Staff Assessment

GWF TRACY PEAKER PROJECT

Application For Certification (01-AFC-16)
San Joaquin County

CALIFORNIA
ENERGY
COMMISSION

STAFF REPORT

JANUARY 2002
(01-AFC-16)

Gray Davis, Governor

Staff Assessment

GWF TRACY PEAKER PROJECT

Application For Certification (01-AFC-16)
San Joaquin County

CALIFORNIA
ENERGY
COMMISSION

STAFF REPORT

JANUARY 2002
(01-AFC-16)

Gray Davis, Governor

CALIFORNIA ENERGY COMMISSION

SITING OFFICE

Cheri Davis
Project Manager

Roger E. Johnson
Office Manager

SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION

Robert L. Therkelsen
Deputy Director

EXECUTIVE SUMMARY

INTRODUCTION

This Staff Assessment (SA) contains the Energy Commission staff's independent analysis and recommendation on the Tracy Peaker Project (TPP). The TPP and related facilities such as the electric transmission lines, natural gas line, water supply lines and wastewater lines are under the Energy Commission's jurisdiction (Pub. Resources Code § 25500). When issuing a license, the Energy Commission acts as lead state agency (Pub. Resource Code § 25519(c)) under the California Environmental Quality Act (Pub. Resource Code §§ 21000 et seq.), and its process is functionally equivalent to the preparation of an environmental impact report (Cal. Code Regs., tit. 14 § 15251(k)).

It is the responsibility of the Energy Commission staff to complete an independent assessment of the project's potential effects on the environment, the public's health and safety, and whether the project conforms with all applicable laws, ordinances, regulations and standards (LORS). The staff also recommends measures to mitigate potential significant adverse environmental effects and conditions for construction, operation and eventual closure of the project, if approved by the Energy Commission. The analyses contained in this document were prepared in accordance with Public Resources Code section 25500 et seq.; the California Code of Regulations, Title 20, section 12001 et seq.; and the California Environmental Quality Act (Pub. Resources Code § 21000 et seq.) and its guidelines (Cal. Code Regs., tit. 14 § 15000 et seq.).

This SA is not the decision document for these proceedings nor does it contain findings of the Energy Commission related to environmental impacts or the project's compliance with local/state/federal legal requirements. The final decision will be made by the Commissioners of the California Energy Commission only after the completion of evidentiary hearings. The Commissioners will consider the recommendations of all interested parties, including those of the Energy Commission staff; the applicant; intervenors; concerned citizens; and local, state, and federal agencies, before making a final decision on the application to construct and operate the TPP.

PROJECT LOCATION AND DESCRIPTION

On August 16, 2001, GWF Energy LLC filed an AFC with the California Energy Commission seeking approval to construct and operate the TPP. As proposed, the TPP would be a 169-megawatt (MW) natural gas-fired, simple-cycle electric generating facility, owned and operated by GWF Energy LLC.

The applicant proposes to build the TPP on a nine-acre fenced site within a 40-acre parcel of land in unincorporated San Joaquin County, immediately southwest of the City of Tracy and approximately 20 miles southwest of Stockton. The property is bounded by the Delta-Mendota Canal to the southwest, agricultural property to the south and east, and the Union Pacific Railroad to the north. Refer to **PROJECT DESCRIPTION Figures 1 and 2** for the local setting map and the site layout, respectively

The proposal is for a natural-gas-fired, simple-cycle generating facility with two 115-kilovolt (kV) switchyards and an on-site electric transmission interconnection that ultimately connects to the Tesla substation. The TPP would use two General Electric combustion turbine generators (CTGs), each with a base load nominal output of 84.4 MW at annual average conditions.

Associated equipment would include emission control systems necessary to meet emission limits. The CTGs would be equipped with a dry low NOx combustor system to control the NOx concentration exiting each CTG. The exhaust gas temperature would be reduced with ambient air to allow for additional post-combustion NOx control with a selective catalytic reduction (SCR) system. In addition, GWF would provide offsets for all proposed criteria pollutant emissions from the TPP, including CO.

The TPP, if built, would connect to the Tesla-Kasson 115-kV transmission line within the fenced site. Natural gas would be delivered to the TPP via a new interconnect with PG&E's natural gas pipeline that crosses beneath the proposed site.

The applicant plans to supply the plant's cooling and process water requirements with untreated water from the Delta-Mendota Canal, supplied under an existing contract with the Plain View Water District. The simple cycle design of the TPP does not include a cooling tower, thus the TPP would have minimal demand for cooling and process water. Drinking water for the facility would be provided by a local bottled water vendor.

A wastewater recovery system would be used to reduce the volume of wastewater produced by the plant. The small quantity of wastewater remaining would be sent to a 10,000 gallon storage tank for off-site recycle or disposal.

The applicant wishes to begin construction immediately following certification, for a period of approximately eight months. The project is scheduled to be operational in a simple-cycle mode beginning the summer of 2002. Electricity generated from this facility will be sold to the California Department of Water Resources (DWR) under a 10-year contract, operating in simple-cycle mode for the duration of the contract. The contract with DWR provides for the purchase of up to 4,000 hours per year of plant generating capacity, but GWF wishes to retain the flexibility to operate the plant for sale of electricity beyond the contracted hours, up to a maximum of 8,000 hours per year.

A more complete description of the project is contained in the **PROJECT DESCRIPTION** section of this SA.

PUBLIC AND AGENCY COORDINATION

In preparing the SA, Energy Commission staff conducted one publicly noticed workshop in mid-November, 2001. This workshop provided a forum for the public to learn about the project, the Energy Commission's process, and to air their questions and concerns about the proposed power plant.

Staff also coordinated with relevant local, state and federal agencies, such as the San Joaquin County, California Independent System Operator, San Joaquin Valley Air

Pollution Control District, U.S. Fish and Wildlife Service, California Department of Fish and Game, and the San Joaquin Council of Governments. This SA provides agencies and the public the opportunity to review the Energy Commission staff's analysis of the proposed project.

Written comments received from members of the public, and letters from agencies that require some form of response, have been included in this SA.

STAFF'S ASSESSMENT

Each technical area section of the SA contains a discussion of impacts, and where appropriate, mitigation measures and conditions of certification. The SA includes staff's assessments of:

- the environmental setting of the proposal;
- impacts on public health and safety, and measures proposed to mitigate these impacts;
- environmental impacts, and measures proposed to mitigate these impacts;
- the engineering design of the proposed facility, and engineering measures proposed to ensure the project can be constructed and operated safely and reliably;
- project closure;
- project alternatives;
- compliance of the project with all applicable laws, ordinances, regulations and standards (LORS) during construction and operation; and
- proposed conditions of certification.

OVERVIEW OF STAFF'S CONCLUSIONS

The Applicant filed a supplement to the AFC on December 11, 2001, containing changes to the project made necessary by the need for a Wet Weather Construction Contingency Plan. Per the supplement, the Applicant identified the need for an additional 13.2 acres for construction laydown and a new temporary access road. Given the short time available, not all staff was able to incorporate the applicant's recent project changes into their analysis for this SA. Further, the supplement raised new questions, and staff will have additional data requests for the applicant before the analysis can be completed. Thus, there will be a need to amend this Staff Assessment once data responses are received from the applicant, and the summary below should be taken as preliminary.

Staff's analysis at this point indicates that the project's environmental impacts can be mitigated to levels of less than significant in all areas except for Biological Resources. Staff's analysis also indicates that the project can be made to conform with all LORS. Below is a summary of the potential environmental impacts and LORS compliance for each technical area. Following the summary table is a discussion of where staff is in its

analysis of biological resources, and the additional information that will be needed in order to complete the analysis.

Technical Discipline	Environmental / System Impact	LORS Conformance
Air Quality	Impacts mitigated	yes
Biological Resources	Staff cannot conclude because of recent project change	yes
Cultural Resources	Impacts mitigated	yes
Power Plant Efficiency	No impact	N/A
Power Plant Reliability	No impact	N/A
Facility Design	N/A	yes
Geology	Impacts mitigated	yes
Hazardous Materials	Impacts mitigated	yes
Land Use	Impacts mitigated	yes
Noise	Impacts mitigated	yes
Public Health	Impacts mitigated	yes
Socioeconomics	Impacts mitigated	yes
Traffic and Transportation	Impacts mitigated	yes
Transmission Line Safety	Impacts mitigated	yes
Transmission System Engineering	Impacts mitigated	yes
Visual Resources	Staff cannot conclude pending mitigation plan.	Staff cannot conclude pending mitigation plan.
Waste Management	Impacts mitigated	yes
Water and Soils	Impacts mitigated	yes
Worker Safety	Impacts mitigated	yes

Biological Resources

From the information that staff has reviewed, the applicant has successfully reduced construction related impacts to biological resources to a low level of likelihood by siting the proposed simple-cycle plant on a site that currently contains minimal biological resources. Similarly, the proposed project's parking and staging areas has minimal biological value. However, staff cannot reach a final conclusion or recommendation about whether the project will have any potential significant impacts to biological resources until staff has a chance to review the information contained in a supplement to the TPP AFC received December 11, 2001.

In the supplement, the Applicant notes that the seasonal wetland may provide breeding habitat for California tiger salamanders and/or western spadefoot toads. If either species are present, the probability of incidental take will be high because:

1. The Wet Weather Construction Contingency Plan calls for the construction of a temporary access road from the TPP site approximately 4,200 feet east to Lammers Road. California tiger salamander migrate from their aestivation burrows to breeding

ponds from up to a mile away; the Applicant's proposed temporary road would fall well within a one-mile radius of the wetland.

2. The evaporation/percolation basin proposed for wastewater discharge may provide attractive habitat for these species.

Staff will be issuing formal data requests of the Applicant, asking for biological resource surveys and proposed mitigation measures (if sensitive species are present or if the habitat is likely to attract these species). In addition, staff has questions about the road improvements that the applicant may need to undertake in order to make use of the recently identified temporary access road. Until this additional information is received, staff will be unable to complete a full analysis of the project.

Staff recognizes that the construction of the TPP would cause permanent, temporary, and possible cumulative impacts to kit fox habitat. Impacts to kit fox, however, would be mitigated to less than significant levels, by providing funds for the purchase of mitigation lands at a 1:1 (impact:mitigation) ratio from the San Joaquin Council of Governments, Inc.; the overseeing body for SJMSCP, and through the implementation of mitigation measures presented in the Biological Resources Mitigation Implementation and Monitoring Plan.

The project as proposed has the potential to cause significant adverse visual impacts to views from several areas. Both the Applicant and Staff have identified mitigation measures that would reduce these potential impacts. Staff has incorporated these measures in proposed Conditions of Certification VIS-1 through VIS-5. With proper implementation of these conditions, these potential impacts would be less than significant except for the visual impact to the view area represented by KOP 1. Proposed landscaping would not be effective in screening the power plant from view in the area of KOP 1. The applicant is revising its conceptual landscaping plan to achieve effective screening. However, the presence of existing transmission lines and the proposed switchyard on the east side of the project site may prevent this. Staff will review the applicant's revised conceptual landscaping plan and present its evaluation in an addendum to the Staff Assessment.

In addition, the project as proposed appears to be inconsistent with four General Plan policies, addressing preservation of visual quality along scenic routes, landscaping requirements for development along scenic routes, blending new development with its setting, and aesthetics when reviewing development proposals. Energy Commission staff has developed conditions of certification (VIS-1, VIS-2, VIS-3, and VIS-4) that address these policies. Central to achieving consistency with the County's general plan policies is Condition of Certification VIS-1, requiring further development and improvement of the project's landscape plan to ensure that the project landscaping is more effective in helping to blend the project with its surroundings and screen views of the faciltity. As noted above, proposed landscaping would not be effective in screening the plant from the area represented by KOP 1. The applicant is revising its conceptual landscaping plan to address this matter. Staff will review the revised plan and report its evaluation in an addendum to the Staff Assessment.

Environmental Justice

EPA guidelines on environmental justice state that if 50 percent of the population affected by a project has minority or low-income status, it must be determined if these populations are exposed to disproportionately high and adverse human health or environmental impacts.

In the **Socioeconomics** section of this report, staff presents the results of their "environmental justice screening analysis." The purpose of the environmental justice screening analysis is to determine whether of not there is a low-income and/or minority population within the potential affected area of the proposed site.

Socioeconomics Figure 1 identifies census blocks within six miles of the proposed project that had minority populations greater than 50 percent. Census 2000 data indicate that the minority population within the six-mile radius of the project site is 45 percent. The percent of population considered low-income or living below the poverty level ranges from 11 percent in San Joaquin County to 7 percent within a six-mile radius of the EAEC. This percentage is well below the threshold of greater than 50 percent that staff uses to determine if there is a significant low-income population.

There are, however, small "pockets" within the six-mile radius that have greater than 50 percent minority persons. When a minority and/or low-income population is identified, staff in the technical areas of air quality, public health, hazardous materials, noise, water, waste, traffic and transportation, visual resources, land use, socioeconomics and transmission line safety and nuisance must consider possible impacts on the minority/low-income population as part of their analysis. This "environmental justice" (EJ) analysis consists of identification of significant impacts (if any), identification of mitigation, and determination of whether there is a disproportionate impact if an unmitigated significant impact has been identified.

Because staff has not yet identified significant unmitigable impacts for the subjects listed above, staff believes that there are no environmental justice issues with this project. However, as staff continues to analyze the applicant's supplement to the AFC, this conclusion will need to be revisited.

CONCLUSION AND RECOMMENDATIONS

Staff cannot reach conclusions about the project's environmental impacts until all staff is able to fully review the project changes, and until biological resources staff is able to obtain sufficient information about the project changes and the potential for sensitive wetland species in the project vicinity. Once that information becomes available, staff will need at least three weeks to complete its analysis and file a supplement to the staff assessment.

TRACY CRITICAL ENERGY FACILITY (01-AFC-16)
FINAL STAFF ASSESSMENT

EXECUTIVE SUMMARY.....1

INTRODUCTION.....2

PROJECT DESCRIPTION.....3

RESPONSE TO AGENCY AND PUBLIC COMMENTS.....4

ENVIRONMENTAL ASSESSMENT

- AIR QUALITY.....5
- BIOLOGICAL RESOURCES.....5.1
- CULTURAL RESOURCES.....5.2
- HAZARDOUS MATERIALS.....5.3
- LAND USE.....5.4
- NOISE AND VIBRATION.....5.5
- PUBLIC HEALTH.....5.6
- SOCIOECONOMIC RESOURCES.....5.7
- SOIL AND WATER RESOURCES.....5.8
- TRAFFIC AND TRANSPORTATION.....5.9
- TRANSMISSION LINE SAFETY AND NUISANCE.....5.10
- VISUAL RESOURCES.....5.11
- WASTE MANAGEMENT.....5.12
- WORKER SAFETY.....5.13

ENGINEERING ASSESSMENT

- FACILITY DESIGN.....6
- GEOLOGY AND PALEONTOLOGY.....6.1
- POWER PLANT EFFICIENCY.....6.2
- POWER PLANT RELIABILITY.....6.3
- TRANSMISSION SYSTEM ENGINEERING.....6.4

ALTERNATIVES.....7

GENERAL CONDITIONS.....8

PREPARATION TEAM.....9

DECLARATIONS & RESUMES.....10

INTRODUCTION

PURPOSE OF THIS REPORT

The Staff Assessment (SA) presents the California Energy Commission staff's independent assessment of GWF Energy, LLC's Application for Certification of the Tracy Peaker Plant (TPP). The SA is a staff document. It is neither a Committee document, nor a draft decision or proposed decision.

The SA describes the following:

- the existing environmental setting;
- the proposed project;
- whether the facilities can be constructed and operated safely and reliably in accordance with applicable laws, ordinances, regulations and standards (LORS);
- the environmental consequences of the project including potential public health and safety impacts;
- cumulative analysis of the potential impacts of the project, along with potential impacts from other existing and known planned developments;
- mitigation measures proposed by the applicant, staff, interested agencies and intervenors that may lessen or eliminate potential impacts;
- the proposed conditions under which the project should be constructed and operated, if it is certified;
- project alternatives; and
- requirements for project closure.

The analyses contained in this SA are based upon information from: 1) the Application for Certification (AFC); 2) subsequent submittals; 3) responses to data requests; 4) supplementary information from local and state agencies and interested individuals; 5) existing documents and publications; and 6) independent field studies and research. The analyses for most technical areas include discussions of proposed conditions of certification. Each proposed condition of certification is followed by a proposed means of "verification." The verification is not part of the proposed condition, but is the Energy Commission Compliance Unit's method of ensuring post-certification compliance with adopted requirements. The SA presents conclusions and proposed conditions of certification that apply to the design, construction, operation and closure of the proposed facility.

The Energy Commission staff's analyses were prepared in accordance with Public Resources Code section 25500 et seq. and Title 20, California Code of Regulation section 1701 et seq., and the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 15000 et seq.).

ORGANIZATION OF THE STAFF ASSESSMENT

Following the Response to Public and Agency Comments, this SA contains staff's environmental, engineering, and public health and safety analysis of the proposed project for 19 technical areas. Each technical area is included in a separate chapter as follows: air quality, public health, worker safety and fire protection, transmission line safety and nuisance, hazardous materials management, waste management, land use, traffic and transportation, noise, visual resources, cultural resources, socioeconomics, biological resources, soild and water resources, geology and paleontology, facility design, power plant reliability, power plant efficiency, and transmission system engineering. These chapters are followed by a discussion of facility closure and project construction and operation compliance monitoring plans, and an evaluation of project alternatives.

Each of the 19 technical area assessments includes a discussion of:

- laws, ordinances, regulations and standards (LORS);
- the regional and site-specific setting;
- project specific and cumulative impacts;
- mitigation measures;
- closure requirements;
- conclusions and recommendations; and
- conditions of certification for both construction and operation (if applicable).

ENERGY COMMISSION SITING PROCESS

The California Energy Commission has the exclusive authority to certify the construction and operation of thermal electric power plants 50 megawatts (MW) or larger. The Energy Commission certification is in lieu of any permit required by state, regional, or local agencies, and federal agencies to the extent permitted by federal law (Pub. Resources Code, section 25500). The Energy Commission must review power plant AFCs to assess potential environmental impacts including potential impacts to public health and safety, potential measures to mitigate those impacts (Pub. Resources Code, section 25519), and compliance with applicable governmental laws or standards (Pub. Resources Code, section 25523 (d)).

The Energy Commission's siting regulations require staff to independently review the AFC and assess whether the list of environmental impacts contained is complete, and whether additional or more effective mitigation measures are necessary, feasible and available (Cal. Code Regs., tit. 20, §§ 1742 and 1742.5(a)). Staff's independent review shall be presented in a report (Cal. Code Regs., tit. 20 , § 1742.5).

In addition, staff must assess the completeness and adequacy of the health and safety standards, and the reliability of power plant operations (Cal. Code Regs., tit. 20, § 1743(b)). Staff is required to coordinate with other agencies to ensure that applicable

laws, ordinances, regulations and standards are met (Cal. Code Regs., tit. 20, § 1744(b)).

Staff conducts its environmental analysis in accordance with the requirements of the California Environmental Quality Act. No Environmental Impact Report (EIR) is required because the Energy Commission's site certification program has been certified by the Resources Agency (Pub. Resources Code, § 21080.5 and Cal. Code Regs., tit. 14, § 15251 (k)). The Energy Commission acts in the role of the CEQA lead agency and is subject to all other portions of CEQA.

The staff's assessment is only one piece of evidence that will be considered by the Committee (two Commissioners who have been assigned to this project) in reaching a decision on whether or not to recommend that the full Energy Commission approve the proposed project. At the public hearings, all parties will be afforded an opportunity to present evidence and to rebut the testimony of other parties, thereby creating a hearing record on which a decision on the project can be based. The hearing before the Committee also allows all parties to argue their positions on disputed matters, if any, and it provides a forum for the Committee to receive comments from the public and other governmental agencies.

Following the hearings, the Committee's recommendation to the full Energy Commission on whether or not to approve the proposed project will be contained in a document entitled the Presiding Members' Proposed Decision (PMPD). Following publication, the PMPD is circulated for a minimum of 30 days in order to receive written public comments. At the conclusion of the comment period, the Committee may prepare a revised PMPD. A revised PMPD is required to undergo a 15-day comment period. At the close of the comment period for the revised PMPD, the PMPD is submitted to the full Energy Commission for a decision. Within 30 days of the Energy Commission decision, any party may request reconsideration of the decision by the Energy Commission.

A Compliance Monitoring Plan and General Conditions will be assembled from conditions contained in the SA and other evidence presented at the hearings. The Compliance Monitoring Plan and General Conditions will be presented in the PMPD. The Energy Commission staff's implementation of the plan ensures that a certified facility is constructed, operated, and closed in compliance with the conditions adopted by the Energy Commission. Staff's proposed Compliance Monitoring Plan and General Conditions are included at the end of the SA.

PUBLIC AND AGENCY COORDINATION

In preparing the SA, Energy Commission staff conducted one publicly noticed workshop in mid-November, 2001. This workshop provided a forum for the public to learn about the project, the Energy Commission's process, and to air their questions and concerns about the proposed power plant.

Staff also coordinated with relevant local, state and federal agencies, such as San Joaquin County, the California Independent System Operator, San Joaquin Valley Air

Pollution Control District, U.S. Fish and Wildlife Service, California Department of Fish and Game, and the San Joaquin Council of Governments. This SA provides agencies and the public the opportunity to review the Energy Commission staff's analysis of the proposed project.

Written comments received from members of the public, and letters from agencies that require some form of response, have been included in this SA. One member of the public became an intervenor, and his comments are addressed as a member of the public because at the time of the workshops he had not applied for intervenor status.

PROJECT DESCRIPTION

Testimony of Cheri Davis

NATURE AND PURPOSE OF PROJECT

On August 16, 2001, GWF Energy LLC filed an Application for Certification (AFC) with the California Energy Commission seeking approval to construct and operate a 169 megawatt (MW) natural gas-fired, simple-cycle electric generating facility called the Tracy Peaker Project (TPP). If certified, the plant will be owned and operated by GWF Energy LLC (hereafter GWF), which is 50 percent owned by PSEG California Corporation and 50 percent owned by Harbinger GWF LLC.

The applicant proposes to build the TPP on a nine-acre fenced site within a 40-acre parcel of land in unincorporated San Joaquin County, immediately southwest of the City of Tracy and approximately 20 miles southwest of Stockton. The property is bounded by the Delta-Mendota Canal to the southwest, agricultural property to the south and east, and the Union Pacific Railroad to the north. Immediately north of the railroad are the Owens-Brockway glass container manufacturing plant and the Nutting-Rice warehouse. The Tracy Biomass power plant is approximately 0.6 miles to the northwest. The power plant area would be accessed via an improved 3,300 asphalt-paved service road that would extend from W. Schulte Road south to project site. Additionally, the applicant proposes to use an existing, unpaved road off of Lammers Road to access northern parts of the site during the construction phase of the project, for a period of three to four weeks. Refer to **PROJECT DESCRIPTION Figure 1** for a map of the local setting.

PROJECT DESCRIPTION AND LINEAR FACILITIES

The proposal is for a natural-gas-fired, simple-cycle generating facility with two 115-kilovolt (kV) switchyards and an on-site electric transmission interconnection that ultimately connects to the Tesla substation. The TPP would use two General Electric combustion turbine generators (CTGs), each with a base load nominal output of 84.4 megawatts (MW) at annual average conditions. Each CTG would be equipped to burn only natural gas and would have an evaporative cooling system installed on the inlet air for use at higher ambient temperatures.

Associated equipment would include emission control systems necessary to meet emission limits. The combustion turbine generators (CTGs) would be equipped with a dry low NOx (DLN) combustor system to control the NOx concentration exiting each CTG. The exhaust gas temperature would be reduced with ambient air to allow for additional post-combustion NOx control with a selective catalytic reduction (SCR) system. In addition, GWF would provide offsets for all proposed criteria pollutant emissions from the TPP, including CO.

PROJECT DESCRIPTION Figure 2 depicts the site layout. The linear facilities (electric transmission facilities, natural gas line, and water supply facilities) are described below.

TRANSMISSION LINE FACILITIES

The TPP, if built, would connect to the Tesla-Kasson 115-kilovolt (kV) transmission line within the fenced site.

NATURAL GAS PIPELINE

Natural gas would be delivered to the TPP via a new interconnect with PG&E's natural gas pipeline that crosses beneath the proposed site.

WATER SUPPLY

The applicant plans to supply the plant's cooling and process water requirements with untreated water from the Delta-Mendota Canal, supplied under an existing contract with the Plain View Water District. A new 1,470-foot-long, 12-inch-diameter pipeline would be constructed to transport water to the TPP fence line. The TPP would include a reverse osmosis system for treating the Delta-Mendota Canal water. The simple cycle design of the TPP does not include a cooling tower, thus the TPP would have minimal demand for cooling and process water. Drinking water for the facility would be provided by a local bottled water vendor.

A portable demineralization system would supply the small quantity of water needed for CTG washwater. This water would be stored in a 2,000-gallon CTG water wash tank.

WASTEWATER TREATMENT

A wastewater recovery system would be used to reduce the volume of wastewater produced by the plant. The system would consist of a packaged softening/ filtration/ reverse osmosis system. The water recovered by the wastewater treatment system would be routed to the Reverse Osmosis product tank for use as makeup water to the evaporative coolers. The small quantity of wastewater from the final reverse osmosis stage would be sent to a 10,000 gallon storage tank for off-site recycle or disposal. Uncontaminated rainwater would be allowed to flow through a stormwater system, grading to an onsite, unlined evaporation-percolation basin.

CONSTRUCTION AND OPERATION

The applicant plans to begin construction immediately following certification, with work being conducted Monday through Saturday for a period of approximately eight months. The project is estimated to have a capital cost of $107 million.

There would be an average and peak onsite workforce of approximately 95 and 178, respectively, of craft laborers and supervisory, support, and construction management personnel during construction. Once constructed, the power plant would require one skilled full-time production operator at all times and one on-call maintenance worker.

The project is scheduled to be operational in a simple-cycle mode beginning the summer of 2002. Electricity generated from this facility will be sold to the California Department of Water Resources (DWR) under a 10-year contract, operating in simple-cycle mode for the duration of the contract. The contract with DWR provides for the purchase of up to 4,000 hours per year of plant generating capacity, but GWF wishes to

retain the flexibility to operate the plant for sale of electricity beyond the contracted hours, up to a maximum of 8,000 hours per year.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

Below is an index of comments received from interested citizens and local governmental agencies for which a response is appropriate. A few of the questions are answered directly below but most are addressed in the applicable technical section/chapter cross-referenced below. Responses appearing in separate chapters are included under the heading "Response to Public and Agency Comments." Following the index is a copy of each interested citizen and public agency comment.

AGENCY COMMENTS

SAN JOAQUIN COUNTY DEPARTMENT OF PUBLIC WORKS

On October 31, 2001, staff received a letter from San Joaquin County with information about the County's requirements for the applicant to complete a Construction and Demolition Debris Waste Diversion Plan, a Solid Waste Operations Plan, and a response to "Requirements for Collection and Recycling" from the County's Ordinance Code, Chapter 9-1160. These comments are discussed in **WASTE MANAGEMENT**.

PUBLIC COMMENTS (NON-INTERVNORS)

WRITTEN COMMENTS

Laura Swickard

SW-1 *I am terribly concerned that the proposed projects will heighten an already loud level of noise thus lowering property values and quality of life for the community. An ugly noise wall is not a good solution. Do you have any others?* (See NOISE)

SW-2 *I am deeply concerned and worried about the air quality in Tracy. I think the project will further impact this problem. Couple this with growing concerns about water quality and supply. Is this project worth it?* (See AIR QUALITY)

SW-3 *I am greatly concerned that tax money will not in all probability not go to the most impacted communities because of the county insistence of collecting and dispersing the monies. I want assurances that the money will benefit communities that suffer under this proposed plan.* (SEE SOCIOECONOMICS)

Don Washburn

DW-1 *Diesel exhaust contains carcinogens. How do you intend on removing them from our air?* (See AIR QUALITY)

DW-2 *Noise Pollution: How much more noise pollution will the proposed plants produce? Will the levels be detrimental to our health? Who makes this determination and how do they decide?* (See NOISE)

DW-3 *Other than the obvious pollution, how will the aesthetics of the area be effected and who makes this judgment? How will this lower/impact property value?* (See VISUAL RESOURCES)

Melinda Bettencourt

MB-1 *How will this effect the air quality of Tracy and how would this affect those persons who are already afflicted with respiratory problems? Will there be any long term effects?* (See AIR QUALITY and PUBLIC HEALTH)

MB-2 *City Growth: How will this effect the rapid growth of Tracy? Will property value decline? How will this effect local and incoming business owners?* (See SOCIOECONOMICS)

MB-3 *Agriculture: How will this effect the local farm life? How will the groundwater be affected? Will crop health be in jeopardy?* (See SOCIOECONOMICS, LAND USE, and SOIL & WATER RESOUCES)

Annaben Kazemi

AK-1 *Air Pollution: I am wondering how this project will effect the already poor quality of air in Tracy. How will our ozone be affected? What, if any, are the plans to help fix the air quality?* (See AIR QUALITY)

AK-2 *What are the alternatives to the peaker plants and have those alternatives been fully explored? Are the alternatives more environmentally friendly? What can be done to minimize the impact of the plants on the environment?*

Response: Peaker plants are loosely defined as those plants that can quickly and reliably start up and begin delivering electricity to the transmission grid in a very short time. These types of plants are very useful in providing the flexibility to electricity service providers in meeting expected and unexpected peaks in the demand for electricity. For example, during hot summer days, air conditioning use can often increase considerably through the afternoon, causing a sudden increase in the demand for electricity throughout a given region. More traditional base-load power plants often are not able to increase their output fast enough to meet this sudden increase in demand. It is at these times that system dispatchers call for extra peaking power, and peaking plant owners start up their plants and bring them on-line to meet that demand.

At present, there is no known reliable alternative generation that could meet all the requirements of a utility scale gas-fired peaker plant; i.e., that have the ability to quickly start up and generate power to the grid. There is some promise of developing technology being able to supply this service in the future, such as the use of fuel cell generating plants; but this technology is not yet developed to the point of being able to replace the gas-fired peaking plants that are in use today.

To minimize the environmental impacts of peaking plants, the San Joaquin Valley Air Pollution Control District requires plant owners to use Best Available Control Technology (BACT) to minimize the air emissions from these plants. Plant owners are also required to completely offset the air emissions from their power plants by obtaining air emissions offset credits. In addition, virtually all peaking power plants in California are fueled by natural gas, which is considered far less polluting than other fuels used by some peaking plants in other states, such as fuel oil, diesel fuel, petroleum distillate, kerosene or aviation jet fuel. Please see the Air Quality section of this Staff Assessment for a more complete explanation

of the mandated mitigation measures that the Energy Commission will require to minimize the air quality impacts of the Tracy Peaker Power Plant.

AK-3 *Noise Pollution: Are there measures to lessen the noise levels of the plants? How is the issue of noise pollution being addressed? If one plant increases noise levels, how will the proposed 5-7 plants impact noise pollution?* (See NOISE)

Cammy Stricker

CS-1 Air Pollution: How much will the quality of our air be affected and how will this impact people with respiratory illness? *(See AIR QUALITY)*

CS-2 *Alternative Sources: Have alternative sources been explored freely? Are any other power alternatives being considered?*

Response: The Energy Commission examined both different technologies and different locations as possible alternatives to building the Tracy Peaker Power Plant. Please see the Alternatives section of this Staff Assessment for a more complete analysis of the possible alternatives to the project. It is important to note that the Energy Commission does not have the authority to mandate the use of technologies or of site locations other than that proposed by the Applicant. If the Alternatives analysis revealed that other sites or the use of other technologies could feasibly avoid, eliminate or reduce to an insignificant level the impacts related to the proposed project that otherwise could not be avoided, eliminated or reduced to insignificance, the Commission only has the authority to deny the project (i.e., to choose the "No-Project" alternative to the proposed project). Commission Staff concluded in the Alternatives section that there is no known feasible alternative to the proposed project that would avoid, eliminate or reduce to an insignificant level any impacts that otherwise could not be avoided, eliminated or reduced to an insignificant level using the technology or location proposed by the Applicant in the Tracy Peaker Project proceeding.

CS-3 *Benefits: What are the major drawbacks to these plants and how do they justify the benefits?*

Response: The main drawback of gas-fired peaker power plants is that they are not as fuel-efficient and emit more polluting air emissions than some other types of power plants, such as natural gas-fired combined-cycle power plants. However, new gas-fired peaker plants in California are by comparison considerably cleaner than many power plants in use today, many of which were built in the 1950s. Peaker power plant owners are also required to use Best Available Control Technology and to fully offset their emissions before starting operations of their plants. As explained in the response to Comment AK-2, peaker plants currently fulfill a very important role in the provision of electricity service in California, and there are no known less-polluting plants that could feasibly fulfill this role in the near-future. Combined-cycle power plants, for example, cannot increase power output rapidly enough to meet the peak demand for electricity during any given afternoon. Also, any power plant that has fully offset its emissions would by definition not have any air quality impact, and therefore would not be any more or less polluting than any other type of power plant that also has fully offset its air emissions.

David Howey

DH-1 *Power Plant: Air pollution, air quality, health issue, property value, value of business interest.*

Response: The Energy Commission fully examined all potential impacts to the environmental and to human health that could occur from the construction of the proposed power plant (please see the Air Quality, Public Health, Hazardous Materials and Geology sections of this Staff Assessment for analysis of potential air quality, public health and safety concerns related to the Tracy Peaking Plant. Please see the response to comment DW-3 in the Socioeconomics Section of this Staff Assessment for a full discussion of potential effects on property values caused by the construction and operation of the TPP.

Laura Simon

LS-1 *I have serious concerns about the long-term effect on our air quality in Tracy (if this project is allowed to proceed). There are many residents (adults and children) who currently suffer from respiratory ailments due to the air quality in Tracy. Any further pollution may be detrimental to their health.* (See AIR QUALITY and PUBLIC HEALTH)

Barbara Shrew

BS-1 *Why 5 in such a concentrated area?*

Response: The comment does not specify what the concern is, but it can reasonably be presumed that she is asking about the siting of five industrial facilities in the immediate area of the proposed TPP, or the siting of five power plants in the general region of the proposed TPP. As to the former, it is the general policy of municipalities to group similar land uses together; in this case, San Joaquin County has designated that the land near the proposed TPP should be reserved for industrial uses. For the latter, the Energy Commission has no authority to decide the locations of power plants; it can only examine the plants proposed by applicants, which are free to chose the location and type of power plant they want to develop in order to meet their business objectives. However, because the emissions from any source can be individually insignificant but cumulatively considerable, the Commission and the San Joaquin Air Pollution Control District conduct analyses of the potential impacts that could be created by the proposed TPP both in isolation and in combination with other proposed or approved but not-yet constructed to ensure the project would not contribute to a cumulatively considerable impact to the environmental or to human health. Please see the “Cumulative Impacts” portions of the various sections in this Staff Assessment that examine potential impacts to the environmental or to human health.

Ranny Chaw

RC-1 *Power Plants: Where is the revenue going to be? How do I benefit from all this? Impact the plants will make towards property value.* (See SOCIOECONOMICS)

Mike Landis

ML-1 *Air Quality: Further air pollution is unacceptable* (See AIR QUALITY)

Ena Aguirre

EA-1 *Air Pollution: Concern that Tracy residents will have worse air quality than now if plant is sited.* (See AIR QUALITY)

EA-2 *Are there any birds, creatures that will be displaced by this plant?* (See BIOLOGICAL RESOURCES)

EA-3 *Economic Benefits: 250-300 jobs – construction, temporary. There are no permanent jobs available. I don't understand the economic benefits. There is no community benefits package that benefits organizations in Tracy that are involved in health/environment?* (See SOCIOECONOMICS)

EA-4 *Your plant will require 30 acre feet of water – daily, monthly, or yearly. This was not made clear to me at the presentation.* (See SOILS & WATER)

Dario Marenco

DM-1 *Recently an information presentation was made to the San Joaquin County Board of Supervisors regarding a 169-megawatt power plant by GWF Energy. They did not ask us either to support or to oppose this proposal, probably for a good reason. We already have a major problem now with air pollution in our immediate area as you are probably aware. GWF paid $6.5 million for pollution points for this plant. Needless to say, this will be another blow to air quality in this basin as there is a 5,000 ft. lid on the Valley. We desperately need more stringent requirements, not another power plant and more pollution. There are two (2) major proposed plants by CalPine in Alameda on our border where the prevailing winds will send the pollution to our air basin where it will remain trapped. We already have a severe out-of-compliance condition with air emissions in the Valley. Please do not add projects to further impact this pollution. I am enclosing some pertinent articles.* (See AIR QUALITY)

ORAL COMMENTS DURING THE INFORMATIONAL HEARING – NOVEMBER 28, 2001

Comments received during the informational hearing are addressed where appropriate in the individual technical sections. Following is a response to questions received at the hearing about why the project being classified as a "peaker" when the applicant plans to operate the power plant as many as 8,000 hours a year – 92% of the total hours in a year.

Response: Though the owner of the proposed TPP has requested authority to operate the plant as much as 8,000 hours per year, the actual hours it will run will be a function of demand for electricity and the cost of meeting that demand. During the recent power emergency, peaking plants that previously had run for only a small fraction of their permitted hours of operation suddenly were pressed into service to provide power nearly around the clock because demand for exceeded the available supply.

However, as more new power plants come on line to supply power to the grid, and as demand was reduced through the effective use of conservation and energy efficiency measures, system dispatchers have had less of a need for peaker plants in a base-load manner, and are able to meet demand using more efficient power plants. Whether the Tracy Peaker Project would run only a few hours per day or would run for 8,000 hours per year would largely depend on the continual balance of supply and demand for electric power.

ENVIRONMENTAL ASSESSMENT

AIR QUALITY

Testimony of William Walters and Lisa Blewitt

INTRODUCTION

This analysis evaluates the expected air quality impacts of the emissions of criteria air pollutants due to the construction and operation of the proposed Tracy Peaker Project (TPP), which will be located in San Joaquin County.

In carrying out the analysis, the California Energy Commission staff evaluated the following major points:

- whether the TPP is likely to conform with applicable Federal, State and San Joaquin Valley Air Pollution Control District air quality laws, ordinances, regulations and standards, as required by Title 20, California Code of Regulations, section 1744 (b);
- whether the TPP is likely to cause significant air quality impacts, including new violations of ambient air quality standards or contributions to existing violations of those standards, as required by Title 20, California Code of Regulations, section 1742 (b); and
- whether the mitigation proposed for the TPP is adequate to lessen the potential impacts to a level of insignificance, as required by Title 20, California Code of Regulations, section 1744 (b).

In carrying out this analysis, the California Energy Commission staff included an analysis of the major issues identified in the CEQA's Air Quality Checklist.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

FEDERAL

Under the Federal Clean Air Act (40 CFR 52.21), there are two major components of air pollution control requirements for stationary sources: nonattainment New Source Review (NSR) and Prevention of Significant Deterioration (PSD). Nonattainment NSR is a permitting process for evaluation of those pollutants that violate federal ambient air quality standards. Conversely, PSD is a permitting process for evaluation of those pollutants that do not violate federal ambient air quality standards. The NSR analysis has been delegated by the U.S. Environmental Protection Agency (U.S. EPA) to the San Joaquin Valley Air Pollution Control District (SJVAPCD, or District). The U.S. EPA determines the 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. A major modification at an existing major source that results in an emission increase of 100 tons per year for carbon monoxide (CO), 40 tons per year for oxides of nitrogen (NO_x), sulfur dioxide (SO_2) or volatile organic compounds (VOC), or 15 tons per year for particulate matter less than 10 microns in diameter (PM_{10}) will also be subject to PSD

review. The entire program, including both nonattainment NSR and PSD reviews, is referred to as the federal NSR program.

Title V of the federal Clean Air Act requires states to implement and administer an operating permit program to ensure that large sources operate in compliance with the requirements included in 40 CFR Part 70. A Title V permit contains all of the requirements specified in different air quality regulations that affect an individual project. As a new major source, the TPP will require a Title V permit.

The TPP 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 reviews and approves the SJVAPCD (District) regulations and has delegated to the SJVAPCD the 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. The NSR program is administered under District Rule 2201 and the NSPS program is administered by the rules in District Regulation IV. The Title V program is administered by the District under Rule 2520. 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 will result in compliance with federal requirements.

STATE

The California State 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 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 the following San Joaquin Valley Air Pollution Control District (District) Rules and Regulations:

Rule 1080 – Stack Monitoring

This rule grants the Air Pollution Control Officer the authority to request the installation and use of continuous emissions monitors (CEM's), and specifies performance standards for the equipment and administrative requirements for record keeping, reporting, and notification.

Rule 1081 – Source Sampling

This rule requires adequate and safe facilities for use in sampling to determine compliance with emission limits, and specifies methods and procedures for source testing and sample collection.

Rule 2010 – Permits Required

This rule requires any person building, altering, replacing or operating any source which emits, may emit air contaminants, or may reduce emissions to first obtain authorization from the District in the form of an Authority to Construct or a Permit to Operate. By the submission of an ATC application, GWF Energy LLC is complying with the requirements of the rule.

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

Best Available Control Technology is defined as: a) BACT 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 of 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 for NO_x, VOC, PM_{10} and SO_2 emissions from any new or modified emission unit that results in an emissions increase of 2 lb/day, and CO emissions that exceed 550 lb/day. In the case of TPP, BACT will apply for NO_x, VOC, CO, SO_2, and PM_{10} emissions from all point sources of the project.

Section 4.2 – Offsets

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

- Oxides of Nitrogen, NO_x – 10 tons/year
- Volatile Organic Compounds, VOC – 10 tons/year
- Carbon Monoxide, CO – 550 lbs/day
- PM_{10} – 80 lbs/day
- Sulfur Oxides, SO_x – 150 lbs/day

The TPP would exceed all of the above emission levels; therefore offsets are required for all five of these pollutants. The emission offsets provided shall be adjusted according to the distance of the offset from the project proposed site. The ratios are:

- Internal or on-site source – 1 to 1
- Within 15 miles of the same source – 1.2 to 1
- 15 miles or more from the source – 1.5 to 1

Section 4.2.5.3 allows for the use of interpollutant offsets (including PM_{10} 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 4.3 – Additional Source Requirements

Rule 4.3.2.1 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.

Rule 4.3.3 requires that the Applicant of a proposed new major source demonstrate to the satisfaction of the District that all major stationary sources owned or operated by the Applicant or any entity controlling or under common control with the Applicant in California which are subject to emission limitations are in compliance or on a schedule for compliance with all applicable emission limitations and standards.

Rule 2520 – Federally Mandated Operating Permits

Requires that a project owner file a Title V Operating Permit application within 12 months of commencing operation. A project is subject to this requirement if any of the following apply: the project is a major stationary source (under PSD definitions), it has the potential to emit greater than 100 tons per year of a criteria pollutant, any equipment permitted is subject to New Source Performance Standards, the project is subject to Title IV Acid Rain program, or the owner is required to obtain a PSD Permit from EPA. The Title V Permit application requires that the owner submit information on the operation of the air polluting equipment, the emission controls, the quantities of emissions, the monitoring of the equipment, as well as other information requirements. TPP will be required to file for a Title V operating permit within 12 months of commencing operation.

Rule 2540 – Acid Rain Program

A project greater than 25 MW and installed after November 15, 1990, must submit an acid rain program permit application to the District. The acid rain requirements will become part of the Title V Operating Permit (Rule 2520).

Rule 4001 – New Source Performance Standards

Rule 4001 specifies that a project must meet the requirements of the Federal New Source Performance Standards (NSPS), according to Title 40, Code of Federal Regulations, Part 60, Chapter 1. Subpart GG, which pertains to Stationary Gas Turbines, requires that a project meet specific NO_x concentration limits, based on the heat rate of combustion. In addition, the SO_2 concentration shall be less than 150 ppmv and the sulfur content of the fuel shall be no greater than 0.8 percent by weight.

Rule 4101 – Visible Emissions

Prohibits visible air emissions, other than water vapor, of more than No. 1 on the Ringelmann chart (20 percent opacity) for more than 3 minutes in any 1-hour.

Rule 4102 – Nuisance

Prohibits any emissions "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 person or public or which cause or have a natural tendency to cause injury or damage to business or property."

Rule 4201 – Particulate Matter Concentration

Limits particulates emissions from sources such as the gas turbines, cooling towers, and emergency fire water pumps to less than 0.1 grain per dry standard cubic foot of exhaust gas.

Rule 4202 – Particulate Matter Emission Rate

The purpose of this rule is to limit particulate matter emissions by establishing allowable emission rates. Calculation methods are specified for determining the emission rate based on process weight. Gas and liquid fuels are excluded from the definition of process weight. Therefore, Rule 4202 does not apply to the proposed TPP.

Rule 4301 – Fuel Burning Equipment

Limits air contaminant emissions from fuel burning equipment. However, the proposed combustion turbines are exempt from this rule because they produce power primarily through the mechanical turning of the turbine blades.

Rule 4701 – Stationary Internal Combustion Engines

Limits NO_x, CO, and VOC emissions from internal combustion engines. Since the emergency diesel generator proposed for this project will be limited to less than 200 hours per year of non-emergency operation, it is exempt from this rule.

Rule 4703 – Stationary Gas Turbines

Establishes requirements for monitoring and record keeping for NO_x and CO emissions from new or modified stationary gas turbines with a designed power of 0.3 MW or higher. According to this rule, at 15 percent O_2, NO_x and CO concentrations must be less than 9 ppm and 200 ppm, respectively.

Rule 4801 – SO_2 Concentration

Limits the emissions of sulfur compounds to no greater than 0.2 percent by volume calculated as SO_2 on a dry basis.

Rule 8010 – Fugitive Dust Administrative Requirements for Control of Fine Particulate Matter (PM-10)

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. This rule shall remain in effect until April 30, 2002 or until the effective date of Rule 8011 (General Requirements), whichever occurs later.

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 8020 – Fugitive Dust Requirements for Control of Fine Particulate Matter (PM-10) from Construction, Demolition, Excavation, and Extraction Activities

Requires fugitive dust emissions during construction activities to not exceed an opacity limit of 40 percent for a period or periods aggregating to more than 3 minutes in any 1 hour by means of water application or chemical dust suppressants. The rule also encourages the use of paved access aprons, gravel strips, wheel washers or other measures to limit mud and dirt carry-out onto paved public roads. This rule shall remain in effect until April 30, 2002 or until the effective date of Rule 8021 (Construction, Demolition, Excavation, Extraction and Other Earthmoving Activities), whichever occurs later.

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. The provisions of this rule shall be effective beginning May 15, 2002.

Rule 8030 – Control of PM-10 from Handling and Storage of Bulk Materials

Limits the fugitive dust emissions from the handling and storage of bulk materials. 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. This rule shall remain in effect until April 30, 2002 or until the effective date of Rule 8031 (Bulk Materials), whichever occurs later.

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. The provisions of this rule shall be effective beginning May 15, 2002.

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. The provisions of this rule shall be effective beginning May 15, 2002.

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.

Rule 8060 – Control of PM-10 from Paved and Unpaved Roads

Specifies the width of paved shoulders on paved roads and guidelines for medians. Requires paving, landscaping, and/or the use of chemical dust suppressants on unpaved roadways, shoulders and medians. This rule shall remain in effect until April 30, 2002 or until the effective date of Rule 8061 (Paved and Unpaved Roads), whichever occurs later.

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.” The provisions of this rule shall be effective beginning May 15, 2002.

Rule 8070 – Fugitive Dust Requirements for Control of Fine Particulate Matter (PM-10) from Vehicle and/or Equipment Parking, Shipping, Receiving, Transfer, Fueling and Service Areas

This rule intends to limit fugitive dust from unpaved parking areas one acre or larger by using water, chemical suppressants or gravel. It also requires that the affected owners/operators shall remove tracked out mud and dirt onto public roadways once a day. This rule shall remain in effect until April 30, 2002 or until the effective date of Rule 8071 (Unpaved Vehicle/Equipment Traffic Areas), whichever occurs later.

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.” The provisions of this rule shall be effective beginning May 15, 2002.

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. The provisions of this rule shall be effective beginning May 15, 2002.

SETTING

METEOROLOGICAL CONDITIONS

The climate of the San Joaquin Valley is controlled by a semi-permanent subtropical high-pressure system that is centered over the Pacific Ocean. In the summer, this strong high-pressure system results in clear skies inland and coastal fog, and the project site typically experiences temperatures similar to those of inland areas. 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. The project site receives an annual average rainfall of 14.5 inches.

Long-term average temperature and precipitation data have been collected at the Tracy Carbona Station. The data indicate that July is usually the warmest month of the year. In the fall and spring, the afternoon temperatures are mild, in the 60s and 70s, while nights are cooler, in the 40s and 50s. In the winter, temperatures are cool in the afternoon and crisp at night. The coldest month is usually January.

Predominant surface winds in the project area are from the west-southwest and the west. The wind speeds are higher during the spring and summer months.

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 within the mixing layer.

Airflow in the San Joaquin Valley can be characterized by up-valley and down-valley winds. The down-valley winds are generally caused by airflows into the valley from the Carquinez Strait and the Altamont Pass that then flow south. The horizontal transport of air in the project area is affected by strong daytime winds, which results in a pronounced west/west-northwest component to the wind rose.

