating and spray drying; option 2 would use high efficiency reverse osmosis and crystallization; and the third option would incorporate a mobile ion exchange resin bed trailer to produce de-ionized water. Selection of the optimal approach will be determined by KRCD in the final facility design (KRCD 2003a).

The proposed nine and a half acre project site is to be situated within the southern portion of the 19-acre parcel. There is a 5-acre parcel that contains the truck maintenance shop and warehouses contiguous to the project site. The truck maintenance shop and warehouses are not part of the KRCDPP project (KRDC 2004e). The project is bounded by the Anderson Clayton property to the north; the Southern Pacific Railroad to the south; and a Southern Pacific Railroad spur and the Fresno Irrigation District Central Canal to the east (KRCE 2004e). The Phase I Environmental Site Assessment (ESA) identifies a variety of land uses surrounding the project there is a cottonseed delinting plant to the west, vacant land south of the plant, and United Agricultural Products and residential homes to the east beyond the canal. The proposed project site is currently classified as industrial land (KRCD 2004e)

Both non-hazardous and hazardous wastes are expected to be generated during all phases of the facility's permitted existence as described below.

IMPACTS

Following is the Environmental Checklist that identifies potential impacts in this issue area. Below the checklist is a discussion of each impact, and an explanation of the impact conclusion.

ENVIRONMENTAL CHECKLIST	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?		X		
b) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
c) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
UTILITIES AND SERVICE SYSTEMS – Would the project:				
d) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
e) Comply with federal, state, and local statutes and regulations related to solid waste?				X

DISCUSSION OF IMPACTS

The proposed project would be considered to have significant impacts relating to waste management if it would:

- create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- result in the emission or handling of hazardous materials, substances, or waste within ¼ -mile of an existing or proposed school.
- be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would create a significant hazard to the public or environment.
- not be serviced by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.
- not comply with federal, state, and local statutes and regulations related to solid waste.

The basis for the outcomes provided in the checklist is discussed below.

A. Create a significant hazard to the public through routine transport, disposal or use of hazardous materials: Less Than Significant Impact with Mitigation Incorporated

Preconstruction

The Department of Toxic Substance Control (DTSC) reviewed the Small Power Plant Exemption and the Phase I Environmental Site Assessment (ESA) for the KRCD project and provided comments to staff (Gillette 2004). In her review of the project, Ms. Gillette disagrees with Professional Service Industries, Inc. (PSI) findings in the Phase I ESA. The recommendations of PSI are as follows:

> "Based on investigation of the property for evidence of recognized environmental conditions and other environmental issues, PSI offers the following recommendations.
>
> - No further assessment of recognized environmental conditions appears to be warranted."

Ms. Gillette spoke with the Fresno County Environmental Health Department (FCEHD) and was informed that both the truck shop property (APN: 330-050-23S) and the cottonseed delinting plant (APN; 330-200-03S) were classified by the county as hazardous material generators. The truck shop was designated a "Large" generator, reportedly storing up to 5,000 gals and/or 50,000 lbs of hazardous materials on an annual basis. Significant soil and groundwater remediation activities were conducted at the adjacent cottonseed delinting plant in the mid 1990's. Also, to the north of the project site, Anderson Clayton-Planting Seed removed two underground storage tanks, one in 1986 and one in 1992. Therefore, DTSC did not agree that there were no recognized environmental conditions on or surrounding the project site.

Based on DTSC's comments regarding the need to perform additional limited investigations to fully characterize the site, staff proposes Condition of Exemption **WASTE-2.** KRCD would be required to take soil samples and submit a work plan to DTSC for review and approval. DTSC would provide specific guidance on soil sampling for the project, and remediation, if necessary.

Construction

Operation and Maintenance

The majority of the hazardous wastes can be recycled, such as used oils, solvents, propylene glycol, and the spent SCR (Selective Catalytic Reduction NO_X control) and CO (carbon monoxide) catalysts (both classified as hazardous due to heavy metal content). The ZLD wastes have the potential to exhibit hazardous characteristics. If classified as hazardous, the ZLD wastes will need to be appropriately classified, stored for fewer than 90 days, transported, and disposed of in accordance with all applicable federal, state and local hazardous waste requirements. Should the ZLD wastes be deemed non-hazardous, it is possible that the wastes could be characterized as "California designated wastes" due to their potentially high inorganic matter (solids) content. This category of waste is either non-hazardous waste that contains pollutants that, under ambient environmental conditions at a waste management unit, could be

released in concentrations exceeding applicable water quality objectives or could reasonably be expected to affect the beneficial uses of the waters of the state (Water Code, § 13173(b)) or hazardous waste which has been granted a variance from hazardous waste management requirements pursuant to Section 66310 of Title 22 of the California Code of Regulations. Designated wastes are required to be discharged to fully contained Class I or II disposal sites. (Cal. Code Regs. tit. 27, § 20210). However, a designated waste can be discharged to a Class III disposal site if it can be demonstrated that there is a lower risk to water quality than indicated by the 'designated waste' classification. In order to ensure proper and adequate characterization and disposal of the wastes, staff proposes Condition of Exemption **WASTE-1**.

B. Handle hazardous waste within one-quarter mile of an existing or proposed school: No Impact

There are no schools within one-quarter mile of the proposed project.

C. Located on a hazardous waste site: No Impact

The proposed site is not located on any list of hazardous materials sites compiled pursuant to Government Code section 65962.5.

D. Served by a landfill with sufficient capacity: Less Than Significant Impact

Project operation will generate approximately 20 cubic yards/ month of nonhazardous solid wastes typical of office and maintenance activities at an industrial facility. Anticipated wastes include paper, trash, plastic, and other materials.

The total amounts of all nonhazardous solid wastes from both construction and operation activities will slightly reduce the available capacity of the disposal facility, but will not significantly affect either its daily capacity or anticipated remaining lifetime. Thus, it is estimated that this impact will be less than significant, given the capacities of the State's Class III landfills and the inclusion of recycling efforts.

E. Comply with federal, state, and local statutes and regulations related to solid waste: No Impact

If KRCD implements the waste management procedures described in the SPPE and staff's proposed conditions of exemption, the management of hazardous and non-hazardous wastes generated during construction and operation of the KRCDPP project would comply with all federal, state, and local statutes and regulations.

CUMULATIVE IMPACTS

KRDC will provide results of soil sampling to DTSC. If remediation is required, KRDC would perform site remediation to levels deemed appropriate by DTSC for a commercial or industrial facility. Even if site remediation is necessary, due to the minor amounts of wastes generated during project construction and operation, the insignificant impacts on individual recycling and disposal facilities, and the availability of regional landfills, cumulative impacts would be insignificant for both hazardous and nonhazardous wastes.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is less than 50 percent within a six-mile radius of the proposed KRCDPP project (please refer to **Socioeconomics Figure 1** in this IS). However, as indicated in Socioeconomics Figure 1, there are multiple census blocks with greater than 50 percent minority persons within the six-mile radius area are. Staff considers these to be pockets or clusters. Staff also reviewed Census 2000 information that shows the low-income population is less than fifty percent within the same radius.

Based on the Waste Management analysis, staff has not identified significant direct or cumulative impacts resulting from the construction or operation of the project and, therefore, there are no waste management environmental justice issues related to this project.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Department of Toxic Substances Control (DTSC) advised staff that the project owner's Phase I ESA does not contain adequate data or analytical results to draw the conclusion that there are no recognized environmental conditions located on or surrounding the project site. In response to DTSC'S comments, staff proposes condition of exemption WASTE-2 that would require the project owner to perform additional limited investigations to further characterize the site and, if necessary, conduct soil sampling to confirm that the site does not contain hazardous wastes in concentrations exceeding applicable health standards identified by DTSC. If soil sampling results indicate the need for additional investigations or remediation, the applicant would consult with DTSC regarding the appropriate course of action at the project site to ensure that any potentially significant adverse impacts are sufficiently mitigated.

CONCLUSIONS

Due to limitations of the Phase I ESA, KRCD will provide DTSC results of soil sampling from the project site, based on sampling guidelines provided by DTSC. If contamination above appropriate regulatory-based levels is indicated, the project site would be remediated to levels protecting the health of people onsite. Thus, management of hazardous and nonhazardous wastes generated during construction and operation of the KRCDPP project would not result in any significant adverse impacts if KRCD implements the waste management procedures described in the SPPE and staff's proposed conditions of exemption.

PROPOSED CONDITIONS OF EXEMPTION

WASTE-1: The project owner shall determine if the ZLD generated waste is hazardous or nonhazardous pursuant to sections 66261.3 and 66262.11 of Title 22 of the California Code of Regulations (CCR). Testing of representative samples of the wastes shall incorporate the methods set forth in Chapter 11, Division 4.5, Title 22 CCR. If deemed nonhazardous, then future sampling and testing is not required unless there is a substantial change in the wastewater

treatment process or due to cross-contamination between materials and/or processes. If not classified as a hazardous waste, the project owner shall discharge all ZLD generated waste only to those disposal facilities that are authorized to accept such a waste, unless it is sold as a commercial product.

Verification: No later than 45 days after the initial generation of the ZLD wastes, the project owner shall notify the CPM of the test results and the planned disposal methods. A copy of the acceptance letter from the disposal facility that is authorized and willing to accept the ZLD wastes shall also be included.

WASTE-2: The project owner shall perform additional limited investigations to further characterize the site. If deemed necessary by the Sacramento Office of the Department of Toxic Substances Control (DTSC), the project owner shall conduct soil sampling to confirm that the site does not contain hazardous wastes in concentrations exceeding applicable health standards to be identified by DTSC. Prior to soil sampling at the site, the project owner shall submit a proposed sampling and analysis plan to the CPM and DTSC for review and approval. In the event that the soil sampling results indicate the need for additional investigations or remediation, the applicant shall consult with and obtain approval from DTSC regarding the appropriate course of action at the project site to ensure that any potentially significant adverse impacts are sufficiently mitigated.

Verification: If deemed necessary by DTSC based on the additional investigations, and at least 90 days prior to the start of ground disturbance, the project owner shall submit a proposed sampling and analysis plan to the CPM and the Sacramento Office of DTSC. The project owner shall conduct sampling in accordance with an approved sampling plan and submit the results of the additional investigations to the CPM and DTSC at least 60 days prior to the start of ground disturbance. If additional investigations or remediation is deemed necessary by DTSC, the project owner shall coordinate with DTSC as to the appropriate remedial action at least 30 days prior to the start of ground disturbance.

REFERENCES

KRCD2003a - Kings River Conservation District/Sinor (tn:30483). Submittal of the Small Power Plant Exemption for the Modesto Electric Generation Station 97 MW, natural gas fired simple cycle power plant. Submitted to CEC/Therkelsen/Dockets on 11/26/03.

KRCD2004e – PSI/Prado (tn:30732). Phase I Environmental Site Assessment Report. Submitted to Dockets on 1/23/2003.

KRCE2004f – Kings River (tn:30750). Response to Data Requests. Submitted to Dockets on 1/16/2004.

Gillette 2004 – Memorandum from Maria Gillette, Department of Toxic Substances Control to Ellie Townsend-Hough, California Energy Commission. February 18.

GENERAL CONDITIONS OF EXEMPTION

Testimony of Ila Lewis

INTRODUCTION

The Kings River Conservation District (KRCD) Project Compliance Plan will be developed to help track conditions of exemption. The plan provides a means for assuring that the facility is constructed and operated in compliance with air and water quality, public health and safety, other applicable laws, ordinances, regulations and standards, and conditions of exemption.

The Compliance Plan is divided into two sections:

1. Compliance general conditions of exemption which specify the framework for record keeping and reporting throughout the construction and operation phases of the project; and,

2. Conditions of exemption which contain measures that must be taken to mitigate any and all potential adverse project impacts to an insignificant level.

The Conditions of Exemption detailed in the technical subject area analysis includes a verification statement describing the means by which compliance with the condition can be verified. The verification procedures may be modified by the Commission Compliance Project Manager (CPM) as necessary to ensure compliance with the adopted conditions of exemption. Verification of compliance with the conditions of exemption will be accomplished by periodic reports filed by KRCD as required by the general conditions of exemptions.