EXISTING AIR QUALITY

The project is located within the jurisdiction of the San Joaquin Valley Air Pollution Control District (District). The applicable federal and California ambient air quality

standards (AAQS) 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 one-hour to annual average. The standards are read in parts per million (ppm), or in milligrams or micrograms of pollutant per cubic meter of air (mg/m^3 and $\mu g/m^3$).

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 $\mu g/m^3$)	0.09 ppm (180 $\mu g/m^3$)
	8 Hour	0.08 ppm (160 $\mu g/m^3$)	—
Carbon Monoxide (CO)	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 $\mu g/m^3$)	—
	1 Hour	—	0.25 ppm (470 $\mu g/m^3$)
Sulfur Dioxide (SO_2)	Annual Average	80 $\mu g/m^3$ (0.03 ppm)	—
	1 Hour	—	0.25 ppm (655 $\mu g/m^3$)
	3 Hour	1300 $\mu g/m^3$ (0.5 ppm)	—
	24 Hour	365 $\mu g/m^3$ (0.14 ppm)	0.04 ppm (105 $\mu g/m^3$)
Respirable Particulate Matter (PM_{10})	Annual Geometric Mean	—	30 $\mu g/m^3$
	24 Hour	150 $\mu g/m^3$	50 $\mu g/m^3$
	Annual Arithmetic Mean	50 $\mu g/m^3$	—
Fine Particulate Matter ($PM_{2.5}$)[a]	Annual Arithmetic Mean	—	15 $\mu g/m^3$
	24 Hour	—	65 $\mu g/m^3$
Sulfates (SO_4)	24 Hour	—	25 $\mu g/m^3$
Lead	30 Day Average	—	1.5 $\mu g/m^3$
	Calendar Quarter	1.5 $\mu g/m^3$	—
Hydrogen Sulfide (H_2S)	1 Hour	—	0.03 ppm (42 $\mu g/m^3$)
Vinyl Chloride (chloroethene)	24 Hour	—	0.010 ppm (26 $\mu g/m^3$)
Visibility Reducing Particulates	1 Observation (8 hour)	—	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.

Note(s):
a. Recent court decisions have delayed the implementation of the $PM_{2.5}$ standards.

The U.S. EPA, California Air Resource Board, 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 TPP is located in San Joaquin County and, as state 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 San Joaquin County.

AIR QUALITY: Table 2
Federal and State Attainment Status for San Joaquin County

Pollutant	Attainment Status [a]	
	Federal	State
Ozone – One hour	Severe Nonattainment	Severe Nonattainment
CO	Unclassified/Attainment [b]	Attainment
NO_2	Unclassified/Attainment [b]	Attainment
SO_2	Unclassified	Attainment
PM_{10}	Serious Nonattainment	Nonattainment
Lead	No Designation	Attainment

Note(s):
a. Obtained from 40 CFR 81 and SJVAPCD web site (www.valleyair.org/aqinfo/attainment.htm)
b. Unclassified/Attainment – The attainment status for the subject pollutant is classified as either attainment or unclassified.

The project site is in San Joaquin County, very close to the border between the San Francisco Bay Area and San Joaquin Valley Air Basins. The monitoring station closest to the proposed project site is the Tracy Patterson Pass Road Station. There are also several monitoring stations in Stockton, less than 20 miles to the northeast. However, these stations do not measure SO_2 concentrations, so data from other stations are necessary. Monitoring stations at Bethel Island Road and Concord (Contra Costa County) are the closest, and most representative, stations to the site that monitor SO_2 concentrations.

Ozone

In the presence of ultraviolet radiation, both NO_x and VOC go through a number of complex chemical reactions to form ozone. **AIR QUALITY Table 3** summarizes the best representative ambient ozone data collected from three different monitoring stations close to the project site. The table includes the maximum one-hour and eight-hour ozone levels and the number of days above the State or National standards. Ozone formation is higher in spring and summer and lower in the winter. The San Joaquin Valley air basin is classified as severe nonattainment area for ozone because it violates both National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS).

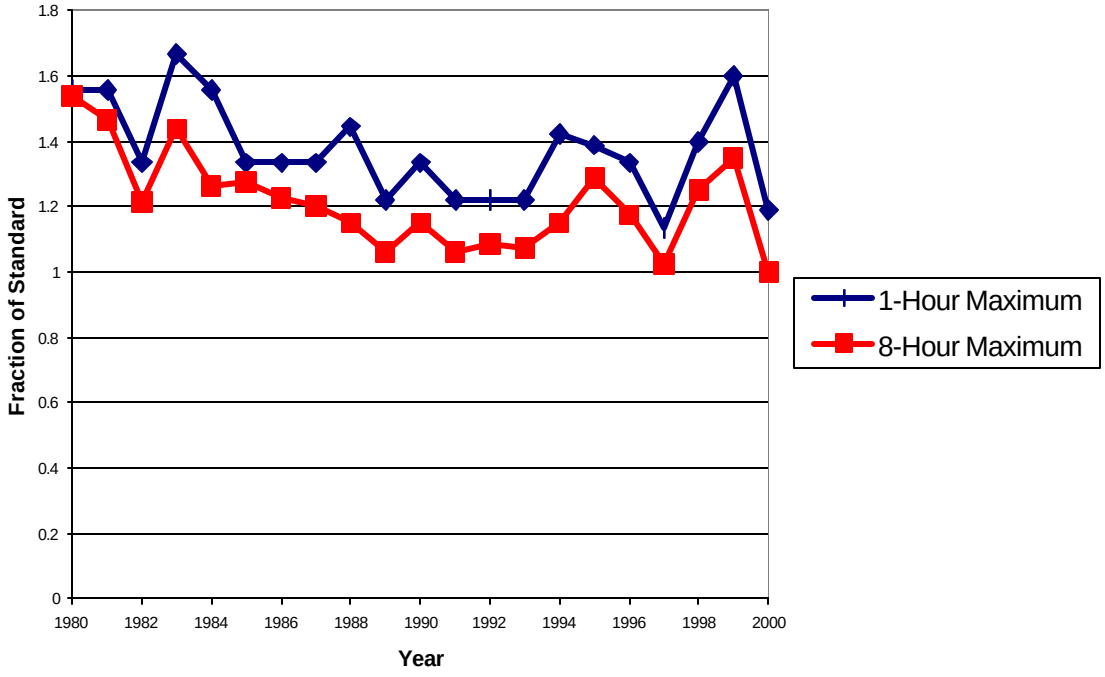
AIR QUALITY: Table 3
Ozone Air Quality Summary, 1991-2000 (ppm)

Year	Tracy 24371 Patterson Pass Road				Stockton E. Mariposa				Stockton Hazelton Street			
	Days Above CAAQS 1-Hr	Max. 1-Hr Avg.	Days Above NAAQS 8-Hr	Max. 8-Hr Avg.	Days Above CAAQS 1-Hr	Max. 1-Hr Avg.	Days Above NAAQS 8-Hr	Max. 8-Hr Avg.	Days Above CAAQS 1-Hr	Max. 1-Hr Avg.	Days Above NAAQS 8-Hr	Max. 8-Hr Avg.
1991	---	---	---	---	22	0.120	9	0.095	10	0.110	3	0.085
1992	---	---	---	---	18	0.110	8	0.090	7	0.110	2	0.087
1993	---	---	---	---	11	0.130	4	0.097	7	0.110	1	0.086
1994	---	---	---	---	15	0.124	5	0.101	8	0.128	4	0.092
1995	9	0.124	7	0.098	13	0.134	3	0.107	8	0.125	4	0.103
1996	24	0.140	14	0.096	4	0.105	0	0.083	4	0.120	2	0.094
1997	5	0.119	3	0.099	3	0.101	0	0.083	1	0.102	0	0.082
1998	14	0.116	5	0.094	9	0.123	2	0.099	10	0.126	4	0.100
1999	16	0.132	10	0.113	4	0.143	4	0.093	6	0.144	4	0.108
2000	7	0.122	3	0.094	4	0.108	0	0.084	4	0.107	0	0.080

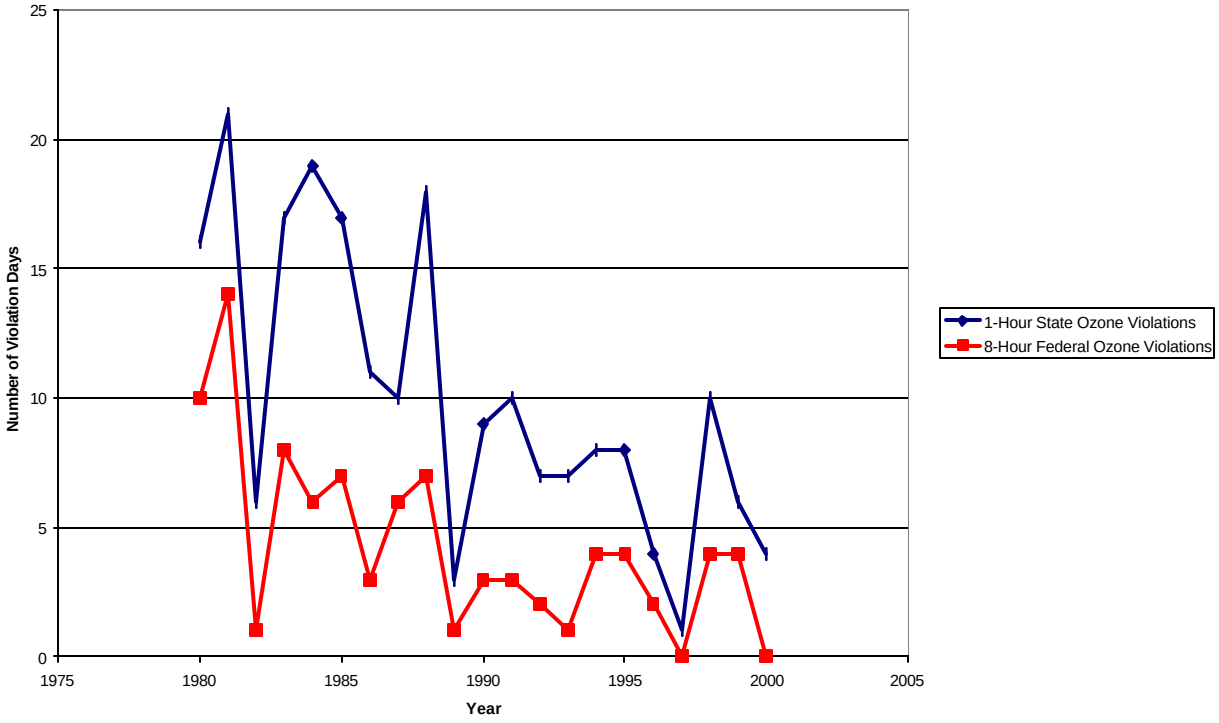
California Ambient Air Quality Standard (CAAQS): 1-Hr, 0.09 ppm
National Ambient Air Quality Standard (NAAQS): 1-Hr, 0.12 ppm; 8-Hr, 0.08 ppm
Source: CARB web site, http://www.arb.ca.gov/adam/, Accessed Nov. 2001.
Source: CARB Air Quality Data CD, Nov. 2000 (1980-1999).

The year 1980 to 2000 trends for the maximum 1-hour and 8-hour ozone concentrations, referenced to the most stringent standard, and the number of violations of the California 1-hour standard and the federal 8-hour standard for the Stockton Hazelton Street monitoring station are shown in Air Quality Figure 1 and Figure 2, respectively.

AIR QUALITY: Figure 1
Ozone Air Quality Maximum Concentration, 1980-2000
Fraction of Standard



AIR QUALITY: Figure 2
Ozone Air Quality Violations, 1980-2000



As these two figures show there is an overall gradual downward trend for both maximum ozone concentrations and number of violations.

Inhalable Particulate Matter (PM_{10})

As **AIR QUALITY Table 4** indicates, the project area annually experiences a number of violations of the state 24-hour PM_{10} standard. The federal 24-hour standard, however, is generally met. Annual geometric mean PM_{10} levels are above the state standard. Annual arithmetic PM_{10} levels have not violated the national standard since 1992. The San Joaquin Valley air basin is considered to be in nonattainment of both federal and state PM_{10} standards.

PM_{10} can be emitted directly or it can be formed many miles downwind from emission sources when various precursor pollutants interact in the atmosphere. Gaseous emissions of pollutants like NO_x, SO_x and reactive organic compounds (ROC) from turbines, and ammonia from NO_x control equipment, given the right meteorological conditions, can form particulate matters in the form of nitrates (NO_3), sulfates (SO_4), 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.

PM 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. The nitrate ion concentrations during the wintertime are a significant portion of the total PM_{10}, and should be even a higher contributor to particulate matter of less than 2.5 microns ($PM_{2.5}$). The nitrate ion is only a portion of the PM nitrate, which can be in the form of ammonium nitrate (ammonium plus nitrate ions) and some as sodium nitrate. If the ammonium and the sodium ions associated with the nitrate ion are taken into consideration, PM nitrate contributions to the total PM would be even more significant.

The air agencies in California are now deploying $PM_{2.5}$ ambient air quality monitors throughout the state. $PM_{2.5}$ ambient air quality attainment plans, if needed, are due to the U.S. EPA by 2005.

The highest PM concentrations are measured in the winter. During wintertime high PM episodes, the contribution of ground level releases to ambient PM 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.

AIR QUALITY: Table 4

PM_{10} Air Quality Summary, 1991-2000 (mg/m³)

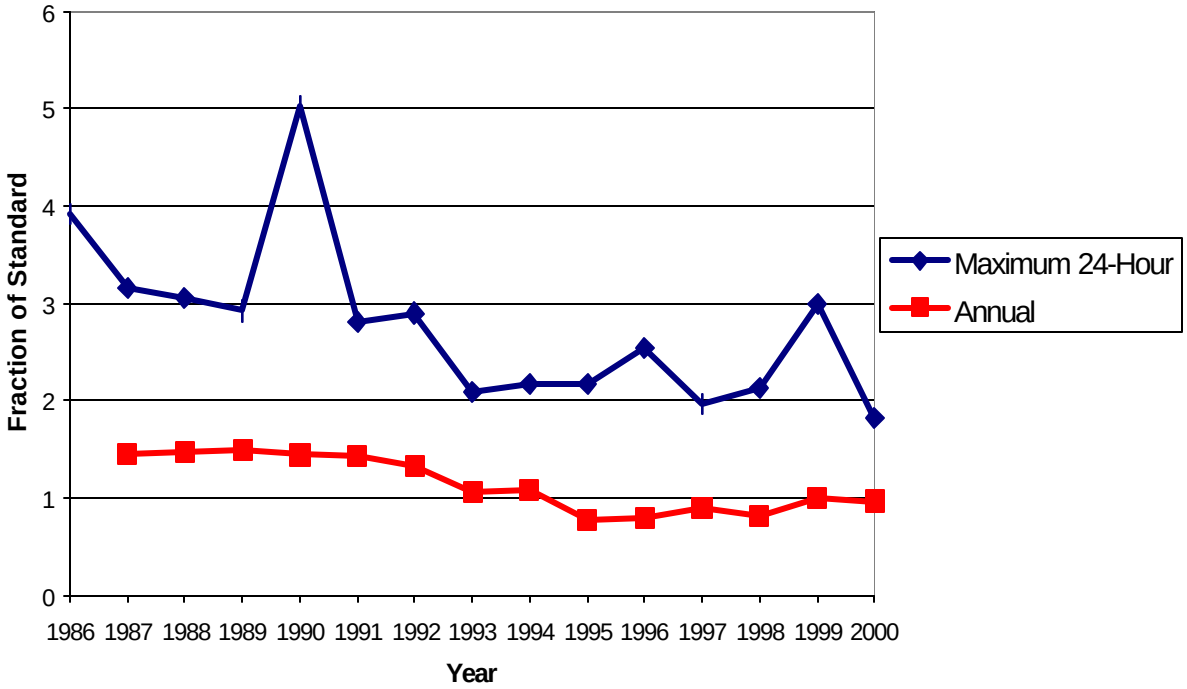
	Stockton Hazelton Street				Stockton Wagner – Holt School			
Year	Days * Above CAAQS	Max. Daily Avg.	Annual Geometric Mean	Annual Arithmetic Mean	Days * Above CAAQS	Max. Daily Avg.	Annual Geometric Mean	Annual Arithmetic Mean
1991	126	140	43.0	52.3	---	---	---	---
1992	108	145	39.9	44.7	---	---	---	---
1993	78	104	32.0	39.1	---	---	---	---
1994	60	109	32.6	36.9	---	---	---	---
1995	18	109	23.8	24.4	---	---	---	---
1996	18	127	23.7	27.4	6	117	22.5	29.1
1997	30	98	26.8	29.7	24	130	22.5	26.1
1998	48	106	24.4	29.1	30	99	20.8	25.5
1999	60	150	30.2	36.3	24	118	21.6	22.0
2000	45	91	29.1	32.2	51	104	24.8	29.3

California Ambient Air Quality Standard: 24-Hr, 50 $\mu g/m^3$; Annual Geometric, 30 $\mu g/m^3$
National Ambient Air Quality Standard: 24-Hr, 150 $\mu g/m^3$; Annual Arithmetic, 50 $\mu g/m^3$
Source: CARB web site, http://www.arb.ca.gov/adam/, Accessed Nov. 2001.
Source: CARB Air Quality Data CD, Nov. 2000 (1980-1999).
* Days above the state standard (calculated): Because PM_{10} is monitored approximately once every six days, the potential number of violation days is calculated by multiplying the actual number of days of violations by six.

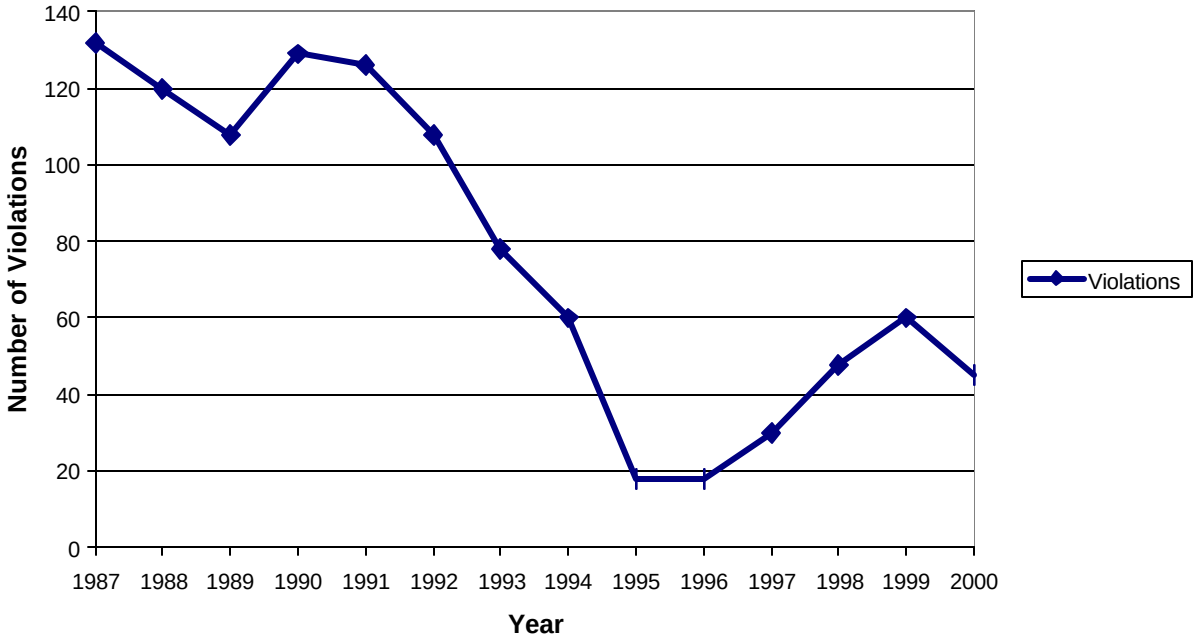
The year 1986 to 2000 trends for the maximum 24-hour and annual PM_{10} concentrations, referenced to the most stringent standard, and the number of violations of the California 24-hour PM_{10} standard for the Stockton Hazelton Street monitoring station are shown in Air Quality Figure 3 and Figure 4, respectively.

As these two figures show there is an overall gradual downward trend for both maximum 24-Hour PM_{10} concentrations and number of violations of the California 24-Hour Standard.

AIR QUALITY: Figure 3
PM_{10} Air Quality Maximum Concentration, 1986-2000
Fraction of California Ambient Air Quality Standards



AIR QUALITY: Figure 4
PM_{10} 24-Hour Air Quality Violations, 1987-2000
California Ambient Air Quality Standard



Fine Particulate Matter ($PM_{2.5}$)

As **AIR QUALITY Table 5** indicates, the 98th percentile 24-hour average $PM_{2.5}$ concentration levels have been declining at the Stockton monitoring station and have been below the proposed NAAQS of 65 $\mu g/m^3$ since 1994. The 3-year average of annual arithmetic means (national annual average) measured at the Stockton monitoring station have been below the proposed NAAQS of 15 $\mu g/m^3$ since 1995. However, regardless of the local $PM_{2.5}$ concentrations, the attainment status for the San Joaquin Valley Air Basin (SJVAB) is determined based on all monitoring stations in the San Joaquin Valley. Considering that the current maximum $PM_{2.5}$ concentrations found in the San Joaquin Valley are above the proposed $PM_{2.5}$ standards, the entire air basin will likely be determined to be in nonattainment of the $PM_{2.5}$ standards when they take effect. The $PM_{2.5}$ standards will not take effect until the legal challenges of these standards have been resolved.

AIR QUALITY: Table 5

$PM_{2.5}$ Air Quality Summary, 1991-1999 ($\mu g/m^3$)

Stockton Hazelton Street					
Year	Max. Daily Average	98th Percentile of Max. Daily Average	3-Yr. Avg. 98th Percentile of Max. Daily Average	National Annual Average	3-Yr. Avg. of National Annual Average
1991	94.1	91.7	75.7	22.4	20.8
1992	57.7	57.7	70.6	14.1	18.3
1993	75.0	71.0	73.5	17.1	17.9
1994	69.0	63.0	63.9	17.2	16.1
1995	53.0	53.0	62.3	10.3	14.9
1996	64.0	32.0	49.3	11.3	12.9
1997	67.0	48.0	44.3	12.5	11.4
1998	81.0	67.0	49.0	13.5	12.4
1999	56.0	56.0	57.0	17.3	14.4

Proposed National Ambient Air Quality Standards:
3-Year Average - 98th Percentile of 24-Hr Avg. Concentrations, 65 $\mu g/m^3$;
3-Year Average of Annual Arithmetic Mean (National Annual Average), 15 $\mu g/m^3$

Source: CARB web site, http://www.arb.ca.gov/adam/, Accessed Nov. 2001.

Carbon Monoxide (CO)

As **AIR QUALITY Table 6** shows, the maximum one-hour and eight-hour CO concentrations are less than the California Ambient Air Quality Standards. CO is considered a local pollutant as it is found in high concentrations only near the source of emission. Automobiles and other mobile sources are the principal source of the CO emissions. High levels of CO emissions can also be generated from fireplaces and wood-burning stoves. According to the data recorded at various Stockton air monitoring stations, there have been no violations of California Ambient Air Quality Standards or

National Ambient Air Quality Standards (one or two days the entire year) since 1991 for the eight-hour CO standard.

The highest concentrations of CO occur when low wind speeds and a stable atmosphere trap the pollution emitted at or near ground level in what is known as the stable boundary layer. These conditions occur frequently in the wintertime late in the afternoon, persist during the night and may extend one or two hours after sunrise. Since mobile sources (motor vehicles) are the main cause of CO, ambient concentrations of CO are highly dependent on motor vehicle activity. In fact, the peak CO concentrations occur during the rush hour traffic in the morning and afternoon. Carbon monoxide concentrations in San Joaquin County and the rest of the state have declined significantly due to two state-wide programs: 1) the 1992 wintertime oxygenated gasoline program, and 2) Phases I and II of the reformulated gasoline program. New vehicles with oxygen sensors and fuel injection systems have also contributed to the decline in CO levels in the state. Today, all the areas of California, with the sole exception of certain locations within Los Angeles County, are in compliance with the CO ambient air quality standards.

AIR QUALITY: Table 6
CO Air Quality Summary, 1991-2000 (ppm)

Year	Stockton Claremont		Stockton Hazelton Street	
	Maximum 1-Hr Average	Maximum 8-Hr Average	Maximum 1-Hr Average	Maximum 8-Hr Average
1991	15.0	11.0 (a)	14.0	11.38 (b)
1992	11.0	8.29	11.0	7.38
1993	10.0	6.88	10.0	6.25
1994	11.3	7.84	10.0	6.89
1995	8.7	6.18	10.3	4.5
1996	11.0	7.56	9.4	6.41
1997	6.3	4.24	7.7	3.6
1998	10.2	7.90	8.9	7.18
1999	11.3	7.75	8.3	5.34
2000	8.5	4.68	5.8	3.59

California Ambient Air Quality Standard: 1-Hr, 20 ppm; 8-Hr, 9 ppm
National Ambient Air Quality Standard: 1-Hr, 35 ppm; 8-Hr, 9 ppm
Source: CARB web site, http://www.arb.ca.gov/adam/, Accessed Nov. 2001.
Source: CARB Air Quality Data CD, Nov. 2000 (1980-1999).
(a) 2-days exceeding State 8-Hr standard.
(b) 1-day exceeding State 8-Hr standard.

Nitrogen Dioxide (NO_2)

As shown in **AIR QUALITY Table 7** the maximum one-hour and annual concentrations of NO_2 at the San Joaquin County air monitoring stations are lower than California

Ambient Air Quality Standards. Approximately 90 percent of the NO_x 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 atmospheric conditions favor the trapping of ground level releases but lack 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 to levels approaching the 1-hour ambient air quality standard. The formation of NO_2 in the summer with the help of the ozone is according to the following reaction.

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

In urban areas, ozone concentration level is typically high. That level will 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, while aloft and in downwind rural areas (without sources of fresh NO_x emissions) ozone concentrations can remain relatively high.

AIR QUALITY: Table 7
NO_2 Air Quality Summary, 1991-2000 (ppm)

Year	Tracy Patterson Pass Road		Stockton Hazelton Street	
	Maximum 1-Hr Average	Maximum Annual Average	Maximum 1-Hr Average	Maximum Annual Average
1991	---	---	0.110	0.025
1992	---	---	0.190	0.023
1993	---	---	0.160	0.024
1994	---	---	0.144	0.024
1995	0.068	---	0.119	0.022
1996	0.061	0.013	0.088	0.023
1997	0.060	0.012	0.090	0.022
1998	0.079	0.013	0.102	0.023
1999	0.074	0.015	0.106	0.024
2000	0.068	0.014	0.099	0.021

California 1-Hr Ambient Air Quality Standard: 0.25 ppm
National Annual Ambient Air Quality Standard: 0.053 ppm
Source: CARB web site, http://www.arb.ca.gov/adam/, Accessed Nov. 2001.
Source: CARB Air Quality Data CD, Nov. 2000 (1980-1999).

Sulfur Dioxide (SO_2)

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 air basin come from every economic sector and include a wide variety of fuels, gaseous, liquid and solid. The San Joaquin Valley air basin is designated attainment for all the SO_2 state and federal ambient air quality standards. **AIR QUALITY Table 8** shows the historic 1-hour, 24-hour and annual average SO_2 concentrations collected from two different monitoring stations close to the project site. As **AIR QUALITY Table 8** shows, concentrations of SO_2 are far below the state and federal SO_2 ambient air quality standards.

AIR QUALITY: Table 8

SO_2 Air Quality Summary, 1991-2000 (ppm)

Year	Contra Costa County Bethel Island Road			Concord 2975 Treat Boulevard		
	Maximum 1-Hr Avg.	Maximum 24-Hr Avg.	Annual Average	Maximum 1-Hr Avg.	Maximum 24-Hr Avg.	Annual Average
1991	0.020	0.0083	0.0009	0.040	0.0109	0.0009
1992	0.030	0.0113	0.0009	0.060	0.0083	0.0006
1993	0.020	0.0087	0.0005	0.040	0.0125	0.0007
1994	0.019	0.0050	0.0012	0.041	0.0077	0.0015
1995	0.015	0.0063	0.0010	0.033	0.0072	0.0018
1996	0.014	0.0067	0.0014	0.019	0.0050	0.0016
1997	0.015	0.0066	0.0020	0.038	0.0078	0.0015
1998	0.028	0.0094	0.0018	0.049	0.0075	0.0019
1999	0.029	0.0083	0.0014	0.048	0.0120	0.0017
2000	0.018	0.008	0.001	0.015	0.005	0.002

California Ambient Air Quality Standard: 1-Hr, 0.25 ppm; 24-Hr, 0.04 ppm
National Ambient Air Quality Standard: 3-Hr, 0.5 ppm; 24-Hr, 0.14 ppm; Annual, 0.030 ppm
Source: CARB web site, http://www.arb.ca.gov/adam/, Accessed November 2001.
Source: CARB Air Quality Data CD, November 2000 (1980-1999).

Summary

In summary, staff recommends the background ambient air concentrations in **AIR QUALITY Table 9** for the modeling and impacts analysis. The maximum criteria pollutant concentration from the past three years (1998-2000) from the following representative monitoring stations are used to determine the background value: Tracy – Patterson Pass Road, Stockton- E. Mariposa, Stockton – Hazelton Street, Stockton – Wagner Holt School, Stockton – Claremont, Concord – Treat Boulevard, and Bethel Island Road. For the pollutants monitored at the Tracy monitoring site (ozone and NO_2), the data from that site are shown in **Table 9**. For pollutants not monitored at Tracy but monitored at the Stockton monitoring stations (PM_{10} and CO) the highest values from the Stockton monitoring stations are shown in **Table 9**. For SO_2 the highest monitored values of the Concord and Bethel Island monitoring stations are shown in **Table 9**.

AIR QUALITY: Table 9
Staff Recommended Background Concentrations for TPP (ppm)

Pollutant	Averaging Time	1998	1999	2000	Most Restrictive Ambient Air Quality Standard
Ozone	1 hour	0.116	0.132	0.122	0.09
	8 hour	0.094	0.113	0.094	0.08
PM_{10} ($\mu g/m^3$)	24 hours	106	150	104	50
	Annual Geometric Mean	24.4	30.2	29.1	30
	Annual Arithmetic Mean	29.1	36.3	32.2	50
NO_2	1 hour	0.079	0.074	0.068	0.25
	Annual	0.013	0.015	0.014	0.053
CO	1 hour	10.2	11.3	8.5	20
	8 hour	7.90	7.75	4.68	9
SO_2	1 hour	0.049	0.048	0.018	0.25
	3 hours	---	---	---	0.5
	24 hours	0.009	0.012	0.008	0.04
	Annual	0.002	0.002	0.002	0.03

The background data used in the modeling analysis is the highest value shown in **Table 9**, from 1998 to 2000, for each of the pollutant concentration averaging times.

PROJECT DESCRIPTION AND EMISSIONS

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

CONSTRUCTION

The primary emission sources during construction of the TPP will be heavy equipment and fugitive dust from disturbed areas as a result of site, switchyard and main transformer construction. The TPP involves the following improvements and ancillary facilities:

- Grading 9 acres of the 40-acre parcel site and preparing 5.2-acres for construction laydown and parking areas, with an additional 13.2 acres potentially being used during wet weather for soil stockpiling.
- Access via an improved 3,300-foot, asphalt-paved service road southward from W. Schulte Road to the site.
- New at-grade crossing for the Union Pacific Railroad.
- New on-site natural gas supply interconnection with PG&E's Line 401 that crosses beneath the TPP site. A 16-inch-diameter pipeline will be constructed from the PG&E pipeline tap point to the point of use on the site.
- An approximately 1,470-foot long, 12-inch diameter water supply pipeline (as measured from the fence line).

The on-site gas line is assumed in the general site construction. Construction of the water supply line will require minimal use of heavy-duty construction equipment, as the trenching will be completed during the first month. The emissions associated with the construction of the water supply line have been included in the construction emission estimates (DR #2A, GWF 2001c).

The proposed project construction schedule for the TPP will extend over approximately 9 months, based on construction activities being scheduled between 6 a.m. to 6 p.m., Monday through Saturday. Additional hours may be necessary to make up schedule deficiencies, complete critical construction activities and during the startup phase of the project, where some activities will continue 24 hours a day, seven days a week. A 20 hour per day assumption was used in the construction emissions modeling for a conservative analysis (GWF 2001b). A 12 hour per day assumption was used for the linear construction emission estimates only (GWF 2001b).

During the construction period, air emissions will be generated from the exhaust of heavy equipment such as bulldozers, excavators, lifts, compressors, paving equipments, and from fugitive dust generated from activities such as clearing, grading, and preparation of the site. **AIR QUALITY Table 10** summarizes the different levels of criteria pollutants that will be generated from the construction activities at the site. The natural gas pipeline and water pipeline interconnections are incorporated in the on-site construction emission estimates.

AIR QUALITY: Table 10
Estimated Construction Emissions for TPP
(Maximum Hourly and Annual Tons)

Emissions Rate [a]	NO_x	CO	PM_{10}	SO_2	VOC	Fugitive PM_{10}
On-Site Maximum Hourly (lb/hr)	26.9	35.8	0.9	2.6	2.5	0.69
On-Site Maximum Monthly (t/mo)	7.02	9.3	0.23	0.68	0.65	0.21
On-Site Tons per Year (tpy)	44.9	59.9	1.5	4.2	4.2	1.46

Note(s):
a. Data Response #2 (GWF 2001b), Attachment 2.1-2, Table 8.1-12 (Revised); (GWF 2001i). Using an estimated construction schedule, assuming 26.07 days/month at 20 hours/day (two 10-hour shifts per day). . 24-hour fugitive dust emissions are based on 0.11 ton/acre/month (Midwest Research Institute, 1996) PM_{10}, 10-hour workdays and 50% control efficiency.

The equipment emissions provided above are based on South Coast Air Quality Management District's 1993 CEQA Air Quality Handbook, Table A9-8-A emission factors and load factors, and the estimated number of operational hours for each piece of equipment throughout project construction outlined in the AFC (GWF 2001a). The emission estimates provided above for construction vehicles include the estimated PM_{10} emission reductions that will occur based on the application of tailpipe emission controls. The fugitive PM_{10} emissions are estimated assuming 50 percent control efficiency from frequent water applications on active construction surfaces during hours of construction (or other equivalent dust suppression measures). These measures are proposed by the Applicant to be implemented as discussed in the AFC (GWF 2001a, pages 8.1-23).

Staff's review of the Applicant's emission calculations indicates that the Applicant used an incorrect diesel sulfur content, which overstates the SO_2 emissions by nearly a factor

of five. Additionally, as presented later in the impact section discussion, the CO emissions are believed to be overestimated by nearly a factor of two.

OPERATIONAL PHASE

This section describes the project design and criteria pollutant control devices as described in the AFC (GWF 2001a).

EQUIPMENT DESCRIPTION

The major equipment proposed in the application includes the following:

- Two General Electric (GE) Model PG7121 (EA) simple-cycle combustion turbine generators (CTG), each with a base load nominal output of 84.4 MW at annual average conditions (59°F). Each CTG will fire only natural gas and will have an inlet air evaporative cooler installed for use at higher ambient temperatures. Each CTG will include dry low-NO_x (DLN) combustors and SCR systems for NO_x reduction.
- Emissions control equipment for each CTG train includes a 375 horsepower (hp) blower to dilute and cool the hot CTG exhaust gases and reduce the exhaust temperature to 850°F and an air distribution system to maintain uniformity in the exhaust gas temperature.
- A continuous emission monitoring (CEM) system for NO_x, CO, and oxygen.
- Two on-site 115-kilovolt (kV) switchyards.
- An approximately 1,470-foot long, 12-inch diameter water supply pipeline (as measured from the fence line).
- On-site natural gas supply interconnection with the existing PG&E Line 401 gas transmission pipeline.
- On-site electric transmission interconnection to the 115-kV Tesla-Kasson transmission line.
- 382 horsepower diesel-fired emergency IC engine powering a 250-kilowatt (kW) electric generator.

EQUIPMENT OPERATION

GWF Energy LLC has proposed to build and operate the Tracy Peaker Project (TPP) on a 9-acre, fenced site within a 40-acre parcel in an unincorporated portion of San Joaquin County. The site is located immediately southwest of Tracy, California, and approximately 20 miles southwest of Stockton, California. The property is bounded by the Delta-Mendota Canal to the southwest, agricultural property to the south and east, and the Union Pacific Railroad to the north. Immediately north of the railroad is the Owens-Brockway glass container manufacturing plant and the Nutting-Rice warehouse. The Tracy Biomass power plant is approximately 0.6 miles to the northwest. The proposed TPP site will be accessed via an improved 3,300-foot, asphalt-paved service road southward from W. Schulte Road to the site.

The TPP will develop the site for power production with two stationary, natural gas-fired combustion turbines operating in simple cycle mode. Each combustion turbine generator (CTG) will generate an average of 84.4 MW. Each CTG will feature dry low

NO_x (DLN) combustors for emission control. The exhaust gas temperature will be reduced with ambient air to allow for additional post-combustion NO_x control with selective catalytic reduction (SCR) system. An oxidation catalyst system will also be incorporated into the emissions control system to control carbon monoxide (CO) and volatile organic compound (VOC) emissions. Accessories for each CTG include inlet air filters with silencers, evaporative inlet air coolers, fuel gas scrubber, fuel gas heater, turbine/generator control system, lube oil cooling system, DLN combustion system, compressor wash system, fire detection and protection system, generator cooling system and electrical starting system.

The TPP will not include a cooling tower and will therefore have a minimal water demand. The plant will require water for the CTG evaporative coolers, fire protection, plant general services, and domestic use. Plain View Water District (PVWD) will supply the TPP with industrial process water and non-potable domestic water from the Delta-Mendota Canal. Drinking water for the facility will be provided by a local bottled-water vendor. The plant will be a near-zero wastewater discharge facility. Small quantities (less than 1 gallon per minute) of industrial wastewater from the plant will be stored on site and periodically transported from the plant via licensed haulers for off-site recycle or disposal.

The TPP will be operated by operations and maintenance employees from other existing GWF facilities in the area. Operations and maintenance personnel will be dispatched to operate the plant when it is scheduled to operate by the California Department of Water Resources (DWR). GWF has signed a contract with the DWR that provides for the purchase of up to 4,000 hours per year of plant generation. GWF wishes to retain the flexibility to operate the plant for sale of electricity beyond the contracted hours, contingent upon demand requirements of the Independent System Operator–managed transmission distribution system. The facility will be capable of operation seven days a week, 24 hours a day. The project is expected to have an overall annual capacity factor of approximately 50 percent or more. However, the exact operational profile of the plant cannot be defined, because the facility will be operated to satisfy the demand of the system.

EMISSION CONTROLS

The exclusive use of pipeline-quality natural gas, a relatively clean-burning fuel, will 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, thus resulting in relatively low emissions of the above-mentioned pollutants.

The combustion turbine generator will employ inlet air evaporative coolers for maximum efficiency on hot days. In addition, the CTG will be equipped with a dry low NO_x (DLN) combustion system to control the nitrogen oxide concentration exiting each CTG. Emission control equipment for each train will also include a 375-horsepower (hp) blower to dilute and cool the hot CTG exhaust gases and reduce the exhaust temperature to 850°F, and an air distribution system to maintain uniformity in the exhaust gas temperature. Post-combustion NO_x control will be provided using a selective catalytic reduction system. The SCR system will use aqueous ammonia to

reduce the nitrogen oxides to 5 or less parts per million by volume, dry (ppmvd) at 15 percent oxygen (O_2). Unreacted ammonia (ammonia slip) is present in the CTG exhaust. Ammonia slip will be limited to 10 ppmvd at 15 percent O_2 on a 24-hour average basis. The SCR equipment will include a reactor chamber, catalyst modules, ammonia storage, ammonia vaporization and injection system, and monitoring equipment. Carbon monoxide and volatile organic compounds (VOC) will be controlled at the CTG combustor and by an oxidation catalyst. CO will be limited to 6 or less ppmvd at 15 percent O_2, and VOC will be limited to 2 or less ppmvd at 15 percent O_2. Particulate emissions will be controlled using natural gas as the sole fuel for the CTG.

A 100-foot-tall stack will be provided to release the exhaust gas into the atmosphere. Continuous emission monitors (CEMs) will be installed on the exhaust stack for NO_x, CO and oxygen to assure adherence with the proposed CTG emission limits. The CEM system will generate reports of emissions data in accordance with permit requirements and will send alarm signals to the plant control room when the level of emissions approaches or exceeds pre-selected limits. Additionally, a preselected high exhaust temperature level, used to avoid potential heat damage to the SCR system, will cause an automatic shutdown of the turbine.

The emergency diesel generator will be operated in the event of utility power interruption and up to 200 hours per year for maintenance and required testing. Add-on controls have not been used in practice on this type of source, due to limited operation of the generator. The engine will be designed with turbocharger and intercooler/aftercooler controls to limit NO_x emissions to 5.09 g/bhp-hr (grams per engine brake horsepower hour) and positive crankcase ventilation (PCV) to control VOC emissions. Operation with low-sulfur diesel fuel will limit SO_2 emission and the PM_{10} emission will be required to meet current “best available control technology” (BACT) standards.

PROJECT OPERATING EMISSIONS

Air emissions will be generated from operating the major project components of the proposed TPP. **AIR QUALITY Table 11** summarizes the maximum (worst-case) estimated levels of the different criteria pollutants from the turbines and emergency diesel generator. To assess worst-case annual emissions for the turbine and the emergency diesel generator, the following assumptions were made:

- During each quarter, each turbine will experience 62 startup/shutdown events and 2,000 hours of operation at 100 percent load and an annual average temperature of 59°F.
- Turbine is assumed to operate for 8,000 hours per year.
- Turbine emissions based on hourly emission rates provided by the manufacturer. PM_{10} emissions include both filterable (front-half) and condensable (back-half) particulates.
- Emergency diesel generator emission based on 11-hours per day (maximum emergency use) or 200 hours per year of operation (maximum non-emergency use).
- The emergency diesel generator properties are estimated using an EPA emission factor (60°F) of 9,051 dscf/MMBtu, a fuel heating value of 140,000 Btu/gal (AP-42,

Table 3.3-1), Brake-Special Fuel Consumption (BSFC) of 7,000 Btu/hp-hr (AP-42, Table 3.3-1), and fuel usage of 19 gal/hr at 100 percent load.

Actual emissions from the facility will vary depending on electricity demands from California, but at no time be higher than the maximum permitted levels.

Air Quality: Table 11
TPP Maximum Turbine Emissions
Normal Operations (lbs)

Pollutant	Hourly Emissions Per Turbine	Daily Emissions Per Turbine[a]
NO_x	26.45	493.3
CO	26.57	235.7
PM_{10}	10.4	249.6
SO_2	0.78	18.7
VOC	2.42	42.4
Ammonia[b]	19.55	469.2

Source: SJVAPCD (SJVAPCD 2001c)
Notes:
[a] – Includes one startup.
[b] – Staff estimate based on ratio of maximum NO_x emissions, specifically:
10 ppm ammonia / 5 ppm NOx * 26.45 lbs/hr NO_x * 17 lbs/lb-mole ammonia / 46 lbs/lb-mole NO_2 = 19.55 lbs/hr ammonia.

Two gas turbine operational modes are evaluated to assess maximum or “worst-case” emissions from the gas turbine: base-load and startup/shutdown modes. Hourly emission rates are calculated from equipment vendor estimates for three load conditions (60, 80, and 100 percent) and at a range of three ambient temperatures (15°F, 59°F, and 115°F, at 100, 60, and 30 percent relative humidity, respectively). These are presented in **AIR QUALITY Table 12**. Emission rates include the effect of ammonia injection and SCR emission controls and the oxidation catalyst.

Air Quality: Table 12
TPP Criteria Pollutant Emission Rates from each Turbine with SCR and Oxidation Catalyst During Normal Operation (pounds per hour, lb/hr)

		Ambient Temperature		
CTG Load	**Pollutant**	**15 °F**	**59 °F**	**115°F**
100%	NO_x	20.17	18.37	16.63
	CO	8.36	7.64	6.83
	PM_{10}	10.4	10.3	10.3
	SO_2	0.61	0.70	0.50
	VOC	1.72	1.59	1.46
80%	NO_x	16.71	15.51	14.32
	CO	8.16	6.26	5.64
	PM_{10}	10.3	10.3	10.3
	SO_2	0.50	0.46	0.43
	VOC	1.60	1.30	1.20
60%	NO_x	14.32	13.39	12.38
	CO	7.10	5.31	8.23
	PM_{10}	10.3	10.3	10.2
	SO_2	0.43	0.40	0.37
	VOC	1.35	1.10	1.65

From AFC (GWF 2001a) Table 8.1-14, pg. 8.1-48. Maximum emission rates at 100% load and 59°F from Final Determination of Compliance (SJVAPCD 2001a), pages 4-5.
Note(s):

a. A SO_x emissions rate of 0.70 lb/hr was calculated using the CTG's maximum heat input of 990.6 MMBtu/hr (@ 100% load and 59°F) by performing a mass balance assuming 1000 Btu/scf (hhv) for natural gas, and a natural gas sulfur content of 0.25 gr S/100 scf.

For the emergency diesel generator, emission rates are provided by the Applicant and guaranteed by the manufacturer. These are given in **AIR QUALITY Table 13**.

Air Quality: Table 13
TPP Criteria Pollutant Emission Rates
For the Emergency Diesel Generator

Pollutant	Emissions (Total lb/hr)	Emissions (Total g/hp-hr)
NO_x	4.29	5.09
CO	0.95	1.13
PM_{10}	0.11	0.13
SO_2 [a]	0.135	0.135
VOC	0.12	0.14

From FDOC (SJVAPCD 2001a) page 3.
Note(s):
a. SO_x determined from mass balance assuming a sulfur content of 0.05% in the diesel fuel.

The annual emission limits for the turbines and emergency engine are shown in **AIR QUALITY Table 14**.

Air Quality: Table 14
TPP Worst-Case Annual Emissions (lb/year)

Pollutant	Two Turbines	Emergency Diesel Generator	Total Emissions
NO_x	306,920	857	307,777
CO	143,240	190	143,430
PM_{10}	164,800	22	164,822
SO_2	11,200	27	11,227
VOC	26,712	24	26,736
Ammonia	211,040	--	211,040

From proposed Authority to Construct (SJVAPCD 2001b), page 4.

The Annual CO and VOC turbine emissions are based on the expected emissions profile provided in **AIR QUALITY Table 12**.

Startup

Expected emission rates for NO_x, CO, SO_2, PM_{10} and VOC during startup and shutdown events are summarized in **AIR QUALITY Table 15**.

Air Quality: Table 15
TPP Criteria Pollutant Emission Rates for the Turbine During Startup and Shutdown

Pollutant	Startup 20 Minutes (Total lb/event)	Shutdown 30 Minutes (Total lb/event)
NO_x	13.0	13.0
CO	21.0	21.0
PM_{10}	2.6	2.6
SO_2 [b]	0.08	0.08
VOC [a]	1.27	1.27

From AFC (GWF 2001a) Table 8.1-15, pg. 8.1-48. NO_x, CO, PM_{10} and VOC data from FDOC (SJVAPCD, 2001a), page 5.
Note(s):
a. The AFC doesn't provide VOC information. FDOC provides a note regarding the estimated VOC emissions. It reads: " No manufacturer startup or shutdown VOC emissions data are available. Therefore, the startup and shutdown emission rate is estimated based on the worst case scenario of a 30 minute portion of the maximum hourly emission rate at 2.0 ppmvd @ 15% O_2 as follows: 2.54 lb/hr x 30/60 hr = 1.27 lb/event."
b. The FDOC shows SO_x emissions as N/A noting that "SO_x emissions during startups and shutdowns are always lower than maximum hourly emissions as SO_x emissions are proportional to fuel flow."

Initial Commissioning

Startup and commissioning for the TPP CTGs is estimated to occur over approximately six-weeks from first fire to full load commercial operation. As a worst-case scenario, it is assumed that the TPP will perform startup and commissioning on both of the units in parallel. In reality, however, each CTG will need to be commissioned on a slightly staggered schedule to best utilize on-site personnel and resources.

The owner will minimize emissions of CO, NO_x, and other pollutants by limiting the test time of each commissioning activity to the shortest duration feasible. The NO_x and CO catalyst will be installed at the earliest possible time in the testing cycle, consistent with manufacturer's recommendations.

Prior to initial startup of each CTG, a continuous emissions monitoring (CEM) system will be installed, tested, and calibrated to measure criteria pollutants during startup and commissioning.

The operation of the CTG without abatement will be limited to those commissioning activities whereby the SCR and CO catalyst must not be installed.

The range of commissioning activities for each CTG includes the following: 1) first fire; 2) full speed no load operation; 3) synchronization and load test; 4) off-line for water wash and loading SCR catalyst; 5) turbine optimization “load tests”; 6) operation with SCR and catalyst / CEM certification; 7) final plant tuning; 8) performance test; and 9) reliability run. Fuel consumption data and load conditions for each commissioning event are provided in **AIR QUALITY Table 16**. Fuel flow per commissioning event is tied to load conditions, with first fire and full speed no load (FSNL) events at zero; synchronization and load testing under variable loads from 0 to 100 percent; and after the catalyst bed is loaded, optimization and catalyst/CEM certification is performed from 60 to 100 percent load, and final plant tuning, performance testing, and reliability run at 100 percent load. The maximum duration of the initial commissioning process is 30 days.

AIR QUALITY: TABLE 16
Initial Turbine Commissioning Emissions

Commissioning Activities	Calendar Duration	Firing Duration	Maximum Fuel Flow	Exhaust Flow	CO	NO_x	VOC	NH_3
	(Days)	(Hours)	(MMBtu/h, LHV)	(1000 lb/hr)	ppmvd @ 15 % O_2			
First Fire	3	8	230	1,384	106	86	14	0
Full Speed, No Load Operation	4	12	230	1,384	106	86	14	0
Synchronization And Load Test	3	30	230 to 886	1,384 to 2,378	48 to 204	50 to 72	1.2 to 8.8	0
Outage – Water Wash and Load Catalyst	3	0	0	0	0	0	0	0
Turbine Optimization "Load Tests"	2	24	641 to 886	1,662 to 2,378	25	9	2	0
Operation with SCR Catalyst / CEM Certification	4	48	641 to 886	1,662 to 2,378	6	9 to 5	2	20 to 10
Final Plant Tuning	2	48	886	2,378	6	5	2	10
Performance Test	2	48	886	2,378	6	5	2	10
Reliability Run	7	168	886	2,378	6	5	2	10

Data Response # 7 (GWF 2001b), Attachment 2.1-6, "Summary Emissions Table."
Note(s):
a. Emission values for NO_x and CO are assumed to be two times the vendor guarantee.
b. To assess the commissioning impacts for PM_{10} and SO_2, the highest emissions (no catalyst) presented in the AFC (GWF 2001a) for PM_{10} (front and back catch) and SO_2 under 100% load conditions (10 lb/hr and 0.61 lb/hr, respectively) were assumed.
c. Emissions were modeled with the full speed no load (FSNL) exhaust gas flow rate of 1,384,000 lb/hr at an ambient temperature of 63°F.
d. The dilution air system will be tested and commissioned prior to the SCR commissioning to avoid the possibility of overheating and/or damaging the SCR catalyst. (DR #10, GWF 2001c)

ANALYSIS AND IMPACTS

PROJECT SPECIFIC IMPACTS

The Environmental Checklist (see below) is presented in the California Environmental Quality Act (CEQA) guidelines to assist lead agencies in their analysis of project impacts. We provide this checklist as a summary of staff's conclusions regarding the potential for adverse significant project impacts. Following the checklist is a discussion of staff's analysis and rationale for these conclusions.

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?		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

a) Air Quality Plan Assessment

The proposed project is located in an unincorporated portion of San Joaquin County, and is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD, or District). The area is designated as nonattainment for both federal and state ozone and PM_{10} standards. Ozone is classified by federal and state standards as severe nonattainment. PM_{10} is designated as serious nonattainment and nonattainment by federal and state standards, respectively. The area either attains the federal and state standards or cannot be classified for each of the other criteria pollutants (i.e. NO_2, CO and SO_2).

The District is the lead agency for managing air quality and coordinating planning efforts within the San Joaquin County portion of the San Joaquin Valley Air Basin so that the ozone and PM_{10} standards are attained in a timely fashion. The District is responsible for developing that portion of the State Implementation Plan (SIP), and the Air Quality Management Plan (AQMP), that deals with certain stationary and area source controls and, in cooperation with the transportation planning agencies (TPAs), the development of transportation control measures (TCMs). The California Air Resources Board (CARB) is responsible for submitting the SIP to U.S. EPA.

The SJVAPCD rules and regulations specify the emissions control and offset requirements for new sources such as the Tracy Peaker Project. Best Available Control Technology will be implemented, and emission reduction credits (ERCs), obtained by the Applicant and approved and certified by the SJVAPCD, will fully mitigate project nonattainment pollutant (including precursors) emissions so that they would be consistent with the strategies and future emissions anticipated under the AQMP.

The District issued a Final Determination of Compliance (FDOC) on October 5, 2001 for the Tracy Peaker Project (SJVAPCD 2001a) and they determined that the project complied with all District Rules and Regulations. The District subsequently made minor adjustments to the hourly and daily emission limits listed in the conditions of the FDOC and reissued the FDOC on December 5, 2001 (SJVAPCD 2001c).

b) Ambient Air Quality Assessment

The Applicant must demonstrate that the TPP will not cause or contribute to exceeding any State or Federal AAQS. To evaluate the project's potential impacts on the existing ambient air pollutant levels, the Applicant performed an air dispersion modeling analysis, both for construction activities and plant operations. Air dispersion modeling provides estimates of the ground level concentrations of the pollutants emitted by the proposed project.

The Applicant's modeled impacts were then added to the highest recorded ambient concentrations measured during 1998 through 2000 at the most representative available monitoring stations, as shown in **AIR QUALITY Table 9**. Staff compared the results of the modeling analysis with the ambient air quality standards for each respective air contaminant to determine whether the project's emission impacts would cause a new violation of the ambient air quality standards or contributes to an existing violation.

With the exception of the project's construction and operations PM_{10} emission impacts, the project is not expected to cause any new violations or measurably contribute to any existing violations of any ambient air quality standards. The projects operating emissions are being controlled to the greatest feasible extent and the emissions of all nonattainment pollutants and their precursors (NO_x, VOC, PM_{10} and SO_2) are being fully offset so that the projects operating emissions balance is a net emission decrease for the air basin. The projects construction PM_{10} emissions are being controlled to the greatest feasible extent and staff is recommending the that the emission offsets be surrendered prior to project construction so that the project's construction emissions balance is also a net emission decrease for the air basin.

c) Cumulative Impacts

As described in the Cumulative Impacts below, the proposed project's cumulative impacts would not create violations of NO_2, SO_2 or CO standards, but could further exacerbate violations of the PM_{10} standards. In light of the existing PM_{10} non-attainment status for the project site area, the modeled impacts are considered to be significant. Additionally, other non-stationary development projects in the region, such as the Mountain House Development have indicated that there is the potential for significant cumulative impacts for PM_{10}. However, these three power plant projects, unlike the non-stationary development projects, are mitigating their PM_{10} and PM_{10} precursor emissions through the use of best available emission controls and emission offsets. Therefore, with the mitigation proposed for this project, and included in the proposed Conditions of Certification, staff does not consider this project to measurably contribute to cumulative impacts of PM_{10}.

d) Existing Residential and Sensitive Receptors

Power Plant Site

The site is located in an industrial/agricultural area in an unincorporated portion of San Joaquin County that is a short distance southwest of the incorporated border of the City of Tracy. The nearest public receptors are workers from neighboring businesses, including those that may work periodically in adjacent agricultural fields. The nearest residences are approximately 0.4 miles west of the site, and 0.8 miles to the east and southeast of the site along Lammers Road. The nearest businesses are the Owens-Brockway glass container manufacturing facility, the Nutting-Rice Warehouse and the Tracy Biomass power plant. There are no schools, hospitals, elderly care facilities, or other special types of air pollution sensitive receptor facilities known to exist within the general vicinity (i.e. within a one mile radius) of the project site. The closest known sensitive receptors are the Lammersville Elementary School and the Tracy Community Church School located approximately 3 miles northwest and northeast of the TPP site, respectively.

Linear Facilities

The natural gas and transmission line connections will tie in to existing utilities that cross the project site, while the water line connection will be 1,470 feet long and will extend off site to the southeast along the Delta-Mendota Canal. The water line route extends to within approximately one-half mile of the nearest residence. There are no known schools, hospitals, parks, or other sensitive land uses located within one-mile of the proposed off-site water pipeline route.

Temporary Construction Emissions

The proposed project would generate temporary emissions from constructing the on-site TPP power generating facilities, including the gas and transmission connections, and the associated off-site water pipeline. The modeling analysis indicates that there are no significant impacts expected as a result of the construction's NO_x, SO_x, VOC or CO emissions. However, the PM_{10} emissions from the project's construction activities have the potential to contribute to existing violations of ambient air quality standards. As a result, without mitigation some residential land uses would have the potential to experience short-term adverse air quality impacts. However, the project is being required to conduct extensive construction PM_{10} emissions mitigation to reduce the impacts from the construction activities, including offsetting the construction emissions to a net negative emission balance.

Operation Emissions

The proposed project would generate a substantial level of criteria pollutant emissions from operating the 169 megawatt (MW) natural gas-fired simple cycle power plant. The modeling analysis indicates that there are no significant impacts expected as a result of the operating NO_x, SO_x, VOC or CO emissions. However, the PM_{10} emissions from the project's operating activities have the potential to very marginally contribute (maximum impact at any location is less than 4 percent of the 24-hour CAAQS and less than 0.2 percent of the annual CAAQS) to existing violations of ambient air quality standards. However, the project has fully offset all PM_{10} and PM_{10} precursor emissions through the

purchase of emission reduction credits. Further, the project operating PM_{10} impacts at the nearest residences are predicted to be less than 0.2 percent of the 24-hour CAAQS and less than 0.04 percent of the annual CAAQS. The closest sensitive receptors are located approximately three miles from the proposed site and are not located at high elevations. Their maximum project impacts are predicted to be less than 0.02 percent of the 24-hour CAAQS and less than 0.005 percent of the annual CAAQS. As a result, it is assumed that the criteria pollutant emission generated from this project would not cause any measurable PM_{10} impacts to sensitive receptors.

e) Odor Assessment

No impact is anticipated from the operation of the main power facilities, as no significant emissions of odorous compounds will result from the gas turbines or emergency generator exhausts under normal operations. The stack emissions will be limited to 10 ppm on a 24-hour basis. There is the potential for somewhat higher short-term ammonia emission concentrations (i.e., concentration spikes) being emitted from the stack, particularly during startup, shutdown or during load swings. However, after dispersion the maximum ammonia concentrations at ground level will be well below the odor threshold. Odors resulting from accidents could occur, please see the Hazardous Material Section for further discussion of the consequence analysis of ammonia storage and handling accidents.

Additionally, no odors are expected from the operation of the zero discharge wastewater treatment system, or any other auxiliary system at the project site.

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 very conservative assumptions, such as 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 has used the U.S. EPA's Industrial Source Complex (ISC) Model, version 00101, to estimate the impacts of the project's estimated NO_X, PM_{10}, CO and SO_X emissions resulting from project construction and operation, as well as cumulative impacts during operation. The ISC model is a steady-state Gaussian plume model, appropriate for regulatory use that can be used to assess pollution concentrations from a wide variety of sources associated with an industrial source complex.

For the 1-hour construction NO_x modeling the Applicant provided a refined modeling analysis using the ozone limiting method (OLM). This method calculates the maximum NO to NO_2 conversion using ozone concentration files to determine maximum 1-hour NO_2 concentrations assuming that 10 percent of the tailpipe NO_x is NO_2 and that there is, over time, a 100 percent conversion of NO to NO_2 through a chemical reaction with the ozone. This method is somewhat conservative in that it does not consider mixing or

ozone consumption limitations in determining maximum NO_2 concentrations. This is a modeling method accepted by the USEPA and CARB for 1-hour NO_2 modeling.

A description of the Applicant's modeling analyses is provided in Section 8.1.4.3 of the AFC (GWF 2001a, pages 8.1-25 to –30) and in the data response (GWF 2001c, page 2.1-2). The Applicant utilized hourly meteorological data collected at Tracy, for the years 1997 through 1999, as recommended by SJVAPCD.

Staff refined the PM_{10} cumulative modeling using refined emission source information from the TPP, the Tesla Power Plant Project and the East Altamont Energy Center project, which were not available to the Applicant at the time of their analysis. Staff's refined PM_{10} cumulative modeling analysis used the same model and meteorological data and same general modeling approach as that used by the Applicant.

CONSTRUCTION IMPACTS

The following section discusses the project's short-term direct construction ambient air quality impacts, as estimated by the Applicant and, as necessary, separately estimated by CEC staff.

Applicant Construction Impact Analysis

The Applicant modeled the emissions of the TPP main site construction activities. This analysis was completed using the ISCST3 (Version 00101) model. A simplified approach of six surrogate point source stacks for construction equipment emission and a site-wide volume source for fugitive dust modeling was employed. The emissions were modeled using hourly temporal factors (i.e. assumed a 20 hours/day, 7 days/week construction work schedule, 4 am to midnight) when modeling the short-term averaging periods (i.e. 1-hour through 24-hour). **AIR QUALITY Table 17** provides the results of this modeling analysis.

AIR QUALITY: Table 17
Tracy Peaker Project Ambient Air Quality Impact
Applicant Construction ISC Modeling Results

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
NO_2 [a]	1-Hour	319.5	148.5	468	470	CAAQS	99
	Annual	20.3	28.3	48.6	100	NAAQS	49
PM_{10}	24-Hour	27	150	**177**	50	CAAQS	**354**
	Annual	1.7	30.2	**31.9**	30	CAAQS	**106**
CO	1-Hour	2,501	12,995	15,496	23,000	CAAQS	67
	8-Hour	1,383	8,778	**10,161**	10,000	CAAQS	**102**
SO_2 [b]	1-Hour	38	128	166	655	CAAQS	25
	3-Hour	24	116	140	1,300	NAAQS	11
	24-Hour	7.9	32	40	105	CAAQS	38
	Annual	0.5	5.3	5.8	80	NAAQS	7

From Data Response #2 (GWF 2001b), Attachment 2.1-3, Table 8.1-29 (New).
Note(s):
(a) 1-hour NO_x value is from the new NO_2 modeling using NO_x-OLM for the months of Feb-July (DR #2D, GWF 2001c). The NO_2 background value is from the Tracy-Patterson Road station, 1998 (0.079 ppm or 148.5 $\mu g/m^3$). The Annual value is multiplied by the Annual NO_x Annual Ratio Method (ARM) of 0.75.
(b) The SO_2 concentrations have been adjusted to reflect a reduction in the diesel fuel sulfur content assumed (0.25% sulfur) to the California regulated maximum diesel fuel sulfur content (0.05% sulfur).

As can be seen from the modeling results provided in **Table 17**, the construction PM_{10} (24-hour and annual) and CO (8-hour) impacts exceed the ambient air quality standards and are therefore significant.

The maximum modeled project construction impacts are predicted to occur at the fence line and they decrease significantly with distance. Additionally, residential receptors do not exist at the fence line so the maximum modeled PM_{10} concentration at the maximum exposed residence will be significantly lower than that shown above. A review of the Applicant's modeling results show that at the closest residential receptor, located approximately 0.4 miles west of the site, the maximum modeled PM_{10} 24-hour concentration is approximately 1/6th the maximum fence line concentration shown in **Table 17**, and the maximum modeled PM_{10} annual concentration is approximately 1/8th the maximum fence line concentration. Additionally, the Applicant's modeling results show that at the residential receptors located on and east of Lammers Road, located approximately 0.8 miles and greater from of the site, the maximum modeled PM_{10} 24-hour concentration is approximately 1/14th the maximum fence line concentration shown in **Table 17**, and the maximum PM_{10} annual concentration is approximately 1/8th the maximum fence line concentration.

The maximum modeled project NO_2 1-hour construction impacts are also predicted to occur at the fence line and they also decrease significantly with distance. The maximum NO_2 concentration at the maximum exposed residence will be significantly lower than that shown above. A review of the Applicant's modeling results shows that at the closest residential receptors, located approximately 0.4 miles west of the site and on and east of Lammers Road, located approximately 0.8 miles and greater from of the site, the maximum modeled NO_2 1-hour concentration is less than one-half of the maximum fence line concentration shown in **Table 17**.

Staff Construction CO Impact Analysis

Staff has reviewed the CO emission estimates and has found that the Applicant has overestimated the CO emission potential from the gasoline powered construction equipment. Using more current and/or more specific emission factors staff has recalculated the hourly CO emissions from the gasoline powered vibratory plate compactor, rammer, portable generator and flat bed truck. A comparison of the original emission estimate and staff's emission estimate is provided in **AIR QUALITY Table 18**.

AIR QUALITY: Table 18
Tracy Peaker Project
Revised Carbon Monoxide Emission Calculations

Equipment Item	Applicant Estimate (lbs/hr)	Staff Estimate (lb/hr)	Staff Emission Factor Source
Vibratory Plate	5.1	1.3	California Code of Regulations[a]
Rammer/Jumping Jack	5.1	1.3	California Code of Regulations[a]
7 kW Portable Generator	6.8	3.7	California Code of Regulations[a]
Flat Bed Truck w/Rails[b]	6.8	0.3	SCAQMD CEQA Handbook Table A9-5-K-6
Subtotal	23.8	6.6	
All other equipment	12.0	12.0	(Applicant's estimate unchanged)
Total	35.8	18.6	

a – Article 1 and Article 3, Chapter 9, Division 3, Title 13 (Emission Standards for Small Off-Road Engines), where the assumed engine emission standard is 400 grams/bhp-hr.
b – Assumed to be an on-road vehicle that meets California on-road vehicle emission standards.

The modeling results are linear with the assumed emission rate; therefore, the revised CO construction modeling results were determined through a linear multiplication of the ratio of the staff's estimated hourly CO emission rate versus the Applicant's estimated hourly CO emission rate. The resultant estimated maximum CO concentrations are provided in **AIR QUALITY Table 19**.

AIR QUALITY: Table 19
Tracy Peaker Project Ambient Air Quality Impact
Staff Revised CO Construction Concentration Results

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
CO	1-Hour	1,299	12,995	14,294	23,000	CAAQS	62
	8-Hour	719	8,778	9,497	10,000	CAAQS	95

It should also be noted that the background concentrations used from an urban monitoring site in Stockton almost certainly overestimate the short-term maximum background CO concentrations that occur at the more rural TPP site area.

The PM_{10} and CO construction emissions will also be mitigated by the emission reduction credits that the Applicant has acquired for the operations phase of the project. Staff is recommending that those emission reduction credits be surrendered prior to the initiation of construction.

OPERATION IMPACTS

The following section discusses the project's direct ambient air quality impacts, as estimated by the Applicant, and evaluated by CEC staff. The Applicant performed a number of direct impact modeling analyses for this project including ambient air quality impact modeling and fumigation modeling.

Operational Modeling Analysis

A refined modeling analysis was performed to identify off-site criteria pollutant impacts from operational emissions of the proposed project. The impact modeling analysis included both maximum operating and startup/shutdown scenarios to determine maximum short-term and annual emission impacts. Hourly emission rates were calculated from equipment vendor estimates for three load conditions (60, 80, and 100 percent) and at a range of three ambient temperatures (15°F, 59°F, and 115°F, at 100, 60, and 30 percent relative humidity, respectively). The annual emissions modeling assumed turbine operation at 100 percent load and an annual average temperature of 59°F for 8,000 hours per year. Startup/shutdown mode, including 250 startups and 250 shutdowns, accounts for an additional 208 hours and 20 minutes. The remainder of time is turbine downtime. In the modeling analysis the diesel generator was assumed to operate for 15 minutes per week for reliability confirmation (13 hours/year of operation).

The ISCST3 model (Version 00101) was used for the refined modeling analysis. For this refined modeling analysis, the Applicant conducted a Good Engineering Practice (GEP) stack height analysis using the Building Profile Input Program (BPIP) Version 98086, and downwash effects were modeled for the facility using the ISCST3 model. Three years of meteorological data (1997-1999) were obtained from the SJVAPCD for the Tracy area and used in the modeling analysis.

The Applicant's predicted maximum hourly concentrations of the nonreactive pollutants are summarized in **AIR QUALITY Table 20.**

Air Quality: Table 20
Tracy Peaker Project Ambient Air Quality Impact
Applicant Routine Plant Operation ISC Modeling Results

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)[a]	Background ($\mu g/m^3$)[b]	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
NO_2	1-Hour	24.6[c]	148.5	173	470	CAAQS	37
	Annual	0.053	28.3	28.4	100	NAAQS	28
PM_{10}	24-Hour	2.11	150	**152**	50	CAAQS	**304**
	Annual	0.03	30.2	**30.5**	30	CAAQS	**102**
CO	1-Hour	46.9	12,995	13,042	23,000	CAAQS	57
	8-Hour	6.81	8,778	8,785	10,000	CAAQS	88
SO_2	1-Hour	34	128	162	655	CAAQS	25
	3-Hour	11.3[d]	116	127	1300	NAAQS	9
	24-Hour	1.4[d]	32	33.4	105	CAAQS	32
	Annual	0.004	5.3	5.3	80	NAAQS	7

From AFC (GWF 2001a), Table 8.1-19, page. 8.1-51.
Note(s):
a. Worst-case impact for applicable averaging time.
b. Background represents the maximum value measured at Tracy or Stockton, 1995-2000 (except for SO_2, which was measured at Fresno).
c. The maximum hourly NO_x impact modeled assuming that the emergency engine is operating is 212 $\mu g/m^3$, which including the maximum hourly background concentration provides a resulting maximum 1-hour NO_2 concentration of 361$\mu g/m^3$.
d. The 3-hour and 24-hour maximum concentrations provided by the Applicant are not consistent with the 1-hour maximum. The maximum short-term SO_2 concentrations are due to the operation of the emergency engine. Since the operation of the emergency engine will be limited, with the exceptions of an actual emergency, to less than one-hour per day for testing purposes the maximum 3-hour and 24-hour concentrations can be expressed to be at least 1/3rd and 1/24th the maximum 1-hour concentration, respectively.

The Applicant's modeling results indicate that the project's operational impacts would not create violations of NO_2, SO_2 or CO standards, but could further exacerbate violations of the PM_{10} standards. In light of the existing PM_{10} non-attainment status for the project site area, the modeled impacts are considered to be significant and therefore must be mitigated.

The maximum modeled 1-hour NO_2 concentration shown in **Table 20** is 100 percent of the modeled turbine NO_x concentrations; no adjustment for NO/NO_2 ratio was considered. The location of the modeled maximum 1-hour turbine NO_2 impact is approximately 2 miles south-southwest of the site in elevated terrain 700 feet above the project site. The maximum hourly NO_2 modeled during the infrequent operation of the emergency engine, assuming no adjustment for NO/NO_2 ratio, could be as high as 212 $\mu g/m^3$, which with the addition of the worst-case hourly background NO_2 concentration is still well below the 1-hour NO_2 standard. The location of the maximum 1-hour NO_2 impact when the emergency engine is operating is approximately 130 feet south southwest of the emergency engine. The maximum modeled project NO_2 concentration impacts at existing off-site residences and sensitive receptor locations, which are not located near the point of maximum impact for the turbines or emergency engine, will be considerably less than maximum 212 $\mu g/m^3$ when the emergency engine is operating and considerably less than 24.6 $\mu g/m^3$ during most of the hours of year when the emergency engine is not operating.

Due to the significant buoyancy of the hot turbine exhausts, the maximum project operational 24-hour PM_{10} impacts are predicted to occur at elevated terrain

approximately 2 miles to the south-southwest of the site. The maximum project operational annual PM_{10} impacts are predicted to occur at elevated terrain more than 2.5 miles to the west and south of the project site. A review of the Applicant's modeling results show that at the closest residential receptor, located approximately 0.4 miles west of the site, the maximum PM_{10} 24-hour concentration is approximately 1/250th the maximum concentration shown on **AIR QUALITY Table 20**, and the maximum PM_{10} annual concentration is approximately 1/40th the maximum fence line concentration. Additionally, the Applicant's modeling results show that at the residential receptors located on and east of Lammers Road, located approximately 0.8 miles and greater from of the site, the maximum PM_{10} 24-hour concentration is approximately 1/26th the maximum fence line concentration shown in **AIR QUALITY Table 20**, and the maximum PM_{10} annual concentration is approximately 1/5th the maximum concentration.

The Applicant modeled the initial commissioning based on the information provided in **AIR QUALITY Table 16**, assuming both CTGs are being commissioned at the same time, with short-term emission estimates that reflect higher commissioning emissions. The modeling analysis performed incorporates maximum emissions for all averaging times for each criteria pollutant modeled. The commissioning modeling results are provided in **AIR QUALITY Table 21**.

AIR QUALITY: TABLE 21
Commissioning Modeling Analysis Results

Pollutant	Averaging Period	Project Impact (µg/m^3)	Background (µg/m^3)	Total Impact (µg/m^3)	Limiting Standard (µg/m^3)	Type of Standard	Percent of Standard
NO_2	1-Hour	129.9	148.5	278	470	CAAQS	59
CO	1-Hour	210.3	12,995	13,205	23,000	CAAQS	57
	8-Hour	87	8,778	8,865	10,000	CAAQS	89
PM_{10}	24-Hour	1.01	150	**151**	50	CAAQS	**302**
SO_2	1-Hour	0.94	128	129	655	CAAQS	19
	3-Hour	0.58	116	117	1,300	NAAQS	9
	24-Hour	0.062	32	32	105	CAAQS	30

Data Response # 7 (GWF 2001b), Attachment 2.1-8, Table 8.1-32 (New).

As can be seen from the modeling results provided in **AIR QUALITY Table 21**, the project's commissioning impacts, except for PM_{10}, are not predicted to cause or contribute to exceedances of ambient air quality violations. The PM_{10} 24-hour impacts shown in **AIR QUALITY Table 21** are somewhat less than the maximum operating PM_{10} impacts shown on **AIR QUALITY Table 20**.

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.

Fumigation conditions are generally only compared to 1-hour standards. The Applicant analyzed the air quality impacts under fumigation conditions from the project turbine using the SCREEN3 model (Version 96043). The results of the analysis, as shown in **AIR QUALITY Table 22**, indicate that the fumigation impacts would not exceed applicable 1-hour AAQS.

Air Quality: Table 22
Maximum 1-Hour TPP Fumigation Impacts

Pollutant	Maximum Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total ($\mu g/m^3$)	Standard ($\mu g/m^3$)	Standard
CO	1.83	12,995	12,997	23,000	CAAQS
NO_2	1.47	148.5	150	470	CAAQS
SO_2	0.044	128	128	655	CAAQS

From AFC (GWF 2001a), Table 8.1-20, page. 8.1-52.

Secondary Pollutant Impacts

The project's gaseous emissions of NO_x, SO_2, VOC and ammonia can contribute to the formation of 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. There are no regulatory agency models approved for assessing single source ozone impacts. However, because of the known relationship of NO_x and VOC emissions to ozone formation, it can be said that the emissions of NO_x and VOC from the TPP do have the potential (if left unmitigated) to contribute to higher ozone levels in the region.

Secondary PM_{10} 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 (EPA or CARB) recommended models or procedures for estimating nitrate or sulfate formation. However, because of the known relationship of NO_x and SO_2 emissions to secondary PM_{10} formation, it can be said that the emissions of NO_x and SO_2 from the TPP do have the potential (if left unmitigated) to contribute to higher PM_{10} levels in the region.

Since the project is proposing to fully mitigate all NO_x, VOC, and SO_2 emissions the project will mitigate its secondary pollutant formation impacts from those pollutants.

The ammonia emission from the project are due to the existence of the SCR system which controls the NO_x emissions, and are the result of 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 NO_x control system, staff still encourages the Applicant to control their ammonia slip emissions to the lowest possible extent, while maintaining the guaranteed NO_x emission limit.

VISIBILITY IMPACTS

A visibility analysis of the project's gaseous emissions is required under the Federal Prevention of Significant Deterioration (PSD) permitting program. The TPP project is not subject to PSD permitting, because it does not trigger the emission limits for such a review, so no visibility analysis was completed for this project. The nearest Class I areas (Point Reyes National Seashore and Yosemite National Park) are more than 70 miles from the project site. Due to the distance to Class I areas the project's visibility impacts on Class 1 areas are considered insignificant.

MITIGATION

Construction Mitigation

As described in the applicable LORS section, District Regulation VIII (i.e. Series 8000) rules limit fugitive dust during the construction phase of a project. Staff will recommend that construction emission impacts be mitigated to the greatest feasible extent, include all feasible measures from the LORS, as well as, other measures considered necessary by staff to fully mitigate the construction emissions.

Applicant's Proposed Mitigation

In the AFC (GWF 2001a, Appendix K-5), and AFC Supplement (GWF 2001b, Attachment 3.1-6) the Applicant has proposed three construction mitigation measures. The Applicant has proposed to provide and employ a Construction Fugitive Dust Mitigation Plan that will need to be approved by the CEC prior to initiating construction. Specific additional PM_{10} control measures identified by the Applicant include the use of crushed gravel to surface the construction laydown areas and covering soil stockpiles with plastic (GWF 2001j, pages 2-1, 2).

Additionally, the Applicant has proposed to limit tailpipe emissions from construction equipment through the engine maintenance and idling restrictions and the use of catalyzed diesel particulate filters on all diesel fueled construction equipment larger than 100 horsepower. The Applicant's PM_{10} emissions estimates and modeling assume the use of these emission control measures.

Staff Proposed Mitigation

Staff is recommending Conditions of Certification **AQ-C1** and **AQ-C2** that require all feasible construction PM_{10} emission mitigation measures be used including those proposed by the Applicant. Staff is further recommending Condition of Certification **AQ-C3** to require feasible construction CO emission mitigation measures to ensure that no exceedances of CO standards occur as a result of the project construction.

The PM_{10} construction emissions can also be partially mitigated by the emission reduction credits that the Applicant has acquired for the operations phase of the project. Staff recommends, as part of Condition of Certification **AQ-C4**, as an additional construction mitigation that the project's operating phase emission reduction credits be surrendered prior to the initiation of construction.

Operations Mitigation

Applicant's Proposed Mitigation

Emission Controls

As discussed in the project description section, the Applicant will employ dry low NO_x (DLN) combustors, SCR with ammonia injection, an oxidation catalyst, and operate exclusively on pipeline quality natural gas to limit the project's emission levels. The FDOC (SJVAPCD 2001c) provides the following emission rates for each CTG:

- NO_x: Emissions - 5.0 ppmvd @ 15 percent O_2 and 26.45 lb/hr (3-hr rolling average)
- CO: Emissions - 6.0 ppmvd @ 15 percent O_2 and 26.57 lb/hr (3-hr rolling average)
- VOC: Emissions - 2.0 ppmvd @ 15 percent O_2 and 2.42 lb/hr (3-hr rolling average)
- PM_{10}: Emissions - 10.4 lb/hr
- SO_x: Emissions - 0.78 lb/hr
- NH_3: Emissions - 10 ppmvd @ 15 percent O_2 (24-hour rolling average)

Dilution air will be added to the exhaust to maintain safe operating temperatures for the SCR system.

Additionally, the emergency diesel generator will have to meet SJVAPCD BACT requirements. The Preliminary Decision for the Proposed Issuance of an Authority to Construct (SJVAPCD 2001b) provides the following emissions control technology or limits:

- NO_x: Turbocharger and intercooler/aftercooler
- Emissions 5.09 g/bhp-hr (grams per engine brake horsepower hour)
- VOC: Positive Crankcase Ventilation (PCV)
- PM_{10}: Emissions 0.13 g/hp-hr
- SO_x: Only CARB-certified diesel fuel with 0.05 percent sulfur by weight or very low sulfur diesel fuel (15 ppmv or less) where available.

Emission Offsets

To fully mitigate the maximum project emissions, offsets (mitigation) are required for NO_x, PM_{10}, VOC and SO_2. District Rule 2201 requires that the Applicant provide emission offsets, in the form of banked ERCs, for the project's emissions of NO_x and PM_{10}. For CEQA compliance, the CEC requires that all non-attainment pollutants and their precursors that do not require offsets by District regulation be mitigated at a minimum 1:1 ratio (i.e. for TPP such pollutants are VOC and SO_2). The Applicant intends to fully offset the project's VOC and SO_2 emissions, above both the District's and the Commission's normal requirements, using the District's distance offset ratio formula as an additional air quality benefit of the project. The Applicant is also fully offsetting the project's CO emissions, not required by the District or CEC, as an

additional air quality benefit of the project. **AIR QUALITY Table 23** shows the Applicant's estimate of the emission liabilities that need to be mitigated.

AIR QUALITY: Table 23
TPP Annual Emission Liability and Offset Proposal(lb/year)

	NO_x	VOC	PM_{10}	SO_2	CO
Turbine Emissions (2) [a]	306,920	26,732	164,800	11,200	143,240
Offset Threshold	20,000	20,000	29,200	54,750	200,000
District Offset Liability	286,920	6,732	135,600	--	--
Applicants Offset Proposal	286,920	26,732	164,800	11,200	143,240

Revised FDOC (SJVAPCD 2001c), Section VII and VIII, pages 8-10 and 16.
Note(s):
a. The maximum annual emission is the sum of the maximum quarterly potential to emit (PE). The maximum emissions from each CTG during each quarter will occur when each unit undergoes sixty-two (62) startup events, 2,000 hours of operation at 100% load, followed by sixty-two (62) shutdown events.

Emergency equipment that is used exclusively as emergency standby equipment for electrical power generation or any other emergency equipment as approved by the APCO that does not operate more than 200 hours per year for non-emergency purposes and is not pursuant to voluntary arrangements with a power supplier to curtail power, is exempt by District rules from providing emission offsets. The emergency engine emissions are minor and are within the safety margin that the Applicant is using to determine their emission offset requirements.

All air pollutant offsets provided for the project are estimated on a quarterly basis from the different determined operating sources. The Applicant is proposing several sources of offsets to mitigate the project's potential emissions. Calculations of the required ERCs are based on the distance of the project from different sources of offsets. The District requires a 1.2:1 offsetting ratio for off-site ERCs within 15 miles. For areas outside of the 15 miles, ERCs must be provided at a ratio of 1.5:1. As shown in **AIR QUALITY Table 24** through **AIR QUALITY Table 28**, the Applicant has demonstrated that they have purchased or have the rights to purchase ERCs in quantities that are sufficient to offset the project.

NO_x Emission Offsets

AIR QUALITY Table 24 provides a summary of the total project NO_x emissions and identifies the project offset sources. ERC C-278-2 was generated from the retrofit of an existing boiler with low NO_x burners and flue gas recirculation. ERC N-244-2 was also generated from the retrofit of six (6) boilers with low NO_x burners and flue gas recirculation. ERC S-1615-2 and ERC S-1701-2 were generated from the retrofit of thirty one (31) engines with precombustion chambers. ERC S-1618-2 was generated from the retrofit of three (3) engines with precombustion chambers. ERC S-1623-2 was generated from the shutdown of emissions units. ERC S-1626-2 was generated from the conversion of a turbine to gas fired only.

AIR QUALITY: Table 24
NO_x Offsets Available for the Tracy Peaker Project

Offset Source Location	Type of Credit	Credit Number	Total Q1 (lb)	Total Q2 (lb)	Total Q3 (lb)	Total Q4 (lb)
29400 Whitesbridge Rd. in Mendota, Fresno County [a]	ERCs	C-278-2	0	1,408	23,410	2,563
Value @ 1.5:1			**0**	**938.7**	**15,606.7**	**1,708.7**
Elk Hills, Section: 35 Township: 30S Range: 23E [b]	ERCs	S-1615-2	18,672.1	14,242	14,681	26,888
Value @ 1.5:1			**12,448.1**	**9,494.7**	**9,787.3**	**17,925.3**
Elk Hills, Section: 35 Township: 30S Range: 23E	ERCs	S-1618-2	39,452	39,890	40,329	40,329
Value @ 1.5:1			**26,301.3**	**26,593.3**	**26,886**	**26,886**
757 E. 11th St. in Tracy	ERCs	N-244-2	0	0	38,207	0
Value @ 1.2:1			**0**	**0**	**31,839.2**	**0**
1134 Manor Drive in Bakersfield, Kern County	ERCs	S-1626-2	6,119	24,384	14,386	6,858
Value @ 1.5:1			**4,079.3**	**16,256**	**9,590.7**	**4,572**
South Coles Levee Gas Plant, Kern County	ERCs	S-1623-2	3,614	4,047	3,267	3,646
Value @ 1.5:1			**2,409.3**	**2,698**	**2,178**	**2,430.7**
Elk Hills, Section: 35 Township: 30S Range: 23E	ERCs	Source A	14,000	14,000	14,000	14,000
Value @ 1.5:1			**9,333.3**	**9,333.3**	**9,333.3**	**9,333.3**
Sub-Total	---	---	**54,571.3**	**65,314**	**105,221.2**	**62,856**
Distribute Q3 to Q1, Q2, and Q4	---	---	17,132.7	6,390	-32,422.7	8,900
Total Offsets Available			71,704	71,704	72,798.5	71,756
Total Required [c]	---	---	71,704	71,704	71,756	71,756
Difference*	---	---	**0**	**0**	**1,042.5**	**0**
Balance Remaining on Source A (adjusted for 1.5:1 ratio) [c]	---	---			**1,563.8**	

Source: Revised Data Response #12 and #13 (GWF 2001d), Revised Attachment 2.1-10.
Note(s):
a. Certificate is shared with the Hanford Energy Park Peaker.
b. Certificate is shared with both the Hanford Energy Park Peaker and the Henrietta Peaker Plant.
c. Total Required = (Annual Emissions – Offset) = (306,920 - 20,000) = 286,920 total. The NO_x offset threshold has not been offset due to the severe shortage of NO_x ERCs available in the District (DR #13, GWF 2001c).
* A zero balance means full mitigation, a negative balance indicates an offsets deficit, and a positive balance indicates offsets are available in excess of required offset levels. Please note that the offset balance is not the same as the ERC balance.

The Applicant has fully offset the proposed project NO_x emissions and is in compliance with the offset provisions of District Rule 2201.

PM_{10} Emission Offsets

AIR QUALITY Table 25 provides a summary of the total project PM_{10} emissions and identifies the project offset sources. ERC S-1505-4, N-226-4, N-282-4, C-394-4, C-442-5, and C-445-5 were generated from the shutdown of entire stationary sources. ERC C-382-4 was generated from the shutdown of a stationary source. ERC S-1442-4 was generated from the shutdown of Earlimart Cotton Gin S-513-2 and partial transfer of ownership of ERC S-1279-4. ERC S-1452-4 was generated from the shutdown of Earlimart Cotton Gin S-513-2 and partial transfer of ownership of ERC S-1426-4. ERC

N-130-5 and N-256-5 were generated from the retrofit of two boilers (each) with lox NO_x burners and reducing the fuel oil usage of those boilers. ERC C-392-5 was generated from the shutdown of a major stationary source. ERC C-413-5 was generated from the shutdown of a major stationary source and may only be used in accordance with the New and Modified Stationary Source Review Rule in effect at the time of use.

AIR QUALITY: Table 25
PM_{10} Offsets Available for the Tracy Peaker Project

Offset Source Location	Type of Credit	Credit Number	Total Q1 (lb)	Total Q2 (lb)	Total Q3 (lb)	Total Q4 (lb)
Devil's Den Gin, Hwy. 33	ERCs	S-1505-4	0	0	0	1,000
Value @ 1.5:1			**0**	**0**	**0**	**666.7**
Third & "C" St. in Turlock	ERCs	N-226-4	3,855	3,652	2,906	3,860
Value @ 1.5:1			**2,570**	**2,434.7**	**1,937.3**	**2,573.3**
10833 S. Cornelia in Raisin City	ERCs	C-394-4	0	0	0	11,672
Value @ 1.2:1			**0**	**0**	**0**	**7,781.3**
2691 S. Cedar in Fresno	ERCs	C-382-4	3,075	3,075	3,075	3,075
Value @ 1.5:1			**2,050**	**2,050**	**2,050**	**2,050**
217 W Terra Bella Ave. in Pixley	ERCs	S-1452-4	0	0	0	12,372
Value @ 1.5:1			**0**	**0**	**0**	**8,248**
16351 Ave 40 in Earlimart	ERCs	S-1442-4	0	0	0	5,078
Value @ 1.5:1			**0**	**0**	**0**	**3,385.3**
4004 S. El Dorado in Stockton	ERCs	N-282-4	20,406	19,910	16,368	16,509
Value @ 1.5:1			**13,604**	**13,273.3**	**10,912**	**11,006**
800 W. Church St. in Stockton	ERCs	N-256-5	25,000	25,000	25,000	25,000
Value @ 2.5:1[c]			**10,000**	**10,000**	**10,000**	**10,000**
525 W. Third St. in Hanford [a]	ERCs	C-392-5	520	520	520	520
Value @ 2.5:1[c]			**208**	**208**	**208**	**208**
525 W. Third St. in Hanford [a]	ERCs	C-445-5	3,239.7	0	0	6,424.5
Value @ 2.5:1[c]			**1,295.9**	**0**	**0**	**2,569.8**
525 W. Third St. in Hanford [a]	ERCs	C-413-5	10,000	2,177.5	187.3	10,000
Value @ 2.5:1[c]			**4,000**	**871**	**74.9**	**4,000**
525 W. Third St. in Hanford [a]	ERCs	C-442-5	6,832.6	0	0	4,485.9
Value @ 2.5:1[c]			**2,733**	**0**	**0**	**1,794.4**
800 W. Church St. in Stockton	ERCs	N-130-5	100,000	100,000	100,000	100,000
Value @ 2.5:1[c]			**40,000**	**40,000**	**40,000**	**40,000**
Sub-Total	---	---	**76,460.9**	**68,837**	**65,182.2**	**94,282.8**
Distribute Q4 to Q1, Q2 and Q3			512.9	7,092.7	10,747.5	-18,353.1
Total Available Offsets			76,973.8	75,929.7	75,929.7	75,929.7
Total Required[b]	---	---	41,200	41,200	41,200	41,200
Difference*			35,773.8	34,729.7	34,729.7	34,729.7
Balance Remaining on N-130-5 (adjusted for 2.5:1 ratio) [b]	---	---	**89,434.5**	**86,824.3**	**86,824.3**	**86,824.3**

From Revised Data Response #12 and #13 (GWF 2001d), Revised Attachment 2.1-10.
Note(s):
a. Certificate is shared with the Henrietta Peaker Plant.
b. Total Required per Quarter = (Annual Emissions)/ 4 Qtr (164,800)/4 = 41,200.
b. Since this ERC certificate is for SO_x emissions, an interpollutant offset ratio of 2.0 pounds of SO_x per 1.0 pounds of PM_{10} is required. Since the location of these reductions occurred greater than 15 miles from the proposed location, an additional distance ratio of 1.5:1 will be applied pursuant to Table 4-2 of District Rule 2201, section 4.8. Therefore, the total adjustment ratio is (2.0:1)+(1.5:1) = 2.5:1.
* A zero balance means full mitigation, a negative balance indicates an offsets deficit, and a positive balance indicates offsets are available in excess of required offset levels. Please note that the offset balance is not the same as the ERC balance.

The Applicant has fully offset the proposed project PM_{10} emissions and is in compliance with the offset provisions of District Rule 2201.

VOC Emission Offsets

AIR QUALITY Table 26 provides a summary of the total project VOC emissions and identifies the project offset sources. ERC S-1538-1 was generated from the shutdown of Major Source, S-207 - South Tank Farm and Refinery, and transfer of ownership of ERC S-698-1. The amount of VOC emission reduction has been adjusted to reflect amendments to Rule 4623 currently identified for adoption.

AIR QUALITY: Table 26
VOC Offsets Available for the Tracy Peaker Project

Offset Source Location	Type of Credit	Credit Number	Total Q1 (lb)	Total Q2 (lb)	Total Q3 (lb)	Total Q4 (lb)
2512 Coffee Rd. in Bakersfield	ERCs	S-1538-1	12,029	13,701	14,447	13,112
Value @ 1.5:1			**8,019.3**	**9,134**	**9,631.3**	**8,741.3**
Total Offsets Available	---	---	**8,019.3**	**9,134**	**9,631.3**	**8,741.3**
Total Required [a]	---	---	6,686	6,680	6,680	6,686
Difference*	---	---	1,333.3	2,454	2,951.3	2,055.3
Balance Remaining on S-1538-1 (adjusted for 1.5:1 ratio)	---	---	**2,000**	**3,681**	**4,427**	**3,083**

From Revised Data Response #12 and #13 (GWF 2001d), Revised Attachment 2.1-10.
Note(s):
a. Total Required = (Annual Emissions) = 26,732.
*A zero balance means full mitigation, a negative balance indicates an offsets deficit, and a positive balance indicates offsets are available in excess of required offset levels. Please note that the offset balance is not the same as the ERC balance.

VOC emission offsets are not required by District Rule 2201 to be fully offset for this project. However, VOC emissions are a precursor to ozone, which is a nonattainment pollutant at the project site area. For CEQA compliance, the CEC requires that all non-attainment pollutants and their precursors that do not require offsets by District regulation be mitigated at a minimum 1:1 ratio. The Applicant intends to provide offsets for the TPP VOC emissions using the District's distance offset ratio formula as an additional air quality benefit of the project.

SO_2 Emission Offsets

AIR QUALITY Table 27 provides a summary of the total project SO_2 emissions and identifies the project offset sources. ERC N-130-5 was generated from the retrofit of two boilers with lox NO_x burners and reducing the fuel oil usage of those boilers.

AIR QUALITY: Table 27
SO_2 Offsets Available for the Tracy Peaker Project

Offset Source Location	Type of Credit	Credit Number	Total Q1 (lb)	Total Q2 (lb)	Total Q3 (lb)	Total Q4 (lb)
800 W. Church St. in Stockton [a]	ERCs	N-130-5	**89,434.5**	**86,824.3**	**86,824.3**	**86,824.3**
Value @ 1.5:1			**59,623**	**57,882.9**	**57,882.9**	**57,882.9**
Total Offsets Available	---	---	**59,623**	**57,882.9**	**57,882.9**	**57,882.9**
Total Required [b]	---	---	2,800	2,800	2,800	2,800
Difference*	---	---	56,823	55,082.9	55,082.9	55,082.9
Balance Remaining on N-130-5 (adjusted for 1.5:1 ratio)	---	---	**85,234.5**	**82,624.3**	**82,624.3**	**82,624.3**

From Revised Data Response #12 and #13 (GWF 2001d), Revised Attachment 2.1-10.
Note(s):
a. Certificate is shared with Tracy Peaker Project for PM-10.
b. Total Required per Quarter = (Annual Emissions)/ 4 Qtr (11,200)/4 = 2,800.
*A zero balance means full mitigation, a negative balance indicates an offsets deficit, and a positive balance indicates offsets are available in excess of required offset levels. Please note that the offset balance is not the same as the ERC balance.

SO_2 emission offsets are not required by District Rule 2201 for this project. However, SO_2 emissions are a precursor to PM_{10}, which is a nonattainment pollutant at the project site area. For CEQA compliance, the CEC requires that all non-attainment pollutants and their precursors that do not require offsets by District regulation be mitigated at a minimum 1:1 ratio. The Applicant intends to provide offsets for the TPP SO_2 emissions using the District's distance offset ratio formula as an additional air quality benefit of the project.

CO Emission Offsets

AIR QUALITY Table 28 provides a summary of the total project CO emissions and identifies the project offset sources. ERC N-289 was generated from burner retrofits on two boilers (OLD #s 91-177&178). ERC S-1624-3 was generated from the conversion of a turbine to gas fired only. ERC S-1623 was generated from equipment modifications and the shutdown of emissions units.

AIR QUALITY: Table 28
CO Offsets Available for the Tracy Peaker Project

Offset Source Location	Type of Credit	Credit Number	Total Q1 (lb)	Total Q2 (lb)	Total Q3 (lb)	Total Q4 (lb)
18800 Spreckels Blvd. in Manteca	ERCs	N-289-3	40,709	108,236	108,237	100,474
Value @ 1.2:1			**33,924.2**	**90,196.7**	**90,197.5**	**83,728.3**
1134 Manor Dr. in Oildale	ERCs	S-1624-3	2,127	5,050	3,470	2,277
Value @ 1.5:1			**1,418**	**3,366.7**	**2,313.3**	**1,518**
South Coles Levee Gas Plant	ERCs	S-1623-3	857	959	766	768
Value @ 1.5:1			**571.3**	**639.3**	**510.7**	**512**
Total Offsets Available	---	---	**35,913.5**	**94,202.7**	**93,021.5**	**85,758.3**
Total Required [a]	---	---	35,768	35,768	35,852	35,852
Difference*	---	---	145.5	58,434.7	54,012.3	24,703.3
Balance Remaining on N-289-3 (adjusted for 1.2:1 ratio)			**0**	**65,314.4**	**65,214.6**	**57,451.6**
Balance Remaining on S-1624-3 (adjusted for 1.5:1 ratio)			**0**	**5,050**	**3,470**	**2,277**
Balance Remaining on S-1623-3 (adjusted for 1.5:1 ratio)			**218.3**	**959**	**766**	**768**

From Revised Data Response #12 and #13 (GWF 2001d), Revised Attachment 2.1-10.
Note(s):
a. Total Required = (Annual Emissions) = 143,240.
*A zero balance means full mitigation, a negative balance indicates an offsets deficit, and a positive balance indicates offsets are available in excess of required offset levels. Please note that the offset balance is not the same as the ERC balance.

CO emission offsets are not required by District Rule 2201 for this project. CO emissions from the TPP will not cause or contribute to a violation of any applicable California or federal ambient air quality standard, so offsets are not required for CEQA compliance. The Applicant intends to provide offsets for the TPP CO emissions as an additional air quality benefit of the project.