I. DEFINITIONS

To ensure consistency, continuity and efficiency, the following terms, as defined, apply to all technical areas, including Conditions of Exemption:

SITE MOBILIZATION:

Site mobilization occurs when moving trailers and related equipment onto the site, usually accompanied by minor ground disturbance, grading for the trailers and limited vehicle parking, trenching for utilities, installing utilities, grading for an access corridor, and other related activities. Ground disturbance, grading, etc. for site mobilization are limited to the portion of the site necessary for placing the trailers and providing access and parking for the occupants. Site mobilization is for temporary facilities and is therefore not considered construction.

GROUND DISTURBANCE:

Ground disturbance occurs when onsite activity results in the removal of soil or vegetation, boring, trenching or alteration of the site surface. This does not include driving or parking a passenger vehicle, pickup truck, or other light vehicle, or walking on the site.

GRADING:

Grading occurs when onsite activity conducted with earth-moving equipment results in alteration of the topographical features of the site such as leveling, removal of hills or high spots, or moving of soil from one area to another.

CONSTRUCTION:

[From section 25105 of the Warren-Alquist Act.] Onsite work to install permanent equipment or structures for any facility. Construction does not include the following:

1. The installation of environmental monitoring equipment.
2. A soil or geological investigation.
3. A topographical survey.
4. Any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility.
5. Any work to provide access to the site for any of the purposes specified in a., b., c., or d.

II. COMPLIANCE PROJECT MANAGER

A Compliance Project Manager (CPM) will be designated to oversee compliance with Conditions of Exemption. The assigned CPM, after consultation with the appropriate technical staff, and approval of Commission management and responsible agencies, shall:

1. Ensure that compliance files are established and maintained for the KRCDPP;
2. Track compliance filings;
3. Ensure the timely processing of proposed changes to the Commission Decision;
4. Use all available means to encourage the resolution of disputes; and,
5. Coordinate compliance monitoring activities of Commission and delegate agency staff as specified in the Conditions of Exemption.

III. PROJECT OWNER RESPONSIBILITY

It shall be the responsibility of the project's owner and operator, KRCD, to comply with and ensure that the compliance general conditions and all conditions of exemption are satisfied. Failure to comply with any of the conditions of exemption or the compliance general conditions may result in reopening of the case and revocation of the SPPE, or other action as appropriate.

KRCD shall send verification submittals to the CPM indicating, whether such condition was satisfied or work performed by KRCD or other agent, and whether or not such verification was also submitted to the CPM by an agent.

IV. COMPLIANCE RECORD

KRCD shall maintain, for the life of the project, files of all conditions of exemption correspondence, and final as-built drawings.

The Commission shall maintain as a public record:

1. All documents received regarding compliance with the conditions of exemption;
2. All complaints filed with the Commission; and,
3. All petitions for changes to conditions of exemption and documentation of the resulting staff or Commission action taken.

V. COMPLIANCE SUBMITTALS

All compliance submittals and correspondence pertaining to compliance matters shall include a cover letter with a description of the submittal and a reference to the compliance general condition and/or the condition of exemption number(s) which the submittal is intended to satisfy. All submittals shall be addressed as follows:

Compliance Project Manager
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

VI. CONSTRUCTION MONTHLY REPORTS

The project owner must submit construction monthly reports to the CPM to assist in tracking activities and monitoring compliance with the terms and conditions of the Commission Decision. During construction, the project owner or authorized agent will submit monthly reports for air quality, hazardous material, paleontology, transportation and water.

Tasks Prior to Start of Construction

Construction shall not commence until all pre-construction conditions of exemption have been complied with. Project owners frequently anticipate starting project construction as soon as the project is exempted. In some cases it may be necessary for the project owner to file submittals prior to exemption if the required lead-time for a required compliance event extends beyond the date anticipated for start of construction. It is also important that the project owner understand that pre-construction activities that are initiated prior to exemption are performed at the owner's own risk.

Various lead times for verification submittals to the CPM for conditions of exemption are established to allow sufficient staff time to review and comment, and

if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule.

The first construction monthly report is due the month following the Energy Commission business meeting date on which the project was approved, unless otherwise agreed to by the CPM.

During pre-construction and construction of the project, the project owner or authorized agent shall submit an original and three copies of the monthly report within 10 working days after the end of each reporting month. Monthly reports shall be clearly identified for the month being reported. The reports shall contain at a minimum:

1. a transmittal letter summarizing the current project construction status;

2. documents required by specific conditions to be submitted along with the monthly report. Each of these items should be identified in the transmittal letter.

VII. ANNUAL REPORTS

After the air district has issued a Permit to operate, the project owner shall submit annual reports instead of monthly reports. The reports are for each year of commercial operation and are due to the CPM at a date agreed to by the CPM. Annual reports shall be submitted over the life of the project unless otherwise specified by the CPM. The report shall contain at a minimum:

1. a transmittal letter summarizing the current project operating status and an explanation of any significant changes to the facility operations during the year;

2. documents required by specific conditions to be submitted along with the annual report. Each of these items should be identified in the transmittal letter.

VIII. CONFIDENTIAL INFORMATION

Any information which KRCD deems proprietary shall be submitted to the Commission Docket Unit (Mail Stop 4) to be processed pursuant to California Code of Regulations, Title 20, section 2505(a). Any information which is determined to be confidential shall be kept confidential as provided for in California Code of Regulations, Title 20, section 2501 et seq. Information deemed not to be confidential will become public information.

IX. ACCESS TO THE FACILITY

The CPM, or other designated Commission staff or agent, shall be granted access at any time to the project site, transmission line right-of-way, and related sites.

PREPARATION TEAM

PREPARATION TEAM

Project Manager ..... Jack W. Caswell
Staff Counsel ..... Lisa DeCarlo
Project Secretary ..... Angela Hockaday
Executive Summary ..... Jack W. Caswell
Introduction ..... Jack W. Caswell
Project Description ..... Jack W. Caswell
Air Quality ..... Brewster Birdsall
Biological Resources ..... Melinda Dorin
Cultural Resources ..... Dorothy Torres
Energy Resources ..... Kevin Robinson
Geology, Mineral Resources, and Paleontology ..... Patrick Pilling, Ph.D., P.E., G.E.
Hazardous Materials ..... Geoff Lesh, P.E., Rick Tyler
Hydrology and Water Quality ..... Tony Mediati
Agriculture and Soil Resources ..... Tony Mediati
Land Use ..... Ken Peterson
Noise and Vibration ..... Shahab Khoshmashrab & Steve Baker
Public Health ..... Obed Odoemelam, Ph.D.
Socioeconomics ..... Joseph Diamond
Traffic and Transportation ..... James Adams
Transmission Line Safety and Nuisance ..... Obed Odoemelam, Ph.D.
Transmission System Engineering ..... Ajoy Guha & Al McCuen
Visual Resources ..... Matt Trask
Waste Management ..... Ellie Townsend-Hough
General Conditions of Exemption ..... Ila Lewis

DECLARATION OF

Jack W. Caswell

I, Jack W. Caswell declare as follows:

I am presently employed by the California Energy Commission in the Systems Assessments and Facilities Siting Division as an Energy Facility Siting Project Manager.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on Executive Summary, Introduction, and Project Description for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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: 3/8/04 Signed: Jack W. Caswell

At: Sacramento, California

JACK W. CASWELL
Project Manager
California Energy Commission

Experience Summary

Thirty Four years experience in project and staff management; military; electrical construction for, industrial, commercial, and residential projects, QA/QC in the steel manufacturing industry, union grievance representative for the United Steel Workers of America, including Business Officer and Business Management Analyst for the State Water Resources Control Board.

Professional Experience

2000/Present: Project Manager; for the Kings River Conservation District Peaker Project (03-SPPE-02) Tesla Power Project, (02-AFC-21), Morro Bay Power Plant Project, (01-AFC-12), Russell City Energy Center, (01-AFC-07), Valero Cogeneration Project, (01-AFC-05), Huntington Beach Generating Station Retool Project, (00-AFC-13), Hanford Energy Park Project (00-SPPE-1), Warnerville Substation Reliability Generation Project (00-AFC-11), Western Midway Sunset Cogeneration Company Project (99-AFC-9). Primary developer for project schedules, function as team leader for technical staff. Provide project status reports to CEC Commissioners and CEC Director; primary contact for power plant developers, public and interveneors throughout power plant siting process.

1993/2000: Facilities Senior, (ABMA); at the State Water Resources Control Board (SWRCB), Associate Business Management Analysts/Business Officer, senior technical person for real-estate and construction projects, including construction budget analysis; project cost benefit analysis, scope of work development. Responsibility for the facilities analysis of Regional Water Quality Control Boards (RWQCB). Provide recommendations to SWRCB Director and RWQCB Executive Officers.

1990/1993 Lead Electrician; State Department of General Services, Installation of electrical transmission lines and equipment; provide cost estimates, develop drawings, operation of power generating plants, Manage complex electrical projects for state buildings, and develop maintenance procedures and programs.

1980/1990 Electrical Construction Supervisor; project supervisor for large commercial construction projects, industrial plants, water and sewer treatment plants, including residential projects. Responsible for the supervision of project staff, development of schedules, advised on technical engineering changes, and construction material ordering.

1973/1980 Quality Control Inspector & USWA Grievance Representative; conducted quality control inspections and implemented quality assurance procedures in the steel manufacturing industry. Elected to grievance representative in 1974, responsible for representing Sacramento local USWA membership in grievance proceedings with a local steel product manufacturing company.

Education

- Sierra College
- Electrical Construction Technical School
- State Training Center, Business Administration and Analyst Course Studies

DECLARATION OF
Brewster Birdsall

I, Brewster Birdsall declare as follows:

I am presently employed by ASPEN ENVIRONMENTAL GROUP, under contract with the California Energy Commission Systems Assessments and Facilities Siting Division as a SENIOR ASSOCIATE.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on AIR QUALITY for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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 5, 2004 Signed: _____

At: ~~Sacramento~~ San Francisco, California

Aspen
Environmental Group

BREWSTER BIRDSALL, P.E., QEP
Senior Associate, Air Quality and Engineering

ACADEMIC BACKGROUND
M.S., Civil Engineering, Colorado State University, 1993
B.S., Mechanical Engineering, Lehigh University, 1991

PROFESSIONAL EXPERIENCE

Mr. Birdsall is an environmental scientist who specializes in air quality and noise analyses for land development related projects and air quality risk assessments. He has nine years of consulting experience with expertise in environmental impact assessment under the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and the Clean Air Act. His focus is on air permitting, and air quality and noise-impact modeling, which includes field monitoring for traffic and other community noise sources.

Aspen Environmental Group — 2001 to present

Mr. Birdsall's project experience at Aspen includes the following:

Technical Studies for CEC Contract - Review of Power Plant AFCs. Mr. Birdsall assists the California Energy Commission (CEC) as a technical specialist by reviewing and providing testimony on Applications for Certification (AFC) for new power plants throughout California.

- **Tesla Power Plant.** Lead technical staff for air quality assessment and analyst of visible plumes for new 1,120 MW combined cycle power plant and 11-mile recycled water pipeline in rural eastern Alameda County near Tracy.
- **Inland Empire Energy Center.** Lead technical staff for air quality assessment for new 670 MW combined cycle power plant near Romoland in Riverside County.
- **Palomar Energy.** Lead technical staff for air quality assessment and supporting staff for cooling system studies for new 540 MW combined cycle power plant in northern San Diego County.
- **Kings River Conservation District Peaking Power Plant.** Lead technical staff for air quality assessment of new 97 MW simple cycle power plant in Fresno County.
- **Avenal Energy.** Lead technical staff for air quality assessment and analyst of visible plumes for large new combined cycle power plant near Avenal in Kings County.
- **Blythe Energy Project Phase II.** Lead technical staff for air quality assessment for new 520 MW combined cycle power plant and affiliated 118-mile transmission line, in the Mojave Desert and Coachella Valley of Riverside County.
- **Russell City Energy Center.** Lead technical staff for noise assessment of new 600 MW combined cycle power plant adjacent to shoreline recreational areas in Hayward.
- **Los Esteros Critical Energy Facility.** Lead technical staff for noise assessment and analyst of visible plumes for new 180 MW simple cycle power plant adjacent to recreational areas in San Jose.