Staff Proposed Mitigation

Staff concurs with the Applicant's and the District's determination that the project's proposed emission controls meet BACT requirements. The Applicant has fully offset the project. While NO_x offset thresholds have been subtracted from the offset liability, thereby lowering the offset requirements; the total NO_x offsets provided are in compliance with District rules and meet a minimum offset ratio of 1:1. Therefore, staff considers the Applicant's proposed mitigation sufficient to mitigate the project's operations impacts to less than significant.

The limits and requirements of these mitigation measures are provided in Staff's recommended Conditions of Certification **AQ-C4** and the District's Conditions of Certification **AQ-1** through **AQ-77**.

Adequacy of Mitigation

The Applicant's proposed mitigation measures, plus staff's additional proposed mitigation measures and the District's proposed conditions, as recommended in

Conditions of Certification **AQ-C1** through **AQ-C4** and **AQ-1** through **AQ-77** are considered to be adequate to mitigate project impacts to less than significant.

The use of emission offsets to mitigate project emissions has been employed since the 1980's. This method for emission mitigation creates a financial incentive that impels the owners of stationary sources that do not otherwise have to control their emissions to add emission controls. Three such local San Joaquin County examples of companies that have reduced emissions include the Libbey-Owens-Ford glass plant, the J.R. Simplot Company fertilizer manufacturing plant, and the Dopaco Inc. printing plant. Additionally, the current offset regulatory system requires that all of the emission reductions have occurred prior to the permitting and operation of the new emission source. Only permitted stationary sources are normally required to obtain emission offsets. Other types of development projects, such as large new housing developments, are not required to offset the emissions from the new activity that they directly cause and do not attempt to fully mitigate their impacts. So, while the offset system is not perfect, it has allowed major stationary source growth to occur in the State of California while reducing overall major stationary source emissions.

CUMULATIVE IMPACTS

The Applicant modeled the cumulative impacts of the TPP and other known projects within a 6-mile radius that have received construction permits from the District but are not yet operational or that are in the permitting process. The only project identified within a 6-mile radius of the TPP is the Tesla Power Plant Project (Tesla). Detailed data from the Tesla project were obtained and used to model its impacts using the ISCST3 (Version 00101) model. TPP sources were modeled as a separate group in order to isolate and compare the TPP impacts relative to the impacts from the Tesla project. For all sources included in the cumulative modeling, the typical (annual) operating mode was assumed.

Cumulative modeling analysis results are summarized in **AIR QUALITY Table 29**. Sources such as cooling towers and emergency equipment are not included in the cumulative modeling analysis. In addition, modeled emissions were based on annual average emissions. The maximum impacts for these types of sources typically occur near the facility fence line and are not apt to contribute to the cumulative impact.

AIR QUALITY: Table 29
Tracy Peaker Project Ambient Air Quality Impact
Applicant Cumulative ISC Modeling Results

Pollutant	Averaging Period	Project Impact (mg/m^3)	Background (mg/m^3)[b]	Total Impact (mg/m^3)	Limiting Standard (mg/m^3)	Type of Standard	Percent of Standard
NO_2	1-Hour	29.6	148.5	178	470	CAAQS	38
	Annual	0.34	28.3	28.6	100	NAAQS	29
PM_{10}	24-Hour	3.76	150	154	50	CAAQS	308
	Annual	0.25	30.2	30.5	30	CAAQS	102
CO	1-Hour	56.5	12,995	13,052	23,000	CAAQS	57
	8-Hour	24.1	8,778	8,802	10,000	CAAQS	88
SO_2	1-Hour	3.55	128	132	655	CAAQS	20
	3-Hour	1.84	116	118	1300	NAAQS	9
	24-Hour	0.52	32	32.5	105	CAAQS	31
	Annual	0.03	5.3	5.3	80	NAAQS	7

Note: Cumulative modeling includes project turbines during normal operation only; emergency equipment not included.

The Applicant's modeling results indicate that the project's cumulative impacts would not create violations of NO_2, SO_2 or CO standards, but could further exacerbate violations of the PM_{10} standards. In light of the existing PM_{10} nonattainment status for the project site area, the modeled impacts are considered to be significant.

The Applicant's modeling analysis did not include the proposed East Altamont Energy Center (EAEC) Project located approximately 7 miles northwest/north northwest of the TPP site. The modeling results for the TPP and Tesla projects showed that due to the distance between the three projects (TPP, Tesla, and EAEC), the magnitude of each project's maximum direct impacts, and the existing ambient air quality they do not have the cumulative potential to create violations of NO_2, SO_2 or CO standards. Staff modeled the TPP, Tesla, and EAEC projects PM_{10} emissions in order to determine the PM_{10} cumulative impacts for all three projects. Staff modeled all sources including the auxiliary sources (boilers, emergency generators) from each facility. The results of the cumulative PM_{10} emissions modeling analysis are provided in **AIR QUALITY Table 30**.

Air Quality: Table 30
Tracy Peaker Project Ambient Air Quality Impact
Staff Cumulative PM_{10} ISC Modeling Results[a]

Pollutant	Averaging Period	TPP Maximum Impact (mg/m^3)	Tesla Project Maximum Impact (mg/m^3)	EAEC Project Maximum Impact (mg/m^3)	Maximum Total Impact (mg/m^3)
PM_{10}	24-Hour	0.93	4.78	3.02	5.56
	Annual	0.024	0.37	0.46	0.46

[a] – These are the maximum impacts for each power plant and they do not represent the same affected area, or for 24-hour impacts they also do not reflect impacts on the same day.

TPP's contribution to any cumulative impacts are very small as this power plant, due to its elevated exhaust temperature and resultant plume buoyancy, and separation from the other facilities, generally affects different areas than the other two proposed projects

which have significantly lower exhaust temperatures. The exhaust from the TPP turbines will be over 800°F (in comparison to the approximately 155°F to 185°F exhaust temperatures for Tesla and EAEC), which causes the plume to rise well above the immediate project area and lessen the impacts in the higher density populated areas that located in low terrain areas surrounding the project site. The areas with the maximum 24-hour cumulative impacts are at elevated terrain more than 7 miles west and west-southwest of the TPP site in Alameda County. This particular area is relatively remote and is not near significant man-made emission sources or other known non-stationary development projects. At the annual combined maximum impact point for all three projects, TPP's contribution, or its cumulative impact, is only 0.0002 $\mu g/m^3$ or 0.04 percent of the impact and 0.0007 percent of the CAAQS. Therefore, the TPP project would not measurably increase the cumulative impacts of these proposed power projects.

In addition to these three power projects there are a number of non-stationary development projects (see **Land Use Table 4**), such as the proposed Mountain House development project, planned for the general area surrounding the TPP. The Environmental Impact Reports (EIRs) for these non-stationary development projects generally note that they cause or contribute to significant unavoidable adverse cumulative PM_{10} impacts; considering the current non-attainment status for PM_{10} and net emission increase resulting from the project. The information necessary to model all of these non-stationary development projects along with the power projects has not been made available to staff. However, as noted above the TPP project, due to its exhaust characteristics has its highest impacts on the elevated terrain to the west and south of the project site while the other area non-stationary development projects cause local impacts and impacts to major roadways. Additionally, unlike the non-stationary development projects the TPP will offset its emissions and will not have a net emission increase. Therefore, staff believes that the TPP has fully mitigated its emission impacts and staff does not believe that the TPP will measurably increase any significant cumulative impacts that may results from these other development projects.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is less than fifty percent within a six-mile radius of the proposed Tracy Peaker Project (please refer to **Socioeconomics Figure 1** in this Staff Analysis), and Census 1990 information that shows the low-income population is less than fifty percent within the same radius. The census block information indicates that there are no minority populations located within one mile of the site, while there are four census blocks located within, or partially within, 2 miles of the site with a minority population. The closest of these census blocks are located approximately 1.5 miles northwest of the project site.

The Applicant's modeling results indicate that during construction and operation ambient air quality standards for CO, SO_2, and NO_2 will not be violated in any area including areas with predominately minority populations. Currently, the site area is in nonattainment of the state PM_{10} standard; therefore, the unmitigated PM_{10} impacts from the project are significant, but do not predominately effect the minority populations. However, the Applicant will fully mitigate these impacts through the use of emission

controls and emission offsets to less than significant. Therefore, no significant impacts to minority populations are expected to occur.

COMPLIANCE WITH LORS

The San Joaquin Valley Air Pollution Control District submitted a Final Determination of Compliance (FDOC) for the TPP project on October 5, 2001 (SJVAPCD 2001a). Compliance with all District Rules and Regulations was demonstrated in the FDOC. An error in the short-term emission limits was made in the FDOC (SJVAPCD 2001c). This error is minor and does not effect the findings of compliance. The language of the corrected District conditions are presented in the Conditions of Certification. If additional changes are made to the Districts conditions they will be provided in an addendum to the Staff Assessment.

FEDERAL

Compliance with the applicable federal Clean Air Act regulations for the TPP project was demonstrated in the District's FDOC (SJVAPCD 2001c).

STATE

Compliance with Section 41700 of the California State Health and Safety Code was demonstrated in the District's FDOC (SJVAPCD 2001c) and staff's affirmative finding for this project.

LOCAL

Rule 1080 – Stack Monitoring

The compliance with this rule is provided for in the Conditions of Certification.

Rule 1081 – Source Sampling

The compliance with this rule is provided for in the Conditions of Certification.

Rule 2010 – Permits Required

By the submission of an AFC and an Authority to Construct (ATC) application, GWF Energy LLC is complying with the requirements of the rule. The FDOC has been completed and the final permit will be issued upon CEC certification of this project.

Rule 2201 – New and Modified Stationary Source Review Rule

Section 4.1 – Best Available Control Technology

As shown in the FDOC and as shown above the Applicant's control technology proposal meets the Best Available Control Technology requirements of this rule.

Section 4.2 – Offsets

As shown in the FDOC and as shown above the Applicant's offset mitigation proposal meets the requirements of this rule.

Rule 2520 – Federally Mandated Operating Permits

The rule generally requires that an affected source file for a Title V operating permit within 12 months of commencing operation. For the TPP the District is requiring that the Title V application be submitted prior to the activation of the Authority to Construction (i.e. prior to beginning construction). This requirement is provided as Condition of Certification **AQ-58**.

Rule 2540 – Acid Rain Program

TPP will be required to file for a Title IV Acid Rain operating permit to comply with this regulation. This requirement is also provided as Condition of Certification **AQ-59** and staff is recommending in the verification for this condition that the Title IV permit and necessary pollutant allotments be obtained prior to first fire of the turbines.

Rule 4001 – New Source Performance Standards

The project's emission limits, which are listed in the proposed conditions of certification are significantly lower the limits required by the applicable New Source Performance Standard (Title 40, Code of Federal Regulations, Part 60, Chapter 1. Subpart GG).

Rule 4101 – Visible Emissions

The use of pipeline quality natural gas, proper combustion techniques and the PM_{10} BACT limits for the turbines and emergency engine will guarantee that the visible emissions from the stacks are well less than No. 1 on the Ringelmann chart (20 percent opacity) for more than 3 minutes in any one hour.

Rule 4102 – Nuisance

The use of pipeline quality natural gas, proper combustion techniques, and the ammonia slip limit of 10 ppm @ 15 percentO_2 will ensure the project's emission will not in any way cause a public nuisance.

Rule 4201 – Particulate Matter Concentration

The BACT PM_{10} emission limits for the turbines and emergency engine will ensure that their respective particulate matter emissions are well below this rules emission limit of 0.1 grain per dry standard cubic foot of exhaust gas.

Rule 4202 – Particulate Matter Emission Rate

Gas and liquid fuels are excluded from the definition of process weight. Therefore, Rule 4202 does not apply to the proposed units.

Rule 4301 – Fuel Burning Equipment

The proposed combustion turbines are exempt from this rule because they produce power primarily through the mechanical turning of the turbine blades.

Rule 4701 – Stationary Internal Combustion Engines

Since the emergency diesel generator proposed for this project will be limited to less than 200 hours per year of non-emergency operation, it is exempt from this rule.

Rule 4703 – Stationary Gas Turbines

The Conditions of Certification taken from the FDOC include the required monitoring and record keeping requirements of this rule. The project's emission concentrations for

NO_x and CO are guaranteed to be below the rule limit requirements of 9 ppm and 200 ppm, respectively.

Rule 4801 – SO2 Concentration

The use of pipeline quality natural gas will guarantee that the emissions of sulfur compounds are no greater than 0.2 percent by volume calculated as SO_2 on a dry basis.

Regulation VIII - Fugitive PM10 Prohibitions

Rule 8010 – Fugitive Dust Administrative Requirements for Control of Fine Particulate Matter (PM-10); Rule 8011 – General Requirements; Rule 8020 – Fugitive Dust Requirements for Control of Fine Particulate Matter (PM-10) from Construction, Demolition, Excavation, and Extraction Activities; Rule 8021 – Construction, Demolition, Excavation, Extraction and Other Earthmoving Activities; Rule 8030 – Control of PM-10 from Handling and Storage of Bulk Materials; Rule 8031 – Bulk Materials; Rule 8041 – Carryout and Trackout; Rule 8051 – Open Areas; Rule 8060 – Control of PM-10 from Paved and Unpaved Roads; Rule 8061 – Paved and Unpaved Roads; Rule 8070 – Fugitive Dust Requirements for Control of Fine Particulate Matter (PM-10) from Vehicle and/or Equipment Parking, Shipping, Receiving, Transfer, Fueling and Service Areas; Rule 8071 – Unpaved Vehicle/Equipment Traffic Areas; Rule 8081 – Agricultural Sources

Staff proposed Condition of Certification **AQ-C1** requires that the project owner provide a Construction Fugitive Dust Mitigation Plan to be approved prior to construction and require compliance with all appropriate Regulation VIII rules. It should be noted that Rules 8011, 8021, 8031, 8041, 8051, 8061, 8071 and 8081 do not take effect until May 15, 2002. Since the construction schedule of the HPP will overlap the starting date of these new fugitive dust regulations, the HPP Construction Fugitive Dust Mitigation Plan, as required under Condition of Certification AQ-C1, must address these newly adopted rules.

FACILITY CLOSURE

The TPP has a planned life of 30 years or more. Eventually the TPP will close, either as a result of the end of its useful life, or through some unexpected situation such as a natural disaster or catastrophic facility breakdown. When the facility closes, then all sources of air emissions would cease and thus all impacts associated with those emissions would no longer occur.

During the operating life of the facility, temporary facility closure may be required and permanent facility closure will eventually be required. Temporary closure constitutes an unexpected shutdown for a period exceeding the time required for normal maintenance (e.g., for overhaul or replacement of the combustion turbines). Cause for temporary closure might include a disruption in the supply of natural gas or damage to the plant from an earthquake, fire, storm, or other event. Permanent closure constitutes a complete cessation in operations with no intent to restart operations, owing to plant age, damage to the plant that is beyond repair, economic conditions, or other reasons.

The Permit to Operate, issued by the District, is required for operation of the facility and the Applicant must pay permit fees annually while it maintains the Permit to Operate. If the Applicant chooses to close the facility and not pay the permit fees, then the Permit to Operate would be cancelled. In that event, the project could not restart and operate unless the Applicant pays the fees to renew the Permit to Operate.

When permanent closure occurs and if it were decided to dismantle the project's equipment and structures, there would likely be fugitive dust emissions associated with this dismantling effort. The Facility Closure Plan to be submitted to the Energy Commission Compliance Project Manager should include the specific details regarding how the Applicant plans to demonstrate compliance with the District Rules (i.e. Regulation VIII requirements) regarding fugitive dust emission mitigation during decommissioning.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

Staff attempted to provide information in this staff assessment to answer verbal comments received from the public at the public workshops and hearings for this project. Additional responses to written and verbal comments are included below.

WRITTEN COMMENTS FROM THE PUBLIC

Don Washburn

DW-1 *Diesel exhaust contains carcinogens. How do you intend on removing them from our air?*

Response: The Applicant is proposing, and Staff is recommending, that the project's construction emissions from diesel-fueled equipment be controlled with the use of a combination of Catalyzed Diesel Particulate Filters (CDPF), Ultra-Low-Sulfur Diesel (ULSD), and diesel engines certified to EPA and CARB 1996 or newer off-road equipment emission standards. Please see staff proposed Condition of Certification **AQ-C2**. Please note that these emission reduction mitigation requirements are significantly more stringent than those imposed on most other development projects not under CEC's review.

Additionally, the only operational diesel-fuel source on-site during operations, the emergency generator, is being required to meet BACT for PM_{10} and VOC through the use of ULSD and Positive Crankcase Ventilation (PCV) and will be limited to 200 hours per year of non-emergency operation.

Melinda Bettencourt

MB-1 *How will this effect the air quality of Tracy and how would this affect those persons who are already afflicted with respiratory problems? Will there be any long-term effects?*

Response: CEC air quality staff is not qualified to answer questions regarding specific health impacts, which should be answered by knowledgeable medical professionals. Long-term studies regarding the effects of PM_{10} and other pollutants are currently being conducted by many organizations, including the Air

Resources Board, whose research on the long-term health impacts of air pollution can be accessed at the following website www.arb.ca.gov/research/research.htm.

For the Tracy Peaker Project, staff is proposing to mitigate the project's pollutant impacts by using all feasible emission controls on both the project's construction emission sources and operating emission sources; and the Applicant is proposing, and staff is recommending, that project's emissions of all non-attainment pollutants and their precursors (PM_{10}, SO_2, NO_x, and VOC) be fully offset. The areas of maximum potential project operational impact are located at high terrain to the west, southwest and west-southwest of the site, not in the highly populated areas in and surrounding Tracy.

Annaben Kazemi

AK-1 *Air Pollution: I am wondering how this project will effect the already poor quality of air in Tracy. How will our ozone be affected? What, if any, are the plans to help fix the air quality?*

Response: Please see the impact analysis section and AIR QUALITY Tables 17 through 22 for a discussion of direct project impacts to NO_2, PM_{10}, CO and SO_2 pollutant concentrations. The project may only marginally impact ozone concentrations far downwind of the project site. Near the project site the NO_x emission may actually reduce the local ozone concentrations through a process known as ozone scavenging. Ozone scavenging occurs through the reaction of NO with ozone (O_3) to form NO_2 and O_2. Specifically, the plan to help mitigate the air quality impacts from this project include the use of Best Available Control Technology (BACT) and emission offsets. In general, there are a number of plans or programs to improve air quality; including further reducing emission from automobiles, particularly SUVs and light trucks, new diesel engine emission standards, requiring the retrofit of emission controls on high polluting emitting stationary emission sources, etc. Details regarding most of these programs and many others can be found on the EPA and ARB websites, www.epa.gov and www.arb.ca.gov, respectively. Additionally, local programs, such as the "Spare the Air" program aimed at reducing ground level ozone, can be found on the SJVAPCD website www.valleyair.org.

Cammy Stricker

CS-1 *Air Pollution: How much will the quality of our air be affected and how will this impact people with respiratory illness?*

Response: Please see the response to **MB-1**.

David Howey

DH-1 *Power Plant: Air pollution, air quality, health issue, property value, value of business interest.*

Response: While your comments are not specific, as noted in the other responses, the project's air pollution sources would be controlled to the greatest feasible extent and emissions fully offset.

Laura Simon

LS-1 *I have serious concerns about the long-term effect on our air quality in Tracy (if this project is allowed to proceed). There are many residents (adults and children) who currently suffer from respiratory ailments due to the air quality in Tracy. Any further pollution may be detrimental to their health.*

Response: Please see the response to **MB-1**.

Ena Aguirre

EA-1 *Air Pollution: Concern that Tracy residents will have worse air quality than now if plant is cited.*

Response: As is shown in **AIR QUALITY Table 20** of the impact analysis the maximum direct operating impacts, with the exception of the PM_{10} impacts, from the project would not cause or contribute to violations of ambient air quality standards. Additionally, a review of the modeling results indicates that the maximum project operating impacts would be located in elevated terrain away from the main populated areas in the City of Tracy. Finally, the project would employ Best Available Control Technology and would provide emission offsets for all of its criteria pollutant emissions. Together, these actions would ensure that the project would not have a significant impact on air quality in Tracy.

Laura Swickard

SW-2 *I am deeply concerned and worried about the air quality in Tracy. I think the project will further impact this problem. Couple this with growing concerns about water quality and supply. Is this project worth it?*

Response: Please see the response to EA-1.

Mike Landis

ML-1 *Air Quality: Further air pollution is unacceptable.*

Response: Unlike other non-stationary development projects, this project is required to offset its emissions and is being mitigated to the greatest feasible extent.

ORAL COMMENTS FROM THE PUBLIC

Listed below are paraphrased oral comments expressed by the public during the projects public hearings and workshops. Staff has attempted to provide a response for each type of question or comment posed. The Applicant's response during the hearing or workshop is also provided.

One of the Commissioners asked staff to answer the following questions related to PM_{10} emissions and their long-term health impacts.

> *"Please define PM_{10}. Children in this community will be breathing in this air for years and years to come; Have their been any studies on long term effects?*

Response: PM_{10} is defined as particulate matter under 10 microns in aerodynamic diameter. These small particles are specifically regulated by state and federal law because they are more respirable, meaning that they can be inhaled more deeply into the respiratory tract, than larger particles. PM_{10} is not a single chemical like NO_2 or CO, but is made up of a myriad of solid materials including dust, pollen, windblown dirt, and man made pollutants. Please see the response to MB-1 for the discussion on long term health effect studies.

One member of the public identified the following CEQA concern as it relates to air quality.

"When the air basin is in non-compliance; any additional PM_{10} should be a significant impact under CEQA"

Response: The above statement may be generally true for other large development projects which do not typically require the level of project mitigation as required by CEC or require emissions to be offset to a net emission decrease. It is the CEC's position that with the required construction and operation mitigation measures, including the requirement that the project's PM_{10} and PM_{10} precursor emissions be fully offset, the project's PM_{10} impacts have been mitigated to less than significant.

A member of the public asked the following question regarding the siting of this project as it relates to air quality.

"Locating peakers in the areas of high ozone - Why would you do such a thing?"

Response: Staff defers to the Applicant regarding its rationale for project siting.

Applicant Response: Ozone is a regional matter. Also, to the extent that this offsets older power plants in the Bay Area, this region will have a net benefit.

A member of the public asked the following questions regarding other power plants near the project site.

"Can we confirm or deny that there are other plants in the area? Will we consider them in our analysis?"

Response: Staff is aware of two other power plants currently being proposed and moving forward in the general area of the site, the East Altamont Energy Center and the Tesla Power Plant Project. The Applicant included the Tesla project, the only known active project within 6 miles of the TPP at the time the TPP application was filed, in its cumulative impact analysis and staff included all three projects in a cumulative PM_{10} impact modeling analysis. The CEC only has jurisdiction over projects 50 MW and greater. SJVAPCD management staff indicate that they were working on an Authority to Construct (ATC) for the Wellhead 49 MW peaking power plant that was planned to be located near Lammers and Valpico Roads, which would be east of and within a mile of the TPP project site. However, that project has stalled due to a lack of emission

offsets, and if no progress is made soon the SJVAPCD will deny the ATC. Two other power projects known within San Joaquin County, but at some distance from the project site, are the 25 MW Stockton Sierra Cogen plant that was approved last March, and the City of Lodi 47 MW project, which filed an application with the District that is currently incomplete.

Several members of the public asked the following questions or provided the following comments regarding emission reduction credits and their use.

"Is it true that the ERC system may have regional benefits but not necessarily local benefits?"

"San Joaquin Valley is huge! The worst air quality is down south, which is where they are going to be buying offsets. That doesn't help us here at all."

"ERCs will only benefit the region, right?"

Response: The only nonattainment pollutants in the project area are PM_{10} and ozone, which are both regional pollutants, that form (partially in the case of PM_{10}) over a period of hours or days involving complex reactions between a number of different pollutants that themselves come from a myriad of emission sources. The offsets being proposed for the project come from emission reductions that have taken place throughout the air basin, including from emission reductions that occurred in Stockton and Tracy. While there has been marked growth in the central valley and in San Joaquin County, there has been a gradual decrease of both PM_{10} and ozone concentrations in area surrounding the project site, please see **AIR QUALITY Figures 1** through **4**. This points to the fact that the air quality programs in place, including the stationary source offset program, are, albeit slowly, accomplishing real improvements in air quality.

A member of the public asked the following questions regarding the meteorological and monitoring data being used in the air quality analysis.

"Were wind currents taken into account for air quality modeling?"

"Is Stockton a reasonable location for monitoring air quality? The baseline in Stockton may not be accurate."

Response: The air dispersion modeling conducted to assess the project's air quality impacts includes the use of local meteorological data which includes hourly wind speed, wind direction, wind stability, and temperature. The modeling incorporated three years of meteorological data from the Tracy Monitoring site on Patterson Pass road adjacent to I-580. This monitoring station is within 1.5 miles of the project site. To access the existing pollutant concentrations data from the Tracy Monitoring site data was used where available (ozone and NO_2 data). The maximum concentrations from the Stockton stations was used to determine background PM_{10} and CO concentrations, and for SO_2 the highest monitored values of the Concord and Bethel Island monitoring stations was used. The use of the Stockton Monitoring data for PM_{10} and CO is considered to be

conservative as Stockton downwind from the site and is considerably more urbanized than the project site. So, staff agrees with the comment that the use of Stockton baseline data may not be accurate in the context that it likely over predicts the local air quality. The next closest monitoring station to the site is an upwind monitoring station located in Livermore. The PM_{10} and CO concentrations found in Livermore are less than 60 percent and less than 40 percent of the Stockton values, respectively. **AIR QUALITY Tables 3** through **9** and **AIR QUALITY Figures 1** through **4** summarize the available local ambient pollutant concentration data.

A member of the public wanted to know if there would be spikes in the pollution output of the plant.

Response: As noted in **AIR QUALITY Table 15** and **16** the turbine emissions for some pollutants will be higher during the initial commissioning period, which is anticipated to take two weeks after the completion of construction, and during turbine startup. The emissions could also "spike" during upset conditions, or for limited times during a turbine load change when the emissions control system is adjusting to that change. The plant will continuously monitor NO_x and CO concentrations, as well as other operating parameters, and should be able to respond to upset conditions and load changes quickly.

CONCLUSIONS AND RECOMMENDATIONS

The TPP, with the implementation of the measures contained in the Conditions of Certification specified below, will not, for either construction and operation, and either alone or in combination with other identified projects in the area, cause or significantly contribute to any new or existing violations of applicable ambient air quality standards. The TPP emissions of NO_x, SO_2 and CO will not cause a violation of any NO_2, SO_2 or CO ambient air quality standard, and therefore, their impacts are not significant. The project's air quality impacts from directly emitted PM_{10} and of the ozone precursor emissions of NO_x and VOC and PM_{10} precursors of NO_x and SO_2 could be significant if left unmitigated. The Applicant will reduce emissions to the extent feasible by using Best Available Control Technology, and provide emission offsets, obtained from stationary sources in the San Joaquin Valley Air Basin, for their NO_x, PM_{10}, VOC, SO_2 and CO emissions. The combination of these mitigation measures will reduce the potential for directly emitted PM_{10}, as well as ozone and secondary PM_{10} formation to a level of insignificance.

Additionally, with the implementation of the Conditions of Certification, the TPP will be constructed and operated in compliance with all applicable laws, ordinances, regulations, and standards identified previously in this Assessment. Staff; therefore, concludes that the TPP will not create any significant unmitigated direct or indirect adverse air quality impacts.

The District has completed and later revised their FDOC on December 5, 2001 (SJVAPCD 2001c). The Energy Commission staff has incorporated the FDOC conditions into the SA. The District is currently revising the FDOC to correct errors in

the short-term emissions limits presented in the engineering evaluation and in the FDOC conditions. Staff has incorporated the Districts revised conditions in this staff assessment. The District recommended conditions are presented here as Conditions **AQ-1** through **AQ-77**. Staff also recommends the inclusion of four Conditions of Certification **AQ-C1** through **AQ-C4** to address the construction-related impacts and CEQA offset mitigation requirements.

Based upon these findings staff recommends certification of the TPP with the adoption of the District's FDOC and staff proposed conditions of certification.

CONDITIONS OF CERTIFICATION

STAFF CONDITIONS

AQ-C1 Prior to breaking ground at the project site, the project owner shall prepare a Construction Fugitive Dust Mitigation Plan that will specifically identify fugitive dust mitigation measures that will be employed for construction activities at the Tracy Peaker Project site and related facilities.

The Construction Fugitive Dust Mitigation Plan shall specifically identify measures to limit fugitive dust emissions from construction of the project site and linear facilities. Measures that should be addressed include the following:

- the identification of the employee parking area(s) and surface of the parking area(s);
- the frequency of watering of unpaved roads and disturbed areas;
- the application of chemical dust suppressants;
- the use of gravel in high traffic areas and the construction laydown area;
- the covering of soil stockpiles;
- the use of paved access aprons;
- the use of sandbags to prevent run off;
- the use of posted speed limit signs limiting speed to 10 MPH;
- the use of wheel washing areas prior to large trucks leaving the project site;
- the methods that will be used to clean tracked-out mud and dirt from the project site onto public roads;
- the use of windbreaks at appropriate locations;
- the suspension of all earth moving activities under windy conditions; and,
- the use of on-site monitoring devices.

Verification: At least sixty (60) days prior to breaking ground at the project site, the project owner shall provide the California Energy Commission Compliance Project

Manager (CPM) with a copy of the Construction Fugitive Dust Mitigation Plan for approval.

AQ-C2 The project owner shall mitigate, to the extent practical, construction related emission impacts from off-road, diesel-fired construction equipment. Available measures that may be used to mitigate construction impacts include the following:

- Catalyzed Diesel Particulate Filters (CDPF);
- Ultra-Low-Sulfur Diesel fuel, with a sulfur content of 15 ppm or less (ULSD);
- Diesel engines certified to EPA and CARB 1996 or newer off-road equipment emission standards.

Additionally, the project owner shall restrict idle time, to the extent practical, to no more than 10 minutes.

The use of each mitigation measure is to be determined in advance by a Construction Mitigation Manager (CMM), who will be available at the project site(s). The CMM must be approved by the CPM prior to the submission of any reports.

The CMM shall submit the following reports to the CPM for approval:

- Construction Mitigation Plan
- Reports of Change and Mitigation Implementation
- Reports of Emergency Termination of Mitigation, as necessary

Diesel Construction Equipment Mitigation Plan:

The Construction Mitigation Plan shall be submitted to the CPM for approval prior to rough grading on the project site, and must include the following:

- A list of all diesel fueled, off-road, stationary or portable construction-related equipment to be used either on the project construction site or the construction sites of the related linear facilities. Equipment used less than a total of 10 consecutive days need not be included in this list.
- Each piece of construction equipment listed under item (1) must demonstrate compliance with the following mitigation requirements:

Engine Size (BHP)	1996 CARB or EPA Certified Engine	Required Mitigation
< or =100	Yes or No	ULSD
>100	Yes	ULSD
>100	No	ULSD and CDPF, if suitable as determined by the CMM

- If compliance can not be demonstrated as specified under item (2), then the project owner may appeal for relief to the CPM. However, the owner must demonstrate that they have made a good faith effort to comply as specified under item (2).

Report of Change and Mitigation Implementation

Following the initiation of construction activities, and if changes to mitigation measures are necessary, the CMM shall submit a Report of Change and Mitigation Implementation to the CPM for approval. This report must contain at a minimum the cause of any deviation from the Construction Mitigation Plan, and verification of any Construction Mitigation Plan measures that were implemented.

The following is acceptable proof of compliance, other methods of proof of compliance must be approved by the CPM.

1) EPA or CARB 1996 off-road equipment emission standards:

   A copy of the certificate from EPA or CARB.

2) Purchase and use of ultra-low-sulfur fuel (15 ppm or less).

   Receipt or other documentation indicating type and amount of fuel purchased, from whom, where delivered and on what date; and

   A copy of the text included in the contract agreement with all contractors and sub-contractors for use of the ultra-low-sulfur fuel in diesel burning construction equipment as identified in the Construction Mitigation Plan.

3) Installation of CDPF:

   The suitability of the use of CDPFs is to be determined by a qualified mechanic or engineer who must submit a report to the CPM for approval.

   Installation is to be verified by a qualified mechanic or engineer.

4) Construction equipment engine idle time:

   A copy of the text included in the contract agreement with all contractors and sub-contractors to keep engine idle time to 10 minutes or less to the extent practical.

Report of Emergency Termination of Mitigation

If a specific mitigation measure is determined to be detrimental to a piece of construction equipment or is determined to be causing significant delays in the construction schedule of the project or the associated linear facilities, the mitigation measure may be terminated immediately. However, notification containing an explanation for the cause of the termination must be sent to the CPM for approval. All such causes are restricted to one of the following justifications and must be identified in any Report of Emergency Termination of Mitigation.

The measure is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or power output due to an excessive increase in back pressure.

The measure is causing or is reasonably expected to cause significant engine damage.

The measure is causing or is reasonably expected to cause a significant risk to nearby workers or the public.

Any other seriously detrimental cause which has approval by the CPM prior to the change being implemented.

Verification: The project owner will submit to the CPM for approval the qualifications of the CMM at least 45 days prior to the due date for the Diesel Construction Equipment Mitigation Plan. The project owner will submit the Diesel Construction Equipment Mitigation Plan to the CPM for approval 30 calendar days prior to rough grading on the project site or start of construction on any associated linear facilities. The project owner will submit the Report of Change and Mitigation Implementation to the CPM for approval no later than 10 working days following the use of the specific construction equipment on either the project site or the associated linear facilities. The project owner will submit a Report of Emergency Termination of Mitigation to the CPM for approval, as required, no later than 10 working days following the termination of the identified mitigation measure. The CPM will monitor the approval of all reports submitted by the project owner in consultation with CARB, limiting the review time for any one report to no more than 20 working days.

AQ-C3 The project owner shall mitigate, to the extent practical, construction related emission impacts from off-road, gasoline-fired construction equipment. Measures that shall be used to mitigate construction CO impacts are as follows:

A. Small off-road gasoline powered construction equipment (i.e. 25 BHP or less) used at the project site and in the construction of the off-site water pipeline shall have been manufactured since 1995 and shall meet California Emission Standards for Small Off-Road Engines (California Code of Regulations Article 1 and Article 3, Chapter 9, Division 3, Title 13).
B. Large off-road gasoline powered construction equipment (i.e. over 25 BHP), if any are used at the site, shall be equipped with catalytic converters to control CO emissions.
C. All on-road gasoline powered construction vehicles, excluding personal vehicles, shall meet California emission standards.

Gasoline Construction Equipment Mitigation Plan:

The Construction Mitigation Plan shall be submitted to the CPM for approval prior to rough grading on the project site, and must include the following:

1. A list of all gasoline fueled, off-road, on-road, stationary or portable construction-related equipment to be used either on the project construction site or the construction sites of the related linear facilities. Equipment used less than a total of 10 consecutive days need not be included in this list.
2. Each piece of construction equipment listed under item (1) must demonstrate compliance with the mitigation requirements (A) through (C) listed above.
3. If compliance cannot be demonstrated as specified under item (2), then the project owner may appeal for relief to the CPM. However, the owner must demonstrate that they have made a good faith effort to comply as specified under item (2).

Verification: The project owner will submit the Gasoline Construction Equipment Mitigation Plan to the CPM for approval 30 calendar days prior to rough grading on the project site or start of construction on any associated linear facilities. The CPM will monitor the approval of all reports submitted by the project owner in consultation with CARB, limiting the review time for any one report to no more than 20 working days.

AQ-C4 The project owner shall surrender to the District emission reduction credits in the following amounts to mitigate project emissions:

	Required ERCs after application of offset ratios (lbs/quarter)			
Pollutant	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
NO_x	71,704	71,704	71,756	71,756
CO	35,768	35,768	35,852	35,852
PM_{10}	41,200	41,200	41,200	41,200
VOC	6,686	6,680	6,680	6,686
SO_2	2,800	2,800	2,800	2,800

Protocol: This condition serves to replace the ERC requirements listed in District condition **AQ-62**, by adding the additional CEQA mitigation proposed by the Applicant for PM_{10}, VOC, CO and SO_2 emissions. The values listed above are discounted for distance offset ratios required by Rule 2201, assume Rule 2201 allowed inter-quarter transfers, and assume SO_2 for PM_{10} distance/interpollutant offset ratio as specified in **AQ-63**.

Verification: At least 5 days prior to commencing construction, the project owner shall provide to the CPM a copy of the documentation from the District proving that the required emission reduction credits have been surrendered.

DISTRICT FINAL DETERMINATION OF COMPLIANCE CONDITIONS

SJVAPCD Permit No. UNIT N-4597-1-0 – 84.4 MW NOMINALLY RATED GENERAL ELECTRIC MODEL PG 7121 EA NATURAL GAS FIRED SIMPLE-CYCLE PEAK-DEMAND COMBUSTION TURBINE GENERATOR SERVED BY AN INLET AIR FILTRATION AND COOLING SYSTEM, DRY LOW-NOX COMBUSTORS, A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION, AND AN OXIDATION CATALYST.

SJVAPCD Permit No. UNIT N-4597-2-0 – 84.4 MW NOMINALLY RATED GENERAL ELECTRIC MODEL PG 7121 EA NATURAL GAS FIRED SIMPLE-CYCLE PEAK-DEMAND COMBUSTION TURBINE GENERATOR SERVED BY AN INLET AIR FILTRATION AND COOLING SYSTEM, DRY LOW-NOX COMBUSTORS, A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION, AND AN OXIDATION CATALYST.

The following Conditions of Certification apply per turbine unit unless otherwise identified.

AQ-1 The owner shall not begin actual onsite construction of the equipment authorized by the Authority to Construct until the lead agency satisfies the requirements of the California Environmental Quality Act (CEQA). [California Environmental Quality Act]

Verification: The project owner/operator shall keep proof of the project's District air permit and CEC certification including copies of all permit conditions and Conditions of Certification onsite starting at the commencement of construction through the final decommissioning of the project. The project owner shall make the District's permit conditions and Conditions of Certification available at the project site to representatives of the District, ARB, EPA and the Energy Commission for inspection.

AQ-2 The owner shall notify the District of the date of initiation of construction no later than 30 days after such date, the date of anticipated startup not more than 60 days nor less than 30 days prior to such date, and the date of actual startup within 15 days after such date. [District Rule 4001]

Verification: The project owner/operator shall notify the CPM and the District of the date of initiation of construction no later than 30 days after such date, the date of anticipated startup not more than 60 days or less than 30 days prior to such date, and the date of actual startup within 15 days after such date.

AQ-3 No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

Verification: The project owner/operator shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission.

AQ-4 Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-5 No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20 percent opacity. [District Rule 4101]

Verification: The project owner/operator shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-6 The owner shall submit continuous emission monitor design, installation, and operational details to the District at least 30 days prior to commencement of construction. [District Rule 2201]

Verification: The project owner/operator shall provide copies of drawings of the continuous emission monitor and design, installation, and operations details to the CPM and the District at least 30 days prior to the construction of permanent foundations.

AQ-7 CTG exhaust shall be equipped with a continuously recording emission monitor(s) dedicated to each unit for NOx, CO, and O2. Continuous emissions monitor(s) shall meet the requirements of 40 CFR part 60, Appendices B and F, and 40 CFR part 75, and District-approved protocol, and shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided the CEM(s) pass the relative accuracy requirement for startups and shutdowns specified herein. If relative accuracy of CEM(s) cannot be demonstrated during startup conditions, CEM results during startup and shutdown events shall be replaced with startup emission rates obtained from source testing to determine compliance with emission limits contained in this document. [District Rules 2201, 4001, and 4703]

Verification: The project owner/operator shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-8 The gas turbine engines shall be equipped with a continuous monitoring system to measure and record hours of operation and fuel consumption. [District Rules 2201, 4001, and 4703]

Verification: The project owner/operator shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-9 The CEM for NOx and O2 shall meet the applicable performance specification requirements in 40 CFR, Part 51, Appendix P and Part 60, appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the Environmental Protection Agency. [District Rule 1080]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-10 Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and compliance source testing are both performed in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted to the District along with quarterly compliance reports. [District Rule 1080]

Verification: The project owner/operator shall submit the continuous emission monitor audit results with the quarterly reports required of Condition **AQ-40**.

AQ-11 Combustion turbine generator (CTG) and electrical generator lube oil vents shall be equipped with mist eliminators to maintain visible emissions from lube oil

vents no greater than 5 percent opacity, except for up to three minutes in any hour. [District Rule 2201]

Verification: The project owner/operator shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-12 All equipment shall be maintained in proper operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]

Verification: Upon request, the project owner/operator shall make all maintenance records and reports available at the project site to representatives of the District, ARB, EPA and the Energy Commission for inspection.

AQ-13 The owner shall monitor and record the NOx emission rate, the CO emissions rate, the ammonia injection rate, the exhaust temperature, the exhaust oxygen content, and the exhaust flow rate. [District Rule 4703 and 4001]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-14 The exhaust stack shall be equipped with permanent provisions for stack gas sample collection. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]

Verification: The project owner/operator shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-15 A selective catalytic reduction (SCR) system and oxidation catalyst shall serve the gas turbine engine. Exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. Permittee shall submit SCR and oxidation catalyst design details to the District at least 30 days prior to commencement of construction. [District Rule 2201]

Verification: The project owner/operator shall provide copies of drawings of the chosen SCR system and oxidation catalyst design, installation, and operations details to the CPM and the District at least 30 days prior to the construction of permanent foundations.

AQ-16 These units shall exclusively burn only natural gas with a sulfur content of no greater than 0.25 grains of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-17 During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (N-4597-1 and N-4597-2) shall not exceed the following: NOx (as NO2) - 26 Ib and CO - 42 Ib in any one hour. [California Environmental Quality Act]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-18 Startup is defined as the period beginning with turbine initial firing until the unit meets the Ib/hr and ppmvd emission limits. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending with cessation of firing of the gas turbine engine. Startup of the CTG shall not exceed a time period of 20 minutes each per occurrence. Shutdown of the CTG shall not exceed a time period of 30 minutes each per occurrence. Startup and shutdown events shall not exceed 250 occurrences per calendar year. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-19 Operation of the turbine shall not exceed 8,000 hours per calendar year. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-20 Emissions from this unit, except during startup and shutdown events, shall not exceed any of the following: NOx (as NO2) – 26.45 Ib/hr and 5.0 ppmvd @ 15 percent O2; VOC - 2.42 Ib/hr and 2.0 ppmvd @ 15 percent O2; CO - 26.57 Ib/hr and 6.0 ppmvd @ 15 percent O2; PM10 - 10.4 Ib/hr; and SOx (as SO2) - 0.78 Ib/hr. All emission concentration limits are three-hour rolling averages. [District Rules 2201, 4001, and 4703]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-21 Emissions from this unit shall not exceed any of the following: NOx (as NO2) – 493.3 Ib/day; VOC – 42.4 Ib/day; CO – 235.7 Ib/day; PM10 – 249.6 Ib/day; and SOx (as SO2) – 18.7 Ib/day. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-22 Combined quarterly emissions from N-4597-1 and N-4597-2 shall be calculated for each calendar quarter and shall not exceed any of the following: NOx (as NO2) - Q1: 76,704 Ib, Q2: 76,704 Ib, Q3: 76,756 Ib, and Q4: 76,756 Ib; VOC - Q1: 6,676 Ib, Q2: 6,676 Ib, Q3: 6,680 Ib, and Q4: 6,680 Ib; and PM10 - Q1: 41,200 Ib, Q2: 41,200 Ib, Q3: 41,200 Ib, and Q4: 41,200 Ib. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-23 Combined annual emissions from N-4597-1 and N-4597-2 calculated on a twelve consecutive month rolling basis shall not exceed any of the following: NOx (as NO2) - 306,920 Ib/year; VOC - 26,712 Ib/year; and PM10 -164,800 Ib/year. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-24 The ammonia (NH3) emissions shall not exceed 10 ppmvd @ 15 percent O2 over a 24 hour rolling average. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-25 Compliance with ammonia slip limit shall be demonstrated utilizing the following calculation procedure: ammonia slip ppmvd @ 15 percent O2 = ((a - (bxc/1,000,000)) x (1,000,000 / b) x d, where a = ammonia injection rate (Ib/hr) / (17 Ib/lb mol), b = dry exhaust flow rate (Ib/hr) / (29 Ib/lb mol), c = change in measured NOx concentration ppmvd @ 15 percent O2 across the catalyst and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the permittee may utilize a continuous in-stack ammonia monitor, acceptable to the District to monitor compliance. At least 60 days prior to using a NH3 CEM, the permittee shall submit a monitoring plan for District review and approval. [District Rule 41O2]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-26 Each one-hour period in a three-hour rolling average will commence on the hour. The three-hour average will be compiled from the three most recent one-hour periods. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-27 Daily emissions will be compiled for a twenty-four hour period starting and ending at twelve-midnight. Quarterly emissions shall be calculated for each calendar quarter in a year. Each calendar month in a twelve consecutive month rolling emissions total will commence at the beginning of the first day of the month. The twelve consecutive month rolling emissions total to determine compliance with annual emission limits will be compiled from the twelve most recent calendar months. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-28 Source testing to demonstrate compliance with the NOx, CO, and VOC short-term emission limits (lb/hr and ppmv @ 15 percent O2) shall be conducted within 60 days of initial operation of the CTG and annually thereafter by District witnessed sampling of exhaust gas by qualified independent source testers. [District Rule 1081]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing. Testing shall be conducted within 60 days of initial operation of each CTG and at least once every twelve months.

AQ-29 Source testing to demonstrate compliance with PM10 short-term emission limit (lb/hr) shall be conducted within 60 days of initial operation, and annually thereafter by District witnessed sampling of exhaust gas by qualified independent source testers. [District Rule 1081]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing. Testing shall be conducted within 60 days of initial operation of each CTG and at least once every twelve months.

AQ-30 Source testing of startup NOx, CO, VOC and PM10 mass emission rates shall be conducted for one of the gas turbine engines (N-4597-1 or N-4597-2) upon initial operation and at least once every seven years thereafter by District witnessed in-situ sampling of exhaust gases by a qualified independent source test firm. CEM relative accuracy shall be determined during startup source testing in accordance with District approved protocol. [District Rule 1081]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing. Testing shall be conducted within 60 days of initial operation of one CTG and at least once every seven years.

AQ-31 Compliance with natural gas sulfur content limit shall be demonstrated within 60 days of operation of the CTG and periodically as required by 40 CFR 60 Subpart GG and 40 CFR 75. [District Rules 1081, 2540, and 4001]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing. Testing shall be conducted as required by 40 CFR 60 Subpart GG and 40 CFR 75.

AQ-32 The District must be notified 30 days prior to any source testing, and a source test plan must be submitted for approval 15 days prior to testing. Official test results and field data collected by source testing shall be submitted to the District within 60 days of testing. [District Rule 1081]

Verification: The project owner/operator shall notify the CPM and the District 30 days prior to any compliance source test. The project owner/operator shall provide a source test plan to the CPM and District for the CPM and District approval 15 days prior to testing. The results and field data collected by the source tests shall be submitted to the CPM and District within 60 days of testing.

AQ-33 Owner shall maintain hourly records of NOx, CO, and ammonia emission concentrations (ppmv @ 15 percent O2), and hourly, daily, and annual records of NOx and CO emissions. Compliance with the hourly, daily, and annual VOC emission limits shall be demonstrated by the CO CEM data and the VOC/CO relationship determined by annual CO and VOC source tests. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-34 Owner shall maintain records of SOx emissions rates in Ib/hr and Ib/day. SOx emission rates shall be based on fuel use records, natural gas sulfur content, and mass balance calculations. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-35 The owner shall maintain the following records for each CTG: actual turbine startup and stop times (local time), length and reason for reduced load periods, occurrence, duration, and type of any startup, shutdown, or malfunction; emission measurements; total daily and annual hours of operation; and hourly quantity of fuel used. [District Rules 2201 and 4703]

Verification: The project owner/operator shall compile required data and submit the information to the CPM is quarterly reports submitted no later than 60 days after the end of each calendar quarter.

AQ-36 Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]

Verification: The project owner/operator shall compile the required data in the formats discussed above and submit the results to the CPM quarterly.

AQ-37 The owner shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100]

Verification: The project owner/operator shall comply with the notification requirements of the District and submit written copies of these notification reports to the CPM as part of the quarterly reports of Condition **AQ-40**.

AQ-38 The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100]

Verification: The project owner/operator shall comply with the notification requirements of the District and submit written copies of these notification reports to the CPM as part of the quarterly reports of Condition **AQ-40**.

AQ-39 The owner shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]

Verification: The project owner/operator shall submit the continuous emission monitor results with the quarterly reports required of Condition **AQ-40**.

AQ-40 The owner shall submit a written report for each calendar quarter to the Air Pollution Control Officer (APCO). The report shall be received by the District within 30 days of the end of the quarter and shall include: time intervals, data and magnitude of excess emissions; nature and cause of excess emissions (averaging period used for data reporting shall correspond to the averaging period for each respective emission standard); corrective actions taken and preventive measures adopted; applicable time and date of each period during which a CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080]

Verification: The project owner/operator shall compile the required data and submit the quarterly reports to the CPM and the APCO within 30 days of the end of the quarter.

AQ-41 Source testing to demonstrate compliance with the NOx, CO, VOC, PM10, NH3 and fuel gas sulfur content requirements of this permit shall be conducted within 60 days of initial operation. Source testing for NOx, CO, VOC, PM10 and NH3 shall be conducted at least once every twelve months thereafter. [District Rule 2201 and 4001]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing. Testing shall be conducted within 60 days of initial operation of each CTG and at least once every twelve months.

AQ-42 Source testing to determine the percent efficiency of the turbine shall be conducted annually. [District Rule 4703]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing. Testing shall be conducted within 60 days of initial operation of each CTG and at least once every twelve months.

AQ-43 Testing to demonstrate compliance with the fuel sulfur content limit of this permit shall be conducted weekly. Once eight consecutive weekly tests show compliance, the fuel sulfur content testing frequency may be reduced to once every calendar quarter. If a quarterly test shows a violation of the sulfur content limit of this permit then weekly testing shall resume and continue until eight consecutive tests show compliance. Once compliance is shown on eight consecutive weekly tests then testing may return to quarterly. [District Rule 2201]

Verification: The results of the fuel sulfur content tests shall be submitted to the CPM and the District within 60 days of testing.

AQ-44 The results of each source test shall be received by the District no later than 60 days after the source test date. [District Rule 1081]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ-45 Source testing shall be witnessed or authorized by District personnel. [District Rule 1081]

Verification: The project owner/operator shall notify the CPM and the District 30 days prior to any compliance source test. The project owner/operator shall provide a source test plan to the CPM and District for the CPM and District approval 15 days prior to testing.

AQ-46 Source testing for NOx shall be conducted utilizing EPA method 7E or EPA method 20. The test results shall be corrected to ISO standard conditions as

defined in 40 CFR Part 60 Subpart GG Section 60.335. [District Rules 4001 and 4703]

Verification: The project owner/operator shall provide records of compliance as part of Condition **AQ-45**.

AQ-47 Source testing for CO shall be conducted utilizing EPA method 10 or EPA method 10 B. [District Rule 4703]

Verification: The project owner/operator shall provide records of compliance as part of Condition **AQ-45**.

AQ-48 Source testing for VOC shall be conducted utilizing EPA method 18 or EPA method 25. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of Condition **AQ-45**.

AQ-49 Source testing to measure concentrations of PM10 shall be conducted using EPA methods 201 and 202, or EPA methods 201 A and 202, or CARB method 501 in conjunction with CARB method 5. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of Condition **AQ-45**.

AQ-50 Source testing to measure NH3 emissions shall be determined using BAAQMD Method ST-1B. [District Rule 1081]

Verification: The project owner/operator shall provide records of compliance as part of Condition **AQ-45**.

AQ-51 Source testing for stack O2 content shall be conducted utilizing EPA method 3, EPA method 3A or EPA method 20. [District Rule 4703]

Verification: The project owner/operator shall provide records of compliance as part of Condition **AQ-45**.

AQ-52 Testing for fuel sulfur content shall be conducted utilizing ASTM method D 3246. [District Rule 4001]

Verification: The project owner/operator shall provide records of compliance as part of Condition **AQ-43**.

AQ-53 Source testing to determine the percent efficiency of the turbine shall be conducted utilizing the procedures in District Rule 4703 (Stationary Gas Turbines). [District Rule 4703]

Verification: The project owner/operator shall provide records of compliance as part of Condition **AQ-45**.

AQ-54 The owner shall maintain the following records: the date, time and duration of any malfunction of the continuous monitoring equipment; dates of performance testing; dates of evaluations, calibrations, checks, and adjustments of the continuous monitoring equipment; date and time period which a continuous monitoring system or monitoring device was inoperative. [District Rules 2201 and 4703]

Verification: The project owner/operator shall compile required data and submit the information to the CPM is quarterly reports submitted no later than 60 days after the end of each calendar quarter.

AQ-55 The owner shall maintain records of the cumulative annual facility-wide NOx, VOC, and PM10 emissions. The records shall be updated daily. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of Condition **AQ-54**.

AQ-56 The owner shall submit to the District information correlating the NOx control system operating parameters to the associated measured NOx output. The information must be sufficient to allow the District to determine compliance with the NOx emission limits of this permit during times that the CEMS is not functioning properly. [District Rule 4703]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-40**.

AQ-57 All records required to be maintained by this permit shall be maintained for a period of two years and shall be made readily available for District inspection upon request. [District Rule 2201]

Verification: The project owner/operator shall make records available for inspection by representatives of the District, CARB and the Commission upon request.

AQ-58 The owner shall submit an application for a Permit to Operate to comply with Rule 2520 - Federally Mandated Operating Permits prior to the implementation of the Authority to Construct. [District Rule 2520]

Verification: The project owner/operator shall file their application with the District prior to implementing this Authority to Construct.

AQ-59 The owner shall submit an application to comply with Rule 2540 (Acid Rain Program) at least 24 months prior to the date that the unit commences operation. [District Rule 2540]

Verification: The project owner/operator shall submit to the CPM copies of the Title IV permit and proof that necessary emission allotments have been acquired at least 15 days prior to the initial firing of the turbine(s).

AQ-60 At least 30 days prior to commencement of construction, the permittee shall provide the District with written documentation that all necessary offsets have been acquired or that binding contracts to secure such offsets have been entered into. [District Rule 2201]

Verification: The project owner/operator shall submit to the District written documentation that all necessary offsets have been acquired, or that binding contracts to secure such offsets have been entered into, at least 30 days prior to commencement of construction.

AQ-61 Upon implementation of the Authority to Construct permit, emission offsets shall be provided for NOx, VOC, and PM-10. The offsets shall be provided at the offset ratio specified in District Rule 2201 (New and Modified Stationary Source Review). [District Rule 2201]

Verification: The project owner/operator shall submit to the District written documentation that all necessary offsets have been acquired, or that binding contracts to secure such offsets have been entered into, upon implementation of the Authority to Construct permit.

AQ-62 Offsets shall be provided in the amount that will mitigate the increase in NOx emissions of 71,730 pounds per calendar quarter, the increase in VOC emissions of 1,678 pounds per calendar quarter, and the increase in PM-10 emissions of 33,900 pounds per calendar quarter. [District Rule 2201]

Verification: The project owner/operator shall submit to the District written documentation that all necessary offsets have been acquired, or that binding contracts to secure such offsets have been entered into, at least 30 days prior to commencement of construction.

AQ-63 SOx reductions may be utilized to offset PM-10 emission increases. The combined distance/interpollutant offset ratio shall be 2.2 pounds of SOx per 1.0 pound of PM10 if the reductions occurred within 15 miles of the proposed facility. The combined distance/interpollutant offset ratio shall be 2.5 pounds of SOx per

1.0 pound of PM-10 if the reductions occurred 15 miles or more from the proposed facility. [District Rule 2201]

Verification: The project owner/operator shall submit emission offset calculations to the District to confirm that the correct distance/interpollutant offset ratios have been used to determine SOx reductions to offset PM-10 emissions.

SJVAPCD Permit No. UNIT N-4597-3-0 – 382 HP CATAPILLER MODEL 3306 ATAAC DIESEL-FIRED EMERGENCY IC ENGINE POWERING A 250 KW ELECTRICAL GENERATOR.

AQ-64 No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

Verification: The project owner/operator shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-65 No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20 percent opacity. [District Rule 4101]

Verification: The project owner/operator shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-66 Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Verification: The project owner/operator shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-67 The engine shall be equipped with positive crankcase ventilation (PCV) system or a crankcase emissions control device of at least 90 percent control efficiency. [District NSR Rule]

Verification: The project owner/operator shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-68 Operation of the engine shall not exceed 11 hours per day. [District Rule 2201]

Verification: The project owner/operator shall make records available for inspection by representatives of the District, CARB and the Commission upon request.

AQ-69 The engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 200 hours per year. [District Rule 4102, 4701]

Verification: The project owner/operator shall provide records of compliance for the above condition as part of the quarterly reports of Condition **AQ-40**.

AQ-70 The exhaust stack shall not be fitted with a rain cap, or any other similar device, that impedes vertical exhaust flow. [District Rule 4102]

Verification: The project owner/operator shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-71 NOx emissions shall not exceed 5.09 g/hp-hr. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance for the above condition as part of the quarterly reports of Condition **AQ-40**.

AQ-72 CO emissions shall not exceed 1.13 g/hp-hr. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance for the above condition as part of the quarterly reports of Condition **AQ-40**.

AQ-73 VOC emissions shall not exceed 0.14 g/hp-hr. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance for the above condition as part of the quarterly reports of Condition **AQ-40**.

AQ-74 PM10 emissions shall not exceed 0.13 g/bhp-hr based on U.S EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102]

Verification: The project owner/operator shall provide records of compliance for the above condition as part of the quarterly reports of Condition **AQ-40**.

AQ-75 Only CARB-certified diesel fuel containing not more than 0.05 percent sulfur by weight shall be used. [District Rules 2201 and 4102]

Verification: The project owner/operator shall make records available for inspection by representatives of the District, CARB and the Commission upon request.

AQ-76 The owner shall maintain records of hours of emergency and non-emergency operation. Records shall include the date, the number of hours of operation, the purpose of the operation (e.g., load testing, weekly testing, rolling blackout, general area power outage, etc.), and the sulfur content of the diesel fuel used. Such records shall be made available for District inspection upon request for a period of two years. [District Rules 2201 and 4701]

Verification: The project owner/operator shall make records available for inspection by representatives of the District, CARB and the Commission upon request. Records shall be retained for a period of two years.

AQ-77 All records shall be retained for a minimum of 2 years, and shall be made available for District inspection upon request. [District Rule 1070]

Verification: The project owner/operator shall make the site available for inspection by representatives of the District, CARB and the Commission.

REFERENCES

CARB (California Air Resources Board). 2000. California Ambient Air Quality Data CD ROM.

CARB (California Air Resources Board). 2001. California Ambient Air Quality Data available on CARB Website. http://www.arb.ca.gov/adam/.

CEC (California Energy Commission) 2001a. Tracy Peaker Power Plant Data Requests. Submitted to the California Energy Commission on October 23, 2001.

GWF (GWF Energy, LLC) 2001a. Application for Certification for the Tracy Peaker Power Plant. Submitted to the California Energy Commission on August 3, 2001.

GWF (GWF Energy LLC) 2001b. Tracy Peaker Power Plant Data Responses. Submitted to the California Energy Commission on November 9, 2001.

GWF (GWF Energy LLC) 2001c. Tracy Peaker Power Plant Supplement to the First Set of Data Responses. Submitted to the California Energy Commission on November 28, 2001.

GWF (GWF Energy LLC) 2001d. Tracy Peaker Power Plant Supplement to the Second Set of Data Responses. Submitted to the California Energy Commission on November 28, 2001.

SCAQMD (South Coast Air Quality Management District). 1993. CEQA Air Quality Handbook. November, 1993 Update.

SJVAPCD (San Joaquin Valley Air Pollution Control District) 2001a. Final Determination of Compliance for GWF Energy LLC – Tracy Peaker Power Plant. Submitted to the California Energy Commission on October 5, 2001.

SJVAPCD (San Joaquin Valley Air Pollution Control District) 2001b. Preliminary Decision for the Proposed Issuance of an Authority to Construct (ATC) for GWF Energy LLC – Tracy Peaker Power Plant. Submitted to the California Energy Commission on November 5, 2001.

SJVAPCD (San Joaquin Valley Air Pollution Control District) 2001c. Final Determination of Compliance for GWF Energy LLC – Tracy Peaker Power Plant - Revised. December 5, 2001.

GWF (Tracy Peaker Project) 2001e. Supplement to Application for Certification for the Tracy Peaker Power Plant. Submitted to the California Energy Commission on October 9, 2001.

GWF (Tracy Peaker Project) 2001j. Wet Weather Contingency Plan, Tracy Peaker Project. Submitted to the California Energy Commission on December 10, 2001.

BIOLOGICAL RESOURCES

Testimony of Natasha Nelson and Nick Kautzman

INTRODUCTION

This section provides the California Energy Commission (Energy Commission) staff's analysis of potential impacts to biological resources from GWF Energy, LLC's (applicant's) proposal for the construction and operation of Tracy Peaker Project (TPP). The analysis is directed toward impacts to state and federally listed species, species of special concern, wetlands, and other areas of critical biological concern. Information presented in this section deals with 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 non-significant levels. This document also determines compliance with applicable laws, ordinances, regulations and standards (LORS), and specifies conditions of certification.

This analysis is based, in part, on information provided as of August 16, 2001 from GWF's Application For Certification (AFC); GWF's supplement to Data Adequacy submitted October 9, 2001; responses to Data Requests submitted on November 9, 2001; staff's November 14, 2001 site visit; the Data Response workshop on November 20, 2001; votes of the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) Technical Advisory Committee on October 10, 2001, and San Joaquin Council of Governments, Inc. on October 25, 2001; a discussion with San Joaquin Council of Governments Gerald Park on November 16, 2001 (Park 2001); a discussion with California Department of Fish and Game on September 20, 2001 (CDFG 2001); and a discussion with U.S. Fish and Wildlife Service on September 19, 2001 (USFWS 2001b).

LAWS, ORDINANCES, REGULATION AND STANDARDS (LORS)

The applicant would need to abide by the following laws, ordinances, regulations, and standards during project construction and operation.

FEDERAL

- **Clean Water Act of 1977**

  Title 33, United States Code, sections 1251-1376, and Code of Federal Regulations, part 30, section 330.5(a)(26), prohibit the discharge of dredged or fill material into the waters of the United States without a permit.

- **Endangered Species Act of 1973**
  Title 16, United States Code, section 1531 et seq., and Title 50, code of Federal Regulations, part 17.1 et seq., designates and provides 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.

STATE

- **California Endangered Species Act of 1984**

Fish and Game Code sections 2050 et seq. protect California's rare, threatened, and endangered species.

- **Nest or Eggs-Take, Possess, or Destroy**

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-Take, Possess, or Destroy**

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.

- **Migratory Birds-Take or Possession**

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 that are classified as Fully Protected in California.

- **Significant Natural Areas**

Fish and Game Code section 1930 et seq. designates 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. designates state rare, threatened, and endangered plants.

- **California Code of Regulations**

Title 14, sections 670.2 and 670.5 list animals of California designated as threatened or endangered.

- **Regional Water Quality Control Board**

To verify that the federal Clean Water Act permitted actions comply with state regulations, the project owner would be required to get a Section 401 certification from the San Francisco Bay Regional Water Quality Control Board (RWQCB). The Regional Board provides its certification after reviewing the federal Nationwide Permit(s) provided by the U.S. Army Corp of Engineers.

LOCAL

- **San Joaquin County General Plan**

The County General Plan provides for the protection of several habitats of major importance, as well as to protect and improve the County's vegetation, fish, and wildlife resources. The Plan also seeks to provide for undeveloped open space for nature study, protection of endangered species, and preservation of wildlife habitat.

SETTING

REGIONAL AND LOCAL

The proposed TPP site and linear facility routes would be located in the northern San Joaquin valley, southwest of the City of Tracy, California in western San Joaquin County. The San Joaquin valley has a Mediterranean climate characterized by hot, dry summers and cool, moist winters. Historically the San Joaquin valley contained many natural habitats that supported a variety of plant and animal species. Agricultural activities and urbanization have reduced these habitats to small fragmented areas scattered throughout the valley. The habitat loss and fragmentation has resulted in the extinction of many plant and wildlife species, and has reduced the populations of many others to the point that Federal or State protection is required.

The area surrounding the project site is predominately agriculture/rangeland, with commercial/industrial development to the north and residential development to the east (City of Tracy). The area is targeted for future urban growth based on the land use designations outlined in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP; SJMSCP 2000). Although the area around the project site has been highly modified from its original state, several special status plant and animal species are known to, or may occur in the project vicinity. A list of these species is presented in **Table 1**, below.

In California, the U. S. Fish and Wildlife Service (USFWS) has published over 10 recovery plans, most of which cover a complimentary set of species that occur on a county-wide or region-wide basis. Recovery plans help the USFWS and other agencies identify threats and prioritize tasks to reduce those threats. Typically, the USFWS designates critical habitat when a species is not adequately protected by existing federal and state agency owned lands. Designating critical habitat also concentrates recovery efforts to the most essential areas, serves an educational purpose, and can prevent inadvertent harm to remaining habitat by individuals.

The USFWS reviewed the recovery of the San Joaquin kit fox, 10 listed species, and 23 candidates or species of concern within the *Recovery Plan for Upland Species of San Joaquin Valley California* (USFWS 1998). The majority of the Plan's species occur in the arid grasslands and scrublands of the San Joaquin valley, or in the adjacent foothills and valleys. Conversion of this habitat to agricultural and urban uses is the largest threat to these species' recovery. San Joaquin kit fox is used as an umbrella species because it occurs in almost all the natural communities used by the other species. Thus, protection of the kit fox is likely to aid other species. Because of its importance as a predator, the kit fox is also reviewed as a keystone species, and its protection is given priority over other species.

The draft recovery plan for California red-legged frog was released in May 2000 (USFWS 2000). The goals of the plan are to de-list the species by protecting known populations and reestablishing others, protecting habitat (core, migrating), and promoting management actions that stop threats. The Recovery Plan designated the Corral Hollows watershed as a "Core Area" for the frog. Corral Hollows is 1.5 miles

south of the TPP, on the west-side of Highway 580. Core areas represent the areas where restoration of habitat is most feasible, where pilot reestablishment efforts are most likely to have success, and where natural recolonization is expected (USFWS 2000).

In March 2001, the USFWS designated 4 million acres of California as critical habitat for the California red-legged frog (USFWS 2001a). The California red-legged frog requires both aquatic and upland habitats. The closest critical habitat to the TPP is Unit 15 (East Bay-Diablo Range Unit), which covers 1 million acres of watersheds within eight central coast counties. The Corral Hollows watershed, in the southwestern tip of San Joaquin County, is part of Unit 15.

PROJECT SITE

The proposed TPP project area would be located on a 40-acre parcel in an unincorporated portion of southwestern San Joaquin County. Historically, the TPP site has been used to grow a variety of irrigated crops. The TPP site is bordered on the southwest by the Delta Mendota canal, to the south, east and northwest by agricultural lands, and to the north by the Union Pacific (UP) railroad. The Owens-Brockway glass container manufacturing plant and the Nutting-Rice warehouse are immediately north of the UP railroad. The TPP would be placed on 9 acres of the 40-acre site, near the center of the southwest border adjacent to the Delta Mendota canal. An additional 5.2 acres to the west of the TPP site would be used for temporary construction laydown and parking.

BIOLOGICAL RESOURCES - Table 1
Sensitive Species Known to Occur in the Project Vicinity
(GWF 2001a)

Sensitive Plants	Status*
Large-flowered fiddleneck (*Amsinckia grandiflora*)	FE/CE/CNPS 1B
Alkali milk-vetch (*Astragalus tener* var. *tener*)	FSC/CNPS 1B
Heartscale (*Atriplex cordulata*)	FSC/CNPS 1B
Brittlescale (*Atriplex depressa*)	FSC/CNPS 1B
San Joaquin spearscale (*Atriplex joaquiniana*)	FSC/CNPS 1B
Big-scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*)	FSC/CNPS 1B
Big tarplant (*Blepharizonia plumosa* ssp*. Plumosa*)	FSC/CNPS 1B
Congdon's tarplant (*Hemizonia parryi* ssp*. congdonii*)	FC/CNPS 1B
Slough thistle (*Cirsium crassicaule*)	FSC/CNPS 1B
Hipsid bird's-beak (*Cordylanthus mollis ssp. hispidus*)	FSC/CNPS 1B
Palmate-bracted bird's-beak (*Cordylanthus palmatus*)	FE/CE/CNPS 1B
Interior California larkspur (*Delphinium californicum ssp. interius*)	FSC/CNPS 1B
Recurved larkspur (*Delphinium recurvatum*)	FSC/CNPS 1B
Contra Costa buckwheat (*Eriogonum truncatum*)	CNPS 1A
Diamond-peteled California poppy (*Eschscholzia rhombipetala*)	FSC/CNPS 1B
Fragrant fritillary (*Fritillaria lilacea*)	FSC/CNPS 1B
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)	FSC/CE/CNPS 1B
Diablo helianthella (*Helianthelle castanea*)	FSC/CNPS 1B
Santa Cruz tarweed (*Holocarpha macradenia*)	FT/CE/CNPS 1B
Contra Costa goldfields (*Lasthenia conjugens*)	FE/CNPS 1B
Showy madia (*Madia radiata*)	FSC/CNPS 1B
Colusa grass (*Neostapfia colusana*)	FT/CE/CNPS 1B
Bearded popcornflower (*Plagiobothrys hystriclus*)	CNPS 1A
Adobe sanicle (*Sanicula maritima*)	FSC/CR/CNPS 1B
Wright's tricoronis (*Trichoronis wrightii var. wrightii*)	CNPS 2
Showy Indian clover (*Trifolium amoenum*)	FE/CNPS 1B
Cape-fruited tropdocarpum (*tropidocarpum capparideum*)	CNPS 1A
Geene's tuctoria (*Tuctoria greenei*)	FE/CNPS 1B

Sensitive Wildlife	Status*
Western spadefoot (*Scaphiopus Hammondii*)	CSC
California horned lizard (*Phrynosoma coronatum frontale*)	CSC
California red-legged frog (*Rana aurora draytonii*)	FT/CSC
California tiger salamander (*Ambystoma californiense*)	FPT/CSC
California horned lark (*Eremophila alpestris actia*)	CSC
Western burrowing owl (*Athene cunicularia*)	FSC/CSC
Loggerhead shrike (*Lanius ludovicianus*)	CSC
LeConte's thrasher (*Toxostoma lecontei*)	CSC
Tricolored blackbird (*Agelaius tricolor*)	CSC
San Joaquin pocket mouse (*Perognathus inornatus*)	CSC
American badger (*Taxidae taxus*)	CSC
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE/CT

*STATUS LEGEND – FE = Federally listed Endangered; FT = Federally listed Threatened; FPT = Federal proposed Threatened; FSC = Federal Species of Concern; California Native Plant Society (CNPS) List 1A = Plants presumed extinct in California; List 1B = Rare and endangered plants of California and elsewhere; List 2 = Plants rare, threatened, or endangered in California but more common elsewhere; CE = State listed Endangered, CT = State listed Threatened; CR = State listed Rare; and CSC = State Species of Special Concern.

Several plant and animal species listed under state and/or federal Endangered Species Acts potentially occur in the project region (**Table 1**). Of these species, however, only two, the federally endangered and state threatened San Joaquin kit fox (*Vulpes macrotis mutica*), and the federal and state species of concern Western burrowing owl (*Athene cunicularia*) are expected to potentially occur within the TPP study area. San Joaquin kit fox may utilize the project area and surrounding agricultural areas as a migration corridor, and a foraging location. A kit fox core corridor was established as part of the SJMSCP. The corridor is located to the west of the TPP site and is separated from the site by the Delta Mendota canal and I-580. While kit fox are highly mobile and undoubtedly utilize areas not included in the established corridor, the presence of the canal and the interstate effectively isolate the TPP project area from the established corridor.

The Delta Mendota canal and UP railroad embankments have both been colonized by ground squirrels. Western burrowing owl are known to occupy ground squirrel burrows and so may be present at or near the site. Burrowing owl may also use the TPP project area for foraging. While no burrowing owl were observed by the applicants biologists during their May 2001 surveys, there is the potential for them to occur on the site or in the immediate area.

Wildlife species of commercial and/or recreational value may occur in the project area. Bird species that provide hunting opportunities for sportsmen such as mourning dove (*Zenaida macroura*), and ring-necked pheasant (*Phasianus colchicus*) are know to occur in the vicinity of the project and may occasionally occur on the TPP site. The TPP will remove a very small amount of habitat (12.2 acres) compared with the large amount of similar habitat surrounding the project. The TPP site at present offers little in the way of hunting opportunities based on its close proximity to residential and commercial properties.

The construction of the proposed TPP site could result in the introduction of invasive plant species. The TPP site and linear routes are already highly disturbed and, to some extent, have been colonized by a variety of invasive plants. However, the widespread use of herbicides associated with agricultural practices surrounding the TPP site will likely limit the spread of invasive plant species in the vicinity of the TPP.

Linear Facilities

All linear facilities that would serve the proposed simple-cycle power plant are located in San Joaquin County and would be relatively short. No linears will be required for the transmission and natural gas components of the TPP project, since the interconnections will be onsite. The TPP project would require the improvement of 1.1-miles of an existing road and the installation of a 1,470-foot water supply pipeline.

Transmission Lines

The TPP project would tie into an existing 115kV line that runs through the project site. The new line would not impact any additional area not covered under the TPP site.

Storm Water Drain

All storm water would be collected and retained onsite in an evaporation/infiltration detention basin. The detention basin would be located on the TPP site. The TPP site would be fenced, which will limit access to most terrestrial organisms, but birds will be able to access the basin.

Natural Gas Line

The TPP project would tie into an existing PG&E natural gas transmission pipeline that crosses beneath the TPP project site. The gas pipeline would be within the area described for the power plant site, and the construction and tie in would not impact any additional area.

Roads

The project site would be accessed by an improved asphalt road that would run 3,300 feet south from W. Schulte road to the TPP project site. At present the road is used for accessing the agricultural area around the Nutting Rice warehouse. The road would be widened by approximately 5-feet and paved. A change in alignment would occur where the road crosses the train tracks in order to avoid a parcel of Bureau of Reclamation land northwest of the TPP parcel. The road is bordered on the west by an abandoned federal facility that is dominated by nonnative grassland, and on the east by agricultural fields (alfalfa), and the Nutting-Rice warehouse. The improvement of the road would permanently disturb 1.9 acres of land and temporarily disturb another 1.5 acres. Potential kit fox burrows were observed along the proposed road alignment by the applicant's biologists during their May 2001 surveys.

Waterlines

The TPP would obtain water from the Delta Mendota canal via a 1,470-foot water line that would originate at an existing turnout of the Delta Mendota canal and run north underground to the TPP site. The water line would run between an existing farm road and an agricultural field and would result in the temporary disturbance of 0.6 acres. The water line route is in close proximity to the Delta Mendota canal embankment, which has been colonized by ground squirrels; burrowing owl have been known to utilize ground squirrel burrows. No burrowing owl were observed by the applicants biologists during their May 2001 surveys. The canal embankment may also provide habitat for kit fox, though no individuals or potential burrows were observed by the applicant's biologists.

Worker Parking and Staging Areas

The construction laydown and worker-parking area would be located to the west of and adjacent to the TPP site. The lay down and parking area as well as the TPP site would be fenced off with a temporary chain link fence. During the November 20, 2001 Data Response workshop, staff discussed with the applicant whether the fence would be installed in such a manner as to exclude moderately small mammals such as the kit fox. The applicant stated that it would be and that daily inspections would be conducted to ensure that the fence is continuing to exclude kit fox from the site.

The laydown and worker parking areas would temporarily disturb 5.2 acres of land, which would be returned to agricultural production after construction of the TPP facility is completed.

ANALYSIS AND IMPACTS

PROJECT SPECIFIC IMPACTS

The Environmental Checklist (see below) is presented in the California Environmental Quality Act (CEQA) guidelines to assist lead agencies in their analysis of project impacts. We provide this checklist as a summary of staff's conclusions regarding the potential for adverse significant project impacts. Following the checklist is a discussion of staff's analysis and rationale for these conclusions.

Environmental Checklist

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
BIOLOGICAL RESOURCES -- Would the project or related facilities:				
a) Have an adverse effect, either directly, indirectly, or cumulatively, on any species identified as a candidate, sensitive, or special status species in federal, state, local or regional plans, policies, or regulations (including those by the California Department of Fish and Game, National Marine Fisheries Service, U.S. Bureau of Land Management, U.S. Forest Service, or U.S. Fish and Wildlife Service) or habitat used by the above?		X		
b) Have an indirect or direct adverse effect on any riparian habitat or other sensitive natural community identified in federal, state, local or regional plans, policies, and regulations (including those by the California Department of Fish and Game or U. S. Fish and Wildlife Service)?				X

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
BIOLOGICAL RESOURCES -- Would the project or related facilities:				
c) Have an adverse effect on surface or ocean waters (including those considered by National Marine Fisheries Service as essential fish habitat), or on local aquatic resources, or on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, tidal and freshwater marshes, vernal pools, etc.) either through direct removal, filling, hydrological interruption, pollution (thermal, particulate, or chemical) or other means?				X
d) Interfere with the movement of any native fish or wildlife species (resident or migratory) or with established native (resident or migratory) wildlife corridors, or limit or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as 1) a tree preservation policy or ordinance, or 2) a native landscape requirement?				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
g) Create an adverse change in commercial or recreational species' distribution or population size, or harvesting opportunities for these species?				X
h) Facilitate the introduction, population growth, or spread of weedy plant species that are difficult to control (such as those classified by the California Department of Agriculture as List A, List B, or Red Alert species) or other invasive or non-native aquatic or terrestrial wildlife species (such as nest parasites)?			X	

a) Effect on Sensitive Species

Projects in developed areas typically have minimal impacts on sensitive biological resources because of the lack of suitable habitat on site. However, such projects are evaluated for the indirect impacts they could have on any surrounding areas that remain in natural conditions and support biological resources.

Power Plant and Switchyard

The TPP power island would consist of a simple-cycle power plant, on a nine acre, fenced site and two switchyards (see Biological Resources **Table 2**). The TPP site is currently part of a 40-acre parcel of agricultural land that borders industrial uses to the immediate north, an orchard to the southwest, and open fields to the south, east and northwest. The TPP was managed as intensive agricultural land, and is only marginal habitat for many species. Kit fox and burrowing owl are known to enter these marginal habitats when more optimal habitat is not available. The conversion of open space lands is the principal cause of kit fox and burrowing owl declines. Surveys in May 2001 found three potential kit fox dens within 500 feet of the site, and five within 1,000 feet. Because of the large home range of kit fox (1 to 2 miles), other dens and individuals may be present just outside of the survey area and within traveling range. The Delta-Mendota canal area, just southwest of the plant site, and areas along the access road (discussed below) also have some potential to support kit fox foraging and denning. Burrowing owl are known to inhabit the area surrounding the TPP. The canal to the southwest and railroad tracks to the north are bermed and colonized by ground squirrels, and burrowing owl often inhabit the burrows of ground squirrels.

Biological Resources Table 2
Estimates of Temporary and Permanent Habitat Losses
(GWF 2001b)

Project Feature	Temporary Disturbance (Acres)	Permanent Disturbance (Acres)
Access Road	1.5	1.9
Water Supply Line	0.6	0.0
Power Plant Fenced Area	0.0	9.0
PG&E Switchyard Fenced Area	0.0	1.3
Construction laydown/Parking	5.2	0.0
Total	**7.3**	**12.2**

Staff anticipates that the USFWS would require an incidental take permit and mitigation for the construction of the power plant and the ancillary facilities in southwestern San Joaquin County. The applicant has proposed to gain coverage for incidental take from the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP 2000) and San Joaquin County. In order to minimize impacts to SJMSCP covered species, the permitting agency (in this case San Joaquin Council of Governments, Inc.) must require all project proponents (in this case TPP) to incorporate Incidental Take Minimization Measures (Section 5.2.4 of the SJMSCP 2000) into their planning. Based on the species with the potential to occur at the TPP site, TPP will be

required to adhere to the guidelines identified in the SJMSCP for kit fox (Section 5.2.4.25), and burrowing owl (Section 5.2.4.15).

The SJMSCP Master Incidental Take Permit conditions specify that the project acquire, enhance and manage in perpetuity one acre of land for each acre of agricultural habitat lands converted from Open Space use. The TPP will permanently convert 12.2 acres of land and temporarily disturb 7.3 acres of land (see Biological Resources **Table 2**). Thus, under the SJMSCP permitting, the applicant would be required to purchase 19.5 acres of land or pay a fee of $ 32,955.00 ($1,690 per acre x 19.5 acres) to the San Joaquin Council of Governments, Inc.; the overseeing body for SJMSCP, for acquisition of an equivalent number of acres.

In addition to the SJMSCP's Incidental Take Minimization Measures, the applicant has proposed Conditions of Certification to ensure that construction and operation do not result in significant impacts to biological resources. Staff has incorporated these measures into its recommended Conditions of Certification. Mitigation includes the hiring of a Designated Biologist to perform pre-activity wildlife surveys (Biological Resources Conditions of Certification **BIO-1, BIO-2, BIO-3**), development of a worker Environmental Awareness Program (**BIO-4**), the flagging of avoidance areas, den excavation and replacement, restrictions on construction personnel regarding trash, pets, and firearms, and preventing wildlife losses during excavation and pipe laying activities (**BIO-6** and **BIO-8**). Compliance with these measures (and the Incidental Take Minimization Measures from the SJMSCP) would be monitored and compliance reports circulated to the responsible agencies as specified in the Biological Resources Mitigation and Monitoring Plan (**BIO-5**).

The compliance with the SJMSCP Incidental Take Minimization Measures (**BIO-5**), the purchase of a specified amount of habitat compensation acreage under the SJMSCP (**BIO-9**), and compliance with the measures outlined in *Standardized Recommendations for the Protection of the San Joaquin Kit fox Prior to or During Ground Disturbance* (USFWS 1999) (**BIO-8**), would mitigate losses to San Joaquin kit fox to less than significant levels.

Although no individuals or potential burrowing owl nesting sites were found on site, if construction occurs during the nesting season (February to July), there is a potential for disturbance to burrowing owl. Pre-construction surveys and avoidance measures would be incorporated to reduce impacts to less than significance (**BIO-6** and **BIO-7**).

There are no recorded occurrences of California red-legged frog within the project site or within one mile of the site, and no individuals or habitat were seen during the May 2001 surveys. Critical habitat at Corral Hollows is isolated physically and hydrologically from the TPP site. No impacts to individuals of this species or its critical habitat is anticipated as a result of the project, and no mitigation is proposed by staff.

Raptors, such as barn owl and great horned owl, likely forage on and near the site and may perch on the lattice towers along the site's southeast boundary. The most abundant prey source, ground squirrels, are concentrated in the berms along the canal. The proposed project would be on abandoned agricultural land, and the berms are not permanently impacted by the project. The temporary loss of 7.3 acres of flat agricultural

land, and the permanent loss of 12.2 acres is unlikely to cause a significant loss to these wide-ranging species.

TPP proposes to build two 100-foot tall, 16-foot-diameter combustion exhaust stacks. Bird collisions with exhaust stacks and other tall structures can result in significant bird losses when these structures are located in areas where suitable habitat attracts bird populations. Most bird collisions/deaths occur during migration in inclement weather. The site and surrounding areas do not contain attractive bird habitat (e.g., freshwater marsh or ponds). Therefore, the proposed exhaust stacks (lighted or unlighted) are unlikely to increase bird collisions or otherwise cause harm to wildlife. Therefore, staff concludes that this potential concern is not applicable to the TPP, and no mitigation is recommended by staff.

The operation of the proposed facility would generate air pollutants from the combustion of natural gas (for the combustion turbines) and diesel (for the emergency generator). The emissions for the power plant and generator would be below a threshold set by the U.S. Environmental Protection Agency for Prevention of Significant Deterioration and the applicant demonstrated the emissions would be appropriately controlled to prevent significant changes to ambient air quality. Impacts to local biological resources would not be likely, and staff does not recommend mitigation.

The operation of the proposed facility would withdraw daily an average of 20 gallons per minute and a maximum of 52 gallons per minute of water from a turnout on the Delta Mendona canal. Most of the withdrawls would be in the summer, when ambient temperatures are high. Drainage canals in the area are known to support warm-water fish, but the Delta-Mendona canal does not contain any special status fish (Bureau of Reclamation 2000). The intake would be screened by design, which would reduce impacts to any fish or invertebrates in the turnout waters.

Linear Facilities

The majority of ancillary facilities are already present on the site, including the transmission lines and fuel supply. A 1,470-foot water supply pipeline and improvements to the access road are the only proposed off-site linears. The water supply pipeline would temporarily disturb 0.6 acre (1,470 feet by 20 feet) of agricultural habitat. The pipeline would not cross any potential kit fox dens, the nearest being located on the west side of the Delta Mendota canal.

The TPP would require the upgrade of a 3,300 foot road. The road is located between an alfalfa field and a parcel with nonnative grassland and abandoned communication antennas. Potential kit fox dens can be found along the road and within 1,000 feet on either side. Alfalfa fields typically provide a substantial prey base for raptors. The construction of the road would be expected to disturb 1.5 acres, and permanently disturb 1.9 acres of the alfalfa field. Construction noise and traffic could disturb kit fox and discourage foraging by raptors. Mitigation measures implemented during construction and the purchase of habitat compensation credits (as described for the project site in **BIO-9**) would mitigate impacts to less than significant. During operation, the road would receive use only by TPP's two plant employees, dispatched from other GWF facilities, or during an emergency. No biological impacts are expected.

Worker Parking and Staging Areas

Approximately five acres, west of the power plant site, would be used for construction parking and laydown. Parking and staging areas would be located on agricultural land with no known biological resources. The planned parking and staging areas are similar to the power plant and substation site discussed above. The temporary loss of these agricultural lands is unlikely to cause harm to biological resources, but the loss should be accounted for in the mitigation fee paid in compliance with the SJMSCP (**BIO-9**) to mitigate impacts to state and federally listed species to less than significant levels.

In order to prevent moderately small mammals (such as the kit fox) from entering the site, the applicant has proposed to fence the site. Staff recommends in **BIO-10** that the fencing be installed in such a manner as to exclude moderately small mammals and the fence be monitored daily for integrity. If the fence cannot be built to these standards, the Designated Biologist would need to be on site at all times during the construction of the facility. (Note: the Designated Biologist must be present during construction of the linears.)

b) Effect on Sensitive Habitat

The TPP would generate minimal amounts of wastewater. Any wastewater generated by the facility would be collected in on-site storage tanks and ultimately hauled to the McKittrick waste treatment site, an approved and licensed Class II landfill (Supplemental AFC, page 3.12-2). While wastewater generation will vary based on a number of factors, GWF estimates that the on-site 4 ,600 gallon storage tanks will need to be emptied twice per week.

Stormwater would be collected and routed to an on-site evaporation/infiltration detention basin, so there would be no stormwater discharge from the site. The site would be fenced, which would prevent most terrestrial organisms from accessing the basin. Birds would be able to access the basin, but it would contain only uncontaminated non-contact stormwater for the period of time it takes for evaporation/percolation to occur. Thus, staff has determined that potential impacts to biological resources resulting from wastewater would be less than significant.

c) Effect on Aquatic Habitats

No surface waters would be impacted and there are no federally protected wetlands, including vernal pools and/or marsh habitat, within or immediately adjacent to the proposed TPP site that could be affected by the project.

d) Effects on Fish and Wildlife

The TPP site or its linear alignments would not cross any known wildlife corridors. The nearest recognized corridor is for the kit fox and is located to the west of the TPP site. This corridor starts at I-580 and extends west in the surrounding foothills. The area between I-580 and the Delta Mendota canal is considered a buffer area under the SJMSCP.

The TPP site would result in the permanent loss of 12.2 acres of agricultural land and the temporary disturbance of 7.3 acres. This loss does not pose a significant impact to wildlife movement in the TPP vicinity, as the surrounding agricultural lands

provide alternate movement routes around the site. In addition, the permanent loss of agricultural lands would be mitigated for by purchasing compensatory land credits through the SJMSCP (**BIO-9**). The SJMSCP uses fees to secure land in perpetuity that will provide movement corridors and other wildlife habitat values. Therefore, staff concludes that, with mitigation, impacts to wildlife movement are less than significant.

e) Conflict With Local LORS

No biological-related ordinances or policies pertaining to the TPP site have been identified.

f) Conflicts With Adopted Plans

The proposed TPP would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan. The TPP has been approved for coverage under an existing Habitat Conservation Plan (see Analysis and Discussion of Impacts-Item A, for a discussion of the SJMSCP).

g) Effects on Commercial or Recreational Species

The proposed TPP would not create an adverse change in commercial or recreational species distribution or population size, or harvesting opportunities for these species. Therefore, no impact is expected.

h) Effects from Invasive Plant or Wildlife Species

Construction of the TPP could facilitate the introduction of weedy species as a result of ground disturbance and introductions by construction equipment. Weedy plant species growth could suppress native vegetation and infest agricultural lands. However, there is little native vegetation in the vicinity, and the use of herbicides as part of agricultural practices on lands surrounding the TPP site should suppress any weed outbreaks resulting from the construction of the TPP. Therefore, a less than significant impact is expected.

CUMULATIVE IMPACTS

Cumulative impacts are those that result from the incremental impacts of an action added to other past, present, and reasonably foreseeable future actions, 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 location of other power plants under development or with applications near completion in the vicinity of the proposed project include East Altamont Energy Center and FPL Tesla Power Project. These plants do not use the same water supply or discharge facility, and are geographically isolated from the proposed plant, but do contribute air pollutants to the same air basin. There are no known sensitive habitats around the TPP area that could be impacted by power plant emissions. In reviewing the projects above, staff would not expect any overlapping, or additive, impacts to biological resources from water pollution, traffic, noise, lighting, or air quality.

There is a continual loss of habitat for species native to the Tracy area. Wildlife friendly landscaping should be considered in order to minimize the loss of habitat resulting from

the construction of the TPP. Native landscaping elements would provide cover, forage, and prevent the spread of nonnative landscaping elements into the surrounding area.

MITIGATION

- The applicant has proposed several measures to reduce impacts to biological resources in the TPP area. These measures, found in Appendix K-6 and within the draft Biological Resource Mitigation Implementation and Monitoring Plan (BRMIMP) (AFC, Appendix K-6), include:
- avoid all impacts to legally protected species (AFC BIO-1);
- avoid all impacts to legally protected habitats (AFC BIO-2);
- avoid all impacts to locally sensitive species (AFC BIO-3);
- reduce the risk of large bird electrocutions by following "Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996" (APLIC 1996) (AFC BIO-4);
- the Designated Biologist will have access to the site, and the authority to halt construction (AFC BIO-5);
- upon decommissioning the site, biological resource values will be reestablished (AFC BIO-6);
- pre-construction surveys will be completed prior to site mobilization (AFC BIO-7);
- pipes of 4-inch diameter or greater will be inspected for kit foxes prior to their use (AFC BIO-8);
- site mobilization will not begin until a Staff approved biologist is available to be onsite (AFC BIO-9);
- the Designated Biologist will have assigned tasks during construction (AFC BIO-10);
- the applicant will submit to the Compliance Program Manager (CPM) a final Biological Resource Mitigation Implementation and Monitoring Plan (BRMIMP) (AFC BIO-11); and,
- the applicant will provide compensation for temporary, permanent and incremental impacts to sensitive species habitats as prescribed in the SJMSCP (AFC BIO-12).
- These measures have been incorporated into staff's recommended Conditions of Certification. In addition to these measures, staff and the SJCOG have recommendations for reducing potential impacts to kit fox and burrowing owl. These have also been incorporated into staff's recommended Conditions of Certification.

Staff proposes that GWF utilize native plants and wildlife friendly landscaping techniques to compensate for the loss of habitat to non-listed wildlife species in the Tracy area. Staff is working with GWF to finalize a landscaping plan that would provide some benefit to local species as well as satisfy GWF's landscaping requirements. GWF has agreed to submit a revised landscaping plan and this will be reviewed by Biological Resources and Visual Resources staff prior to construction.

COMPLIANCE WITH LORS

Currently, staff concludes that the proposed TPP would comply with all known and applicable LORS. The San Joaquin County General Plan does not have any biological or open space provisions relevant to the TPP site, or the areas immediately adjacent.

FACILITY CLOSURE

Sometime in the future, the TPP would experience either a planned closure, or be unexpectedly (either temporarily or permanently) closed. When facility closure occurs, it must be done in such a way as to protect the environment and public health and safety. To address facility closure, an "on-site contingency plan" would be developed by the project owner, and approved by the Energy Commission Compliance Project Manager (CPM). Facility Closure mitigation measures will also be included in the BRMIMP prepared by the applicant.

Native vegetation has been cleared and the area is predominantly agriculture, including the area proposed for the project. While structures are being removed and the area is being stabilized during plant closure, all parties involved should follow measures prescribed for construction in the BRMIMP to address potential impacts to biological resources. If the power plant facilities are closed after an anticipated 30-year operational period, the surrounding areas may be more highly industrialized and densely populated. In this case, restoration to natural habitat (grassland) would probably not be practical.

Staff does not have any biological resource facility closure recommendations in the event of an unexpected temporary closure of the TPP. However, in the event that the Energy Commission CPM decides that the facility is permanently closed, the facility closure measures provided in the on-site contingency plan and BRMIMP would need to be implemented.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

AGENCY COMMENTS

Staff was in contact with USFWS and CDFG representatives to the Technical Advisory Team of the SJMSCP. In a vote on October 10, 2001, they determined that the project could be included under the incidental take permit issued to SJMSCP.

PUBLIC COMMENTS

EA-2 *Are there any birds, creatures that will be displaced by this plant?*

RESPONSE:

The TPP site and linear facilities would be located on previously disturbed agricultural land and it is unlikely that any sensitive species will be displaced (see **Item A, Impacts and Analysis**). The site may be used to a limited degree for foraging or migration by common species. However, the small amount of land that will be converted from

agricultural production to industrial uses (TPP) should not effect these species, see **Setting** and **Item A, Impacts and Analysis** sections.

CONCLUSIONS AND RECOMMENDATIONS

From the information that staff has reviewed, the applicant has successfully reduced construction related impacts to biological resources to a low level of likelihood by siting the proposed simple-cycle plant on a site that currently contains minimal biological resources. Similarly, the proposed project's parking and staging areas has minimal biological value. However, staff cannot reach any final conclusion or recommendation about whether the project will have any potential significant impacts to biological resources until staff has a chance to review the information contained in a supplement to the TPP AFC received December 11, 2001.

Staff recognizes that the construction of the TPP would cause permanent, temporary, and possible cumulative impacts to kit fox habitat. Impacts to kit fox, however, would be mitigated to less than significant levels, by the purchase of a minimum of 19.5 acres of land or by paying a fee of $ 32,955.00 ($1,690 per acre x 19.5 acres) to the San Joaquin Council of Governments, Inc.; the overseeing body for SJMSCP, for acquisition of an equivalent number of acres, and through the implementation of mitigation measures presented in the BRMIMP.

Staff prefers that native California plants be given careful consideration when planning and implementing a Landscaping Plan for the TPP. Staff will review the Plan prior to construction.

PROPOSED CONDITIONS OF CERTIFICATION

BIO-1 Site and related facilities (including any access roads, transmission lines, water and gas lines, storage areas, staging areas, pulling sites, substations, wells, etc.) mobilization activities shall not begin until an Energy Commission CPM-approved Designated Biologist is available to be on site.

Protocol: The Designated Biologist must meet the following minimum qualifications:

1. Bachelor's Degree in biological sciences, zoology, botany, ecology, or a closely related field;
2. Three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society;
3. At least one year of field experience with biological resources found in or near the project area; and
4. An ability to demonstrate to the satisfaction of the CPM the appropriate education and experience for the biological resources tasks that must be addressed during project construction and operation.

If the CPM determines the proposed Designated Biologist to be unacceptable, the project owner shall submit another individual's name and qualifications for consideration. If the approved Designated Biologist needs to be replaced, the project owner shall obtain approval of a new Designated Biologist by submitting to the CPM the name, qualifications, address, and telephone number of the proposed replacement. No habitat disturbance will be allowed in any designated sensitive areas until the CPM approves a new Designated Biologist and the new Designated Biologist is on site.

Verification: At least 30 days prior to the start of any site and related facilities mobilization activities, the project owner shall submit to the CPM for approval the name, qualifications, address, and telephone number of the individual selected by the project owner as the Designated Biologist. If a Designated Biologist is replaced, the information on the proposed replacement as specified in the Condition must be submitted in writing at least10 working days prior to the termination or release of the preceding Designated Biologist.

BIO-2 The CPM approved Designated Biologist shall perform the following during any site and related facilities mobilization, construction and operation activities:

1. Advise the project owner's Construction/Operation Manager, supervising construction and operations engineer on the implementation of the biological resources Conditions of Certification;
2. Supervise or conduct mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as wetlands and special status species; and
3. Notify the project owner and the CPM of any non-compliance with any biological resources Condition of Certification.

Verification: During site and related facilities mobilization and construction, the Designated Biologist shall maintain written records of the tasks described above, and summaries of these records shall be submitted along with the Monthly Compliance Reports to the CPM. During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report.

BIO-3 The project owner's Construction/Operation Manager shall act on the advice of the Designated Biologist to ensure conformance with the Biological Resources Conditions of Certification.

Protocol: The project owner's Construction/Operation Manager shall halt, if necessary, all construction or operation activities in areas specifically identified by the Designated Biologist as sensitive to assure that potential significant biological resource impacts are avoided.

The Designated Biologist shall:

1. Inform the project owner and the Construction/Operation Manager when to resume construction or operation, and

2. Advise the Energy Commission CPM if any corrective actions are needed or have to be instituted.

Verification: Within two working days of notification by the Designated Biologist of non-compliance with a Biological Resources Condition of Certification or a halt of construction or operation, the project owner shall notify the CPM by telephone of the circumstances and actions being taken to resolve the problem or the non-compliance with a condition. For any necessary corrective action taken by the project owner, a determination of success or failure will be made by the CPM within five working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

BIO-4 The project owner shall develop and implement a CPM-approved Worker Environmental Awareness Program in which each of its employees, as well as employees of contractors and subcontractors who work on the project or related facilities during site mobilization, construction and operation, are informed about sensitive biological resources associated with the project.