- **Environmental Performance Report.** Technical review and editorial assistance for environmental portion of the first Integrated Energy Policy Report for the Governor and Legislature.
- **Air Quality Compliance.** Technical staff for analysis of modifications to permit conditions at the Moss Landing Power Plant. Prepared independent analysis of permit requirements and environmental consequences of increasing the capacity of the Midway-Sunset Cogeneration Project.
- **Alternative Cooling Technology Studies.** Supporting staff for analyses of dry cooling and hybrid cooling alternatives for the Cosumnes Power Plant and Palomar Energy Project. Coordinated and edited documentation from design engineers and other specialists.

For the **California Public Utilities Commission**, Mr. Birdsall has contributed to the following projects:

- **Miguel-Mission 230 kV #2 Transmission Line.** Conducted the air quality and noise review for a system that would reduce transmission constraints between San Diego County and generators within the U.S. and Mexico.
- **Jefferson-Martin 230 kV Transmission Line.** Prepared air quality and noise studies for construction and operation of a 27-mile transmission line through urban and rural San Mateo County. The project is proposed to meet the projected electric demand in the Cities of Burlingame, Millbrae, San Bruno, South San Francisco, Brisbane, Colma, Daly City, and San Francisco.
- **Viejo System Transmission Project.** Prepared air quality and noise studies for construction and operation of a controversial transmission improvement project in suburban south Orange County.
- **Looking Glass Networks Telecommunications Project.** Prepared the air quality and noise analyses for this Initial Study/Mitigated Negative Declaration (IS/MND) evaluating proposed fiber optic connections throughout the San Francisco Bay and Los Angeles Areas, and developed programmatic mitigation measures for implementation of the metropolitan area network.

California State Lands Commission, Concord to Sacramento Pipeline. Provided technical analysis of air quality and noise effects of constructing a new twenty-inch, 70-mile petroleum products pipeline, including upgrades to storage tank facilities in Concord and distribution systems in West Sacramento.

Technical Support for U.S. Army Corps of Engineers. Provided technical analysis of air quality and noise effects of constructing flood control improvements to El Vado Wash in Tucson, Arizona.

Technical Support for Los Angeles Unified School District. Provided technical analysis of air quality and noise effects for school expansion, play area expansion, and temporary classroom projects, including reviews of cumulative, regional air quality consequences of temporary projects.

Presidio Trust, Presidio of San Francisco. Provided impact analysis for demolition, rehabilitation, and infill construction within the Public Health Service Hospital District, within the Golden Gate National Recreation Area and adjacent to sensitive San Francisco residents. Provided technical support and peer review of noise and vibration analyses related to the Doyle Drive Reconstruction through the Presidio of San Francisco. Involved protecting natural sounds consistent with National Park Service policy.

Previous Employment 1994 to 2001

As a Senior Environmental Scientist at **EIP Associates (EIP)**, Mr. Birdsall performed comprehensive analyses of air quality and noise impacts for Environmental Impact Reports/Statements and independent studies. His projects at EIP included:

- **Bay Area Rapid Transit District, Oakland Airport Connector EIS/EIR.** Prepared noise impact evaluation and mitigation strategies. Conducted community noise monitoring and assessment according to Federal Transit Administration methodology.
- **Presidio Trust Implementation Plan EIS and Letterman Complex Supplemental EIS.** Prepared community noise impact assessment and traffic noise mitigation strategies. Air quality management policy consistency analysis. The plan was awarded the 2003 Outstanding Land Use Plan from the Association of Environmental Professionals.
- **San Francisco International Airport, Offshore Runway Construction Concepts, AGS Design Team.** Conducted preliminary environmental review of design and construction concepts for runway expansion. Prepared emission control strategies for general conformity rule.
- **Sacramento Metropolitan Airport Master Plan EIS/EIR, Sacramento County Department of Environmental Review and Assessment.** Baseline emission inventory and regulatory constraints.
- **Desert Resorts Regional Airport, Thermal, Riverside County.** Emission inventory and general conformity determination for runway extension and taxiway improvements.
- **San Joaquin Area Flood Control Agency, Stockton Areawide Flood Control Projects.** Reviewed emission inventories and retroactive general conformity rule applicability for construction activities.
- **Alameda County Flood Control and Water Conservation District, Zone 7, Altamont Water Treatment Plant EIR.** Analyzed air quality and community noise effects of three potential water plant sites in remote eastern Alameda County.
- **Santa Clara Valley Water District, Coyote Watershed, Lower Silver Creek Project.** Analyzed air quality and community noise effects for Initial Study/Environmental Assessment of constructing flood control improvements and habitat restoration.
- **University of California, Davis.** Prepared campuswide health risk assessment update, which included toxic air contaminant emission inventory and dispersion modeling using ISC.
- **University of California, Berkeley.** Prepared initial air quality and noise technical studies for Long Range Development Plan Update EIR and analyses for Northeast Quadrant Science and Safety Project (Stanley Hall replacement building) EIR.
- **Merced County, Draft University Community Plan.** Prepared air quality and noise background studies and policy discussion papers for the new Merced Campus of the University of California.
- **Allegro Jack London Square Project, SNK Development.** Provided expert testimony on the pile driving noise impacts to residents in a revitalized, high-density City of Oakland neighborhood. Conducted field surveys with City Staff and evaluated compliance with City noise ordinance.
- **Maranatha High School and Playing Fields Project, City of Sierra Madre.** Prepared the community noise technical study for a new private high school with outdoor amphitheater and athletic facilities. Characterized noise from events to determine impact level on sensitive residential community.
- **State Route 275 Modification Project, City of West Sacramento.** Prepared noise technical studies on the realignment of the State Route 275 Modification Project. Required assessment of new traffic noise impacts caused by rerouting traffic to grade level in close proximity of existing sensitive land uses and identification of feasible measures to insulate lodging uses.

- **City of Mountain View, Whisman Road Transit Oriented Development MND.** Deputy Project Manager for Negative Declaration related to high-density office development at the Middlefield-Ellis-Whisman Superfund Site. Prepared various technical sections, managed traffic subconsultant, and coordinated preparing the environmental documents with the city staff.

Mr. Birdsall prepared compliance strategies, evaluated modeled impacts, and negotiated air permits while a Project Supervisor at **Trinity Consultants**, an environmental consulting firm specializing in air quality.

- **Browning-Ferris Gas Services.** Coordinated nationwide Title V program implementation, secured numerous new source and operating permits, supported rollout of federal new source performance standards for municipal solid waste landfills and landfill gas to energy facilities
- **Newmont Mining Joint Venture, Batu Hijau Project.** Environmental impact studies for open-pit metallic mineral mining facility and independent power production facility. Included noise assessment for "greenfield" power plant and air quality impacts evaluation in complex, coastal terrain.
- **Questar Pipeline, TransColorado Pipeline Project.** Secured new source permits for air quality effects related to construction and operation of major natural gas pipeline including compressor stations.
- **Coastal Field Services, Altamont Gas Plant.** Negotiated Title V operating permits for upstream natural gas processing plant and associated field compressor stations.
- **Solvay Soda Ash Joint Venture.** Developed particulate matter modeling protocol with State agency.
- **Potlatch Corporation.** Facilitywide emission inventory and permitting for a wood products plant. Included regionwide analyses of ambient air quality standards and resolving existing modeled violations.

NOISE IMPACT ASSESSMENT MODELS

- Federal Highway Administration Traffic Noise Model
- California Department of Transportation Traffic Noise Model (SOUND32)
- FTA Transit Noise Assessment and Mitigation Methodology

AIR QUALITY MODELING EXPERTISE

MVEI/EMFAC; URBEMIS; CALINE4; SCREEN; ISC; CTDM; TANKS; Landfill Gas Emissions Model.

ADDITIONAL TRAINING AND COURSES

- Fundamentals of Noise and Vibration for the California Energy Commission
- Expert Witness Training, California Energy Commission
- Co-Instructor, Air Permitting Issues for Municipal Solid Waste Landfills, Trinity Consultants
- Fundamentals of New Source Review Workshop, Air and Waste Management Association
- Title V and Compliance Assurance Monitoring Workshops, Air and Waste Management Association
- NATO Advanced Studies Institute, Wind Climates in Cities

PROFESSIONAL AFFILIATIONS AND AWARDS

- Professional Engineer (Mechanical, California #32565)
- Qualified Environmental Professional, Institute of Professional Environmental Practice (#03030005)
- 2001 Outstanding Performance Award presented by the California Energy Commission
- Air and Waste Management Association since 1994

PUBLICATIONS

Smith, P.J., J.B. Birdsall, and P.E. Delamater. "A Discussion of Air Permitting Issues for Landfill Gas-To-Energy Projects." 88th Annual Meeting and Exhibition of the Air and Waste Management Association, San Antonio, Texas, 1995.

Meroney, R.N., D.E. Neff, and J.B. Birdsall. "Wind-Tunnel Simulation of Infiltration Across Permeable Building Envelopes: Energy and Air Pollution Exchange Rates." 7th International Symposium on Measurement and Modeling of Environmental Flows. International Mechanical Engineering Congress and Exposition, San Francisco, California, 1995.

Birdsall, J.B. and R.N. Meroney. "Model Scale and Numerical Evaluation of Tracer Gas Distribution Due to Wind-Forced Natural Ventilation." 9th International Conference on Wind Engineering, New Delhi, India, 1995.

Birdsall, J.B. Physical and Numerical Simulation of Wind-Forced Natural Ventilation, MS Thesis, Colorado State University, Fort Collins, Colorado, 1993.

DECLARATION OF
Melinda Dorin

I, Melinda Dorin declare as follows:

I am presently employed by the California Energy Commission in the Environmental Office of the Systems Assessments and Facilities Siting Division as a Planner II.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I prepared the staff testimony on Biological Resources for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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: 19 of Feb 2004 Signed: Melinda Dorin

At: Sacramento, California

RESUME OF

MELINDA DORIN
Biologist

PROFESSIONAL EXPERIENCE

California Energy Commission, Sacramento
November 2003-Present, Planner II Energy Facility Siting
June 2001 – November 2003, Planner I Energy Facility Siting
Provide technical analyses of proposed energy-related projects on biological resources. Duties include the analysis of impacts, identification of mitigation measures and compliance monitoring programs, providing written and oral testimony, and coordinating with other agencies. Knowledge of applicable laws, and species taxonomy and life history for species that occur throughout the state. A member of the mohave ground squirrel technical advisory group. Work as part of team on reports and special projects that are mandated by the state legislature.

State Water Resources Control Board, Sacramento
April 1999 – June 2001, Environmental Specialist I Bay Delta Water Rights
Attended Interagency Ecological Program Meetings as a representative of the SWRCB. Conducted CEQA review for applicants requesting changes to or new water rights. Conducted watershed analyses and determined impacts to downstream users. Worked as the biologist on multidisciplinary hearing teams and was responsible for addressing impacts to biological resources in SWRCB decisions. Acted as the SWRCB representative for an Interagency Working Group addressing monitoring requirements in SWRCB Decision 1641, for the Sacramento and San Joaquin Delta. Received a service award for working as part of the Delta Wetlands EIR development team.

California Department of Fish and Game, Bay-Delta Branch, Stockton
Fish and Wildlife Scientific Aide, October 1997 – April 1999
Work on Department projects for the Special Water Projects Planning Unit. Implemented a study program in the Suisan Marsh mandated by the Suisun Marsh Plan of Protection. Represented the CDFG at interagency meetings, acted as the lead person and coordinator for the CDFG, and developed interagency work plans and protocols for surveying endangered species such as the salt marsh harvest mouse and the clapper rail in the Suisun Marsh. Wrote annual monitoring reports required by permits. Assisted in conducting surveys at Los Banos Grandes consisting of spotlighting, and trapping for San Joaquin kit fox, mist netting for bats and surveying for the California red-legged frog. Collected samples for selenium testing at the San Luis Drain Agricultural Evaporation Ponds. Field crew lead for the Suisun Marsh Fish Screen Diversion Project, assisted in setting fyke nets and collecting data. Electroshocked for steelhead and coho salmon in the Pescadero watershed.

United States Fish and Wildlife Service, Sacramento-San Joaquin Field Office
Biological Science Technician, October 1995 – October 1997
Assisted as part of the field crew and part time crew lead on the Salmonid monitoring program assessing populations and juvenile migration through the Sacramento-San Joaquin Delta. Conducted project sampling utilizing paired and midwater trawls, beach seines, and rotary screw traps, extracted coded-wire tags. Responsible for data validation, summary reports, database files and summarizing results. Received a service award for taking on and completing extra work duties.

September 1994- May 1995
Research Assistant- Collected and analyzed data for a yellow-naped parrot (*Amazona auropaliata*) radio telemetry study. Used mist nests, and other methods to catch birds and collared with radio transmitters. Developed and conducted a vocalization playback study to determine vocal recognition. Co-authored a paper on the results.

VOLUNTEER
Conduct Swainson's hawk nest surveys and assist in banding adults and young since 1999. Traveled to Northern Mexico to follow migration route and track wintering birds.

EDUCATION
University of California, San Diego
B.S. Ecology, Behavior and Evolution, June 1994

ADDITIONAL CLASSES AND WORKSHOPS
- CEQA Workshop, U.C. Davis Extension, September 2003
- Blunt Nosed Leopard Lizard Identification Workshop, The Wildlife Society, San Joaquin Chapter, April 2003
- Annual Surveying, Monitoring and Handling Workshop for Desert Tortoise, The Desert Tortoise Council, November 2002
- California Red -Legged Frog Workshop, The Wildlife Society, Sacramento Shasta Chapter, April 2002
- Wetland Delineation, Sacramento 2001, The Wetland Training Institute

PROFESSIONAL AFFILIATIONS
California Interagency Wildlife Task Group
Mohave Ground Squirrel Technical Advisory Group
Desert Tortoise Council
Society for Conservation Biology
The Wildlife Society
The Wildlife Society Sacramento-Shasta Chapter; Past President 2004;
President 2003,
Programs Chair 2001-2002

DECLARATION OF
Dorothy Torres

I, Dorothy Torres declare as follows:

I am presently employed by the California Energy Commission in the Environmental Office of the Systems Assessments and Facilities Siting Division as a Planner II.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on Cultural Resources for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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: 3/5/04 Signed: Dorothy Torres

At: Sacramento, California

Dorothy E. Torres

EXPERIENCE:

September 2002-
Present

Planner II: Cultural, Socioeconomic and Visual Unit, Systems Assessment and Facilities Division, California Energy Commission. Duties: As a Planner II, I Identify, describe, and analyze complex cultural resources issues related to electrical energy production facilities, alternative energy technologies, energy research and development and Commission programs. This includes the preparation of sections of initial studies, environmental impact reports and Commission reports.

In addition, I prepare independent assessments of the cultural resources aspects of Notices of Intention, Applications for Certification, and Small Power Plant Exemptions. The final analyses include the preparation and presentation of expert technical testimony, which is presented at Commission hearings.

I also coordinate and work with federal, state, regional and local governments; cultural resources related agencies; environmental organization and universities; Native American or other ethnic groups; archaeological or historical professional organizations; and members of the general public regarding energy-related issues to assure their input into the Commission power plant siting process and other Commission programs.

Moreover, I lead or participate in workshops and meetings concerning Commission projects, programs and policies, amongst and between project applicants, staff, other governmental agencies, private organizations, and the public.

In addition, I examine and evaluate existing and proposed laws, ordinances, regulations, standards, and policies pertinent to the visual, cultural aspects of proposed energy facilities on Commission programs. After permitting, I evaluate the licensee's compliance with conditions of certification for power plant facilities.

April 2001-
August 2002

Planner I: Cultural, Socioeconomic and Visual Unit,

Systems Assessment and Facilities Division, California Energy Commission. Duties: I gather, organize and analyze cultural resources data and identify issues, impacts and mitigation measures ensuring compliance with the California Environmental Quality Act. I provide oversight for consultants working on siting applications in the area of cultural resources. I participate in workshops and meetings concerning Energy Commission projects and programs. In addition, I Interact with Division technical staff and staff representing other Divisions, local and regional government staff/decision makers, federal and state agency representatives and consultants/experts in the areas of anthropology, archaeology, history and related fields. I prepare written assessments of energy related documents.

December 1998-
March 2001

Energy Analyst: Community and Cultural Resources Unit, Energy Facilities Siting and Environmental Protection Division, California Energy Commission. Duties: I assist in gathering, organizing and analyzing cultural resources data and identify issues, impacts and mitigation measures. I assist in coordinating with local governments, resource protection agencies, environmental organizations and business organizations. Furthermore, I participate in workshops and meetings concerning Energy Commission projects and programs. I evaluate existing and proposed laws, ordinances, regulations, standards, and policies pertinent to the cultural resource aspect of proposed energy facilities. I prepare written assessments of energy related documents.

EDUCATION:

Spring 1988 — M.A., Anthropology
California State University, Sacramento

Spring 1980 — B.A., Anthropology and History
California State University, Sacramento

Professional Organizations — Society for California Archaeology
Sacramento Archaeological Society

DECLARATION OF
Steve Baker

I, Steve Baker, declare as follows:

I am presently employed by the California Energy Commission in the Engineering Office of the Systems Assessments and Facilities Siting Division as a Senior Mechanical Engineer.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I supervised the preparation of the staff testimony on **Energy Resources** and **Noise and Vibration** for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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: 2/19/04 Signed: Steve Baker

At: Sacramento, California

STEVE BAKER, P.E.
Senior Mechanical Engineer

Experience Summary

Twenty-nine years experience in the electric power generation field, including mechanical design, QA/QC, construction/startup and business development/licensing of nuclear, coal-fired, hydroelectric, geothermal and windpower plants; and engineering and policy analysis of thermal power plant regulatory issues.

Education

- California State University, Long Beach--Master of Business Administration
- California State Polytechnic University, Pomona--Bachelor of Science, Mechanical Engineering
- Registered Professional Engineer (Mechanical), California —
  No. M27737 expires 6/30/04

Professional Experience

1990 to Present--Senior Mechanical Engineer, Siting & Environmental Division - California Energy Commission

Technical lead person for the analysis of generating capacity, reliability, efficiency, noise, and the mechanical, civil/structural and geotechnical engineering aspects of power plant siting cases. Key contributor to Commission's investigation into market impediments to the deployment of advanced high-efficiency generating technologies.

1987 to 1990--Generation Systems/Facility Design Unit Supervisor, Siting & Environmental Division - California Energy Commission

Responsible for supervising the analysis of generating capacity, reliability, efficiency, safety, and mechanical, civil/structural, and geotechnical engineering aspects of power plant siting cases.

1981-1986--Operations Manager, Alternate Energy - Santa Fe Pacific Realty Corporation

Participated in and supervised identification, evaluation and feasibility analysis, licensing and permitting of hydroelectric, geothermal, windpower and biomass power projects.

1974-1981--Mechanical Engineer, Quality Engineer - Bechtel Power Corporation and Bechtel National, Inc.

Wrote equipment specifications, drew flow diagrams and P&ID's, performed system design and safety analysis for nuclear power plants and nuclear fuel processing plant. Wrote and implemented QA/QC procedures for nuclear power plant. Participated in construction/startup of large coal-fired power plant.

DECLARATION OF
KEVIN ROBINSON

I, Kevin Robinson declare as follows:

I am presently employed by the California Energy Commission in the Engineering Office of the Systems Assessments and Facilities Siting Division as a Mechanical Engineer.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on Energy Resources for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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: 2-25-04 Signed: Kevin Robinson

At: Sacramento, California

KEVIN ROBINSON
Mechanical Engineer

Experience Summary

Two years experience in the electric generation field, including mechanical design, QA/QC and construction of hydroelectric plant systems; and engineering and policy analysis of geothermal, natural gas-fired and thermal power plant regulatory issues.

Education

- California State University, Chico—Bachelor of Science, Mechanical Engineering
- Certified EIT, California

Professional Experience

2001 to Present—Mechanical Engineer, Systems Assessment & Facility Siting Division, Engineering Section – California Energy Commission

Responsible for analysis of generating capacity, reliability, efficiency, and the mechanical, civil/structural engineering aspects of power plant siting cases.

2000 to 2001—Mechanical Engineer, Oroville Field Division, Engineering Section – California Department of Water Resources

Assist in the preparation of designs, technical specifications and cost estimates for mechanical equipment at a hydroelectric power plant. Coordinate the design, installation, and inspection of mechanical equipment. Assist in preparing test reports, and recommendations for corrective action.

DECLARATION OF
PATRICK A. PILLING, Ph.D., P.E., G.E.

I, **PATRICK A. PILLING,** declare as follows:

1. I am presently employed by Black Eagle Consulting, Inc. as Executive Vice President, under contract with the California Energy Commission Facilities Siting and Environmental Protection Division.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I helped prepare the staff testimony on **GEOLOGY AND PALEONTOLOGY**, for the **KINGS RIVER CONSERVATION DISTRICT PEAKING PLANT** based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, 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 addressed therein.

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: 2-23-04 Signed: _____

At: Reno, Nevada

PATRICK A. PILLING, Ph.D., P.E., G.E.

Executive Vice President
Principal Geotechnical Engineer

Education

- B.S. – Civil Engineering –1986 – Santa Clara University
- M.S. – Civil Engineering – 1991 – San Jose State University
- Ph.D. – Civil Engineering – 1997 – University of Nevada, Reno

Registrations

- P.E. - Civil - Nevada - No. 9153
- P.E. - Civil – California – No. C 49578
- P.E. - Geotechnical – California – No. GE 2292
- P.E. - Civil - Oregon - No. 19675PE
- P.E. - Civil – Arizona – No. 35310
- P.E. - Civil – Utah – No. 971338-2202

Associated Experience

- University of Nevada, Reno - Course Instructor - CE 771 - Mining Waste Containment Design
- University of Nevada, Reno - Course Instructor - CE 771 - Practical Foundation Engineering

Experience

1997 to Present: Black Eagle Consulting, Inc.; Executive Vice President. Dr. Pilling maintains over 17 years of construction, geotechnical, transportation, and mining engineering experience, and has supervised the engineering and construction of such projects throughout the western United States and South America. As Executive Vice President, Dr. Pilling oversees daily office operations, including personnel and accounting issues, coordinates company marketing efforts, and performs project management, engineering and laboratory analyses, and report preparation on most projects. Dr. Pilling presently serves as our project manager of the Reno Retrack construction management team reviewing geotechnical design submittals for this rail project.

1996 to 1997: SEA, Incorporated; Senior Geotechnical Engineer. Dr. Pilling provided project coordination, management, supervision, and development, and performed field exploration, engineering analyses, and report preparation.

1990 to 1996: WESTEC; Project Manager. Mr. Pilling was responsible for general geotechnical analyses on most projects, as well as design, management, and permitting of heap leach and tailings storage facilities projects. His experience varied from foundation design recommendations for small pump house structures to detailed liquefaction and seepage/slope stability analyses for large earthen embankments.

1986 to 1990: Case Pacific Company; Project Manager. Mr. Pilling provided cost estimating, project management, and contract negotiation on a wide variety of projects. Responsibilities included design and construction of drilled shafts, earth retention, and underpinning systems, in addition to construction scheduling and cost control.

Affiliations

- American Public Works Association
- American Concrete Institute: Concrete Field Testing Technician Grade I
- National Society of Professional Engineers
- Secretary/Treasurer - National Society of Professional Engineers, Northern Nevada Chapter
- American Society of Civil Engineers
- International Association of Foundation Drilling
- National Council of Examiners for Engineering and Surveying
- American Society of Engineering Education
- Deep Foundations Institute

Publications

Ashour, M., P. A. Pilling, G. M. Norris, and H. Perez, June 1996, "Development of a Strain Wedge Model Program for Pile Group Interference and Pile Cap Contribution Effects," Report No. CCEER-94-4, University of Nevada, Reno; Federal Study No. F94TL16C, Submitted to State of California Department of Transportation (CalTrans).