Protocol: Worker Environmental Awareness Program must:

1. Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting written material is made available to all participants;
2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas;
3. Present the reasons for protecting these resources;
4. Present the meaning of various temporary and permanent habitat protection measures; and
5. Identify whom to contact if there are further comments and questions about the material discussed in the program.

The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.

Each participant in the on-site Worker Environmental Awareness Program shall sign a statement declaring that the individual understands and shall abide by the guidelines set forth in the program materials. The person administering the program shall also sign each statement.

Verification: At least 60 days prior to the start of any site and related facilities mobilization, the project owner shall provide two copies of the Worker Environmental Awareness Program and all supporting written materials prepared by the Designated Biologist and the name and qualifications of the person(s) administering the program to the CPM for approval. The project owner shall state in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. The signed statements for the mobilization and construction phase shall be kept on file by the project owner and made available for examination by the CPM for a period of at least

six months after the start of commercial operation. During project operation, signed statements for active project operational personnel shall be kept on file for six months, following the termination of an individual's employment.

BIO-5 The project owner shall submit to the CPM for review and approval a copy of the final Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) and shall implement the measures identified in the plan. Any changes to the adopted BRMIMP must be made by the Energy Commission staff, in consultation with SJCOG, Inc.

Protocol: The final BRMIMP shall identify:

1. All biological resources mitigation, monitoring, and compliance measures recommended by the Applicant, as well as those contained in the BIO-Condition of Certification (and other mitigation requirements);
2. All mitigation measures provided in the *Standardized Recommendations for Protection of the San Joaquin Kit fox Prior to or During Ground Disturbance* (USFWS 1999);
3. All Incidental take minimization measures as specified by SJCOG (SJCOG, Inc 2001);
4. All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation and closure;
5. All required mitigation measures for each sensitive biological resource;
6. Required habitat compensation strategy, including provisions for acquisition, enhancement, and management for any temporary and permanent loss of sensitive biological resources or permits obtained;
7. A detailed description of measures that will be taken to avoid or mitigate temporary disturbances from construction activities;
8. All locations, on a map of suitable scale, of laydown areas and areas requiring temporary protection and avoidance during construction;
9. Aerial photographs of all areas to be disturbed during project construction activities - one set prior to any site mobilization disturbance and one set subsequent to completion of mitigation measures. Include planned timing of aerial photography and a description of why times were chosen;
10. Duration for each type of monitoring and a description of monitoring methodologies and frequency;
11. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;
12. All performance standards and remedial measures to be implemented if performance standards are not met;
13. A discussion of biological resources related facility closure measures; and
14. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval.

Verification: At least 60 days prior to start of any site or related facility mobilization activities, the project owner shall provide the CPM with two copies of the draft final version of the BRMIMP for this project, and provide copies to the SJCOG, Inc. The CPM, in consultation with SJCOG, Inc., will determine the plan's acceptability within 45 days of receipt. The project owner shall notify the CPM no less than five working days before implementing any modifications to the BRMIMP to obtain CPM approval.

Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and which mitigation and monitoring plan items are still outstanding.

BIO-6 The project owner will implement the mitigation measures identified below unless the mitigation measures conflict with mitigation required by the SJCOG, Inc. incidental take minimization measures.

Protocol: The project owner will:

1. Site transmission line poles, access roads, pulling sites, and storage and parking areas to avoid sensitive resources whenever possible;
2. Avoid all wetlands;
3. Design and construct transmission lines and poles to reduce the likelihood of electrocutions of large birds;
4. Implement a Worker Environmental Awareness Program;
5. Clearly mark construction area boundaries with stakes, flagging, and/or rope or cord to minimize inadvertent degradation or loss of adjacent habitat during facility construction/modernization. All equipment storage will be restricted to designated construction zones or areas that are currently not considered sensitive species habitat;
6. Provide a Designated Biologist to monitor all activities that may result in incidental take of listed species or their habitat;
7. Fence and provide wildlife escape ramps for construction areas that contain steep-walled holes or trenches. Fence will be hardware cloth or similar materials that are approved by USFWS and CDFG;
8. Inspect trenches each morning for entrapped animals prior to the beginning of construction. Construction will be allowed to begin only after trapped animals are able to escape voluntarily;
9. Inspect all construction pipes, culverts, or similar structures with a diameter of 4-inches or greater for sensitive species (such as kit foxes) prior to pipe burial. Pipes to be left in trenches overnight will be capped;
10. Provide a post-construction compliance report, within 45 calendar days of completion of the project, to the Energy Commission CPM;

11. Make certain that all food-related trash will be disposed of in closed containers and removed every day. Feeding of wildlife shall be prohibited; and

12. Report all inadvertent deaths of sensitive species to the appropriate project representative. Injured animals will be reported to CDFG, and the project owner will follow instructions that are provided by CDFG.

Verification: All mitigation measures and their implementation methods will be included in the BRMIMP. Two copies of the CPM approved BRMIMP must be provided to the CPM five days prior to site mobilization and a copy provided to the SJCOG, Inc.

BIO-7 Thirty days prior to the beginning of site mobilization, the project site, the road improvement, and water pipeline route must be surveyed by a qualified biologist in accordance with USFWS and CDFG protocols for San Joaquin kit fox, Western burrowing owl, and other sensitive species listed in **Table 1**.

Verification: Two weeks prior to site or related facility mobilization, the Designated Biologist will submit to the CPM a report detailing the methodology and results of the surveys for approval.

BIO-8 The project owner will implement the construction practices and mitigation measures as outlined in *Standardized Recommendations for Protection of the San Joaquin Kit fox Prior to or During Ground Disturbance* (USFWS 1999).

Verification: The document will be incorporated into the final BRMIMP. The BRMIMP shall be submitted to the CPM for approval at least 60 days prior to start of any site or related facility mobilization activities.

BIO-9 The applicant will purchase habitat credits from the San Joaquin Council of Governments, Inc. that meet or exceed the 19.5 acres anticipated for the power plant site, substations, construction laydown, and any disturbance along linears (Staff assumes a ratio of 1:1 as specified in the SJMSCP compensation ratios). Fees will be assessed based on the most recently adopted rates by the San Joaquin Council of Governments Board of Directors (The 2002 rate for Category C/Pay Zone B [Agriculture] is $1,690/acre).

Verification: A copy of the check issued to San Joaquin Council of Governments, Inc., verifying the funds have been paid, shall be provided to the CPM within five days of certification. Within 20 days, or CPM approved timeframe, of certification the project owner will provide to the CPM a written certificate or letter signed by an authorized officer of the San Joaquin Council of Governments, Inc. that verifies that the contribution has been made according to the conditions specified above.

BIO-10 The TPP site and worker parking and staging areas shall be fenced in a manner to exclude moderately small mammals. The design shall be incorporated into the BRMIMP. The fence should be patrolled daily by on-site staff prior to the start of each days construction activities. The Designated Biologist must be on-site during all construction activities if a suitable fence design cannot be installed.

Verification: The fence design will be incorporated into the final BRMIMP. The BRMIMP shall be submitted to the CPM for approval at least 60 days prior to start of any site or related facility mobilization activities. If the CPM determines the fence

cannot exclude small mammals including the San Joaquin kit fox, a designated biologist will remain onsite during all construction activities.

REFERENCES

APLIC (Avian Powerline Interaction Committee). 1996. Suggested Practices for Raptor Protection on Powerlines: The State of the Art in 1996. Edison Electric Institute/Raptor research Foundation, Washington D.C.

CDFG (California Department of Fish and Game). 2001. Dan Gifford. Personal communication with Natasha Nelson on September 20, 2001.

GWF (GWF Energy LLC). 2001a. Application for Certification for the Tracy Peaker Power Plant. Submitted to the California Energy Commission on August 16, 2001.

GWF (GWF Energy LLC). 2001b. Application for Certification Data Responces. Submitted to the California Energy Commission on November 9, 2001.

Park, Gerald. 2001. San Joaquin Council of Governments. Personal Communication with Nick Kautzman and Natasha Nelson on November 16, 2001.

SJMSCP (San Joaquin County Multi-Species Habitat Conservation and Open Space Plan). 2000. San Joaquin Council of Governments, Stockton, CA. (www.sjcog.org/habitat/habitat_adb/ habitat_Index/Habitat_2000.pdf, accessed on August 17, 2001). 722 pp plus Appendices.

SJCOG Inc (San Joaquin Council of Governments, Inc.). 2001. GWF Tracy Peaker Project SJMSCP Conditions of Project Approval for Biological Resources November 26, 2001.

U.S. Bureau of Reclamation, Mid-Pacific Region. 2000. Delta-Mendota Canal Unit Environmental Assessment: Long-Term Contract Renewal. October. Accessed by: http://www.mp.usbr.gov/cvpia/3404c/ea_eis/

USFWS (U. S. Fish and Wildlife Service). 2001a. *Endangered and Threatened Wildlife and Plants: Final Determination of Critical Habitat for the California Red-legged Frog*. Federal Register: 66: 14626-14758. March 13.

USFWS. 2001b. Nancy Pau. Personal Communication with Natasha Nelson on September 19, 2001.

USFWS. 2000. *Draft Recovery Plan for the California Red-legged Frog* (Rana aurora draytonii). U.S. Fish and wildlife Service, Portland, OR. 258 pp.

USFWS. 1999. U.S. Fish and Wildlife Service Standardized Recommendations for Protections of the San Joaquin Kit fox Prior to or During Ground Disturbance. June.

USFWS. 1998. Final; Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, OR. 319 pp.

CULTURAL RESOURCES

Testimony of Caprice (Kip) Harper and Gary Reinoehl

INTRODUCTION

The cultural resources section discusses potential impacts of the proposed GWF Tracy Peaker Project located in San Joaquin County on cultural resources. A brief cultural overview of the project is provided, as is analysis regarding selected CEQA checklist items used to assess potential project-related impacts. If cultural resources are identified, staff determines whether there may be a project related impact to identified resources and if the resource is eligible for the California Register of Historic Resources (CRHR); staff then recommends mitigation that will reduce the impact to the resource to a less than significant level.

There is also a potential that a project may have an impact on a previously unidentified resource or impact a resource in an unanticipated manner. Staff also recommends procedures in the conditions of certification that mitigate these potential impacts.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

FEDERAL

- Code of Federal Regulations, 36 CFR Part 61. Federal Guidelines for Historic Preservation Projects: The U.S. Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archeological and historic properties. The Secretary's standards and guidelines are used by federal agencies, such as the Forest Service, the Bureau of Land Management, and the National Park Service. The State Historic Preservation Office refers to these standards in its requirements for mitigation of impacts to cultural resources on public lands in California.
- National Historic Preservation Act, 16 U.S.C. § 470, commonly referred to as Section 106, requires federal agencies to consider the effects of their undertakings on historic properties through consultations beginning at the early stages of project planning. Regulation revised in 1997 (36 CFR Part 800 et. Seq.) set forth procedures for determining eligibility of cultural resources, determining the effect of the undertaking on the historic properties, and how the effect will be taken into account. The eligibility criteria and the process are used by federal agencies. Very similar criteria and procedures are used by the state in identifying cultural resources eligible for listing in the California Register of Historical Resources.

STATE

- California Code of Regulations, Title 14, Chapter 11.5, Section 4852 defines the term "cultural resource" to include buildings, sites, structures, objects, and historic districts.
- Public Resources Code, Section 5000 establishes a California Register of Historic Places; determines significance of and defines eligible properties; makes any unauthorized removal or destruction of historic resources on sites located on public land a misdemeanor; prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn; defines procedures for the notification of discovery of Native American artifacts or remains, and; states that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated.
- The California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et seq.; Title 14, California Code of Regulations, Section 15000 et seq.) requires analysis of potential environmental impacts of proposed projects and requires application of feasible mitigation measures.
- Public Resources Code Section 21083.2 states that the lead agency determines whether a project may have a significant adverse effect on “unique” archeological resources; if so, an EIR shall address these resources. If a potential for damage to unique archeological 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.”
- Penal Code, Section 622 1/2 states that anyone who willfully damages an object or thing of archaeological or historic interest is guilty of a misdemeanor.

- California Health and Safety Code, Section 7050.5 states that if human remains are discovered during construction, the project owner is required to contact the county coroner.

LOCAL

San Joaquin County encourages preservation of historical resources by providing a list of local historic places, points of interest and historic landmarks in the San Joaquin County General Plan.

The City of Tracy encourages preservation of historical resources by providing information regarding historic and cultural resources in the City of Tracy General Plan. The City of Tracy General Plan does not provide a list of known historical resources.

SETTING

The proposed power plant site, associated linears, and equipment laydown area would be located in an unincorporated portion of San Joaquin County, immediately southwest of the City of Tracy, California. The proposed project consists of the power plant, two on-site 115-KV switchyards, an on-site electrical transmission line, an on-site natural gas supply line, an on-site water supply pipeline, an on-site construction laydown area, and improvements to several existing dirt access roads (GWF 2001e, p. 1-1; GWF 2001j, p. 1-1). The original AFC included a 5-mile long transmission line that has been subsequently dropped (GWF 2001e, p. 1-6). The project area is located in an urban industrial/agricultural environment. The parcel is bounded by the Union Pacific Railroad (formerly known as the Southern Pacific Railroad) to the north, the Delta-Mendota Canal to the southwest, and agricultural fields to the south and east. The Nutting-Rice warehouse and the Owens-Brockway glass container manufacturing plant are located immediately north of the railroad. One proposed access road begins at W. Schulte Road and runs southward along the west side of the Nutting-Rice property. Two proposed alternative access roads, Alternatives C and D, begin at Lammers Ferry Road to the east and follow existing unpaved roads westward to the project site. The proposed power plant site is located in an area that has been recently used for agriculture.

The prehistory of the northern San Joaquin Valley is not well known and is based on scant archaeological remains. Archaeological evidence in the area indicates that prehistoric inhabitants were seasonal hunter-gatherers who concentrated their habitation sites near rivers. Based on artifact assemblages, four cultural traditions beginning circa (ca.) 3,300 B.C., have been identified for the central San Joaquin Valley: the Positas Complex; the Pacheco Complex; the Gonzaga Complex; and the Panoche Complex. The Positas Complex (ca. 3,300-2,600 B.C.) is the earliest known cultural tradition in the area. The Positas Complex is characterized by perforated flat cobbles, millingstones, spire-lopped Olivella beads, small mortars and short cylindrical pestles. The Pacheco Complex is divided into two phases, Pacheco Complex A (ca 2,600-1,600 B.C.) and Pacheco Complex B (ca. 1,600 BC-A.D. 300). Pacheco Complex A is characterized by the presence of leaf-shaped bifaces, rectangular abalone ornaments, and rectangular Olivella beads. Pacheco Complex B is characterized by abalone disk beads and ornaments, Olivella beads (saddle, saucer,

and split-drilled), bone awls, bone ornaments, large-stemmed and side-notched projectile points, and millingstones, mortars and pestles. The Gonzaga Complex (ca. A.D. 300-1,000) is characterized by extended and flexed burials, bowl mortars, shaped pestles, squared and tapered-stem projectile points, a few bone awls, Haliotis ornaments, and thin, rectangular, split-punched, and oval Olivella beads. The late prehistoric phase, known as the Panoche Complex (ca. A.D. 1,500-1,850), included flexed burials, cremations, large circular structures, obsidian bifaces, steatite earspools, serrated projectile points, millingstones, mortars, pestles, bone awls, saws, whistles, clamshell beads, abalone disk beads, and side-ground, lipped, and rough disk Olivella beads (GWF 2001a, p. 8.3-4; Moratto 1984, p. 191-193).

The late prehistoric archaeological phase bears a strong resemblance to the cultural traditions of the Northern Valley Yokuts who historically occupied the area. The Northern Valley Yokuts were organized in territorial triblets of up to 300 people with each village headed by a chief. Villages were constructed on mounds along the river's edge in close proximity to rivers and marshes. The Northern Valley Yokuts were very successful at exploiting the rich riparian and marsh habitats of the central San Joaquin Valley. The Spanish, impressed by the skill in which the Northern Valley Yokuts utilized their environment, named a Yokut village the Rancho Pescadero ("Fisherman Ranch") (GFW 2001a, p. 8.3-5).

In historic times, the northern San Joaquin Valley was an important transportation crossroads and played a key role in the development of California. In 1869, the Central Pacific Railroad crossed the Altamont Pass, located to the west of the project area, and connected the Bay Area with Sacramento. The same year, the final segment of the Pacific Railroad, the first transcontinental railroad, was completed at the San Joaquin River Bridge, approximately three miles northwest of the City of Tracy. The Union Pacific Railroad (formerly known as the Southern Pacific Railroad) lies adjacent to the proposed project site. Today, the City of Tracy remains a hub of transportation due to the intersection of three interstate highways and its proximity to the Bay Area and Sacramento (GWF 2001a, p. 8.3-7).

ANALYSIS AND IMPACTS

PROJECT SPECIFIC IMPACTS

The Environmental Checklist (see below) is presented in the California Environmental Quality Act (CEQA) guidelines to assist lead agencies in their analysis of project impacts. We provide this checklist as a summary of staff's conclusions regarding the potential for adverse significant project impacts. Following the checklist is a discussion of staff's analysis and rationale for these conclusions.

Environmental Checklist

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	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	

a) Impacts to Historical Resources

The results the cultural resources records searches indicated two above-ground resources of historic age have been identified within one-half mile of the power plant site and its associated linear facilities (GWF 2001c, Confidential filing). The resources consist of the Delta-Mendota Canal and the Union Pacific Railroad. Two additional above-ground resources of historic age, the California Aqueduct and segments of the Western Pacific Railroad, were identified within the half-mile radius of the originally proposed 5-mile transmission line. The 5-mile transmission line has been dropped from the project (GWF 2001e, p. 1-6).

The California Aqueduct and segments of the Western Pacific Railroad are now located outside the project area and would not be affected. The Delta-Mendota Canal has been previously evaluated for significance and appears to be eligible for listing on the National Register of Historic Places (NRHP) under Criterion A and C (GWF 2001c, Confidential filing, p. C-27).

One segment of the Union Pacific Railroad, which lies within the survey corridor, has previously been evaluated for the NRHP and found to be ineligible due to a lack of integrity (GWF 2001c, Confidential filing, p. C-30). There are no structures listed on the San Joaquin County list of architecturally and historically significant buildings within the project area. The City of Tracy General Plan does not provide a list of known historical resources (GWF 2001c, Confidential filing, p. C-17 to C-18).

The Applicant performed a pedestrian field survey of the power plant site, water pipe line route, and access roads. Ground visibility was at least 95 percent over the entire project site. Six above-ground resources of historic age were identified: the Telsa-Kasson electrical transmission line; the Telsa-Manteca electrical transmission line; the Delta-Mendota Canal; the Union Pacific Railroad Crossing; a segment of telegraph line along the Union Pacific Railroad line; and a fence line along the north side of the plant (GWF 2001c, Confidential filing; GWF 2001e). The proposed transmission line would connect to the existing Tesla-Kasson transmission line. The Tesla-Kasson and Tesla-Manteca transmission lines run parallel to one another and have a similar history.

A portion of the transmission lines, located approximately four miles to the west of the project site, have been previously recorded and evaluated and found not eligible for the California Register of Historical Resources (CRHR) (GWF 2001e, Attachment 3.3-2, p. 3). During field inspection, the Applicant observed recent modification of the Tesla-Kasson and Tesla-Manteca transmission lines at the connection site by construction of a newer and taller tower on each line. The Applicant concluded that in the unlikely event that the Tesla-Kasson and Tesla-Manteca transmission lines were to rise to the status of a “historical resource”, the act of connecting to the lines for this project would not materially impair the significance of the resource (GWF 2001e, p. 3.3-4). Staff agrees that this segment of the transmission lines is not eligible for the CRHR.

The Delta-Mendota Canal would provide water to the project via a turnout managed by the Plain View Water District. The Delta-Mendota Canal has previously been found to be eligible for the NHRP, but would not be affected by construction of this project. The turnout was constructed in the 1970s for agricultural purposes (GWF 2001i, p. 2.3-2). CRHR guidelines state that a resource that is less than 50 years of age must be of exceptional importance to be found significant. This turnout does not qualify as exceptional, and therefore, is not eligible for the CRHR.

The proposed northern access road that extends from W. Schulte Road would cross a segment of the Union Pacific Railroad and would run between two historic telegraph poles. The Union Pacific Railroad Crossing was compared and evaluated with a different segment, located less than 700 feet to the east, which has been previously evaluated and found to be ineligible for the NRHP. The Applicant visually inspected and compared photos of the previously recorded segment and determined that the proposed the Union Pacific Railroad Crossing is ineligible for the same reason, a lack of integrity (GWF 2001e, p. 3.3-4). Staff agrees that this segment of the Union Pacific Railroad is not eligible for the CRHR.

A section of unused telegraph line associated with the Union Pacific Railroad is located near the point where the access road crosses the railroad. The telegraph line is in poor condition. Only unconnected poles remain. The telegraph line was not evaluated for eligibility for the CRHR. The Applicant recommends monitoring and avoidance of the poles (GWF 2001c, Confidential filing, p. C-25). A historic fence line is located within the survey corridor, but is not within the project area. No direct or indirect impacts to the fence are anticipated (GWF 2001c, Confidential filing, p. C-23).

There would be no impacts to any of the above-mentioned resources of historic age as a result of the proposed project. Staff is in agreement that the Tesla-Kasson transmission line, the Tesla-Manteca transmission line, the interconnection with the Delta-Mendota Canal via the 1970s turnout, the Union Pacific Railroad Crossing, and the fence line are not eligible for listing on the CRHR. Although the telegraph line has not been formally evaluated for CRHR significance, staff concludes that monitoring and avoidance of the telegraph poles would ensure that the impact would be less than significant. One of the proposed conditions of certification would require avoidance of the telegraph poles.

b) Impacts to Archaeological Resources

A cultural resources records search of archaeological resources indicated one isolated cache of milling artifacts has been identified within a half-mile radius of the project area. This resource is not located within the project area and would not be affected (GWF 2001c, Confidential filing, Attachment C-2).

The Applicant carried out a pedestrian field survey of the power plant site, water pipe line route, and the dirt access roads. Ground visibility was at least 95 percent over the entire project site. No archaeological resources were identified as a result of the survey of the plant site, linears, laydown area or dirt access roads (GWF 2001c, Confidential filing, p. C-21-C22; GWF 2001j, p. C-2).

The proposed project would not have an adverse impact on any known archaeological resource and archaeological sensitivity of the area is low. However, buried archaeological resources could be encountered during project construction. The project site is located on an alluvial fan (GWF 2001a, p. 8.15-15) and has been subject to construction of a rail line, the Tesla-Kasson and Tesla-Manteca transmission towers, the Delta-Mendota Canal, and unspecified years of agricultural activity. An alluvial deposit may contain buried prehistoric cultural resources. Within one half-mile of the project site a cache of Native American artifacts were previously recorded.

The Applicant recommended worker training to increase the likelihood that workers would recognize buried cultural material during construction, but did not recommend monitoring of subsurface construction activities by an archaeologist (GWF 2001a).

Commission staff recommends monitoring of initial groundbreaking activities at the plant site and at the trenching for underground water and gas lines. Following the initial groundbreaking, the Cultural Resources Specialist (CRS). would evaluate the potential for encountering buried archaeological deposits and provide recommendations for additional monitoring. Any additional monitoring shall continue until the CRS determines that no cultural resources would be impacted.

In the event of an unanticipated discovery, the proposed Conditions of Certification **CUL-1** through **CUL-7** shall apply. Implementation of the proposed Conditions of Certification **CUL-1** through **CUL-7** would reduce impacts to any archaeological resource identified during construction to a level of insignificance. Development of a research design prior to the start of construction that could be applied to discoveries may reduce construction delays.

c) Potential for Disturbance of Human Remains

There is no record of human remains that would be disturbed by the proposed project (GWF 2001a; GWF 2001c, Confidential filing; GWF 2001e; GWF 2001j). In the event that human remains are encountered during project construction, the proposed Conditions of Certification **CUL-1** through **CUL-7** and state law shall apply.

CUMULATIVE IMPACTS

Staff concludes there are no known cumulative impacts because the project would not affect any known cultural or historical resources. Should any cultural resources be identified during construction, implementation of the proposed Conditions of Certification **CUL-1** through **CUL-7** would reduce cumulative impacts to a level of insignificance.

CONCLUSIONS

Based on the discussion above, it appears that the project would not cause significant impacts to cultural resources provided the following conditions of certification are implemented.

PROPOSED CONDITIONS OF CERTIFICATION

CULTURAL RESOURCE SPECIALIST

CUL-1 Prior to the start of ground disturbance, the project owner shall provide the California Energy Commission Compliance Project Manager (CPM) with the name and resume of its Cultural Resources Specialist (CRS), and one alternate CRS, if an alternate is proposed, who will be responsible for implementation of all cultural resources conditions of certification.

Protocol: (1) The resume for the CRS and alternate, if an alternate is proposed, shall include information that demonstrates that the CRS meets the minimum qualifications specified in the U.S. Secretary of Interior Guidelines, as published in the Code of Federal Regulations, 36 CFR Part 61.

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

- The background of the CRS shall include at least three years of archaeological or historic, as appropriate, resource mitigation and field experience in California;

- The resume shall include the names and phone numbers of contacts familiar with the CRS's work on referenced projects.

(2) The resume shall also demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the cultural resource tasks that must be addressed during project ground disturbance, construction and operation.

(3) The CRS may obtain qualified cultural resource monitors to monitor as necessary on the project. Cultural resource monitors shall meet 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 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 fields of anthropology, archaeology, historic archaeology or a related field and two years of monitoring experience in California.

(4) The project owner shall ensure that the CRS completes any monitoring, mitigation and curation activities necessary to this project and fulfills all the requirements of these conditions of certification. The project owner shall also ensure that the CRS obtains additional technical specialists, or additional monitors, if needed, for this project. The project owner shall also ensure that the CRS evaluates any cultural resources that are newly discovered or that may be effected in an unanticipated manner for eligibility to the California Register of Historic Resources (CRHR).

Verification: (1) At least 30 days prior to the start of ground disturbance, the project owner shall submit the name and statement of qualifications of its CRS and alternate CRS, if an alternate is proposed, to the CPM for review and approval.

(2) If the CPM determines the proposed CRS to be unacceptable, the project owner shall submit another individual's name and resume for consideration. If the CPM determines the proposed alternate to be unacceptable, the project owner may submit another individual's name and resume for consideration. At least 10 days prior to the termination or release of the CRS, the project owner shall submit the resume of the proposed new CRS to the CPM for review and approval.

(3) At least 20 days prior to ground disturbance, the CRS shall provide a letter naming anticipated monitors for the project and stating that the identified monitors meet the minimum qualifications for cultural resource monitoring required by this condition. If additional monitors are obtained during the project, the CRS shall provide additional letters to the CPM, identifying the monitor and attesting to the monitor's qualifications. The letter shall be provided one week prior to the monitor beginning on-site duties.

(4) At least 10 days, prior to the start of ground disturbance, the project owner shall confirm in writing to the CPM that the approved CRS will be available for onsite work and is prepared to implement the cultural resources conditions of certification.

Maps and Schedules

CUL-2 (1) Prior to the start of ground disturbance, the project owner shall provide the CRS and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps will include the appropriate USGS quadrangles and a map at an appropriate scale (e.g., 1:2000 or 1" = 200') for

plotting individual artifacts. If the CRS requests enlargements or strip maps for linear facility routes, the project owner shall provide them with copies to the CPM. If the footprint of the power plant or linear facilities changes, the project owner shall provide maps and drawings reflecting these changes to the CRS and the CPM. Maps shall identify all areas of the project where ground disturbance is anticipated.

(2) If construction of this project will proceed in phases, maps and drawings may be submitted in phases. A letter identifying the proposed schedule of each project phase shall be provided to the CPM.

(3) Prior to implementation of additional phases of the project, current maps and drawings shall be submitted to the CPM.

(4) At a minimum, the CRS shall consult weekly with the project superintendent or construction field manager to confirm area(s) to be worked during the next week, until ground disturbance is completed. A current schedule of anticipated project activity shall be provide to the CRS on a weekly basis during ground disturbance and provided to the CPM in each Monthly Compliance Report (MCR).

Verification: (1) At least 20 days prior to the start of ground disturbance, the project owner shall provide the designated cultural resources specialist and the CPM with the maps and drawings.

(2) If this is to be a phased project, a letter identifying the proposed schedule of the ground disturbance or construction phases of the project shall also be submitted.

(3) At least 20 days prior to the start of ground disturbance on each phase of the project, following initial ground disturbance, copies of maps and drawings reflecting additional phases of the project shall be provided to the CPM for review and approval.

(4) If there are changes to the scheduling of the construction phases of the project, a letter shall be submitted to the CPM within 5 days of identifying the changes. The letter in shall be accompanied with a copy of the current weekly schedule of anticipated project activity.

Cultural Resource Training

CUL-3 Worker Environmental Awareness Training for all new employees shall be conducted on a weekly basis, prior to beginning and during periods of ground disturbance. The training may be presented in the form of a video. The training shall include a discussion of applicable laws and penalties under the law. The training shall also include samples or visuals of artifacts that might be found in the project vicinity. The training should inform workers that the CRS, alternate CRS or monitor has the authority to halt construction in the event of a discovery or unanticipated impact to a cultural resource. The training shall also instruct employees to halt or redirect work in the vicinity of a find and to contact their supervisor and the CRS or monitor. An informational brochure shall be provided

that identifies reporting procedures in the event of a discovery. Workers shall sign an acknowledgement form that they have received training and a sticker shall be placed on hard hats indicating that environmental training has been completed.

Verification: Copies of acknowledgement forms signed by trainees shall be provided in the MCR.

Authority to Halt Construction in the Event of Discoveries or Unanticipated Impacts

CUL-4 The CRS, alternate CRS and the Cultural Resources Monitor(s) shall have the authority to halt or redirect construction if previously unknown cultural resource sites or materials are encountered or if known resources may be impacted in a previously unanticipated manner.

If any cultural resources are encountered, the project owner shall notify the CPM within 24 hours after the find.

Construction will not resume at the discovery site until all of the following conditions have occurred:

(1) the CRS has notified the CPM and the project owner of the find and the work stoppage;

(2) the CRS, the project owner, and the CPM have conferred and 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 20 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 cultural resources monitor(s) have the authority to halt construction activities in the vicinity of a cultural resource find and stating that the CRS will notify the CPM and project owner within 24 hours after a find.

Monitoring Activities

CUL-5 (1) Cultural Resource monitoring shall be conducted during the initial groundbreaking at the plant site and at the trenching for underground water and gas lines. The monitoring shall continue until a time determined by the CPM. The CPM will base the decision for monitoring on data provided by the CRS obtained during the initial excavating of the site. The potential for encountering buried archeological deposits shall be assessed by the CRS based on the initial groundbreaking observations. The initial assessment will provide recommendations for the need of additional monitoring in the plant site area and for the underground gas and water lines. If additional monitoring is recommended, then cultural resource monitoring shall continue until the CRS and CPM determine that cultural resources will not be impacted.

(2) The CRS, alternate CRS, or monitors shall continuously monitor construction activities in the vicinity of the proposed access road to ensure protection of the historic telegraph poles. Avoidance of the telegraph poles is required.

(3) Monitors shall keep a daily log of any monitoring or cultural resource activities. The CRS may informally discuss cultural resource monitoring and mitigation activities with Energy Commission staff.

(4) The CRS shall notify the project owner and the CPM, by telephone, of any incidents of non-compliance with any cultural resources conditions of certification within 24 hours of becoming aware of the situation. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the conditions of certification.

(5) If isolated Native American artifacts or non-significant Native American archaeological sites are discovered, then interested Native Americans on the Native American Heritage Commission (NAHC) list for San Joaquin County will be notified of the find. A Native American monitor shall be retained if the CPM determines that significant Native American artifacts have been discovered at the site. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that will be monitored.

Verification: (1) Within 5 days of initial groundbreaking activities have commenced, the CRS or alternate CRS will provide a letter (electronic or paper) to the CPM and the project owner of the assessment of the initial groundbreaking observations, including recommendations of any areas that may require additional monitoring for buried archeological deposits. The CRS in consultation with the CPM will then determine if further monitoring is required. If additional monitoring for buried deposits is required, resumes of individuals conducting the monitoring, if other than the CRS or alternate CRS, shall be provided to the CPM with the assessment letter. When all monitoring has been completed for buried deposits, the CRS shall provide a letter to the CPM for approval and the project owner indicating that the CRS has determined that monitoring for buried archaeological deposits is no longer needed.

(2) During construction of the access road in the vicinity of the historic telegraph poles, the project owner shall include in the MCR copies of the weekly summary reports prepared by the CRS regarding project-related cultural resources monitoring. Copies of daily logs shall be retained and made available for audit by the CPM as needed.

(3) Within 24 hours of recognition of a non-compliance issue, the CRS shall notify the CPM by telephone of the problem and of steps being taken to resolve the problem. The telephone call shall be followed by an e-mail or fax detailing the non-compliance issue and the measures necessary to achieve resolution of the issue. Daily logs shall include forms detailing any instances of non-compliance with conditions of certification. In the event of a non-compliance issue, a report written no sooner than two weeks after resolution of the issue that describes the issue,

resolution of the issue and the effectiveness or the resolution measures, shall be provided in the next MCR.

(4) If significant Native American artifacts are discovered, the project owner shall send notification to the CPM identifying the person(s) retained to conduct Native American monitoring. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM who will initiate a resolution process.

Cultural Resources Report

CUL-6 After completion of the project, the project owner shall ensure that the CRS prepares a Cultural Resources Report (CRR) according to the Archaeological Resource Management Reports (ARMR) Guidelines as recommended by the California Office of Historic Preservation. The project owner shall submit the report to the CPM for review and approval. The report shall be considered final upon approval by the CPM.

Protocol: The CRR shall include (but not be limited to) the following:

a. For all projects:

(1) description of pre-project literature search, surveys, and any testing activities;
(2) maps showing areas surveyed or tested;
(3) description of any monitoring activities;
(4) maps of any areas monitored; and
(5) conclusions and recommendations.

b. For projects in which cultural resources were encountered, include the items specified under “a” and also provide:

(1) site and isolated artifact records and maps;
(2) description of testing for, and determinations of, significance and potential eligibility; and
(3) research questions answered or raised by the data from the project

c. For projects regarding which cultural resources were recovered, include the items specified under “a” and “b” and also provide:

(1) descriptions (including drawings and/or photos) of recovered cultural materials;
(2) results and findings of any special analyses conducted on recovered cultural resource materials;
(3) an inventory list of recovered cultural resource materials; and
(4) the name and location of the public repository receiving the recovered cultural resources for curation.

Verification: After completion of the project, the project owner shall ensure that the CRS completes the CRR within 90 days following completion of the analysis of the recovered cultural materials. Within 7 days after completion of the report, the project owner shall submit the CRR to the CPM for review and approval. Within 30 days after receiving approval of the CRR, the project owner shall provide to the CPM documentation that the report has been sent to the California Office of Historic Preservation and the appropriate archaeological information center(s).

Curation Facility

CUL-7 If cultural resource deposits are encountered through project monitoring, the project owner shall ensure that cultural resource materials, maps, and data collected during data recovery and mitigation for the project are delivered to a public repository that meets the US Secretary of Interior requirements for the curation of cultural resources following the filing of the CPM-approved CRR with the appropriate entities. The project owner shall pay any fees for curation required by the repository.

Verification: The project owner shall ensure that all recovered cultural resource materials and a copy of the CRR are delivered for curation. The project owner shall provide a copy of the transmittal letter received from the curation facility and provide a copy to the CPM within 30 days after receipt.

For the life of the project, the project owner shall maintain in its compliance files copies of signed contracts or agreements with the public repository to which the project owner has delivered for curation all cultural resource materials collected during testing, data recovery and mitigation for the project.

REFERENCES

GWF (Tracy Peaker Project) 2001a. Application for Certification No. 01-AFC-16. Dated August 3 and docketed on August 16, 2001.

GWF (Tracy Peaker Project) 2001c. Confidential filing for Cultural Resources Technical Report (Appendix C); Paleontological Report (Appendix H). Dated and docketed August 17, 2001.

GWF (Tracy Peaker Project) 2001e. Supplement to the Application for Certification for the Tracy Peaker Project. Dated and docketed October 9, 2001.

GWF (Tracy Peaker Project) 2001i. Tracy Peaker Project Data Responses. Submitted to California Energy Commission, November 9, 2001.

GWF (Tracy Peaker Project) 2001j. Wet Weather Construction Contingency Plan for the Tracy Peaker Project. Dated and docketed December 11, 2001.

Morrato, M. 1984. California Archaeology. Academic Press, Florida.

HAZARDOUS MATERIALS

Testimony of Alvin Greenberg, Ph.D.

INTRODUCTION

The hazardous materials assessment contains staff's evaluation of the potential for impacts associated with the handling of hazardous materials at GWF Energy's proposed Tracy Peaker Project. Energy Commission staff's objective is to ensure that there would be no significant adverse hazardous materials impacts 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 overview of the project is provided, as are comments regarding the selected CEQA checklist items. The section concludes with the staff's proposed monitoring and mitigation measures in nine conditions of certification.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

The following framework of federal, state, and local environmental laws, ordinances, regulations and standards (LORS) exists to ensure the safe and proper use of hazardous materials and to reduce the risks of accidents that might impact worker and public health and the environment. Their provisions have established the basis for staff's determination regarding the significance and acceptability of the Tracy Peaker Project with respect to hazardous materials.

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 (Pub. L. 99-499, §301,100 Stat. 1614 [1986]), also known as SARA Title III, contains the Emergency Planning and Community Right To Know Act (EPCRA) as codified in 42 U.S.C. §11001 et seq. This Act requires that certain information about any release to the air, soil, or water of an extremely hazardous material must be reported to state and local agencies.

The 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. The CAA section on Risk Management Plans - codified in 42 U.S.C. §112(r) - 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. The requirements of the CAA are reflected in the California Health and Safety Code, section 25531 et seq.

The Occupational Safety and Health Administration (OSHA) promulgated standards under 29 CFR 1910 et seq. for the protection of workers involved in the use and storage of hazardous materials. Similar measures are included in California Code of Regulations Title 8.

The safety requirements for pipeline construction vary according to population density and land use, in the vicinity of the pipeline. The pipeline classes are defined as follows (Title 49, Code of Federal Regulations, Part 192):

- Class 1: Pipelines in locations with ten or fewer buildings intended for human occupancy.
- Class 2: Pipelines in locations with more than ten but fewer than 46 buildings intended for human occupancy. This class also includes drainage ditches of public roads and railroad crossings.
- Class 3: Pipelines in locations with more than 46 buildings intended for human occupancy, or where the pipeline is within 100 yards of any building or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12 month period (The days and weeks need not be consecutive).

The natural gas pipeline must meet California Public Utilities Commission General Order 112-D & E and 58-A standards as well as various PG&E standards. The natural gas pipeline must be constructed and operated in accordance with the Federal Department of Transportation (DOT) regulations, Title 49, Code of Federal Regulations (CFR), Parts 190, 191, and 192:

- Title 49, Code of Federal Regulations, Part 190 outlines the pipeline safety program procedures;
- Title 49, Code of Federal Regulations, Part 191, Transportation of Natural and Other Gas by Pipeline: Annual Reports, Incident Reports, and Safety-Related Condition Reports, requires operators of pipeline systems to notify the U.S. Department of Transportation of any reportable incident by telephone and then submit a written report within 30 days;
- Title 49, Code of Federal Regulations, Part 192, Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards, specifies minimum safety requirements for pipelines and includes material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to population density and land use. This part contains regulations governing pipeline construction that must be followed for Class 2 and Class 3 pipelines.

STATE

The California Accidental Release Prevention Program (Cal-ARP) - Health and Safety Code, section 25531 - directs facility owners storing or handling acutely hazardous materials in reportable quantities to develop a Risk Management Plan (RMP) and submit it to appropriate local authorities, the United States Environmental Protection Agency (EPA), 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 preexisting evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. This new, recently developed program supersedes the California Risk Management and Prevention Plan (RMPP).

Section 25503.5 of the California Health and Safety Code requires facilities that store or use hazardous materials to prepare and file a Business Plan with the local Certified Unified Program Authority (CUPA), in this case the San Joaquin County Department of Environmental Health. This Business Plan is required to contain information on the business activity, the owner, a hazardous materials inventory, facility maps, an Emergency Response Contingency Plan, an Employee Training Plan, and other recordkeeping forms.

Title 8, California Code of Regulations, section 5189, requires facility owners to develop and implement effective safety management plans to ensure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.

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 Vehicle Code Section 32100.5 includes specific regulations for materials that may pose an inhalation hazard.

LOCAL AND REGIONAL

The California Building Code 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. A further discussion of these requirements is provided in the **Facility Design** portion of this document.

The Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. The latest revision to Article 80 was in 1997 (UFC, 1997). These articles contain minimum setback requirements for the outdoor storage of ammonia.

SETTING

GWF Energy LLC proposes to construct, own, and operate an electric generating facility within an unincorporated portion of San Joaquin County, California, to be known as the Tracy Peaker Project (TPP). The TPP will be a natural gas-fired, simple-cycle electric generating facility rated at a nominal gross generating capacity of 169 megawatts (MW). The proposed 9-acre project site is situated within a 40-acre parcel located immediately southwest of Tracy, California, and approximately 20 miles southwest of Stockton, California. The Union Pacific Railroad, the Owens-Brockway glass manufacturing plant, and Nutting-Rice warehouse border the property to the north. Agricultural property exists to the south and east of the proposed project, and the Delta-Mendota Canal forms the southwest border. The Tracy Biomass power plant is approximately 0.6 miles to the northwest. The proposed project would be accessed by a paved service road

running south from W. Schulte Road. Please refer to the **Project Description** section for more detail.

ANALYSIS OF IMPACTS

PROJECT SPECIFIC IMPACTS

The Environmental Checklist (see below) is presented in the California Environmental Quality Act (CEQA) guidelines to assist lead agencies in their analysis of project impacts. We provide this checklist as a summary of staff's conclusions regarding the potential for adverse significant project impacts. Following the checklist is a discussion of staff's analysis and rationale for these conclusions.

Environmental Checklist

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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

The basis for designations provided in the checklist are discussed below.

a) Hazards to Public from Transport or Use of Hazardous Materials

A variety of hazardous materials are proposed for storage and use during the construction of the project and for routine plant operation and maintenance.

Table 8.12-1 in the AFC lists the hazardous materials to be used on-site during project construction, along with their maximum quantities, uses, hazard classes, and means of storage. The list includes such materials as paints, cleaning solvents, lubricants, fuels for construction equipment, and construction agents. Because the materials would be present in small quantities and would be used within proper safety and spill prevention plans and procedures, it is not anticipated that use or

storage of these materials would pose any significant adverse impact to either the environment or to human health.

Table 8.12-2 lists the chemical names of the hazardous materials that would be used during facility operation and maintenance, along with their maximum on-site quantities, chemical states, facility location, delivery frequency and proposed use. In addition, Table 8.12-3 details the Chemical Abstract Service (CAS) number, hazard classes, and California Accidental Release Prevention Threshold Quantity associated with each Operations hazardous material. These materials include lubricating, electrical-insulating, and fire suppression liquids, as well as several compressed gasses, diesel fuel, and solutions of sodium hydroxide and aluminum sulfate. These materials would be present in relatively small quantities and/or would be stored and used in facilities and within procedures minimizing impacts to human health and the environment. Consequently, they pose no significant potential for off-site impacts. However, the list also indicates that large quantities (approximately 165,000 lbs.) of 29.5% aqueous ammonia solution would be stored on-site. This product has a sufficient vapor pressure and would be present in sufficient quantities to potentially cause off-site impacts. In addition, the project would include the construction and operation of a pipeline to supply large amounts (approximately 24 MMBTU per day) of natural gas fuel to the combustion turbines. Because no natural gas would be stored on-site, this material was not listed in the tables noted above.

In summary, the presence and hazardous characteristics of ammonia and natural gas pose the principal risk of off-site impacts from the proposed facility. These materials are discussed in detail below. The potential impacts from the other hazardous materials are minimal because they would be stored, handled or used in relatively smaller quantities, have lower toxicity, and/or possess lower environmental mobility potentials. In addition, the applicant recognizes the requirements to prepare a Hazardous Materials Business Plan, Risk Management Plan (see **Condition of Certification HAZ-2**), and a Spill Prevention, Control and Countermeasures Plan; and would establish auditing and inspection programs to help ensure that the proposed mitigating measures are carried out. In AFC tables 8.12-8 and 9 the applicant has listed various governing roles for agencies overseeing impacts of hazardous materials at the TPP, as well as contact information needed in the event of accidental releases or incidents. The applicant would be restricted to the use, strength, and quantity of the hazardous materials identified in the AFC (see **Condition of Certification HAZ-1**).

Aqueous Ammonia

Selective Catalytic Reduction (SCR) is proposed to reduce nitrogen oxide (NO_x) emissions in the plant's exhaust gasses to less than 5 ppmvd at 15% O_2 in order to meet the plant's air quality permit requirements. In the SCR process, vaporized aqueous ammonia injected into the exhaust gas reacts with a catalyst to convert the NO_x into inert water vapor and nitrogen. The aqueous ammonia proposed for use at the TPP is a solution of 29.5% ammonia and 70.5% water. Solutions containing more than 20% ammonia are considered regulated materials exceeding reportable quantities defined in the California Health & Safety Code section 25532(j).

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, stored and transported as a liquid under ambient temperature and pressure, eliminates the high internal energy associated with the 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 much easier to contain than those associated with the anhydrous form, as the mass transfer from the free surface of the spilled liquid is much slower than from the discharged gas.

Aqueous ammonia is reactive and corrosive to many materials, is acutely toxic, and is an extreme irritant. However, it is typically transported and handled safely and without incident. The operation to transfer this material from a delivery vehicle to a storage tank poses the greatest risk of an accidental spill and release, resulting in potential impacts to public health and the environment. An RMP for the proposed aqueous ammonia storage tank and delivery vehicle transfer pad would be prepared and submitted to the US EPA and the San Joaquin County Department of Environmental Health for review and approval (see **Conditions of Certification HAZ-2, 3,and 4**).

A significant number of modern power plants routinely use aqueous ammonia and the California Energy Commission has licensed many such plants. At the Tracy Peaker Project several engineering controls are proposed to significantly reduce the risks associated with the storage and use of this material. The truck unloading pad would include an underground secondary containment tank with adequate capacity to retain an entire truck-tank volume of 6,700 gallons plus a quantity of wash water. The aqueous ammonia pump system would have a spill-containment drain to this tank as well. The storage tank would be double walled, and the product storage and handling facilities would be equipped with continuous tank level monitors, temperature monitors, excess flow valves, and emergency block valves. Consequently, many of the risks associated with ammonia use would be greatly reduced.

AFC section 8.12.4 presents the results of an Offsite Consequence Analysis (OCA) as required under both federal RMP and state CalARP regulations. Atmospheric dispersion modeling was conducted under two potential scenarios projected by the modelers: a more likely or “plausible” set of conditions and an unlikely “worse case” set of release, emission, containment and meteorological conditions. No significant impact to offsite public health was predicted under either set of modeling assumptions. Power plant workers could be exposed to harmful concentrations of ammonia vapors in the event of an accidental release, but would be trained in procedures to minimize the likelihood of such an event, and to properly respond should one occur. Tables 8.12-6 and 7 in the AFC summarize the assumptions and results of the OCA.

The transportation of hazardous materials, including aqueous ammonia, is routinely regulated and controlled by various federal and state laws, ordinances, regulations, and standards as discussed in the section titled Traffic and Transportation. As indicated in section 8.12.6.1 of the AFC, the deliveries of all hazardous materials will comply with all applicable LORS, especially California Vehicle Code Section 32100.5 which deals with

materials that pose an inhalation hazard, including aqueous ammonia. Staff has proposed **Conditions of Certification HAZ-5 and 6** to address transportation of aqueous ammonia and other hazardous materials. The only hazardous materials transportation rout would be from I-205 to Patterson Pass Road to Schulte Road to the TPP site.

Because of TPP's proposed use of the aqueous rather than the anhydrous form of ammonia, the inclusion of significant engineering controls in the project design, the documented safety of transporting and handling this material, the results of the OCA, and the requirements to comply with all applicable LORS reinforced by staff's proposed Conditions of Certification; staff concludes that any potential adverse impacts from the transport and use of aqueous ammonia would be limited to a level of insignificance

Natural Gas

The two proposed turbine generators would operate by combusting natural gas fuel. This material would be supplied to the project by an existing, on-site PG&E pipeline via a short interconnecting pipeline.

Natural gas, with a main component of methane (NFPA rating of 4), poses a fire and/or explosion risk as a result of its flammability. This risk can be reduced to an insignificant level in the power plant 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. These measures will significantly reduce the likelihood of an explosion in gas-fired equipment.