Ashour, M., P. A. Pilling, and G. M. Norris, March 1997, "Documentation of the Strain Wedge Model Program for Analyzing Laterally Loaded Isolated Piles and Pile Groups," Proceedings, 32nd Symposium on Engineering Geology and Geotechnical Engineering, Boise, Idaho, pp. 344-359.

Ashour, M., P. Pilling, and G. Norris, 1998, "Updated Documentation of the Strain Wedge Model Program for Analyzing Laterally Loaded Piles and Pile Groups," Proceedings, 33rd Engineering Geology and Geotechnical Engineering Symposium, University of Nevada, Reno, pp. 177-178.

Ashour, M., G. Norris, and P. Pilling, April 1998, "Lateral Loading of a Pile in Layered Soil Using the Strain Wedge Model," Journal of Geotechnical and Geoenvironmental Engineering, ASCE, Vol. 124, No. 4, pp. 303-315.

Ashour, M., G. M. Norris, S. Bowman, H. Beeston, P. Pilling, and A. Shamsabadi, March 2001, "Modeling Pile Lateral Response in Weathered Rock," Proceeding 36th Engineering Geology and Geotechnical Engineering Symposium, University of Nevada, Las Vegas, 2001.

Ashour, M., G. Norris, and P. Pilling, July/August 2002, "Strain Wedge Model Capability of Analyzing the Behavior of Laterally Loaded Isolated Piles, Drilled Shafts, and Pile Groups," Journal of Bridge Engineering, ASCE, Vol. 7, No 4, pp. 245-354.

Ashour, M., P. Pilling, and G. M. Norris, March 26 – 31, 2001, "Assessment of Pile Group Response Under Lateral Load," Proceedings, 4th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, University of Missouri – Rolla, MO, Paper 6.11.

Norris, G. M., M. Ashour, P. A. Pilling, and P. Gowda, March 1995, "The Non-Uniqueness of p-y Curves for Laterally Loaded Pile Analysis," Proceedings, 31st Symposium on Engineering Geology and Geotechnical Engineering, Logan, Utah, pp. 40-53.

Norris, G. M., P. K. Gowda, and P. A. Pilling, February 1993, "Strain Wedge Model Formulation for Piles," Report No. CIS 91-11, University of Nevada, Reno.

Pilling, P. A., 1997, "The Response of a Group of Flexible Piles and the Associated Pile Cap to Lateral Loading as Characterized by the Strain Wedge Model," Doctoral Dissertation, University of Nevada, Reno.

Pilling, P. A. and P. V. Woodward, March 1995, "Dependent Facility Closure in California," Proceedings, Mine Closure: Creating Productive Public and Private Assets, Sparks, Nevada, pp. 315-326.

Pilling, P.A. and H. E. Beeston, March 1998, "Expansion Testing of Clay Soils in Forensic Investigations," Proceedings, 33rd Symposium on Engineering Geology and Geotechnical Engineering, Reno, Nevada, pp. 119-127.

Pilling, P.A., M. Ashour, and G.M. Norris, 2001, "Strain Wedge Model Hybrid Analysis of a Laterally Loaded Pile Group," Journal of the Transportation Research Board, Transportation Research Record No. 1772, Paper No. 01-0174, pp. 115-121.

Pilling, P.A., July 2002, "Assessing the Liquefaction Potential of Sand Deposits Containing an Appreciable Amount of Gravel," Program with Abstracts 2002 Annual Meeting Association of Engineering Geologists and American Institute of Professional Geologists, Reno, Nevada, p35.

Awards

- Hugh B. Williams Industry Advancement Scholarship, International Association of Foundation Drilling (ADSC), 1993-94.
- National Society of Professional Engineers, Northern Nevada Chapter, Young Engineer of the Year, 1996.

DECLARATION OF

Geoffrey Lesh, P.E.

I, Geoffrey Lesh, declare as follows:

I am presently employed by the California Energy Commission in the Engineering Office of the Systems Assessments and Facilities Siting Division as a Mechanical Engineer.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on Hazardous Materials Management for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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, 2004 Signed: Geoffrey Lesh

At: Sacramento, California

Geoffrey Lesh, P.E.
Mechanical Engineer

WORK HISTORY

California Energy Commission Mechanical Engineer 2002 - Current
• Review and analyze applicants' plans for safe management of hazardous materials, and for protecting worker safety.

Self-Employed Independent Investor 2000 - 2002
• Wrote market analysis computer software and traded personal account.

Read-Rite Corp Wafer Engineering Manager 1994 - 2000
• Designed and developed wafer manufacturing processes for computer data storage systems. Managed team of engineers and technicians responsible for developing wet and dry chemical processes for manufacturing, including process and safety documentation.
• Managed process and equipment selection for manufacturing processes.
• Processes included vacuum processed metals and ceramics, grinding-polishing, plating, etching, encapsulation, process troubleshooting, and SPC reporting.

Dastek Corp (Komag Joint Venture Start-up) Wafer Engineering Manager 1992 - 1994
• Developed wafer processes for new technology recording head for hard disk drives.
• Managed team of engineers and technicians.
• This position included start-up of wafer fab, including line layout, purchase, installation, and startup of new process equipment, etc.

Komag, Inc Alloy Development Manager 1989 - 1992
• Developed new vacuum-deposited recording alloys
• Responsible for planning and carrying-out tests, designing experiments, analyzing results, managing test lab conducting materials characterizations.
• Extensive process modeling and data analysis.

Verbatim Corp (Kodak) Process Development Manager 1983 - 1989
• Mechanical engineering for computer disk manufacturing, including product, process, and equipment including metal-ceramic-plastic processes for optical disk development.
• Production processes included plating, metal evaporation, reactive sputtering, laser-based photolithography, injection molding.
• Steering Committee Member, *Center for Magnetic Recording Research, UC San Diego*

IBM Corp Mechanical/Process Engineer 1977 - 1983
• Product development for photocopiers and computer tape-storage systems.

EDUCATION

Stanford University, Master of Science Degree	Materials Science and Engineering
UC-Berkeley, Bachelor of Science Degree (Double Major)	Mechanical Engineering, Materials Science and Engineering
University of Santa Clara, Graduate Certificate	Magnetic Recording Engineering
Registered Professional Engineer, California	Mechanical #M32576 Metallurgical #MT1940

DECLARATION OF
Rick Tyler

I, Rick Tyler declare as follows:

I am presently employed by the California Energy Commission in the Engineering Office of the Systems Assessments and Facilities Siting Division as a Senior Mechanical Engineer.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I supervised the preparation of the staff testimony on Hazardous Materials Management and Worker Safety and Fire Protection for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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: 3/8/04 Signed: _____

At: Sacramento, California

RICK TYLER

Associate Mechanical Engineer

CALIFORNIA ENERGY COMMISSION
430 Ashore Ave.
Sacramento, California 95831
(916) 392-1663

EDUCATION B.S., Mechanical Engineering, California State University, Sacramento. Extra course work in Statistics, Instrumentation, Technical Writing, Management; Toxicology, Risk Assessment, Environmental Chemistry, Hazardous Materials Management, Noise Measurement, and regulations regarding control of toxic substances.

Near completion of course work necessary to obtain a certificate in hazardous materials management from University of California, Davis.

EXPERIENCE

Jan. 1998-Present — California Energy Commission - Associate Mechanical Engineer
Energy Facility Siting and Environmental Protection Division

Responsible for review of Applications for Certification (applications for permitting) for large power plants including the review of handling practices associated with the use of hazardous and acutely hazardous materials, loss prevention, safety management practices, design of engineered equipment and safety systems associated with equipment involving hazardous materials use, evaluation of the potential for impacts associated with accidental releases and preparation and presentation of expert witness testimony and conditions of certification. Review of compliance submittals regarding conditions of certifications for hazardous materials handling, including Risk Management Plans Process Safety Management.

April 1985-Jan. 1998 — California Energy Commission - Health and Safety
Program Specialist; Energy Facility Siting and Environmental Protection Division.

Responsible for review of Public Health Risk Assessments, air quality, noise, industrial safety, and hazardous materials handling of Environmental Impact Reports on large power generating and waste to energy facilities, evaluation of health effects data related to toxic substances, development of recommendations regarding safe levels of exposure, effectiveness of measures to control criteria and non-criteria pollutants, emission factors, multimedia exposure models. Preparation of testimony providing Staff's position regarding public health, noise, industrial safety, hazardous materials handling, and air quality issues associated with proposed power plants. Advise Commissioners, Management, other Staff and the public regarding issues related to health risk assessment of hazardous materials handling.

Nov. 1977-
April 1985

California Air Resources Board - Engineer (last 4 years Associate level)

Responsible for testing to determine pollution emission levels at major industrial facilities; including planning, supervision of field personnel, report preparation and case development for litigation; evaluate, select and acceptance-test instruments prior to purchase; design of instrumentation systems and oversight of their repair and maintenance; conduct inspections of industrial facilities to determine compliance with applicable pollution control regulations; improved quality assurance measures; selected and programmed a computer system to automate data collection and reduction; developed regulatory procedures and the instrument system necessary to certify and audit independent testing companies; prepared regulatory proposals and other presentations to classes at professional symposia and directly to the Air Resources Board at public hearings. As state representative, coordinated efforts with federal, local, and industrial representatives.

PROFESSIONAL AFFILIATIONS/ LICENSES

Past President, Professional Engineers in California Government Fort Sutter Section;
Past Chairman, Legislative Committee for Professional Association of Air Quality Specialists. Have passed the Engineer in Training exam.

PUBLICATIONS, PROFESSIONAL PRESINTATIONS AND ACCOMPLISHMENTS

Authored staff reports published by the California Air Resources Board and presented papers regarding continuous emission monitoring at symposiums.

Authored a paper entitled "A Comprehensive Approach to Health Risk Assessment", presented at the New York Conference on Solid Waste Management and Materials Policy.

Authored a paper entitled "Risk Assessment A Tool For Decision Makers" at the Association of Environmental Professionals AEP Conference on Public Policy and Environmental Challenges.

Conducted a seminar at University of California, Los Angeles for the Doctoral programs in Environmental Science and Public Health on the subject of "Health Risk Assessment".

Authored a paper entitled "Uncertainty Analysis -An Essential Component of Health Risk Assessment and Risk Management" presented at the EPA/ORNL expert workshop on Risk Assessment for Municipal Waste Combustion: Deposition, Uncertainty, and Research Needs.

Presented a talk on off-site consequence analysis for extremely hazardous materials releases. Presented at the workshop for administering agencies conducted by the City of Los Angeles Fire Department.

Evaluated, provided analysis and testimony regarding public health and hazardous materials management issues associated with the permitting of more than 20 major power plants throughout California.

Developed Departmental policy, prepared policy documents, regulations, staff instruction, and other guidance documents and reference materials for use in evaluation of public health and hazardous materials management aspects of proposed power plants.

Project Manager on contracts totaling more than $500,000.

RES.RT

DECLARATION OF
ANTONIO MEDIATI

I, Antonio Mediati declare as follows:

I am presently employed by the California Energy Commission in the Environmental Office of the Systems Assessments and Facilities Siting Division as a Planner II.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on Hydrology and Water Quality, and Agriculture and Soil Resources for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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 19, 2004 Signed: Antonio Mediati

At: Sacramento, California

Antonio Mediati

Employment

PLANNER II - ENERGY FACILITY SITING YEARS EMPLOYED (NOV. 2003 - PRESENT)
California Energy Commission, Systems Assessment and Facilities Siting Division, Environmental Office Sacramento, California

Perform complex technical analysis assessing the water and soil resource implications of electrical power plant siting projects. Review analyze and prepare reports and testimony on the impacts of power plant siting projects on water and soil resources, including water quality, soil erosion, wastewater discharges, water rights and water supply. Evaluate the adequacy of environmental siting documents and request additional information if necessary. Determine the compliance of power plant applications with existing laws, ordinances, regulations and standards. Coordinate with local governments, resource protection agencies, environmental organizations and business organizations. Prepare environmental documents as required by CEQA and the Warren Alquist Act. Recommend mitigation for impacts in the form of written staff analysis and expert verbal and written testimony at Commission workshops and hearings. Manage multiple teams of contract consultants to evaluate power plant projects, produce staff assessments, attend public workshops and determine project compliance with license conditions during construction and operation. Perform field evaluation to determine compliance with regulations and the effectiveness of mitigation measures.

PLANNER I YEARS EMPLOYED (JULY 2001 – NOV. 2003)
California Energy Commission, Systems Assessment and Facilities Siting Division, Environmental Office Sacramento, California

Organize, research, and analyze soil and water resource data associated with the siting of power generation facilities. Identify issues, impacts and mitigation measures. Oversee and coordinate the actions of consultants in gathering, organizing and analyzing soil and water resource data associated with the siting of power generation facilities. Coordinate with local governments, resource protection agencies, environmental organizations and business organizations. Participate in workshops and meetings concerning Commission projects and programs. Evaluate existing and proposed laws, ordinances, regulations, standards, and policies pertinent to the soil and water resources aspect of proposed energy facilities. Perform written assessments of energy related documents.

DISTRICT FORESTER YEARS EMPLOYED (1992 - 2001)
Sierra Pacific Industries *Redding, California*

My primary responsibilities as a district forester were the field preparation, writing and administration of Timber Harvest Plans (THP). A Timber Harvest Plan is a functional equivalent to an EIR under CEQA.

A Registered Professional Forester (RPF) license is required to write a THP.

A THP evaluates and proposes mitigation measures of the proposed project and the direct, indirect and cumulative impacts of the project to watershed, soil productivity, biological, recreation, cultural, visual, traffic and other resources specific to the individual project.

In preparing a THP I was responsible for planning the project and evaluating impacts. I performed archaeological and historical surveys, watershed assessment, watercourse classification, soil

identification, calculation erosion hazard rating, conduction biological and botanical surveys, preparation of a cumulative impacts assessment, designing and proposing mitigation to project impacts, road layout and design and calculating economic feasibility of the project. I also work closely with adjacent landowners and USFS on such things as cooperative road maintenance, protecting the beneficial uses of water, determining and protecting domestic water supplies and protecting threatened and endangered species.

In writing a THP I was responsible for; preparing all environmental documents, complying with all federal, state and local regulations, submitting the THP to the California Department of Forestry and Fire Protection (CDF) for approval. I evaluated and amended the THP during the review process in conjunction with CDF, Department of Fish & Game, Department of Mines & Geology, Department of Water Resources and other interested agencies.

In administering a THP I was responsible for, explaining the provisions of the THP to the contractor. I provided professional advice throughout the operation (to the contractor, plan submitter and timberland owner), ensuring compliance with the THP as well as, all federal, state and local regulations, and submission of a work completion report to the State.

INVENTORY FORESTER — YEARS EMPLOYED (1990 - 1992)
Sierra Pacific Industries — *Redding, California*

As an Inventory Forester I was responsible for collecting information on the standing inventory of timber on company land, accessing defect and value of the timber and ability and method of harvest. I conducted Spotted Owl and Marbled Murrelet survey and THP field preparation (including establishment of watercourse and lake protection zones, watercourse classification, erosion hazard rating determination, design of mitigation measures). I participated in prescribed burning operations and supervised spray and planting crews.

CONTRACT FORESTER — YEARS EMPLOYED (1988 - 1990)
Northwest Forest Consultants — *Chico, California*

As a Contract Forester I was responsible for collecting information on the standing inventory, THP field preparation, watercourse and lake protection zone establishment and marking of timber and conducting stocking surveys

FOREST TECHNICIAN — YEARS EMPLOYED (1988 -19 88)
Blodgett Forest Research Station — *Georgetown, California*

As a Forest Technician I was responsible conducting timber inventory and marking operations. I collected cone to test for disease resistance. I also conducted competing vegetation control operations and unit mapping.

Education

B. S. FORESTRY — YEARS ATTENDED (1982 - 1986)
Humboldt State University — *Arcata, California*

Licenses & Certificates

Registered Professional Forester License # 2490
California Drivers License
Archeological Training for Resource Professionals
Basic Wildland Firefighting Safety

DECLARATION OF
Ken Peterson

I, Ken Peterson declare as follows:

I am presently employed by the California Energy Commission in the Environmental Office of the Systems Assessments and Facilities Siting Division as a Planner II.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on the land Use analysis for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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 4, 2004 Signed:_____

At: Sacramento, California

RESUME

Ken Peterson

EXPERIENCE

Planner II, California Energy commission, Environmental Unit, October, 2001 to present; land use, traffic and transportation, and visual resources environmental review for power plant licensing.

Housing and Community Development Representative II, State of California Department of Housing and Community Development, October, 1982 to October, 2001; low-income housing policy development and program implementation.

Housing Specialist, Housing Authority of the County of Los Angeles, July, 1979 to September, 1982; coordination of low-income housing project planning and development.

EDUCATION

University of New Mexico, Albuquerque, New Mexico, Architecture School Graduate Program, 1978 - 1979 school year.

San Jose State University, San Jose, California, Master of Urban Planning degree, 1978.

Northern Illinois University, Dekalb, Illinois, Bachelor of Arts degree, History, 1968

DECLARATION OF
Shahab Khoshmashrab and Steve Baker

We the undersigned, declare as follows:

1. We are presently employed by the California Energy Commission in the **Engineering Office** of the Systems Assessment and Facility Siting Division as

   Mechanical Engineer-Mr. Khoshmashrab and **Senior Mechanical Engineer-Mr. Baker.**

2. Copies of our professional qualifications and experience are attached hereto and incorporated by reference herein.

3. We prepared our respective portions of the Staff Testimony on **Noise and Vibration**, for the **Kings River Conservation District Peaking Plant** project based on our independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and our professional experience and knowledge.

4. It is our professional opinion that the prepared Testimony is valid and accurate with respect to the issues addressed therein.

5. We are personally familiar with the facts and conclusions related in the testimony and if called as witness(es) could testify competently thereto.

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

Shahab Khoshmashrab _____

Steve Baker _____

Dated: February 19, 2004

At: Sacramento, California

Shahab Khoshmashrab
Mechanical Engineer

Experience Summary

Eight years experience in the Mechanical, Civil, Structural, and Manufacturing Engineering fields involving engineering and manufacturing of various mechanical components and building structures. This experience includes QA/QC, construction/licensing of electric generating power plants, and engineering and policy analysis of thermal power plant regulatory issues.

Education

- California State University, Sacramento-- Bachelor of Science, Mechanical Engineering

Professional Experience

2001-2002--Mechanical Engineer, Systems Assessment and Facilities Siting– California Energy Commission

Performed analysis of generating capacity, reliability, efficiency, and the mechanical, civil/structural and geotechnical engineering aspects of power plant siting cases.

1998-2001--Structural Engineer – Rankin & Rankin

Engineered concrete foundations, structural steel and sheet metal of various building structures including energy related structures such as fuel islands. Performed energy analysis/calculations of such structures and produced structural engineering detail drawings.

1995-1998--Manufacturing Engineer – Carpenter Advanced Technologies

Managed manufacturing projects of various mechanical components used in high tech medical and engineering equipment. Directed fabrication and inspection of first articles. Wrote and implemented QA/QC procedures and occupational safety procedures. Conducted developmental research of the most advanced manufacturing machines and processes including writing of formal reports. Developed project cost analysis. Developed/improved manufacturing processes.

DECLARATION OF DR. OBED ODOEMELAM

I, Obed Odoemelam declare as follows:

I am presently employed by the California Energy Commission in the _Environmental Office of the Systems Assessments and Facilities Siting Division as a Staff Toxicologist.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on Transmission Line Safety and Nuisance for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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: Feb 23 2004 Signed: Odoemelam

At: Sacramento, California

RESUME

DR. OBED ODOEMELAM

EDUCATION:

1979-1981 University of California, Davis, California. Ph.D., Ecotoxicology

1976-1978 University of Wisconsin, Eau Claire, Wisconsin. M.S., Biology.

1972-1976 University of Wisconsin, Eau Claire, Wisconsin. B.S., Biology

EXPERIENCE:

1989
The Present: California Energy Commission. Staff Toxicologist.

Responsible for the technical oversight of staffs from all Divisions in the Commission as well as outside consultants or University researchers who manage or conduct multi-disciplinary research in support of Commission programs. Research is in the following program areas: Energy conservation-related indoor pollution, power plant-related outdoor pollution, power plant-related waste management, alternative fuels-related health effects, waste water treatment, and the health effects of electromagnetic fields. Serve as scientific adviser to Commissioners and Commission staff on issues related to energy conservation. Serve on statewide advisory panels on issues related to multiple chemical sensitivity, ventilation standards, electromagnetic field regulation, health risk assessment, and outdoor pollution control technology. Testify as an expert witness at Commission hearings and before the California legislature on health issues related to energy development and conservation. Review research proposals and findings for policy implications, interact with federal and state agencies and industry on the establishment of exposure limits for environmental pollutants, and prepare reports for publication.

1985-1989 California Energy Commission.

Responsible for assessing the potential impacts of criteria and noncriteria pollutants and hazardous wastes associated with the construction, operation and decommissioning of specific power plant projects. Testified before the Commission in the power plant certification process, and interacted with federal and state agencies on the establishment of environmental limits for air and water pollutants.

1983-1985 California Department of Food and Agriculture.

Environmental Health Specialist.

Evaluated pesticide registration data regarding the health and environmental effects of agricultural chemicals. Prepared reports for public information in connection with the eradication of specific agricultural pests in California.

DECLARATION OF

Joseph Diamond, Ph. D.

I, Joseph Diamond, Ph. D. declare as follows:

I am presently employed by the California Energy Commission.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on Socioeconomics for the Kings River Conservation District Peaking Plant project based on my analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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: 2/19/2004 Signed: Joseph Diamond

At: Sacramento, California

Dr. Joseph Diamond
Work: (916)654-3877

Ph.D. with experience in economic policy.

BUSINESS AFFILIATION

California Energy Commission Economic Policy
1516 9th St. MS-40
Sacramento, CA 95814

EDUCATION

Michigan State University	Ph.D. Resource Development
University of Rhode Island	M.A. Economics
University of New Hampshire	B.A. Economics

DECLARATION OF

I, James Adams declare as follows:

I am presently employed by the California Energy Commission in the Environmental Protection Office of the Systems Assessments and Facilities Siting Division as a Environmental Planner.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on Traffic and Transportation for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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 19, 2004 Signed: James Adams

At: Sacramento, California

James S. Adams
Environmental Protection Office
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5504
PH (916) 653-0702, FAX (916) 654-3882
Jadams@energy.state.ca.us

5/1999
Present **Environmental Planner**
Review applications for certification to acquire permits from the California Energy Commission to build electric generating power plants. Specific technical fields include socioeconomics and traffic and transportation.

11/1997
Present **Energy and Resource Consultant**
Provide clients with technical expertise on various issues related to natural resource use and development. Current activities include managing an Intervention by the Redwood Alliance before the California Public Utilities Commission regarding the decommissioning of the Humboldt Bay Power Plant's nuclear reactor.

9/1994--
10/1997 **Senior Analyst - Safe Energy Communication Council (SECC)**
Responsible for developing and/or implementing campaigns on various energy issues involving the promotion of energy efficiency and renewable energy and advocating less reliance on nuclear power. Managed educational outreach efforts to newspaper editorial writers throughout the U.S. to encourage coverage of energy issues. Participated in meetings and negotiations with key Clinton administration officials, members of Congress and staff, national coalitions, and grassroots organizations on important energy issues (e.g. U.S. Department of Energy Budget for Fiscal Years 1996-1998). Successfully raised $140,000 from private foundations to support SECC activities.

6/1978--
12/1992 **Principal Consultant - Redwood Alliance**
Provided consulting services to the Alliance; a renewable energy/political advocacy organization. Major responsibilities included managing and/or participating in several interventions/appearances before the California Public Utilities Commission, California Energy Commission, California Legislature, U.S. Congress and the U.S. Nuclear Regulatory Commission. Issues included electric utility planning options, greater reliance on energy efficiency and renewable energy, nuclear power economic analyses, decommissioning cost estimates, and nuclear waste management and disposal.