Loss of containment of natural gas in the pipeline can occur as a result of pipe, valve, or other mechanical failure, or external forces. When this occurs, large quantities of compressed natural gas could be released rapidly, resulting in a major fire and/or explosion hazard, potentially causing loss of life and/or significant property damage in the vicinity of the pipeline. However, the probability of such an event is extremely low if the pipeline is constructed according to present standards.

Accidental releases from natural gas pipelines can occur from outside forces, corrosion, construction/material defects, and other problems. Outside forces include damage caused by the use of heavy mechanical equipment near pipelines (e.g., bulldozers and backhoes used in excavation activities), weather effects, vandalism, and earthquake-caused rupture. Other problems include equipment component failure, compressor station failures, operator errors and sabotage. Section 8.12.5.2 of the AFC summarizes the results of a 1993-1994 study of natural gas pipeline safety conducted by the Sacramento Municipal Utility District and Woodward-Clyde in 1998. That study indicated that the risk associated with the construction of 800 miles of new natural gas pipeline was much lower than that for fires, earthquakes, electrocution, and lightning strikes in California.

Construction of the pipeline according to existing LORS would reduce the risks associated with natural gas at the TPP to less than significant. Staff-proposed

Conditions of Certification HAZ - 7, 8, and 9 require the applicant to document and communicate all compliance efforts with respect to the design, construction, corrosion protection, inspection, and operation of the natural gas pipeline.

b) Accidental Release of Hazardous Materials

Based on the discussion for **a)** above, staff concludes that, with the incorporation of mitigation, there will be no impacts.

c) Hazards to Schools

There are no known schools within a ¼ mile radius of proposed project. Therefore, the use of hazardous materials would not present any impacts to schools.

CUMULATIVE IMPACTS

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

ENVIRONMENTAL JUSTICE

In the **Socioeconomics** section of this staff analysis, staff presents census tract information that shows no significant poverty populations within six miles of the project; however, there are minority populations within six miles of the project. Since staff has concluded that there would be no significant direct or cumulative hazardous materials management related impacts, there would also be no significant impact to any minority populations that have been identified. Therefore, there are no environmental justice issues.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

PUBLIC COMMENTS

A member of the public expressed concerns about the gas pipelines exploding and ensuing ammonia cloud. Additionally, there is concern about terrorist threats to the pipelines, and the security and response plans.

Response: There is no ammonia in the gas pipelines; only natural gas. The pipelines will be manufactured, installed, and tested according to extremely rigorous criteria from the US Department of transportation and the California Public Utilities Commission. Please refer to the discussion in the LORS section of this staff assessment and proposed Conditions of Certification ***Haz-7, 8, and 9****. Regarding pipeline security, there is over 250 miles of natural gas pipeline in the United States. The probability of a terrorist attack on the proposed Tracy Peaker Project gas pipeline is too small to even calculate. Therefore, the risk is imperceptible.*

A member of the public asked if there will be an alarm system in the containment area of the ammonia storage tank.

Response: Sensors will be located in the ammonia tank area that will notify project personnel of a leak. It is unclear if these sensors actuate an audible or visual alarm or notification but it will be detectable by plant personnel.

CONCLUSIONS

By incorporating appropriate mitigation measures, the routine transport and use of hazardous materials at the project would not result in significant impacts to the public or the environment.

PROPOSED CONDITIONS OF CERTIFCATION

HAZ-1 The project owner shall not use any hazardous material in any quantity or strength not listed in AFC Tables 8.12-1, 8.12-2 and 8.12-3 unless approved in advance by the CEC Compliance Project Manager (CPM).

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

HAZ-2 The project owner shall provide a Risk Management Plan (RMP) to the San Joaquin County Department of Environmental Health and the CPM for review at the time the RMP plan is first submitted to the U.S. Environmental Protection Agency (EPA). The project owner shall also provide a Hazardous Materials Business Plan (HMBP), which shall include the proposed building chemical inventory as per the UFC. The project owner shall include all recommendations of the San Joaquin County Department of Environmental Health and the CPM in both final plans. A copy of each of the final plans, including all comments, shall be provided to the San Joaquin County Department of Environmental Health and the CPM once EPA approves the RMP.

Verification: At least 30 days prior to the commencement of construction, the project owner shall provide the final plans listed above to the San Joaquin County Department of Environmental Health for review and comment, and to the CPM for approval.

HAZ-3 The project owner shall develop and implement a Safety Management Plan (SMP) for the delivery of ammonia. The plan shall include procedures, protective equipment requirements, worker training, and process safety checklists. 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 60 days prior to the delivery of aqueous ammonia to the ammonia storage tanks, the project owner shall provide a safety management plan as described above to the CPM for review and approval.

HAZ-4 The aqueous ammonia storage and use facilities shall be designed to meet all applicable standards and regulations. At a minimum, the storage tank shall be double walled, the delivery area protected by a secondary containment tank under the truck unloading pad capable of containing an entire truckload of aqueous ammonia plus wash water, the ammonia pump station protected by a

containment system, and the entire system protected by continuous tank monitors, temperature monitors, excess flow valves, and emergency block valves.

Verification: At least 60 days prior to delivery of aqueous ammonia to the storage tanks, the project owner shall submit final design drawings and specifications for the ammonia storage and use system to the CPM for review and approval.

HAZ-5 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 60 days prior to receipt of aqueous ammonia on site, 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-6 The project owner shall direct all vendors delivering any hazardous materials to the site to use only the route approved by the CPM, which is from I-205 to Patterson Pass Road to Schulte Road to the TPP site.

Verification: .At least 60 days prior to receipt of any hazardous materials on site, the project owner shall submit to the CPM for review and approval, a copy of the letter to be mailed to the vendors. The letter shall state the required transportation route limitation.

HAZ-7 The project owner shall require that the gas pipeline undergo a complete initial construction inspection followed by a detailed inspection after 30 years and each 5 years thereafter.

Verification: At least 30 days prior to the initial flow of gas in the pipeline, the project owner shall provide a detailed plan to accomplish a full and comprehensive pipeline inspection plan to the CPM for review and approval.

HAZ-8 After any significant seismic event in the area where surface rupture occurs within one mile of the pipeline, the gas pipeline shall be inspected by the project owner.

Verification: At least 30 days prior to the initial flow of gas in the pipeline, the project owner shall provide a detailed plan for a full and comprehensive pipeline inspection following seismic events which might have had an impact on pipeline integrity. This plan shall be submitted to the CPM for review and approval, and updated and resubmitted to the CPM every five years.

HAZ-9 The natural gas pipeline shall be designed to meet CPUC General Order 112-D&E and 58 A standards, or any successor standards. The pipeline will be designed to withstand seismic stresses. The project owner shall incorporate the following safety features into the design and operation of the natural gas pipeline: (1) butt welds will be x-rayed; (2) the pipeline will be pressure tested prior to the introduction of natural gas into the line; (3) the pipeline will be surveyed for leakage annually; (4) the pipeline route will be marked to prevent rupture by heavy equipment excavating in the area; (5) valves will be installed to isolate the line if a leak occurs; and (6) appropriate corrosion protection.

Verification: Prior to the introduction of natural gas into the pipeline, the project owner shall submit design and operation specifications of the pipelines to the CPM for review and approval.

REFERENCES

AIChE (American Institute of Chemical Engineers). 1989. Guidelines for Technical Management of Chemical Process Safety, AIChE, New York, NY 10017.

AIChE (American Institute of Chemical Engineers). 1994. Guidelines for Implementing Process Safety Management Systems, AIChE, New York, NY 10017.

AIChE (American Institute of Chemical Engineers). 1996. Guidelines for Use of Vapor Cloud Dispersion Models, AIChE, New York, NY 10017

AIChE (American Institute of Chemical Engineers). 1998. Guidelines for Design solutions for process Equipment Failures, AIChE, New York, NY 10017.

API (American Petroleum Institute). 1990. Management of Process Hazards, API Recommended Practice 750; American Petroleum Institute, First Edition, Washington, DC, 1990.

Baumeister, T. and L.E. Marks. 1967. Standard Handbook for Mechanical Engineers; McGraw-Hill, New York, NY. (Tables 24 and 43).

Davies P. A. et al. 1992. The assessment of major hazards: The road transport environment for conveyance of hazardous materials in Great Britain, Journal of Hazardous Materials, 32

EPA (Environmental Protection Agency). 1987. Technical Guidance for Hazards Analysis, Environmental Protection Agency, Washington, DC, 1987.

FEMA (Federal Emergency Management Agency). 1989. Handbook of Chemical Hazard Analysis Procedures, Federal Emergency Management Agency, Washington, DC, 1989

FMCSA (Federal Motor Carrier safety Administration). 2000. Large Truck Crash Profile : The 1998 National Picture, 2000

GWF Energy LLC 2001. Application for Certification. Submitted to the California Energy Commission August, 2001.

Harwood W. et al. 1990. Truck Accident Rate for Hazardous Materials Routing, National Research Council, 2000.

Lees, F.P. 1998. Loss Prevention in the Process Industries, Vols. I, II and III. Second Edition, Butterworths.

NFPA (National Fire Protection Association). 1987. NFPA 85A, Prevention of Furnace Explosions in Fuel Oil and Natural Gas Fired Single Burner Boiler Furnaces, National Fire Protection Association, Batterymarch Park, Quincy, MA, 1987.

NRC (National Research Council). 1979. Ammonia. Subcommittee on Ammonia. Committee on Medical and Biologic Effects of Environmental Pollutants. Division of Medical Sciences, Assembly of Life Sciences, National Research Council (NRC), Baltimore, Maryland, University Park Press (NTIS No. PB 278-027).

Perry. 1973. Perry's Chemical Engineers' Handbook, Sixth Edition, McGraw-Hill, USA.

Pijawka D. et al. 1995. Flows and Regional Risk Assessment of Transporting Hazardous Waste in the US-Mexico Border Region, Center for Environmental Studies, Arizona State University, 1995.

USDOT (US Department of Transportation), 1998. Hazardous Materials Shipment, The Office of Hazardous Materials Safety, Research and Special Programs Administration, 1998.

USOSHA (United States Occupational Safety and Health Administration). 1993. Process Safety Management / Process Safety Management Guidelines For Compliance. U.S. Department of Labor, Washington, DC.

LAND USE

Testimony of Negar Vahidi and Eileen Allen

INTRODUCTION

This land use analysis of the Tracy Peaker Project (TPP) focuses on two main issues: the project's consistency with local land use plans, ordinances and policies; and the project's compatibility with existing and planned land uses. In general, an electric generation project and its related facilities may be incompatible with existing and planned land uses if it creates unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts or when it unduly restricts existing or planned future uses.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

This section describes federal, state, regional, and local land use LORS applicable to the proposed project.

FEDERAL

Federal Aviation Administration (FAA) – Determination of No Hazard to Air Navigation
The Federal Aviation Regulations, Part 77, §77.13 ff, requires notification of development of structures more than 200 feet in height, or encroach into areas of navigable airspace extending outward and upward from the runway of designated airports. The proposed project's tallest structure does not exceed 200 feet, nor the most restrictive radius from nearby airport runways. The proposed project would not exceed the height of nearby, existing transmission towers (GWF 2001a).

STATE

Subdivision Map Act (Pub. Resources Code § 66410-66499.58)

The Subdivision Map Act provides procedures and requirements regulating land divisions (subdivisions) and the determining of parcel legality. Regulation and control of the design and improvement of subdivisions, by this Act, has been vested in the legislative bodies of local agencies.

Each local agency by ordinance regulates and controls the initial design and improvement of common interest developments and subdivisions for which the Map Act requires a tentative and final or parcel map.

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 Williamson Act program is administered by the California Department of Conservation (DOC), in conjunction with local governments, which administer the individual contract arrangements with landowners. The landowner commits the parcel to a 10-year period wherein no conversion out of agricultural use is permitted. Each

year the contract automatically renews unless a notice of non-renewal or cancellation is filed. 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 proposed project site is currently under a Williamson Act contract, which is due to expire in March 2002.

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 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 (California State Coastal Conservancy, 1995; California Resources Agency, 1999).

Delta Protection Act of 1992

The California Legislature established the Delta Protection Act in 1992 to declare the Sacramento-San Joaquin Delta as a natural resource to be protected, maintained, and where possible enhanced for agriculture, wildlife habitat, and recreational activities. The act created the Delta Protection Commission with a mandate to develop a long-term resource management plan for the Delta Primary Zone (Public Resources Code § 29700 et seq.). All local government general plans for areas within the Primary Zone are required to be consistent with the Delta Protection Act regional plan for the area.

The Delta Protection Act defines the "Primary Zone" as the delta land and water area of primary state concern and statewide significance that is situated within the boundaries of the delta, but that is outside the urban limit line or sphere of influence line of any local government's general plan or currently existing studies, as of January 1, 1992. The Secondary Zone consists of areas within the statutory Delta (as defined in Section 12220 of the California Water Code) but not part of the Primary Zone. Local plans for land use in the Secondary Zone are not required to conform to the regional plan. The proposed project site exists in the Secondary Zone of the statutory Delta (DPC, 1992).

LOCAL

Staff reviewed various County land use-related planning documents relevant to the TPP. A discussion of the project's conformity with applicable goals, policies, standards and regulations from these planning documents can be found in the subsection entitled **Compliance with Laws, Ordinances, Regulations and Standards**.

COUNTY OF SAN JOAQUIN

San Joaquin County General Plan

Under California State planning law, each incorporated City and County must adopt a comprehensive, long-term General Plan that governs the physical development of all lands under its jurisdiction. The general plan is a broadly scoped planning document and defines large-scale planned development patterns over a relatively long timeframe. The General Plan consists of a statement of development policies and must include a

diagram and text setting forth the objectives, principles, standards and proposals of the document. At a minimum, a General Plan has seven mandatory elements, including Land Use, Circulation, Housing, Conservation, Open Space, Noise and Safety.

POLICIES

The San Joaquin County General Plan goals and policies listed in **Land Use Table 1** are applicable to the TPP project.

Land Use Table 1
San Joaquin County General Plan Goals and Policies Relevant to the Proposed Project

Relevant County General Plan Goals
Land Use Goal: Provide a well-organized and orderly development pattern that seeks to concentrate urban development and protect the County's agricultural and natural resources.
Relevant Policies – Community Organization and Development Pattern Policies (CODPP)
7. Residential, commercial, and industrial development shall be shown on the General Plan Map only in communities identified in Figure IV-I, except in the following instances: (a) contiguous, industrial expansion of existing industrial areas; (b) Freeway Service areas; (c) Commercial Recreation areas; or (d) Truck Terminal Areas.
8. Outside of communities (identified in Figure IV-1), existing industrial areas (which may be expanded), Freeway Service areas, Commercial Recreation areas, and Truck Terminal areas, the General Plan Map land use designation shall be Agriculture or other open space designations.
10. Development shall be compatible with adjacent uses.
11. Development should complement and blend in with its setting.
25. Existing infrastructure should be maintained and upgraded when feasible, to reduce the need for new facilities.
Relevant Policies – Agricultural Lands
5. Agricultural areas shall be used principally for crop production, ranching, and grazing. All agricultural support activities and non-farm uses shall be compatible with agricultural operations and shall satisfy the following criteria: (a) the use requires a location in an agricultural area because of unusual site area requirements, operational characteristics, resource orientation, or because it is providing a service to the surrounding agricultural area; (b) the operational characteristics of the use will not have a detrimental impact on the management or use of surrounding agricultural properties; (c) the use will be sited to minimize any disruption to the surrounding agricultural operations; and (d) the use will not significantly impact transportation facilities, increase air pollution, or increase fuel consumption.
7. There shall be no further fragmentation of land designated for agricultural use, except in the following cases: (a) parcels for homesites may be created, provided that the General Plan density is not exceeded; (b) a parcel may be created for the purpose of separating existing dwellings on a lot, provided the Development Title regulations are met; and (c) a parcel may be created for a use granted by permit in the A-G zone, provided that conflicts with surrounding agricultural operations are mitigated.
8. To protect agricultural land, non-agricultural uses which are allowed in agricultural areas should be clustered, and strip or scattered development should be prohibited.
Source: San Joaquin County, 1995a

The General Plan includes community plans for each of the major urban and rural communities grouped by planning area. The proposed project site is located within the

Tracy Planning area, outside the boundaries of communities within the planning area on unincorporated land in the County General Plan's Mountain View region southwest of Tracy. The General Plan does not have specified planning guidelines for this region.

San Joaquin County Development Title

The San Joaquin County Development Title functions as the County's zoning ordinance (Title 9 of the San Joaquin County General Code). It establishes zoning districts and contains regulations governing the use of land and improvement of real property within zoning districts. The Development Title implements the land use policies of the San Joaquin County General Plan (San Joaquin County, 1995c). **Land Use Table 2** provides a description of the Development Title sections applicable to the proposed project.

Land Use Table 2
San Joaquin County Development Title Sections Relevant to the Proposed Project

Relevant County Development Title Sections
9-115.580 Use Classification System - Utility Services
The Utility Services use type refers to the provision of electricity, liquids, or gas through wires or pipes. The following are the categories of the Utility Services use type: (a) Minor. Utility services that are necessary to support principal development involving only minor structures. Typical uses include electrical distribution lines, utility poles, and pole transformers. (b) Major. Utility services involving major structures. Typical uses include natural gas transmission lines and substations, petroleum pipelines, and wind farms.
9-605.6(d) Special Use Regulations - Power-Generating Facility
A permit approval shall be subject to all of the following findings: (1) The source of the power requires locating the use in an area designated as Agricultural or Resource Conservation in the General Plan; (2) The use will not have a significantly detrimental effect on the agricultural activities in the vicinity; and (3) The site of the use can be rehabilitated for agricultural production or a permitted use in the AG zone if the power source is temporary.
Table 9-605.2: Uses in Agricultural Zones
Utility Services – Minor is considered a "Permitted Use" in all Agricultural Zones, Major is considered "Use Permitted Subject to Site Approval" in all Agricultural Zones
9-1810.3(b)(1)(Z) Williamson Act Contract Regulations: Uses - Utility Services
Williamson Act Contract Regulations: Uses. Property shall be limited to those uses specified herein. (1) The following uses or use types: …Nonresidential:…(Z) Utility Services.
Source: San Joaquin County, 1995c

Electric generating facilities such as the TPP fall under the San Joaquin County Development Title use type of "Utility Services, Major". If San Joaquin County was the lead agency for this project, it would require a conditional use permit to be developed in an agricultural zone, with findings to be made by the County. These findings are discussed in the Impacts section, under the LORS, San Joaquin County Development Title heading.

Mountain House Master Plan

The Mountain House Master Plan follows state guidelines for Specific Plans, though it is called the Master Plan to distinguish it from Specific Plans for smaller areas within the Mountain House community. The Mountain House community is a "new town" development, currently in the grading stage prior to construction, which is located

approximately 3.2 miles northwest of the project site. The Mountain House Master Plan implements the amendment to the San Joaquin County 2010 General Plan which added the Mountain House community to the General Plan. The Master Plan presents plans for land use, infrastructure, environmental resources, public service provisions, objectives, policies, and implementation measures (San Joaquin County, 2000).

SETTING

SITE AND VICINITY DESCRIPTION

The proposed Tracy Peaker Project (TPP) site is located on 9 acres within a 40-acre parcel approximately 1 mile outside of the City of Tracy in an unincorporated portion of San Joaquin County. The site is designated as General Agricultural and zoned as AG-40 (minimum 40-acre lots). San Joaquin County is currently in the process of re-zoning all lands under Williamson Act contracts to Agricultural Resource Management (ARM). The site is currently under a Williamson Act contract, which the land owner put into "non-renewal status" (i.e. the landowner decided in 1992 not to renew the contract once its current term expires). The contract will expire in March 2002. The site is expected to be re-zoned as ARM in January or February of 2002 (Van Buren, 2001).

The site is located 0.6 miles to the west of Lammers Road off an unimproved access road along an industrial parcel running 0.6 miles south from West Schulte Road.

- The proposed project is bounded to the north by a Union Pacific Railroad right-of-way (ROW);
- Adjacent to the north on the other side of the railroad ROW, an industrial compound houses Owens-Brockway Glass Container, Inc., Nutting-Rice Tracy LLC, and Tracy Biomass Power Plant;
- To the northwest, across the Union Pacific Railroad, a parcel owned by the Federal government and formerly used as a radio communication facility is now overgrown with grasses around the tall, mast-like transmitter poles (Kehoe, 2001);
- The Delta-Mendota Canal bounds the parcel to the southwest; and
- Jepsen Webb Ranch LLC forms the boundary to the east and south.

The 9 acres of the project site and laydown areas are located on state designated Prime Farmland. The site is not currently in agricultural production, but has historically been used for growing alfalfa, tomatoes, beans, cauliflower, and sugar beets. The land had been left fallow 3 years out of the last 10 (GWF, 2001b). The soil on the site has been tilled and with the exception of transmission lines crossing the southeast corner of the property is bare of any structures. The remaining acreage of the parcel is proposed to be leased to the previous owner and remain in agricultural use. The adjacent agricultural parcels to the northeast, east, and southeast have traditionally grown alfalfa, grain, and flax (GWF, 2001b).

Agricultural lands extend south from the opposite bank of the Delta-Mendota Canal (GWF, 2001b, Figure 8.4-4).

From West Schulte Road, the industrial parcel containing Tracy Biomass, Nutting Rice, and Owens-Brockway is fenced off from the road and appears as a single compound containing the following:

- Two large building structures with stacks, one on the north side of the property and one on the south side;
- A warehouse on the south side;
- Two water tanks, approximately 50 feet high, located in the southwest corner of the industrial parcel; and
- A 122-foot high water tower, the most visible landmark of the industrial parcel, at the southeast corner, to the northeast of the proposed project site.

LINEAR FACILITIES

The linear facilities for the project include a 1,470-foot water pipeline along the west boundary of the Jepsen-Webb property and Sam and Marie Tuso properties adjacent to the Delta-Mendota Canal. For a natural gas supply, the plant would tie into PG&E Line 401, which runs from northwest to southeast across the project parcel adjacent to the plant to the east, and would tie into the 115-kV Tracy-Kasson transmission line on the parcel to the south of the project site (GWF, 2001c).

The 12-inch diameter water pipeline proposed for the project runs 1,470 feet parallel to the Delta-Mendota Canal from the project site to canal Turnout 1187 LT, a gate structure allowing the release of water from the canal. The entirety of the proposed pipeline route is located on unincorporated San Joaquin County land beneath an existing dirt road (GWF, 2001a**).** The water pipeline crosses land uses designated as general agriculture and zoned as AG-40.

SURROUNDING LAND USE

The land surrounding the TPP project site can be characterized as a combination of agricultural and industrial uses with small, but rapidly increasing residential development. Land uses surrounding the site include agriculture, industry, residential, a railroad ROW, water management projects, agricultural urban reserve, and planned unit development.
Surrounding land uses include:

- The Union Pacific Railroad owns and maintains a railroad line right-of-way (ROW) adjacent to the TPP property to the north, running in an east-west direction;
- Owens-Brockway operates a glass manufacturing facility on the eastern side of the parcel, directly across the railroad ROW, to the north of the property;
- Owens-Brockway operates the warehouse on the Nutting-Rice property in the southwestern corner of the industrial zone;
- Tracy Biomass, with a frontage on the north side of the property along Schulte Road, operates a cogeneration power plant fueled by mainly wood waste material;

- Other industrial uses within a mile of the proposed site include a meatpacking facility on the east side of Hansen Road approximately 0.9 miles southwest of the TPP site (GWF, 2001a);
- The Delta-Mendota Canal water management area, owned and operated by the U.S. Bureau of Reclamation, runs northwest to southeast, bounding the parcel to the southwest;
- A service road ROW runs along the tops of the raised berm banks of the Delta-Mendota canal;
- The California Aqueduct, owned and operated by the State of California, runs from northwest to southeast approximately 0.5 miles to the southwest of the TPP property;
- Scattered residences are located among the agricultural lands, the nearest of which is located 0.3 miles to the west with another 0.4 miles to the southwest;
- A neighborhood of single-family, ranchette-style dwellings/farmhouse residences line the west side of Lammers Road, 0.6 miles to the east;
- The Redbridge residential development is nearing completion within the city limits of Tracy, approximately 0.8 miles to the northeast of the TPP property on the east side of Lammers Road, north of Schulte Road. The Redbridge development consists primarily of two-story, single family residences in a tract-housing style development. The development is surrounded by a wall and also includes a water tower and general store;
- Both the Tracy-Kasson and Tracy-Manteca 115-kV transmission lines on steel-lattice towers and the Tracy-Stockton 115-kV junction line on wooden poles cross the TPP property and extend northeast and southwest through agricultural properties;
- Interstate 580, a four-lane freeway, runs roughly parallel to the Delta-Mendota Canal and California Aqueduct approximately 1 mile to the southwest of the TPP property and Interstate 205 (I-205), also a four-lane freeway, runs east-west approximately 4 miles to the north; and
- Just over 1 mile west of the TPP property along Schulte Road, a number of large truck distribution terminals are located between I-580 and I-205, including terminals for Safeway and Costco.

Agricultural lands zoned as AG-40 surround the TPP property on three sides:

- The Jepsen Webb Ranch property lies to the east and southeast of the site;
- The George Cheng property is located to the northeast of the site;
- The Cheun Hee Lee property exists across the canal to the southwest; and
- Federally owned land to the northwest of the site, which is used as a communications facility, is also zoned for agriculture.

Agricultural lands extend further to the southeast bounded by the Delta-Mendota Canal to the south and Lammers Road to the east; to the south between the Delta-Mendota Canal and the California Aqueduct; and to the southwest to Interstate 580 (I-580).

ANALYSIS AND IMPACTS

PROJECT SPECIFIC IMPACTS

The Environmental Checklist (see below) is presented in the California Environmental Quality Act (CEQA) guidelines to assist lead agencies in their analysis of project impacts. We provide this checklist as a summary of staff's conclusions regarding the potential for adverse significant project impacts. Following the checklist is a discussion of staff's analysis and rationale for these conclusions.

Environmental Checklist

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
LAND USE – 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		
d) 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
e) 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
f) 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		
g) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
h) 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		

a) Physical Division of An Existing Community

While the project would convert 9 acres of Prime Farmland to a non-agricultural use, the proposed plant is similar enough in use to the facilities in the industrial compound directly to the north that the power plant would blend in with the surrounding facilities.

The preservation of the remaining land in the parcel as agriculture would prevent interference, disruption, or division of agricultural uses in adjacent properties.

With implementation of Condition for Certification **LAND-2** regarding agricultural land mitigation, the TPP would not significantly interfere with, disrupt, or physically divide an established community. Impacts would be less than significant with mitigation incorporated.

b) Conflict with any Applicable LORS

Energy Commission staff reviews the project in accordance with federal, state, regional and local LORS and policies to determine applicability, appropriateness and consistency. Energy Commission staff also consults with the applicable agencies to determine conformity. The LORS and policies applicable to the project have been analyzed below to determine the extent to which the project is consistent, or at variance, with each requirement or standard.

Federal Aviation Administration

Since the height of the project would not exceed 200 feet or the most restrictive radius and slope requirement, the proposed TIX would not pose a hazard to airport operation or flight lines (GWF, 2001a). The proposed TPP site is approximately two miles west of the Tracy Municipal Airport.

California Land Conservation Act of 1965

The 9-acre plant site, water supply pipeline, and access route are all proposed to be located on land currently under Williamson Act contract. The 40-acre parcel which contains the site is not currently being used for agricultural production, but was used for agricultural purposes for approximately 30 years (GWF, 2001b). Notice of contract non-renewal for the subject acreage was filed in March 1992. As such, the Williamson Act contract expires in March 2002 and the TPP is scheduled to begin commercial operation in June 2002 (GWF, 2001a). Given that the contract is due to expire three months before beginning operations, staff was concerned that construction is planned before March, and would occur while the site is still under a Williamson Act contract administered by the California Department of Conservation. Staff pursued the construction timing issue with the Department of Conservation (DOC), program administrator for the Williamson Act, and San Joaquin County Planning Department staff.

The San Joaquin County Planning Department has provided a record of findings regarding the Williamson Act contract status for the parcel, stating that the TPP is compatible with the existing Williamson Act Contract (contract number 71-C1-377). The letter from the San Joaquin County Planning Department states that combining San Joaquin County Development Title 9-1810.3(b)(1)(z) and California Government Code Section 51238.1 allows utility services as a Williamson Act compatible use (San Joaquin County Planning Department, 2001). San Joaquin County Development Title 9-1810.3(b)(1)(z) provides that utility services are an allowed use in a Williamson Act preserve. California Government Code Section 51238.1 allows a board or council to allow as compatible a use that without conditions or mitigation would otherwise be

considered incompatible. This may only occur, however, if the use meets the following conditions:

- The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in agricultural preserves;
- The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping; and
- The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use.

California Government Code Section 51238 states that unless a board or council finds to the contrary, the construction of water, gas, and electric facilities are determined to be compatible uses within a preserve.

Stephen Oliva, Senior Supervising Staff Counsel for the DOC, discussed the project's Williamson Act contract timing and compatibility items in a September 27, 2001 letter to the Energy Commission:

The Tracy project has a limited impact area and the underlying site is at the end of the non-renewal period. As you know, the property owner filed a notice of non-renewal for the Williamson Act contract in 1992, and the contract is due to expire in March 2002. Thus, given the timetable for the project, it will not be operational until after the restrictions imposed by the Williamson act contract are terminated. Under these unique circumstances, the County has considered whether the project meets the Act's principles of compatibility. We accept that determination, in that it was considered in light of the statutory framework specified in the statute (Oliva, 2001).

Thus, the DOC is deferring to the determination of compatibility by the San Joaquin County Planning Department. Based on the timing of the expiration of the contract, and the letter submitted by the DOC, staff is not in opposition to the County's determination.

Delta Protection Act of 1992

The project site lies within the Secondary Zone of the statutory Delta; therefore it is not required to conform to the State regional land use plan required for the Primary Zone area designated by the Act (DPC, 1992).

Subdivision Map Act, 1972

The legal status of the nine-acre parcel for this project is unknown based on the information provided by the applicant. On AFC page 8.4-6, the applicant states that "The TPP parcel will be created by means of a lot line adjustment. An application for

the lot line adjustment has been submitted to the San Joaquin County Community Development Department in August 2001."

The status of San Joaquin County's approval of the lot line adjustment application is not known at this time. The applicant has not provided a copy of the approved and recorded lot line adjustment application filed in August 2001. It is not uncommon for the processing of an application for a lot line adjustment to range between two and five months. With implementation of Condition of Certification **LAND-1**, the project would be in compliance with the State Subdivision Map Act.

San Joaquin County General Plan

The San Joaquin County General plan calls for county lands to be developed in an orderly, organized manner in which urban uses are concentrated around urban centers and agricultural and natural resources are protected.

Following is a discussion of the proposed project's compliance with the specific applicable General Plan Goals and Policies listed in the LORS section in **Land Use Table 1**:

- San Joaquin County General Plan Land Use Goal and Agricultural Lands Policy 7 - The loss of nine acres of agricultural land as a result of the project's construction would not meet the County's goal of protecting County agricultural resources. The applicant has proposed measures to mitigate the agricultural losses/fragmentation of agricultural land and bring the project into LORS compliance both with the General Plan Land Use Goal and Agricultural Lands Policy 7 (San Joaquin County Planning Department, 2001).

  The proposed mitigation measures consist of the applicant negotiating an agreement with San Joaquin County to contribute funds to the American Farmland Trust for the conservation of agricultural lands at a 1:1 ratio of land within San Joaquin County for the nine acres of prime farmland GWF intends to convert to non-agricultural use. This proposed mitigation is reflected in staff's Condition of Certification **LAND-2.**

- **Community Organization and Development Pattern Policies (CODPP) 7 and 8** - Although, as described below in the Zoning Ordinance discussion, the zoning of the site does not need to change, the placement of the site adjacent to the railroad ROW and industrial area (i.e., Owens-Brockway, Nutting-Rice, and Tracy Biomass uses) can be deemed an industrial expansion, which is allowed by the General Plan.

- **CODPP 10 and 11** - Placement of the proposed project adjacent to the industrial compound containing Owens-Brockway, Nutting Rice and Tracy Biomass, sites the project in an area of similar character and compatible uses, allowing it to complement and blend in with surrounding uses.

- **CODPP 25** – This General Plan policy states that existing infrastructure should be maintained and upgraded when feasible, to reduce the need for new facilities. The Energy Commission staff notes that in a September 18, 2001 letter, San Joaquin County found the TPP project to be consistent with its General Plan policies, including CODPP 25. The Commission staff believes that the Tracy

Biomass facility, which is located to the north of the TPP site[1], has the potential to be upgraded, and it could possibly accommodate the proposed project. If the TPP were to be built at the Biomass facility, it would clearly be consistent with CODPP 25. Although Staff has some questions regarding the County's conclusion that the TPP at its proposed site, is consistent with CODPP 25, we believe that, there are a number of reasonable interpretations of the General Plan language. Staff is therefore prepared to accept the County's conclusions regarding consistency with this General Plan policy.

- **Agricultural Lands Policy 5** - The project complies with the stipulations of the Agricultural **Lands** Policy 5 in that while the use is non-agricultural, the TPP requires the use of agricultural property to make use of the resources the site provides: 1) the electrical transmission and natural gas linear facilities on site; and 2) the water supply adjacent to the parcel. The project site has also been designed to consolidate non-agricultural uses on the land to prevent disruption of the continued agricultural use on the remaining non-converted land. This is discussed further in the findings of the San Joaquin County Planning Department under the San Joaquin County Development Title section below. The **Air Quality** and **Traffic and Transportation** Staff Assessments discuss the project compliance items contained under San Joaquin County General Plan Agricultural Land Policy 5(d).

- Agricultural Lands Policy 8 - The clustering of industrial uses (i.e. the TPP adjacent to Owen-Brockway, and near Nutting-Rice and Tracy Biomass Power Plant) complies with Agricultural Lands Policy 8, restricting non-farm uses on agricultural lands to concentrated clusters instead of scattered or in strips. The TPP is consistent with this policy, in that its location immediately south of the Owens-Brockway facility extends the existing cluster of industrial uses.

San Joaquin County Development Title

The San Joaquin County Planning Department would normally be the CEQA lead agency for development projects proposed in the county. In this instance, the California Energy Commission is the CEQA lead agency for this project, since the proposed power plant is greater than 50 MW in size. To determine consistency with local LORS, the Commission staff asked the County to make the findings that it normally would when considering a conditional use permit application.

With respect to projects proposed in agricultural zones, San Joaquin County has the following conditional use permit requirements that are applicable to the TPP:

(1) The source of the power requires locating the use in an area designated as Agricultural or Resource Conservation in the General Plan; (2) The use will not have a significantly detrimental effect on the agricultural activities in the vicinity; and (3) The site of the use can be rehabilitated for agricultural production or a permitted use in the AG zone if the power source is temporary. The proposed project falls within the definition of Major Utility in the San Joaquin County

[1] The Biomass facility is one of the TPP alternative sites, which is described in the AFC Alternatives section.

Development Title (as described in **Land Use Table 2**) as a "provision of electricity…through wires" that involve a "major structure."

The San Joaquin County Planning Department, in a September 18, 2001 record of findings) regarding the compatibility of the project with the agricultural zoning of the parcel, states that (San Joaquin County Planning Department, 2001):

"The sub findings under Section 9-605.6(d) can be made. Specifically, item (1) is satisfied as the area is designated as agricultural in the General Plan. The source of power (the TPP) requires locating in this area designated as Agriculture, since the TPP requires access to natural gas, electric transmission interconnection, and water. The proximity of the infrastructure bringing natural gas, electrical interconnection and water to this site results in less expense, less environmental impacts, and less impacts to agriculture than another site.

Item (2) is satisfied since only nine acres are to be disturbed and the immediate area contains existing industrial uses such as the Tracy Biomass Plant, the Owens-Brockway Glass Container Manufacturing Plant, and the Nutting-Rice Warehouse. Finally, the 169 MW produced by this power plant would benefit agriculture in the vicinity significantly more than any possible adverse impacts from the loss of nine acres.

Lastly, if 30 year life is considered a temporary use, item (3) is satisfied as the site can rehabilitated for either agricultural productions or a permitted use in the agricultural zone, as demonstrated in Section 1.5.8 (i.e. from TPP AFC), regarding Facility Closure, of the Executive Summary of the materials submitted by GWF to the CEC."

The Commission staff agrees with the San Joaquin County General Plan's concepts found in CODPP 25, such that existing facilities such as the Tracy Biomass plant should be upgraded when feasible, to reduce the need for new facilities. Furthermore, we consider electric power plants to be an industrial type of land use, which are logically located in industrial zoning districts. We do not agree with the San Joaquin County staff's September 18, 2001, Conditional Use Permit finding that

"The source of the power requires locating the use in an area designated as Agriculture or Resource Conservation in the General Plan…since the TPP requires access to natural gas, electric transmission, and water."

We discussed our conclusions with the County's Planning staff on December 21, 2001. The County staff agreed with the Energy Commission staff that it was possible that non-agricultural zones/sites in the region could also provide access to natural gas, electric transmission, and water. They stated that uses such as the TPP fall into the "Utility Services –Major" category, which are conditionally permitted in agricultural as well as industrial zones. They noted that their conditional use permit findings needed to be limited to an examination of whether the applicant's proposal for the TPP would be an allowed use in an agricultural zone, rather than consideration of other zone or site options.

While our opinion is stated above, we acknowledge that that there are a number of reasonable interpretations of local LORS language relevant to new power plant projects in agricultural areas, as defined in the San Joaquin County General Plan and its zoning

regulations (i.e. Development Title). The applicability of General Plan Policy CODPP 25 requiring upgrading of existing infrastructure when feasible should be the subject of public discussion. Similarly, Energy Commission staff also has uncertainty that we would like to discuss in a Staff Assessment workshop, regarding the County staff's Conditional Use Permit findings, particularly the conclusion for Finding 1, that the TPP must be located in an agricultural area to have access to natural gas, electric transmission, and water. While staff still has uncertainties and questions, we accept the San Joaquin County staff's interpretation of its General Plan goals and policies, and its conditional use permit findings as required in the zoning regulations, as one of the reasonable options.

Development Title – Consistency with Williamson Act Provisions

.The County's Development Title (Section 9-1810.3 (b)(1)(Z) Utility Services permits some "utility services" under its local Williamson Act Contract Regulations. The DOC opinion (stated below) regarding LORS consistency is relevant
Stephen Oliva, Senior Supervising Staff Counsel for the Department of Conservation, states in regard to the use of agricultural preserve land for an electrical generation facility:

"With respect to the current project, where there is a significant question whether the proposed facility would impair the operation of the preserve as a locus for ongoing agricultural operations, we are not prepared to categorically include or exclude the proposed electrical generating facility as a compatible use 4.

Mr. Oliva defers the decision to the County and states that the Department of Conservation accepts San Joaquin County's determination that the TPP would be a compatible use with the agricultural zoning (Oliva, 2001).

San Joaquin County is currently in the process of re-zoning all lands under Williamson Act contracts to Agriculture Resource Management (ARM) zones. The re-zoning of Williamson Act contract lands such as the project site's AG-40 zone to ARM may take up to four months, but will have no effect on the compatibility of the project with the site as Major Utilities are permitted with site approval for all agricultural zones, including ARM (Van Buren, 2001). Under the determination of the San Joaquin County Planning Department and California Department of Conservation, the TPP would be compliant with the San Joaquin County Development Title.

Summary

Staff has concluded after consideration of the San Joaquin County LORS addressing agricultural land preservation, that with mitigation (i.e., proposed Condition of Certification **LAND-2**) adopted, the TPP would not result in a significant environmental impact. We still have uncertainties and questions regarding the TPP's consistency with individual General Plan policies and the County's conditional use permit findings. However, we accept the County staff's interpretation of its General Plan goals and policies, and the conditional use permit findings required in its zoning regulations, as STET.

c) Conflict with any Applicable Conservation Plans

The applicant has contacted the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) and proposed to mitigate the disturbance caused by construction and operation of the TPP by providing compensation habitat under the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP). The applicant has also requested the support of USFWS and CDFG to gain endangered species "take" permits through the HCP process administered by the SJMSCP. The **Biological Resources** Staff Assessment provides a detailed discussion of impacts on the SJMSCP and associated mitigation.

d) Increase the Use of Recreational Facilities

Physical impacts to public services and facilities such as recreational facilities are usually associated with population 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.

As an electric generation project seeking to meet the existing energy needs of the California populace, the proposed project is not expected to result in an increase in the population of the area. Also, given the availability of local workforce and the temporary nature of construction activities, the proposed project construction is not expected to result in population growth (GWF, 2001a). The **Socioeconomic** section in this Staff Assessment provides a detailed discussion of impacts on the local workforce and population.

Finally, given the small number of operational personnel needed to run the plant, operation would result in only a negligible contribution to the area's population. Therefore, it is not expected that the proposed project would increase the use of existing recreational facilities such that a substantial physical deterioration of these facilities would occur. There would be no impacts to recreational resources.

e) Include Recreational Facilities that would Adversely Affect Environment

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 under Item D, the proposed project would not result in a population increase that would require new or expanded recreational facilities that would cause an adverse physical impact on the environment. Therefore, no impact would occur.

f) Convert Farmland to Non-Agricultural Use

The proposed project site would convert 9 acres of Prime Farmland to a non-agricultural use. It would also involve the loss of land considered "Prime Farmland" by the California Department of Conservation. This loss of Prime Farmland constitutes a potentially significant impact to agricultural resources under CEQA. To help offset the project-related impacts from the loss of agricultural land, GWF (in coordination with San Joaquin County) has proposed to mitigate the loss of Prime Farmland with a contribution to procure conservation lands on a one-to-one ratio within, or in close

proximity to, San Joaquin County. The land preservation mitigation plan proposed by GWF is described in detail in Condition of Certification **LAND-2.**

San Joaquin County Planning Department has provided a record of findings on the loss of prime agricultural land in which they state (San Joaquin County Planning Department, 2001):

The TPP is a temporary conversion of agricultural land and includes a closure plan…. However, GWF has committed to a mitigation fee for the conversion of the nine (9) acres of agricultural land pursuant to the applicable criteria and protocol of the American Farmland Trust (AFT). GWF shall pay to the AFT the appropriate mitigation fee which shall be held by AFT, in trust, in an interest bearing account for a three (3) year period to allow San Joaquin County to develop a mitigation program for the loss of agricultural farmland. At the end of the three (3) years, AFT shall distribute the funds to San Joaquin County, or in the event that San Joaquin County has not approved of a program for the loss of agricultural land, then AFT shall be allowed to retain the funds.

Staff supports this proposed approach, and proposes Condition of Certification **LAND-2** to ensure that GWF would execute and implement a final mitigation agreement with San Joaquin County for the conversion and loss of Prime Farmland. This impact would be less than significant with mitigation incorporated.

g) Conflict with Williamson Act Contract or Agricultural Use Zoning

The nine-acre plant site, water supply pipeline, and access route are all proposed to be located on land currently under Williamson Act contract. The parcel owner filed a notice of non-renewal in 1992, and the contract is due to expire in March 2002, three months before the TPP becomes operational. As discussed under Item B - California Land Conservation Act of 1965, the San Joaquin County Planning Department has found the TPP to be compatible with the Williamson Act contract. Stephen Oliva, Senior Supervising Staff Counsel for the Department of Conservation, stated in a letter to the CEC, “[W]e would defer to the County’s determination regarding compatibility within the preserve in this instance” (Oliva, 2001; San Joaquin County Planning Department, 2001). This determination of compatibility by the State and San Joaquin County indicates that there would be no conflict with existing zoning for agricultural use or a Williamson Act contract.

Thus, no impact would occur.

h) Induce Conversion of Farmland to Non-Agricultural Use

The proposed project site would convert 9 acres of Prime Farmland to a non-agricultural use. As noted in Items B and F (above), GWF has proposed mitigation measures to preserve the unconverted land on the parcel for continued agricultural use and contribute funds to appropriate conservation lands on a one-to-one ratio with farmland lost to non-agricultural uses (San Joaquin County Planning Department, 2001). With the approvals of the State and County, the proposed project would mitigate for the conversion of farmland with implementation of Condition of Certification **LAND-2**. Impacts would be less than significant with mitigation incorporated.

CUMULATIVE IMPACTS

Cumulative impacts may be caused if a proposed project would have effects that are individually limited but cumulatively considerable when viewed together with the effects of related projects. **Land Use Table 3** displays the reasonably foreseeable development projects in the area.

Land Use Table 3
Reasonably Foreseeable Development Projects

Development	Size	Location	Jurisdiction	Status
Old River Specific Plan	1,000 acres	North of I-205 and northwest of the TPP site	San Joaquin County	Community meetings have been held regarding what would be a commercial/industrial development. The plan is under consideration as an amendment to the San Joaquin County General Plan.
Auto Auction Facility	200 acres	Patterson Pass Road Business Park	San Joaquin County	Under review by San Joaquin County.
Mountain House Community Service District- "New Town" Development	5,000 acres	Approx. 7 miles northwest of the TPP site, bounded to the west by the Alameda County Line, to the east by Mountain House Parkway and between I-205 to the south and the Old River to the north.	San Joaquin County	Phasing for the Specific Plan I has begun with construction of the Service District's water treatment plant, site grading, and laying of infrastructure on the site property.The project involves development of a new community with residential, commercial, and industrial development.
Catellus Project	Unknown	Approx. 3 miles northwest of the TPP site, between I-205 and Grant Line Road, west of Lammers Road	City of Tracy	Application for annexation to the City of Tracy to be filed.
Bright Development	160 acres	Approx. 2 miles to the north, bounded by Lammers Road to the east, I-205 to the north, and 11th Street to the south.	City of Tracy	Application for annexation to the City of Tracy filed.
Tracy Gateway	538 acres	Approx. 3 miles to the northwest, along I-205	City of Tracy	Application for annexation to the City of Tracy filed and in Draft EIR process.
Califia community	6,800 acres	Approx. 9 miles to the northeast of the TPP, near Lathrop in western San Joaquin County..	City of Lathrop	Lathrop has annexed the property; environmental permitting process is in progress. Groundbreaking is expected in 2004.

Development	Size	Location	Jurisdiction	Status
East Altamont Energy Center	19 acres	Approx. 8 miles northwest of the TPP site, in Alameda County, just north of the Mountain House Rd./Kelso Rd. intersection	Alameda County	Under the 12-month CEC review process, PSA pending.
FPL Tesla Power Project	25 acres	Aprox. 4 miles west of the TPP site, in Alameda County, just north of the Tesla Substation on Midway Road	Alameda County	Under the 12-month CEC review process, in Data Adequacy.
Source: TPP, 2001; San Joaquin County, 2000; San Joaquin County, 2001; EAEC, 2001; FPL Tesla, 2001; HDR, 2001; Lombardo, 2001.				

A significant amount of development is occurring in San Joaquin County. In the vicinity of the proposed project on the west side of the City of Tracy, developers are applying for large areas to be annexed to the city. These developments can be characterized as primarily mixed use with residential, commercial, and light industrial sectors. The proposed project is not expected to make a significant contribution to regional impacts related to new development and growth, such as population in-migration, and the resultant increased demand for public services, and extension of public infrastructure.

The TPP in combination with other proposed projects in the region are expected to contribute to a regional loss of open space and agricultural land. The acreage of agricultural land converted in the proposed project is small relative to other projects in the County and is less than power projects proposed nearby in Alameda County. However, without mitigation in the form of open space and agricultural land preservation and land trusts, the project presents a significant cumulative impact on agricultural resources and open space.

After implementation of the agricultural mitigation measures and conditions of certification, these impacts would be mitigated to “a less than significant impact” under CEQA.

The agricultural land preservation agreement (Condition of Certification **LAND-2**) negotiated between the applicant and San Joaquin County will help to mitigate the cumulative impacts of this project to a less than significant level. As of the writing of this Staff Assessment, Energy Commission staff has not received a copy of the final agreement.

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 TPP (please refer to

Socioeconomics Figure 1 in this Staff Assessment), and Census 1990 information that shows the minority/low-income population is less than 50 percent within a six-mile radius of the project. While pockets of minority persons within six miles have been considered for impacts, staff has not identified significant direct or cumulative land use impacts resulting from the construction or operation of the project that would have a disproportionate impact on minority/low-income populations. There appears to be no Land Use environmental justice issues related to this project.

FACILITY CLOSURE

At some point in the future, the proposed facility would cease operation and close down. At that time, it would be necessary to ensure that closure occurs in such a way that public health and safety and the environment are protected from adverse impacts.

The planned lifetime of the TPP is estimated at 30 years. At least 12 months prior to the initiation of decommissioning, the Applicant would prepare a Facility Closure Plan for Energy Commission review and approval. This review and approval process would be public and allow participation by interested parties and other regulatory agencies. At the time of closure, all applicable LORS would be identified and the closure plan would discuss conformance of decommissioning, restoration, and remediation activities with these LORS. All of these activities would fall under the authority of the Energy Commission.

There are at least two other circumstances under which a facility closure can occur: unexpected temporary closure and unexpected permanent closure. Staff has not identified any LORS from a land use perspective that the applicant would have to comply with in the event of unexpected temporary closure or unexpected permanent closure of the TPP.