2/1983--
8/1986 **Natural Resource Specialist**
Assisted private consulting, firms, non-profit corporations and government agencies in various projects related to the enhancement and protection of national forests in Northern California and Southern Oregon. This included contracts with the U.S. Forest Service, Fish and Wildlife Service, National Park Service, the California Coastal Conservancy, and private landowners.

6/1978--
present Consultant/Journalist/Paralegal/Lobbyist
Throughout the period of work outlined above, I have written a considerable amount of news articles and reports connected to ongoing-projects and issues of personal interest. The leg, al/administrative interventions have required extensive paralegal work to support attorneys, and technical expertise to identify and assist consultants. In addition, many of the projects required consulting services and lobbying, at the local, state and federal level whenever necessary, as well as working with the print and television media as appropriate.

From 1978 through 1984 1 served on the Board of Directors for two locals non-profit agencies devoted to sustainable community development, Redwood Community Development Council and Redwood Community Action Agency (RCAA). I also was hired on staff at RCAA as a natural resource specialist which is explained more fully above. I am proficient with computers, printers, fax machines and related equipment.

EDUCATION

M.A. Social Science. Political science and natural resources emphasis. California State University at Humboldt. Graduated December 1988.

B.A. Political Science. Political and economic aspects of natural resource development, with a particular emphasis in forest ecology and appropriate technology. California State University at Humboldt. Graduated June 1978.

Academic Honors. Member of PI GAMMU MU Honor Society since 1986.

MILITARY SERVICE

7/1969--
9/1975 U.S. Navy. Air Traffic Controller.
Honorable Discharge.

DECLARATION OF
Ajoy Guha

I, **Ajoy Guha** declare as follows:

I am presently employed by the California Energy Commission in the **Engineering Office** of the Systems Assessments and Facilities Siting Division as an **Associate Electrical Engineer**.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on **Transmission System Engineering** for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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, 2004 Signed: AK Guha

At: Sacramento, California

RESUME

AJOY GUHA

Associate Electrical Engineer
California Energy Commission
1516 Ninth Street, MS 46
Sacramento, CA 95814

EDUCATION:
MSEE , POWER SYSTEMS ENGINEERING, PURDUE UNIV., INDIANA
BSEE , ELECTRICAL ENGINEERING, CALCUTTA UNIVERSITY, INDIA

CERTIFICATIONS:
REGISTERED PROFESSIONAL ENGINEER, CALIFORNIA, INDIANA & ILLINOIS
MEMBER OF IEEE; MEMBER OF THE INSTITUTION OF ENGINEERS OF INDIA

SUMMARY OF PROFESSIONAL BACKGROUND:

Ajoy Guha, P.E., has 34 years of electric utility experience with an extensive background in evaluating and determining current and potential transmission system reliability problems and their cost effective solutions. He has a good understanding of the transmission issues and concerns. He is proficient in utilizing computer models of electrical systems in performing power flow, dynamic stability and short circuit studies, and provide system evaluations and solutions, and had performed generator interconnection studies, area transfer and interconnected transmission studies, and prepared five year transmission alternate plans and annual operating plans. He is also experienced in utilizing Integrated Resource Planning computer models for generation production costing and long term resource plans, and had worked as an Executive in electric utilities and experienced in construction, operation, maintenance and standardization of transmission and distribution lines.

WORK EXPERIENCE:

CALIFORNIA ENERGY COMMISSION, ENERGY FACLITIES SITING AND ENVIRONMENTAL DIVISION, SACRAMENTO, CA ,11/2000-Present.
Working as Associate Electrical Engineer in the Transmission System Engineering unit on licensing generation projects. Work involves evaluating generation interconnection studies and their impacts on transmission system, and providing staff assessments and testimony to the commission, and coordination with utilities and other agencies.

ALLIANT ENERGY, DELIVERY SYSTEM PLANNING, MADISON, WI , 4/2000-9/2000.
Worked as Transmission Services Engineer, performed Generator Interconnection studies and system planning studies.

IMPERIAL IRRIGATION DISTRICT, POWER DEPT., Imperial, California, 1985-1998.
Worked as Senior Planning Engineer in a supervisory position and in Transmission, Distribution and Integrated Resource planning areas. Performed interconnection studies for 500 MW geothermal plants and developed plan for a collector system, developed methodologies for transmission service charges , scheduling fees and losses. Worked as the Project Leader in the 1992 Electricity Report (ER 92) process of the California Energy Commission. Worked as the Project Leader for installation of an engineering computer system and softwares. Assumed the Project Lead in the standardization of construction and materials, and published construction standards.

CITY LIGHT & POWER, Frankfort, Indiana, 1980 – 1985.
Worked as Assistant Superintendent and managed engineering, construction and operation depts.

WESTERN ILLINOIS POWER CO-OP., Jacksonville, Illinois, 1978 – 1980.
Worked as Planning Engineer and was involved in transmission system planning.

THE CALCUTTA ELECTRIC SUPPLY CORPORATION LTD. (CESC), Calcutta, India, 1964 –1978.
Worked as District Engineer and was responsible for managing customer relations, purchasing and stores, system planning, construction, operation and maintenance departments of the most industrialized Transmission and Distribution division of the Utility. Worked as PROJECT MANAGER for construction of a 30 mile Double Circuit 132 kV gas-filled Underground Cable urban project. During 1961-63, worked as Factory Engineer for design, manufacturing and testing of transformers, motor starters and worked in a coal-fired generating plant.

DECLARATION OF
Al McCuen

I, Al McCuen declare as follows:

I am presently employed by the California Energy Commission in the Engineering Office of the Systems Assessments and Facilities Siting Division as a Senior Electrical Engineer.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on Transmission System Engineering for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed therein.

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.

Date: February 23, 2004. Signed: _____

At: Sacramento, California

Albert A. McCuen
SENIOR ELECTRICAL ENGINEER

Education

A.S., Electronic Engineering, College of the Siskiyous, Weed, CA
B.S., Electrical Engineering, California State University, CA

Professional Background

1990 to present--Senior Transmission Planner for Regulatory Transmission Engineering, Electrical Engineering, and Transmission System Evaluation. Special consultant for Transmission Safety and Nuisance discipline.

1987 to 1989--Supervisor of Transmission Evaluation Unit for Transmission Safety and Nuisance, Electrical Engineering, Transmission Engineering and Transmission System Evaluation technical disciplines.

1978 to 1987--Transmission System Program Specialist/Health and Safety Program Specialist, California Energy Commission (CEC), Siting and Environmental Division.

Expert witness for the Commission's power plant approval process and Commission staff transmission planner. Major assignments in transmission engineering and transmission system planning. Duties emphasize determination of the adequacy, acceptability and relative merit of applicant proposals for major transmission facilities (and staff proposed alternatives) in consideration of economics, reliability, conformance with transmission system planning criteria and coordination of regional transmission and generation facilities. Major assignments have also included scoping macro transmission policies for California, Developing Commission transmission system planning regulations and guidelines, developing common forecasting methodology for transmission system planning utility reporting.

1977 – 1978--Manager, Transmission Line Effects Section, CEC, Compliance and Safety Office.

Research, analysis and evaluation of public heath, safety and nuisance concerns for transmission lines. Duties included engineering calculations of transmission line electrical effects, review and assessment of technical publications and health, safety and nuisance standards.

1976 – 1977--Energy Facility Siting Planner, CEC, Compliance and Safety Office

Research and evaluation of existing material and health and safety standards applicable to thermal power plants and transmission lines. Responsible for coordination of expert witness to testify at hearings, preparation of cross examination questions, analysis of impact of effects and preparation of staff summary reports on Notice of Intent(s) and hearing testimony.

1969 – 1976--Electrical Engineering, Private firm - Electrical, Mechanical and Systems Engineering Construction Contractor. Engineering duties and coordination responsibilities for the construction of power plants, switchyards, power lines, industrial buildings and process control systems. Responsible for code and specification interpretation and compliance, design, project cost estimates and installation.

DECLARATION OF

I, Mathew Trask declare as follows:

I am presently contracted to the California Energy Commission in the Environmental Office of the Systems Assessments and Facilities Siting Division as a Visual Resources Analyst.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on Visual Resources for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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 5, 2004 Signed: _____

At: Sacramento, California

MATHEW TRASK

Project Manager, Technical Analyst, Public and Agency Outreach Specialist

ACADEMIC BACKGROUND

B.A., Science and Investigative Journalism, University of California, Santa Cruz
A.S., Engineering, West Valley College, Saratoga

PROFESSIONAL EXPERIENCE

Mathew Trask has more than 24 years of wide-ranging experience in the energy and environmental fields. He previously worked as a power plant operator, electrician, sound and vibration analysis technician, electrical engineer, science journalist, photographer, and public outreach specialist, and is now a consultant working in the energy and environmental fields. He has extensive knowledge of the electric and natural gas utility industry, including the areas of engineering, policy and law, regulation, and marketplace economics. He has a thorough knowledge of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) and has managed environmental assessments conducted under both laws. As a technical analyst, Mr. Trask specializes in visual resources, noise, energy and public utilities, land use and planning, and environmental justice analyses. He has managed public outreach programs and environmental analysis for electric power generating projects, natural gas pipeline and storage projects, water conveyance and storage projects, wineries and vineyards, railroad projects, and telecommunications projects.

Current Employment: Aspen Environmental Group — July 2001 to present

- Siting Project Manager, working as extension to the staff of the California Energy Commission's Systems Assessment and Facilities Siting Division, managing the Commission's review of Applications for Certification (AFCs) submitted by power plant developers seeking licenses to construct new gas-fired power plants (2001-2002). Manage all phases of the CEC's assessment of the potential environmental and technical impacts associated with the construction and operation of new power plants, working closely with division staff and applicant personnel. Staff Assessments include the CEQA-equivalent of an Environmental Impact Report, plus analysis of plant design, reliability and efficiency. Project management includes review and approval of all work products, and the facilitation of workshops and meetings held with the applicant, staff, other agency personnel and the general public concerning various issues related to individual AFCs. Issues include the potential impacts of plant development on listed species under the state and federal Endangered Species Acts, the assessment of proposed cooling and process water sources and conveyance methods, analysis of land use zoning and planning, and assessment of air quality impacts and proposed mitigation measures.

Previous Employment

- Independent Consultant/Senior Technical Analyst, subcontracted through Aspen Environmental Group to the California Energy Commission, conducting initial site assessment under the Peaker Power Plant Permitting Program (2001). Provided initial site assessment of potential peaker power plant sites throughout California. Assessments included establishing contact with the site owner or developer, contacting local and regional governmental agencies for zoning and other information, conducting site tours, and preparing site assessment reports. Reports included analysis of natural gas and electric transmission infrastructure needs and availability, and of potential impacts a peaker plant project could have on air quality, biological resources, cultural resources, hazardous materials, land use and planning, noise, public services, traffic and parking, and visual resources. Because of the need for expediency, all reports were provided electronically, and included several digital photographs, via e-mail and compact-disk.

- Project Manager/Technical Analyst for the California Public Utility Commission (CPUC), as an Independent Contractor and an employee of Environmental Science Associates (ESA), for the divestiture of more than 35 power plants and associated assets by San Diego Gas and Electric Company (SDG&E), Pacific Gas and Electric Company (PG&E) and Southern California Edison Company (Edison); 1997 to 2001. Worked as Project Manager and technical analyst for the CEQA review of applications by the state's three largest utilities to sell or market value their thermal power plants. Managed all public process, conducted technical analysis and wrote several sections of the Initial Study and the Mitigated Negative Declaration for SDG&E's and Edison's Divestiture Applications. Also conducted public outreach programs and provided analysis for the CPUC for the Initial Study and Mitigated Negative Declaration for PG&E's first divestiture application; and for the Environmental Impact Report (EIR) for PG&E's second divestiture application, including analysis for the project alternatives, findings of significance, utility and services, and energy and natural resources sections. Also wrote responses to agency and public comments as part of the Final EIR for PG&E's second divestiture application. Worked with CPUC Project Managers Martha Sullivan, Bruce Kaneshiro, Andrew Barnsdale, Judith Iklé and Billie Blanchard to arrange and facilitate more than 60 public meetings, conferences and workshops with government officials, community leaders and industry stakeholders involved in the divestiture.

- Project Manager and Technical Analyst for the Napa County Conservation, Development and Planning Department; 2000. As an Independent Consultant, managed the production of the Environmental Impact Report on the application by Beringer Wine Estates to develop a 25 million square feet winery and associated vineyard on a 210-acre site near the Napa County Airport. This facility, when built, will be the largest winery in Napa County, and one of the five largest in the country. Working closely with the County Planning Department and the County Counsel's office, this EIR was produced on a fast track and was completed in less than half the time normally allotted for similar projects. Also managed the consultation process under the federal Endangered Species Act with the Army Corps of Engineers and the US Fish and Wildlife Service related to the presence of an endangered species, the vernal pool fairy shrimp (*Branchinecta conservatio*), on the development site. Challenging issues included the calculating air quality impacts from the expected hundreds of daily truck trips to and from the facility, the delineation of wetlands on the site, determining conformance with local planning guidelines and zoning ordinances, and analyzing the expected water quality effects on nearby No-Name Creek, Fagan Slough, and Napa River.

- Technical Analyst/Independent Consultant for the City of South Gate for evaluation of the Application for Certification submitted to the California Energy Commission by Sunlaw Energy for authority to construct and operate the planned Nueva Azalea Power Plant Project in the City of South Gate; 2000. If approved, the Nueva Azalea plant would have been a 550 MW natural gas-fired combined cycle power plant located at the eastern edge of the city limits on a 13.5-acre site next to the 710 Interstate Freeway. Conducted visual resources analysis of the innovative project design and planned lighting display as to whether its would constitute a safety hazard to drivers on the 710 Freeway; also analyzed environmental justice issues and conducted an evaluation of the plant engineering design and the eight transmission options for interconnecting the project at a nearby Southern California Edison substation.

- Technical Analyst for the National Park Service on the Comprehensive Management Plan and accompanying Environmental Impact Statement for the Merced River through Yosemite National Park following designation of the waterway as a Wild and Scenic River; ESA, 2000. Conducted visual resources, land use, and public services (Park Operations) analyses to determine the potential impacts in those areas resulting from implementing any of five alternatives for the Management Plan, as required by the Wild and Scenic Rivers Act and the National Park Organic Act. Issues included balancing the preservation of traditional viewing places along the river of the granite features along the walls of the Yosemite Valley with the need to preserve the wild state of the river and its banks.

- Project Manager for Public Outreach and Environmental Impact Report Production for the CPUC for the proposed Lodi Gas Storage Project; 1998-1999. As an employee of Public Affairs Management (PAM), conducted public outreach and environmental analysis, and managed production of the EIR for the CPUC's CEQA review of the application by Western Hub Services to develop a new gas storage project near Lodi and a related 31-mile pipeline to connect the facility to PG&E's pipeline system. Major environmental issues included wetlands impact and public safety concerns for seven major waterway crossings, and visual impacts of project development. Management of the public process was especially challenging, with more than 350 people attending the public meetings arranged for this controversial project.

- Technical Analyst for the Bay Area Water Users Association's (BAWUA's) Water System Master Plan (WSMP); PAM, 1998-1999. Coordinated the planning process for the 31-agency BAWUA in its first attempt in 25 years to craft a new comprehensive plan for the management of water resources from the City and County of San Francisco's Hetch Hetchy Water and Power system. Conducted analysis of water supply alternatives, new facility proposals, and conservation methods, and helped facilitate WSMP committee meetings. Also conducted technical analysis and public outreach for the City and County of San Francisco for its plan to develop a recycled water system.

- Technical Analyst/Project Manager for the Section of Environmental Analysis of the US Department of Transportation's Surface Transportation Board for the environmental reviews under NEPA of several railroad mergers and acquisition applications, including the merger of the Union Pacific and Southern Pacific railroads, and the acquisition of Conrail by Norfolk Southern and CSX Corporation; PAM, 1997-1998. Major work included: analysis of impact from increased rail traffic on surface street traffic patterns and emergency vehicle access in Reno, Wichita, and the greater Cleveland metropolitan area; conducting outreach efforts with Native American Tribes and the general public in the Reno area, concerning impact on local fisheries; and analysis of Environmental Justice issues related to rail traffic in low-income areas.

- Project Manager/Independent Consultant, Power Plant Maintenance System Analysis, Kansai Electric; 1995-1997. Managed production of a series of major reports for Japan's largest electric utility on the practices of US electric utilities in the management of preventative and corrective maintenance programs at gas-fired, coal-fired, nuclear, biomass, wind and geothermal power plants. Kansai was seeking to diversify its generation base as a means of increasing system reliability and reducing its reliance on a single power plant technology (i.e., nuclear power) to produce power in the greater Tokyo Bay area. Produced six major reports, each greater than 300 pages, and dozens of follow-up reports providing cost/benefit analysis, including environmental costs and benefits, of power plant upgrades or replacements.

- Managing Editor, Clearing Up and California Energy Markets newsletters; Energy NewsData 1990-1995. Managed production and wrote more than 1,000 articles for these two weekly publications covering the integrated electric and natural gas utility industry in the Western Half of North America, including the areas of marketplace economics, policy and law, regulation, and research and development. Over more than five years on staff, covered the US Congress and Executive Branch, the California Legislature and Governor's office, state and federal court systems, the California Public Utility Commission and California Energy Commission, the Federal Energy Regulatory Commission, the Bonneville and Western Area Power Administrations, the North American Electric Reliability Council, and the US Department of Energy.

- Information Specialist/Business Development Specialist for the National Center for Appropriate Technology; 1988-1989. Provided technical and economic analysis for dozens of new energy projects, ranging from small run-of-the-river hydroelectric projects to large wind farms. Specialized in site suitability assessment for wind, biomass and solar power applications, and in assisting small businesses in startup of new energy projects, including cost/benefit analysis, permitting, and financing.

DECLARATION OF
EllieTownsend-Hough

I, Elllie Townsend-Hough declare as follows:

I am presently employed by the California Energy Commission in the Environmental Office of the Systems Assessments and Facilities Siting Division as an Associate Mechanical Engineer.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on Waste Management for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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 4, 04 Signed: Ellie Townsend Hough

At: Sacramento, California

Ellen Townsend-Hough

SUMMARY

I am a chemical engineer with over 20 years of experience. My professional career has afforded me many unique growth and development opportunities. Working knowledge of the California Environmental Quality Act. Strength in analyzing and performing complex engineering analyses. Also worked as a policy advisor to a decision-maker for three years.

PROFESSIONAL EXPERIENCE

Writing

- Write letters, memos, negative declarations, environmental impact reports that require technical evaluation of mechanical engineering and environmental aspects of pollution control systems, environmental impacts, public health issues and worker safety.

Technical Analysis and Presentation

- Performs mechanical engineering analysis of designs for complex mechanical engineering analysis of designs for systems such as combustion chambers and steam boilers, turbine generators, heat transfer systems, air quality abatement systems, cooling water tower systems, pumps and control systems

- Review and process compliance submittals in accordance with the California Environmental Quality Act, the Warren Alquist Act, the Federal Clean Air Act and the California and Federal Occupational Health and Safety Acts to assure compliance of projects

- Provides licensing recommendations and function as an expert witness in regulatory hearings.

- Provide public health impact analysis to assess the potential for impacts associated with project related air toxic/non-criteria pollutant emissions.

- Evaluate the potential of public exposure to pollutant emissions during routine operation and during incidents due to accidents or control equipment failure

- Provide an engineering analysis examining the likelihood of compliance with the design criteria for power plants and also examine site specific potential significant adverse environmental impacts

Technical Skills

- Establish mitigation that reduces the potential for human exposure to levels which would not result in significant health impact or health risk in any segment of the exposed population.

- Assist with on-site audits and inspection to assure compliance with Commission decisions.

- Review and evaluate the pollution control technology applied to thermal power plants and other industrial energy conversion technologies.

- Work with the following software applications: WORD, Excel, and PowerPoint.

Policy Advisor

- Provided policy, administrative and technical advice to the Commissioner Robert Pernell. My work with the Commissioner focused on the policy and environmental issues related to the Commission's power plant licensing, research and development and export programs.

- Track and provide research on varied California Energy Commission (CEC) programs. Prepare analysis of economic, environmental and public health impacts of programs, proposals and other Commission business items.

- Represent Commissioner's position in policy arenas and power plant siting discussions.

- Write and review comments articulating commission positions before other regulatory bodies including Air Resources Board, California Public Utilities Commission, and the Coastal Commission.

- Wrote speeches for the Commissioner's presentations.

EMPLOYMENT HISTORY

2002-Present	Associate Mechanical Engineer	CEC Sacramento CA
1999-2002	Advisor to Commissioner	CEC Sacramento CA
1989-1999	Associate Mechanical Engineer	CEC Sacramento CA
1992-1993	Managing Partner	EnvironNet Sacramento CA
1988-1989	Sales Engineering Representative	Honeywell Inc Commerce CA
`1987-1988	Chemical Engineer	Groundwater Technology Torrance CA
1985-1986	Technical Marketing Engineer	Personal Computer Engineers Los Angeles CA
1985-1985	Energy Systems Engineer	Southern California Gas Company Anaheim CA
1980-1985	Design and Cogeneration Engineer	Southern California Edison Rosemead CA
1975-1980	Student Chemical Engineer	Gulf Oil Company Pittsburgh PA

EDUCATION

Bachelor of Science, Chemical Engineering
Drexel University, Philadelphia Pennsylvania

Continuing Education

Hazardous Material Management Certificate, University California Davis
Urban Redevelopment and Environmental Law, University of California Berkley
Analytical Skills, California Department of Personnel Administration (DPA) Training Center
Legislative Process/Bill Analysis, DPA Training Center
Federally Certified Environmental Justice Trainer

References furnished upon request.

DECLARATION OF
Ila Lewis

I, Ila Lewis declare as follows:

I am presently employed by the California Energy Commission in the Compliance Office of the Systems Assessments and Facilities Siting Division as a Planner II.

A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

I helped prepare the staff testimony on the General Conditions for the Kings River Conservation District Peaking Plant project based on my independent analysis of the Small Power Plant Exemption and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

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: 2/20/2004 Signed: Ila Lewis

At: Sacramento, California

ILA LEWIS
PLANNER II

EXPERIENCE:

May 2001 to present

California Energy Commission -- Energy Facilities Siting and Environmental Protection Division

Compliance Project Manager -- Oversee the construction and operation activities of energy facilities. With assistance from the division's technical staff, ensure that project owners comply with the conditions of certification. Serve as team leader in the processing of post-certification amendments, complaints and facility closures. Work with the Siting Project Manager to review conditions of certifications. Serve as team leader for all compliance monitoring activities.

June 2000 to May 2001

California Integrated Waste Management Board—Waste Prevention and Market Development Division

Integrated Waste Management Specialist -- Responsible for implementing California's plastic recycling laws, and developing and expanding markets for postconsumer resin in California.

June 1991 to June 2000

California Integrated Waste Management Board– Diversion Planning and Local Assistance Division

Integrated Waste Management Specialist –
Local Assistance Branch: Assist with developing and reviewing waste management planning documents for cities and counties in Northern California.

Public Diversion Assistance Section: – Assist State offices/institutions and school districts in most rural counties in California with implementation and management of their waste diversion/prevention programs.

Jan. 1985 to June 1991

California Energy Commission -

Energy Analyst: Energy Technology Division – Performed technical/economic evaluations, and researched/analyzed alternative fuels. Energy Technology Export Program: Information transfer/management activities, conducted international visitor liaisons and assisted with reverse trade missions.

Management Services Technician: Safe Schoolbus Clean Fuel Efficiency Demonstration Program. Assistant Project Manager for the Energy Development Report.

Project Secretary: Provided support for the power plant siting application process.

Oct. 1990 to March 1991

Education for Democracy: Instructor, English as a Second Language, for two energy companies in Slovakia.

EDUCATION:

California State University, Sacramento, B.A. Social Science, 1981.
University of California, Davis. Currently enrolled in TESOL certification program.