MITIGATION

Staff proposes the following mitigation measures to make the project consistent with regional and local LORS, and to eliminate or reduce to a less-than-significant level impacts associated with loss of "prime" agricultural land.

The mitigation measure proposed in **LAND-1** ensures that the proposed TPP would be in compliance with the State Subdivision Map Act. An agricultural mitigation plan, described in Condition of Certification **LAND-2**, proposes to mitigate the loss of prime soils through the preservation and enhancement of existing farmland on the remainder of the parcel, as well as providing funding to San Joaquin County for acquisition and preservation of additional agricultural land in the County.

CONCLUSIONS

1) We have concluded that the proposed project would not physically divide an established community, and would not conflict with any applicable habitat conservation plan.

2) The project would convert 9 acres of prime farmland, which is a potentially significant impact. However, **LAND-2** provides adequate mitigation.

3) We still have uncertainties and questions regarding the TPP's consistency with individual General Plan policies and the County's conditional use permit findings. However, we accept the County staff's interpretation of its General Plan goals and policies, and the conditional use permit findings required in its zoning regulations, as one of the reasonable options.

PROPOSED CONDITIONS OF CERTIFICATION

LAND-1 The project owner shall provide the Compliance Project Manager (CPM) with a copy of the recorded Certificate of Compliance prepared in accordance to the requirements of the State Subdivision Map Act for the subject property to ensure that the proposed project site is a legally subdivided property.

Verification: Prior to the evidentiary hearing on the proposed project, the project owner shall provide to the CPM for the Tracy Peaker Project (TPP) a copy of the recorded Certificate of Compliance.

LAND-2 Prior to the start of construction, the project owner shall mitigate for the conversion of agricultural land to a non-agricultural use for the construction of the power generation facility. In addition, the project owner shall develop for the approval of the CPM an agricultural management plan describing long-term management of the agricultural operation on the property. The mitigation plan shall include on-site preservation of any agricultural land on the property not converted for the power generation facility, and payment of a mitigation fee for the conversion of agricultural land pursuant to the applicable criteria and protocol of the American Farmland Trust (AFT).

The project owner shall submit an agricultural mitigation plan to the CEC Compliance Project Manager (CPM) for approval. The plan shall specify measures to be taken to ensure the continuing quality and viability of agricultural land and operations. The agricultural mitigation plan shall:

1) describe the long-term management including funding, endowment, maintenance, and monitoring;

2) explain how the project owner is mitigating for the conversion of 9 acres of agricultural land to a non-agricultural use for the construction of the power generation facility;

3) include details as to how the on-site preservation of agricultural land on the subject property is not converted for the power generation facility (i.e., approximately the remaining 31 acres of the proposed site parcel) is to occur;

4) explain the project owner's off-site mitigation involving one or both of the following: 1) the purchase of comparable lands or agricultural conservation easements near agricultural lands at a one-to-one ratio of agricultural land

converted by the applicant; or 2) payment of monies to the AFT to allow San Joaquin County to develop a mitigation program for the loss of agricultural farmland. In the event that the project owner chooses the payment of fees to AFT, appropriate mitigation would include the fees to be held by AFT, in trust, in an interest bearing account for a three year period to allow San Joaquin County to develop a mitigation program for the loss of agricultural farmland. At the end of the three years, AFT shall distribute the funds to San Joaquin County, or in the event that San Joaquin County has not approved of a program for the loss of agricultural land, then AFT shall be allowed to retain the funds.

Protocol: The project owner shall submit the mitigation plan for the project to the Director of the San Joaquin County Planning Department for review and comment and the CPM for review and approval. The Director will have 30 calendar days to review and provide written comments to the CPM to review for approval. The 30-day review period shall begin the day the mitigation plan is submitted to the County Planning Department by the project owner.

Verification: Sixty (60) days prior to the start of site mobilization, the project owner shall provide the CPM with the finalized agricultural mitigation plan. The final plan shall include a copy of any final agreement signed between the project owner and the County of San Joaquin, American Farmland Trust, or other agency or non-profit organization that is publicly recognized to hold agricultural conservation easements for approval by the CPM.

The project owner shall provide to the CPM in a monthly compliance report a copy of the executed agricultural conservation easements and/or receipt for the payment of monies to an agricultural land mitigation trust account to demonstrate the applicant's fulfillment of their mitigation requirement for approval, if applicable.

REFERENCES

California Resources Agency, 1999. CERES Environmental Law, Regulation, and Policy: California Land Conservation Act (Williamson Act) June 21, 1999. [Internet Website] http://ceres.ca.gov/topic/env_law/williamson/stat.html.

CCC (California State Coastal Conservancy), 1995. California Wetlands Information System: Williamson Act (Land Conservation Act of 1965) December 15, 1995. [Internet Website] http://ceres.ca.gov/wetlands/introduction/williamson.html.

Alameda County, 1996. Alameda County East County Area Plan. Alameda County Community Development Agency Planning Department.

Alameda County, 2001. Alameda County General Ordinance Code, current up to January 30, 2001. [Internet Website] http://www.co.alameda.ca.us/admin/admincode/Alameda_County_General_Ordinance_Code/index.htm

DPC (Delta Protection Commission), 1992. Delta Protection Act of 1992. [Internet Website] http://www.delta.ca.gov.

HDR. 2001. Tracy Gateway. [Internet Website] http://www.hdrinc.com/information/search.asp?PageID=787. Last updated October 3, 2001.

Kehoe, Mark. 2001. GWF, Director of Environmental and Safety Programs. Tracy Peaker Project Site Visit, November 14, 2001. Personal Communication with Jacob Hawkins, Aspen Environmental Group.

Lombardo, V. 2001. City of Tracy Department of Development & Engineering Services, Planning Division. Personal communication with Jacob Hawkins, Aspen Environmental Group. November 28, 2001.

Oliva, Steven (California Department of Conservation). 2001. Response of the California Department of Conservation to Tracy Power Project Data Adequacy Questions. Dated September 27, 2001.

San Joaquin County. 1995a. San Joaquin County General Plan, Volume I. San Joaquin County Planning Department.

San Joaquin County. 1995b. San Joaquin County General Plan, Volume III. San Joaquin County Planning Department.

San Joaquin County. 1995c. San Joaquin County Development Title. Book Publishing Company, Seattle.

San Joaquin County. 2000. Mountain House Master Plan. San Joaquin County Planning Department.

San Joaquin County. 2001. San Joaquin County is advertising for Mountain House Business Administrator. [Internet Website] http://www.co.san-joaquin.ca.us/hr%5Fnew/announce/mounthousebus%20admin%2D2001.htm

San Joaquin County Planning Department. 2001. San Joaquin County Planning Department Findings Regarding Williamson Act Status. (Letter to Cheri Davis, CEC). Dated September 18, 2001.

Tracy Peaker Project (TPP). 2001a. Application for Certification, Volume I, Tracy Peaker Project (01-AFC-16). Dated August 3, 2001 and docketed August 16, 2001.

Tracy Peaker Project (TPP). 2001b. Application for Certification Supplement, September, 2001. Dated September 19, 2001 and docketed September 21, 2001.

Tracy Peaker Project (TPP). 2001c. Application for Certification Supplement, October, 2001. Dated October 9, 2001 and docketed October 9, 2001.

Van Buren, Jim. 2001. San Joaquin County Planning/Development Services. Personal communication with Jacob Hawkins, Aspen Environmental Group. October 25, 2001.

NOISE AND VIBRATION

Testimony of Fred Greve

INTRODUCTION

This section evaluates the potential noise and vibration effects associated with the construction and operation of the Tracy Peaker Project (TPP), which would be located immediately southwest of Tracy in the unincorporated portion of San Joaquin County. As described in the Application for Certification (AFC), the proposed project would be to construct a natural gas-fired simple-cycle power plant on 10.3 acres within a 40-acre parcel owned by GWF Energy LLC. The plant would have a nominal 169-megawatt (MW) rating. The proposed project would interconnect to a nearby transmission line, interconnect to an on-site natural gas supply, and construct a water supply line approximately 1,470 feet to an existing water source. Additionally, a site access road approximately 3,300 feet extending south from W. Schulte Road would be improved.

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. **Table 1** lists permissible noise level exposure as a function of the amount of time during which the worker is exposed. 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. It should be noted that there are no federal laws governing offsite (community) noise.

NOISE: Table 1 - OSHA Worker Noise Exposure Standards

Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA[1])
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: OSHA Regulation

[1] For definitions of acoustical terms, please refer to NOISE: Appendix A, Table A-1.

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," (VdB) 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). This is the level of vibration that a person could barely feel. 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. Vibration levels greater than this could cause damage (e.g., cracking in walls) to buildings and other structures.

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 State of California, Office of Noise Control, prepared a Model Community Noise Control Ordinance, which provides guidance for acceptable noise levels in the absence of local noise standards. The Model also contains a definition of a "pure tone" which can be used to determine whether a noise source contains significant annoying tonal components. The Model Community Noise Control Ordinance further recommends that, when a pure tone is present, the applicable noise standard should be lowered (made more stringent) by 5 dBA.

California Environmental Quality Act (CEQA)

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:

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;

b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels;

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The Energy Commission staff, in applying Item c) above to the analysis of this and other projects, has concluded that a potential for a significant noise impact exists where the noise of the project plus the background exceeds the background by 5 dBA L_{90} or more at the nearest location where the sound is likely to be perceived.

Noise due to construction activities is usually considered to be insignificant in terms of CEQA compliance if:

1. The construction activity is temporary;
2. use of heavy equipment and noisy activities is limited to daytime hours; and
3. all feasible noise abatement measures are implemented for noise-producing equipment.

California Occupational Safety and Health Administration (Cal-OSHA)

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 described above.

LOCAL

The San Joaquin County Code (Section 9-1025.9) establishes environmental noise limits for noise sensitive land uses receiving the noise. No noise sensitive land uses directly abut the project. An industrial use lies to the north, the Delta-Mendota Canal to the west, and agricultural uses to the south and east. According to the San Joaquin County noise ordinance, the allowable noise exposure at the receiving noise sensitive property line is 50 dBA Leq during the daytime (7:00 a.m. to 10:00 p.m.) and 45 dBA Leq during the nighttime (10:00 p.m. to 7:00 a.m.). These noise limits would apply during the operational phase of the plant. Noise from construction activities is exempt between the hours of 6:00 a.m. and 9:00 p.m. on any day. Any construction outside of these hours would have to comply with the ordinance limits identified above.

The nearest residential land use to the project site is approximately 1,480 feet (0.28 miles) to the west (Site LT-2). Residences also lie to the east of the project with the closest property line approximately 2,340 feet (0.44 miles) from the project site (near Site LT-1).

SETTING

The TPP site would be located approximately 3,300 feet (0.63 miles) south of W. Schulte Road and roughly 3,060 feet west of Lammers Road. The uses directly adjacent to the site are agricultural, industrial and a water canal.

SENSITIVE RECEPTORS

The nearest residential land use to the project site is approximately 1,480 feet (0.25 miles) to the west (Site LT-2). (See **Figure 1** for site locations.) Residences also lie to the east of the project with the closest property line approximately 2,340 feet from the project site (near Site LT-1).

AMBIENT NOISE LEVELS

The Energy Commission's power plant certification regulations require that noise measurements be made at noise-sensitive locations where there is a potential for an increase of 5 dBA or more over existing background noise levels during operation of a power plant.

The applicant monitored ambient noise levels on June 14 and 15, 2001 at two locations for 25 hours at each site. These two sites represent the two closest residential areas. Site LT-1 was at the closest residence east of the site and is described as the "residence on Lammers Road south of the railroad tracks." Site LT-2 is west of the site and is referred to as the "Lopez residence." Thirteen (13) additional sites were monitored for a short period of time. The noise measurements were performed using acceptable sound measurement equipment. The weather was warm to hot with low wind speeds and low relative humidity. Noise levels recorded for the two closest locations are listed in **Noise: Table 2**.

Noise: Table 2 - Long-Term Noise Measurement Summary

Monitoring Location	Ldn, dBA	L90 Lowest Hour, dBA
LT-1	54	35
LT-2	52	34

Source: GWF 2001a.

ANALYSIS AND IMPACTS

Noise impacts are evaluated by comparing a project's noise with "absolute" noise level standards contained in the LORS as well as with criteria that address the increase in noise caused by a project.

The significance of a noise impact is also a function of the change or increase in noise levels over existing ambient noise levels at any noise-sensitive receptor. This type of impact must be addressed as per CEQA. Although CEQA does not specify a numerical increase criterion, a project related increase of 5 dBA or greater is considered potentially significant by Energy Commission staff. For this project the change in noise level criterion will be more stringent than the absolute noise levels standards contained in the LORS.

Currently the ambient condition can be as low as 34 dBA (L90) as measured at Receptor LT-2. To avoid an impact at this site the noise level with the plant operating should not increase above 39 dBA (L90). This will be the most stringent operating noise criterion for the proposed plant.

PROJECT SPECIFIC IMPACTS

The Environmental Checklist (see below) is presented in the CEQA guidelines to assist lead agencies in their analysis of project impacts. We provide this checklist as a summary of staff's conclusions regarding the potential for adverse significant project impacts. Noise impacts associated with the project can be created by construction activities, and by

normal long-term operation of the power plant. Following the checklist is a discussion of staff's analysis and rationale for these conclusions.

Environmental Checklist

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
NOISE – Would the project:				
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

a) Noise in Excess of Standards or Ordinances

Construction

Community Noise Impacts

Construction noise is a temporary phenomenon; the construction period for the TPP facility is scheduled to last approximately 8 months (GWF, 2001). Construction of an industrial facility such as a power plant is typically and unavoidably noisier than what is usually permissible under noise ordinances for the operation phase. In order to allow the construction of new facilities, construction noise during certain hours is commonly exempt from enforcement by local ordinances. San Joaquin County does not have any noise limits for construction as long as the construction occurs between the hours of 6:00 a.m. and 9:00

p.m. The nearest residence is located approximately 1,480 feet to the west of the project site. Consistent with good community noise control practices, staff is recommending construction noise standards of 60 dBA Leq during daytime hours, and 45 dBA Leq during nighttime hours as measured at a sensitive receptor. The predicted worst-case hourly construction noise level at the nearest sensitive receptor is 47 dBA. Staff recommends the measure described in the proposed Conditions of Certification **NOISE-1** to mitigate any potential construction noise impacts to the community.

Worker Noise Impacts

Normal construction-generated noise levels would range up to 89 dBA at a distance of 50 feet from the noise source. Therefore, construction workers will be subjected to occasional noise levels above 85 dBA. Where the noise exposure exceeds 85 dBA, Cal-OSHA standards require that warning signs be posted, and that a Hearing Conservation Program be implemented. With proper execution of the Hearing Conservation Program, as well as with the implementation of the measures described in proposed Condition of Certification **NOISE-2**, no occupational noise impacts are anticipated from construction activities.

Operation

Community Noise Impacts

The applicant has prepared a detailed analysis of noise emissions expected from the proposed facility that incorporates some noise control features. At this time the applicant has only identified two mitigation features: a Level 3 mitigation package applied to the GE Frame 7EA combustion turbine generators, and a noise barrier of unspecified height to achieve an additional 1 dBA noise reduction. The Level 3 mitigation package is a standard set of silencers and other features that are available from the manufacturer.

NOISE: Table 3 lists the predicted plant noise levels at the nearest noise sensitive receivers. The projected noise level from the TPP power plant at the closest residential receptor (i.e., LT-2) is 45 dBA (GWF 2001), which would comply with the San Joaquin County noise ordinance.

Site LT-2 is the most critical receptor location. At Site LT-2, the predicted plant noise level is 45 dBA. The ambient noise level during the quietest period is 34 dBA (L90). The predicted total (ambient plus power plant) noise level is 45.3 dBA. The predicted noise level would be in compliance with the standards of San Joaquin County noise ordinance. However, the total noise level represents an increase of 11 dBA above the ambient noise level. This would be a significant increase in ambient noise levels.

Noise levels associated with power plant operations would be considered significant without further mitigation. The most critical receptor is Site LT-2. At this location the plant noise level would have to be reduced to about 37 dBA to ensure that the ambient noise level is not exceeded by more than 5 dBA. If the plant operates at 37 dBA at Site LT-2 and the ambient noise level is 34 dBA, then the total noise level will be 39 dBA.

NOISE: Table 3 – Noise Levels With and Without the Project

	Receptor LT-1	Receptor LT-2
L90 During Quietest Period, dBA	35	34
Predicted Plant Noise Level, dBA	42.5	45.0
Cumulative L90 During Quietest Period, dBA	43.2	45.3

Staff recommends the implementation of the measures described in proposed Condition of Certification **NOISE-3** to ensure mitigation of any potential impacts to the local community associated with plant operations.

Worker Noise Impacts

The Applicant recognizes the need to protect plant operating and maintenance personnel from noise hazards, and commits to comply with applicable LORS. A measure to be implemented for noise-related impacts includes a Hearing Conservation Program. With proper execution of the Hearing Conservation Program, as well as the implementation of the measure described in proposed Condition of Certification **NOISE-4**, no occupational safety impacts are anticipated from operational noise.

b) Vibration Impacts

The primary source of vibration noise associated with a power plant is the operation of the turbines. It is normal operating procedure to maintain the plant's turbines in optimal balance to minimize excessive vibration that can cause damage or long term wear. Consequently, no excessive vibration would be experienced by adjacent land uses.

Another potential source of significant vibration is pile driving during construction. Given the relatively great distances to the nearest sensitive receptors, no vibration effects would be likely if pile driving were to be required.

c) Permanent Increase in Ambient Noise Level

Construction

As described above, construction of the power plant is a temporary phenomenon; the construction period for the TPP facility is scheduled to last approximately 8 months. As a result, noise generated from construction would not cause a substantial permanent increase in ambient noise levels.

Operation

During the operating life, the TPP facility will represent essentially a steady, continuous noise source when operating. This plant is intended to run as a peaker plant, and therefore, typical operation would be up to 8 to 12 hours per day during the summer months. The primary noise sources anticipated from the proposed facility include the combustion turbine generators, exhaust stack package, transformer, and cooling water modules. Secondary noise sources are anticipated to include auxiliary pumps, ventilation

fans, motors, and valves. The noise emitted by power plants during normal operations is generally broadband, steady state in nature.

The noise level from the proposed power plant was modeled to evaluate whether the new plant would contribute an incremental increase in noise levels at the nearest residential receptor. All major pieces of equipment were assumed to operate continuously for the purpose of the modeling analysis. The projected TPP noise level at the closest residential receptor is 45 dBA Leq (GWF, 2001). Based on the results of the noise survey on June 14 and 15, 2001, this noise level would be above the existing ambient noise level of 34 dBA (L_{90}). The cumulative noise level would increase by 11 dBA without further mitigation.

It appears feasible to provide additional noise mitigation to ensure that the ambient noise level is not increased by more than 5 dBA. For example, noise barriers or enclosures could be provided to reduce plant noise by 5 to 10 dBA. With additional mitigation, noise levels associated with power plant operations would be considered less than significant. Staff recommends the implementation of the measures described in Condition of Certification **NOISE-3** to ensure mitigation of any potential operational noise impacts to the local community.

Linear Facilities

No aboveground linear facilities (transmission lines) will be located near noise sensitive receptors. The connecting transmission line is very short, only traveling from the site to the adjacent power lines, and will not produce significant corona noise. The natural gas interconnect will be on-site, and the water interconnect is close to the site. Thus, there will be no noise impacts associated with linear facilities.

d) Temporary Increase in Noise Level

Construction

Community Noise Impacts

Construction impacts are generally short-term in nature and usually result from the operation of heavy-duty diesel- and gasoline-powered construction equipment (e.g., backhoes, boom trucks, delivery trucks, compressors). Noise levels were predicted for the construction of the TPP facility using information from a standard reference (Bolt, Beranek, and Newman, Inc., 1977). Staff is recommending construction noise standards of 60 dBA Leq during daytime hours, and 45 dBA Leq during nighttime hours, as measured at a sensitive receptor. The predicted worst-case hourly construction noise level at the nearest sensitive receptor is 47 dBA. These noise levels would be within the range of existing ambient noise levels at the receptors. As a result, construction noise would be considered less than significant. Staff recommends the implementation of the measures described in proposed Conditions of Certification **NOISE-1** to further reduce any potential for noise impacts to the local community associated with construction activities.

Steam Blows

The highest noise levels that are often associated with construction of power plants are steam blows. Since this plant is a simple-cycle power plant, steam related equipment will not be employed and steam blows will not occur.

Linear Facilities

Construction of the linear facilities transmission lines and water supply would not produce noise at locations near residential receptors. As a result, noise levels associated with construction of the linear facilities would be considered less than significant.

Operation

As described above, the TPP facility will represent essentially a steady, continuous noise source when operating. Since it is a peaker plant, it will typically operate no more than 8 to 12 hours per day, and then most likely during warm weather. When the plant is shut down for lack of dispatch or for maintenance, noise levels will decrease. It is not anticipated that the short-term changes in noise levels during normal operation would cause any significant impacts.

e) Airport Noise Impacts: No Impact

The TPP area is not influenced by aircraft noise associated with public local airports. Therefore, this criterion is not applicable to the proposed project.

f) Private Airstrip Impacts: No Impact

In general, the TPP area is not influenced by aircraft noise associated with local airports. Therefore, this criterion is not applicable to the proposed project.

CUMULATIVE IMPACTS

No other major new or proposed industrial sources of noise were identified that might cause cumulative effects that could exceed the noise standards or criteria for this project. Several projects are proposed around the project site. Most of the projects are general development projects and will not have significant stationary source noise. However, two of the projects in the area are the East Altamont Energy Center and the FPL Tesla Power Project. The East Altamont project is 8 miles from the site, and the Tesla project is 4 miles from the site. Due to the large distance of these projects from the TPP site, the noise levels from the other facilities will not be significant and will not add significantly to the noise generated by the TPP. Staff concludes there are no cumulative noise impacts.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is less than fifty percent within a six-mile radius of the proposed TPP (please refer to **Socioeconomics Figure 1** in this Staff Assessment), and Census 1990 information that shows the minority/low income population is less than fifty percent within the same radius. However, there is a pocket of minority persons within six miles that staff has considered for impacts. Because the project will not result in significant noise impacts (with mitigation), staff concludes that there will be no significant direct or cumulative impacts related to noise on the minority population. Therefore, there is no potential disparate impact on the minority

population, and there are no Noise and Vibration environmental justice issues related to this project.

PUBLIC AND AGENCY COMMENTS

No agency comments were received regarding noise issues for the TPP.

WRITTEN COMMENTS

Laura Swickard

SW-1 This comment states that "an ugly soundwall is not a good solution."
Response: Most of the noise reduction features involve modifications or silencer packages to the equipment. However, one soundwall is likely to be needed. The site is more than 1/4 mile from the nearest residence, and the noise barrier will not be that significant from a visual perspective. Additionally, landscaping will be provided around much of the site, which will further diminish the visual impact of any noise barrier.

Don Washbu

DW-2 This comment raises concerns about how much noise will be produced and whether there will be any impact on health.

Response: The operation of the plant will not increase the noise levels by more than 5 dBA during the quietest time of day. This criterion imposed by the CEC is far more stringent than the San Joaquin Noise Ordinance, which is the only noise standard most projects in this area would be required to meet. The noise levels are well below those levels that would generate any health effects.

Annaben Kazemi

AK-3 This comment raises several issues including how noise pollution is being addressed and what are the potential cumulative noise impacts of the proposed plants.

Response: Several conditions have been imposed on the plant in regards to the levels of noise that it is allowed to generate. The plant must meet Energy Commission noise standards, which are stricter than the standards imposed by the County of San Joaquin. No noise-related cumulative impacts will occur as discussed in the Cumulative Impact section.

ORAL COMMENTS RECEIVED

Comment: Will landscaping affect the noise?
Response: Landscaping has virtually no effect on reducing noise levels.

Comment: The plant without mitigation would violate the county standards.

Response: Without any mitigation the plant would violate the San Joaquin Noise Ordinance. However, several conditions are being imposed on the plant which will require it to meet noise standards even more stringent that the local ordinance. Enclosures, silencers, and noise barriers will be needed to meet the required conditions.

CONCLUSIONS AND RECOMMENDATIONS

Staff concludes that the construction and operation of the proposed TPP will not significantly impact the public or environment if the proposed Conditions of Certification are implemented.

PROPOSED CONDITIONS OF CERTIFICATION

The Applicant has developed an overall mitigation strategy to reduce noise impacts to less than significant levels. Mitigation for construction would include making sure that all equipment is fitted with original mufflers, silencers and enclosures, and that the equipment is maintained in proper operating conditions. Other measures include the adoption of noise control programs and the implementation of noise reducing facilities to cope with construction and operational noise. In addition to the Applicant's overall mitigation strategy, staff proposes the following Conditions of Certification.

NOISE-1 Construction noise levels as measured at any affected residence shall be limited to 60 dBA Leq during daytime hours (6 a.m. to 9 p.m.) and 45 dBA Leq during nighttime hours (9 p.m. to 6 a.m.).

Verification: The project owner shall transmit to the Compliance Project Manager (CPM) in the first Monthly Construction Report a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

NOISE-2 Prior to the start of ground disturbance, the project owner shall submit to the CPM for review a noise control program. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal-OSHA standards.

Verification: At least 30 days prior to the start of ground disturbance, or a lesser period of time mutually agreed to by the CPM and the project owner, the project owner shall submit to the CPM the above referenced program. The project owner shall make the program available to OSHA upon request.

NOISE-3 The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause cumulative noise levels (ambient plus project) to exceed 39 dBA (L90) at the nearest residential receiver (i.e., Site LT-2. Additionally, noise due to plant operations shall comply with the noise standards of the San Joaquin County Code (Section 9-1025.9).

No new pure tone components may be produced by operation of the project. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints.

Protocol: Within 30 days of the project first achieving an output of 80 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey at Sites LT-1 and LT-2 used for the ambient noise survey. The survey shall also include the one-third octave band pressure levels to ensure that no new pure-tone noise components have been introduced. If the results from the survey indicate that the project noise level at the residential location exceeds the standards and requirements cited above, additional mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

Verification: Within 15 days after completing the post-construction survey, the project owner shall submit a summary report of the survey to the local jurisdiction, and to the CPM. Included in the post-construction survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 15 days of implementation of the mitigation measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

NOISE-4 Within 30 days of the project first achieving an output of 80 percent or greater of rated capacity, the project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility. The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, sections 5095-5099 (Article 105) and Title 29, Code of Federal Regulations, section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure. The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

Verification: Within 30 days after completing the survey, the project owner shall submit the noise survey report to the CPM. The project owner shall make the report available to OSHA and Cal-OSHA upon request.

NOISE-5: Throughout the construction and operation of the project, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent shall:

- use the Noise Complaint Resolution Form (below), or functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;
- attempt to contact the person(s) making the noise complaint within 24 hours;
- conduct an investigation to determine the source of noise related to the complaint;
- if the noise is project related, take all feasible measures to reduce the noise at its source; and

- submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts; and if obtainable, a signed statement by the complainant stating that the noise problem is resolved to the complainant's satisfaction.

Verification: Within 5 days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, or similar instrument approved by the CPM, with the local jurisdiction, and with the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 3-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is finally implemented.

EXHIBIT 1 - NOISE COMPLAINT RESOLUTION FORM

Tracy Peaker Project
(01-AFC-16)

NOISE COMPLAINT LOG NUMBER _____

Complainant's name and address:

Phone number: _____

Date complaint received: _____
Time complaint received: _____

Nature of noise complaint:

Definition of problem after investigation by plant personnel:

Date complainant first contacted: _____

Initial noise levels at 3 feet from noise source _____ dBA Date: _____

Initial noise levels at complainant's property: _____ dBA Date: _____

Final noise levels at 3 feet from noise source: _____ dBA Date: _____

Final noise levels at complainant's property: _____ dBA Date: _____

Description of corrective measures taken:

Complainant's signature: _____ Date: _____

Approximate installed cost of corrective measures: $ _____
Date installation completed: _____
Date first letter sent to complainant: _____ (copy attached)
Date final letter sent to complainant: _____ (copy attached)

This information is certified to be correct:

Plant Manager's Signature: _____

(Attach additional pages and supporting documentation, as required).

REFERENCES

Bolt, Beranek, and Newman, Inc., *Power Plant Construction Noise Guide,* May 1977.

County of San Joaquin, Noise Ordinance Section 9-1025.9, October 1999.

Federal Transit Administration (FTA). *Transit Noise and Vibration Impact Assessment,* PB96-172135, April 1995.

GWF Energy AFC prepared by URS Corporation 2001. Application for Certification Tracy Peaker Project, submitted by GWF Energy, LLC, Pittsburg, CA. August 2001.

Office of Planning and Research. State of California General Plan Guidelines. June 1990.

NOISE: APPENDIX A

NOISE: Table A1 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: California Department of Health Services 1976, 1977.

PUBLIC HEALTH

Testimony of Alvin J. Greenberg, Ph.D.

INTRODUCTION

The purpose of staff's public health analysis is to determine if toxic emissions from the proposed Tracy Peaker Project (TPP) will have the potential to cause significant adverse public health impacts or to violate standards for public health protection. This section begins with a description of all applicable laws, ordinances, regulations, and standards, and a brief summary of the project. Staff's analysis of project impacts follows, organized according to the California Environmental Quality Act checklist. If potentially significant health impacts are identified, staff will evaluate mitigation measures to reduce such impacts to insignificant levels. A discussion of additional items listed in the Air Quality portion of the checklist may be found in the **AIR QUALITY** section of this staff analysis.

The following sections describe staff's method of analyzing potential health impacts and the criteria used to determine their significance.

METHOD OF ANALYSIS

Public health staff is concerned about toxic emissions 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. Identify the types and amounts of hazardous substances that the TPP project could emit to the environment;
2. Estimate worst-case concentrations of project emissions in the environment using dispersion modeling;
3. Estimate amounts of pollutants to which people could be exposed through inhalation, ingestion, and dermal contact; and
4. Characterize 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 simplified 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, the actual risks from the power plant will likely be much lower than the risks

that are estimated by the screening level assessment. This is accomplished by examining conditions that would lead to the highest, or worst-case risks, and then using those in 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 an air quality computer model that 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 that could present a health hazard from noninhalation 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 includes the following additional exposure pathways: soil ingestion, skin contact (dermal exposure), and nursing (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 arise as a result of long-term exposure to lower concentrations of pollutants. The exposure period is considered to be approximately from 10% to 100% of a lifetime (from 7 to 70 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 amounts of toxic substances to which even sensitive people 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 effect reported in the medical and toxicological literature, and include margins of safety. The margin of safety addresses uncertainties associated with inconclusive scientific and technical information available at the time of standard setting, and is meant to provide a reasonable degree of protection against hazards that research has not yet identified. The margin of safety is designed to prevent harmful pollution levels, 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 exists 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 (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 a theoretical upper-bound number based on worst-case assumptions. In reality, the risk is generally too small to actually be measured. For example, the 1 in 1 million risk level represents a 1 in 1 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 chances per million, and is a function of the maximum expected pollutant concentration, the probability that a particular pollutant will cause cancer (called “potency factors” established by the California Office of Environmental Health Hazard Assessment), and the length of the exposure period. Cancer risks for each carcinogen are added to yield total cancer risk. The conservative nature of the screening assumptions used means that actual cancer risks are likely to be lower or even considerably lower than those estimated.

The screening analysis is performed to assess worst-case risks to public health associated with the proposed project. If the screening analysis predicts no significant risks, then no further analysis is required. However, if risks are above the significance level, then further analysis, using more realistic site-specific assumptions would be performed to obtain a more accurate assessment of potential public health risks.

SIGNIFICANCE CRITERIA

Commission staff determines the health effects of exposure to toxic emissions based on impacts to the maximum 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 described above.

As described earlier, non-criteria pollutants are evaluated for short-term (acute) and long-term (chronic) noncancer health effects, as well as cancer (long-term) health effects. Significance of project health impacts is determined separately for each of the three categories.

Acute and Chronic Noncancer Health Effects

Staff assesses the significance of non-cancer health effects by calculating a "hazard index". A hazard index is a ratio comparing exposure from facility emissions to the reference (safe) exposure level. A ratio of less than one signifies that the worst-case exposure is below the safe level. The hazard index for every toxic substance which has the same type of health effect is added to yield a total hazard index. The total hazard index is calculated separately for acute and chronic effects. A total hazard index of less than one indicates that cumulative worst-case exposures are less than the reference exposure levels (safe levels). Under these conditions, health protection is likely to be achieved, even for sensitive members of the population. In such a case, staff presumes that there would be no significant non-cancer project-related public health impacts.

Cancer Risk

Staff relied 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 to determine a cancer risk significance level. 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 a cancer risk of 10 in 1 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 10 in 1 million is consistent with the level of significance adopted by the SJVAPCD (San Joaquin Valley Unified Air Pollution Control District) pursuant to Health and Safety Code § 44362(b), which requires notification of nearby residents when an air district determines that there is a significant health risk from a facility. In general, SJVAPCD would not approve a project with a cancer risk exceeding ten in one million (which is sometimes expressed as 1 in 100,000).

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 ensured. When a screening analysis shows cancer risks to be above the significance level, refined assumptions would likely result in a lower, more realistic risk estimate. If facility risk, based on refined assumptions, exceeds the significance level of 10 in 1 million, staff would require appropriate measures to reduce risk to less than significant. If, after all risk reduction measures had been considered, a refined analysis identifies a cancer risk greater than ten in one million, staff would deem such risk to be significant, and would not recommend project approval.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

FEDERAL

Clean Air Act section 112 (42 U.S. Code section 7412)

Section 112 requires new sources that emit more than ten tons per year of any specified hazardous air pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology (MACT).

STATE

California Health and Safety Code sections 39650 et seq.

These sections mandate that the Air Resources Board and the Department of Health Services establish safe exposure limits for toxic air pollutants and identify pertinent best available control technologies. They also require that the new source review rule for each air pollution control district include regulations that require new or modified procedures for controlling the emission of toxic air contaminants.

California Health and Safety Code section 41700

This section states 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."

SETTING

Features of the natural environment, such as meteorology and terrain, affect the project's potential for causing impacts on public health. An emissions plume from a facility may affect elevated areas before lower terrain areas, due to 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 influence the surrounding population distribution and density, which, in turn, affects public exposure to project emissions. Additional factors affecting potential public health impact include existing air quality and environmental site contamination.

SITE AND VICINITY DESCRIPTION

The proposed site is located on 9 acres of a 40 acre parcel in an unincorporated portion of San Joaquin County, immediately southwest of the City of Tracy. The project site is bounded by the Delta-Mendota Canal to the southwest, agricultural property to the south and east, and the Union Pacific Railroad to the north. The site topography is relatively flat, with an average elevation of 176 feet above mean sea level. The proposed site is located along the boundary between the Coast Ranges and the Great Valley physiographic provinces, also known as the Coast Ranges-Sierran Block boundary zone. The Sierra Nevada mountain range is east of the proposed project site.

Currently, land at the proposed site is classified as prime agricultural farmland. Surrounding land is generally agricultural. Land north of the project site is industrial with the Owens-Brockway glass container manufacturing plant and the Nutting-Rice warehouse facility immediately north of the proposed project and the Tracy Biomass power plant further north from those two facilities.

The closest residences are about 0.4 miles due west of the site, 0.8 miles southeast of the site, and 0.8 miles east of the site along Lammers Road. A residential development is located about 0.75 miles to the northeast of the site. The location of sensitive receptors near the proposed site is an important factor in considering potential public health impacts. There are no sensitive receptors within a one-mile radius of the proposed plant site. The closest sensitive receptors are Lammersville Elementary School – located about 3 miles to the northwest of the site, and the Tracy Community Church School – about 3 miles to the northeast of the site. AFC Figure 8.4-3 shows the location of nearby industrial sites and nearby residences.

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.

The climate at the project site is dominated by the influence of the Pacific Ocean 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 flow and negligible precipitation. During this period, inversions become strong, winds are light, and the pollution potential is high. The Pacific high's influence weakens during the fall and winter when it moves southwestward, which allows 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 are 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 by 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 because of temperature inversions, and increase during the warmer afternoons. Staff's **Air Quality** section presents more detailed meteorological data.

EXISTING AIR QUALITY

The proposed site is within the jurisdiction of 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.

Background cancer risk due to toxic air contaminants emitted from all sources (stationary and mobile) has not been specifically determined for the area surrounding Tracy. However, the Bay Area Air Quality Management District (BAAQMD) has monitoring stations in Livermore, which is 10 miles to the west of Tracy, and the California Air Resources Board (CARB) has monitoring stations in Modesto and Fresno. Staff feels that the BAAQMD data for Livermore may be more representative of air quality at Tracy than the CARB data from Modesto or Fresno, thus a comparison is made to that data set as well as to the Stockton data. In 1998, the background cancer risk calculated by BAAQMD for the Bay Area was 199 in one million (BAAQMD 1999, p. 11). The pollutants 1,3-butadiene and benzene, emitted primarily from mobile sources, were the two highest contributors to risk and together accounted for over half of the total. The risk from 1,3-butadiene was about 66 in one million, while the risk from benzene was about 58 in one million. Formaldehyde accounts for about 7% of the 1998 average calculated cancer risk for the Bay Area, with a risk of about 13 in one million. Formaldehyde is emitted directly from vehicles and other combustion sources, such as the proposed TPP project.

In comparison, the CARB toxic air monitoring station on First Street in Fresno reported a year 2000 background cancer risk of 225 in one million (CARB 2001). The pollutants 1,3-butadiene and benzene, emitted primarily from mobile sources, were the two highest contributors to risk and together accounted for over half of the total. The risk from 1,3-butadiene was about 73 in one million, while the risk from benzene was about 68 in one million. Formaldehyde accounts for about 12% of the ambient cancer risk determined for Fresno, with a risk of about 26 in one million.

The use of reformulated gasoline, beginning in the second quarter of 1996, as well as other toxics reduction measures, have led to a decrease of ambient levels of toxics and associated cancer risk during the past few years. For example, in the Bay Area, cancer risk was 342 in one million based on 1992 data, 315 in one million based on 1994 data, and 303 in one million based on 1995 data. At the Fresno monitoring station, cancer risk was 497 in one million based on 1991 data and 314 in one million based on 1995 data.

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.

On behalf of the applicant, a Phase I Environmental Site Assessment (ESA) was conducted by Harding ESE in accordance with American Society for Testing and Materials Standard E 1527-00, Standard Practice for Environmental Site Assessments (Harding 2001). The purpose of an ESA is to determine the potential for the presence or likely presence of any hazardous substances or petroleum products under conditions that may indicate a release or threat of a release of hazardous substances caused by present or past activities. The results of the Phase I ESA indicate that no adverse environmental conditions exist at the proposed project site.

PROJECT SPECIFIC IMPACTS

The Environmental Checklist (see below) is presented in the California Environmental Quality Act (CEQA) guidelines to assist lead agencies in their analysis of project impacts. We provide this checklist as a summary of staff's conclusions regarding the potential for adverse significant project impacts. Following the checklist is a discussion of staff's analysis and rationale for these conclusions.

Environmental Checklist

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
AIR QUALITY – Would the project expose sensitive receptors to substantial pollutant concentrations during:				
Construction			x	
Operation			x	

Construction

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 heavy equipment operation. As mentioned above, the Phase I ESA showed no evidence of site contamination. Criteria pollutant impacts from the operation of heavy equipment and particulate matter from earth moving are examined in staff's **Air Quality** analysis.

The operation of construction equipment will result in air emissions from diesel-fueled engines. Although diesel exhaust contains criteria pollutants such as nitrogen oxides, carbon monoxide, and sulfur oxides, it also includes a complex mixture of thousands of gases and fine particles. These particles are primarily composed of aggregates of spherical carbon particles coated with organic and inorganic substances. Diesel exhaust contains over 40 substances that are listed by the U.S. EPA as hazardous air pollutants and by the California Air Resources Board (CARB) as toxic air contaminants.

Exposure to diesel exhaust causes both short- and long-term adverse health effects. Short-term effects can include increased cough, 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 California 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 $\mu g/m^3$ (5 micrograms – a millionth of a gram – of dust particles per cubic meter of air) 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, CARB listed particulate emissions from

diesel-fueled engines as a toxic air contaminant and approved SRP's recommendations regarding health effect levels.

Construction of TPP is anticipated to take place over a period of approximately 8 months. 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.

AFC Table 8.1-12 and Appendix B present exhaust emissions from construction activities. Diesel emissions are generated from sources such as trucks, graders, cranes, welding machines, electric generators, air compressors, and water pumps. Maximum hourly emissions of 1.9 lb/hour PM_{10} are determined. (PM_{10} refers to particles in the air that are 10 microns or less in diameter.) Fugitive dust emissions will result in an estimated 0.18 tons of fugitive PM_{10} per month. Modeling construction activities, which are assumed to occur for 20 hours per day, gives a 24-hour maximum concentration of 26.1 $\mu g/m^3$ (GWF 2001a, Attachment 3.1-3 of October AFC Supplement). The maximum construction equipment PM level is 0.82 $\mu g/m^3$ at the south fenceline and 0.099 $\mu g/m^3$ at the nearest residence (GWR 2001a, Data Adequacy Response 33).

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 or the installation of soot filters on stationary diesel equipment. The catalyzed diesel particulate filters are passive, self-regenerating filters that reduce particulate matter, carbon monoxide, and hydrocarbon emissions through catalytic oxidation and filtration. The degree of particulate matter reduction is comparable for both mitigation measures in the range of approximately 85-92 percent. Such filters will reduce diesel emissions during construction and reduce any potential for significant health impacts.

Operation

Emissions Sources

The emissions sources at the proposed TPP project include two fire pumps, an emergency diesel generator, and two gas turbines. During operation, potential public health risks are related to diesel exhaust emissions from testing the diesel engine-driven emergency generator and natural gas combustion emissions from the gas turbines.

As noted earlier, the first step in a health risk assessment is to identify potentially toxic compounds that may be emitted from the facility.

Diesel exhaust emissions contain a number of toxic compounds. However, a chronic REL and cancer risk factor have been established for diesel particulate matter, which may be used to characterize emissions from diesel engines (please see the above discussion under Construction Impacts). The diesel engine used for the emergency generator must be tested on a weekly basis in accordance with safety requirements, resulting in diesel particulate emissions that must be analyzed for health effects. CARB guidance lists criteria for permitting stationary diesel engines, and states that if the

annual emissions would result in an incremental cancer risk equal to or less than one in one million (measured at the point of maximum residential or off-site worker exposure) over an exposure period of 70 years, the project is acceptable without further risk management considerations.

Table 8.6-2 of the AFC lists noncriteria pollutants that may be emitted from TPP project turbines as combustion byproducts, along with their anticipated amounts (emission factors). Emission factors are from the California Air Toxics Emission Factors (CATEF) database, Version 1.2. Table 8.6-3 of the AFC (GWF 2001a) lists toxicity values used to characterize cancer and noncancer health impacts from project pollutants. The toxicity values include reference exposure levels, which are used to calculate short-term and long-term noncancer health effects, and cancer unit risks, which are used to calculate the lifetime risk of developing cancer, as published in the CAPCOA Guidelines (CAPCOA 1993). **PUBLIC HEALTH Table 1** lists combustion-related toxic emissions and shows how each contributes to the health risk analysis. For example, the first row shows that oral exposure to acetaldehyde is not of concern, but if inhaled, may have cancer and chronic (long-term) noncancer health effects, but not acute (short-term) effects.

PUBLIC HEALTH Table 1
Types of Health Impacts and Exposure Routes Attributed to Combustion-Related Toxic Emissions

Substance	Oral Cancer	Oral Noncancer	Inhalation Cancer	Noncancer (Chronic)	Noncancer (Acute)
Acetaldehyde			✓	✓	
Ammonia				✓	✓
Benzene			✓	✓	
1,3-Butadiene			✓		
Ethylbenzene				✓	
Hexane				✓	
Formaldehyde			✓	✓	✓
Napthalene		✓		✓	
PAHs	✓		✓		
Propylene				✓	
Propylene oxide			✓	✓	✓
Toluene				✓	
Xylene				✓	✓
Diesel Particulate			✓	✓	

Source: AFC Table 8.6-3 using reference exposure levels and cancer unit risks from CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993

Emissions Levels

Once potential emissions are identified, the next step is to quantify them by conducting a "worst case" 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.

Annual emissions from the emergency generator are included in the modeling conducted for operations emissions and are based on 15 minute weekly tests of the emergency generator for reliability confirmation, or 13 hours of operation per year (GWF 2001a, p.8.1-25).

Maximum fuel use is combined with the emission factor for each toxic air contaminant to estimate maximum hourly emissions. The annual average natural gas consumption rate is used to estimate annual emissions (GWF 2001a, p. 8.6-4). Emission factors are estimates of the amounts of toxic substances released per unit of fuel burned and are from the California Air Toxic Emission Factors (CATEF) database maintained by CARB (GWF 2001a, Table 8.6-2).

The next step in the health risk assessment process is to estimate the ambient concentrations of toxic substances. This is accomplished by using a screening air dispersion model and assuming conditions that result in maximum impacts. The

screening analysis was performed using the U.S. EPA approved ISCST3 (Industrial Source Complex Short Term 3) dispersion modeling program (please see staff's Air Quality section for a detailed discussion of the modeling methodology). Finally, ambient concentrations were 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 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 0.019 at a location approximately 2.2 miles southwest of the proposed site. The chronic hazard index at the point of maximum impact is 0.011. The location of the maximum chronic hazard is about 7.5 miles northwest of the proposed site (GWF 2001a, p.8.6-8). As **PUBLIC HEALTH Table 2** shows, both acute and chronic hazard indices are under the REL of 1.0, indicating that no short- or long-term adverse health effects are expected.

Total worst-case individual cancer risk as shown in **Public Health Table 2** is estimated to be 0.18 in one million. As discussed earlier, this is the risk at the location where long-term pollutant concentrations are calculated to be the highest, and it occurs at a location along the southwest project boundary (GWF 2001a, p. 8.6-8).

PUBLIC HEALTH Table 2
Operation Hazard/Risk

Type of Hazard/Risk	Hazard Index/Risk	Significance Level	Significant?
ACUTE NONCANCER	0.019	1.0	No
CHRONIC NONCANCER	0.0011	1.0	No
INDIVIDUAL CANCER	0.18×10^{-6}	1.0×10^{-5}	No

Source: GWF 2001a, Table 8.6-4.

CUMULATIVE IMPACTS

The maximum cancer risk for the TPP facility is 0.18 in one million at the southwest project boundary. In comparison, the BAAQMD estimated the Bay Area average lifetime cancer risk for inhalation of ambient air to be 199 in one million based on 1998 ambient average toxic concentration data (BAAQMD 1999, p. 11), and the estimate for Fresno is 225 in one million based on 2000 ambient average toxic concentration data (CARB 2001). Staff considers the data from the BAAQMD to be more representative of the air quality at Tracy than the data from Fresno.

For the proposed TPP project, the maximum impact location occurs where pollutant concentrations from TPP would theoretically be the highest. Even at this location, staff does not expect any significant change in lifetime risk to any person. 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 proposed TPP project to be either significant or cumulatively considerable.

The worst-case long-term health impact from TPP (0.0011 hazard index) would be below the significance level of 1.0 at the location of maximum impact. At this level, 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.

The Bay Area Air Quality Management District examined the issue of cumulative impacts from facilities affecting the same neighborhood. They concluded that elevated concentrations of toxic air contaminants from stationary sources tend to be quite localized, and that cumulative risks are likely to occur only when multiple facilities with substantial low-level emissions are immediately adjacent to, or very close to, one another (BAAQMD 1993). The proposed Tesla Power Plant is within a 6-mile radius of the TPP and thus cumulative impacts may occur as a result of both power plants operating. (The proposed East Altamont Energy Center is beyond the 6-mile radius.) The applicant will prepare and submit a cumulative air quality impact assessment in the near future.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is less than fifty percent within a six-mile radius of the proposed TPP (please refer to **Socioeconomics Figure 1** in this Staff Assessment), and Census 1990 information that shows the minority/low income population is less than fifty percent within the same radius. However, there is a pocket of minority persons within six miles that staff has considered for impacts. Since staff has concluded that there will be no significant direct or cumulative public health-related impacts, there will also be no significant impact to any minority populations that are identified. Therefore, there is no potential disparate impact on the minority population, and there are no public health environmental justice issues.

COMPLIANCE WITH LORS

Staff concludes that construction and operation of the TPP project will be in compliance with all applicable LORS regarding long-term and short-term project impacts.

FACILITY CLOSURE

The scope of staff's public health analysis is limited to routine releases of harmful substances to the environment. During either temporary or permanent facility closure, the major concern would be from accidental or nonroutine releases from either

hazardous materials or wastes which may be onsite. These are discussed in the sections on **Hazardous Materials** and **Waste Management**, respectively. During temporary closure (periods greater than those required for normal maintenance), it is unlikely that there would be any routine releases of harmful substances to the environment, since the facility would not be operating. For permanent closure, the only routine emissions would be related to facility demolition or dismantling, such as exhaust from heavy equipment or fugitive dust emissions. These would be subject to closure conditions adopted by the Energy Commission once a closure plan is received from the project owner.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

PUBLIC COMMENTS

A member of the public expressed concerns about the safety and health of the community's families.

Response: The applicant has conducted a thorough review and analysis of the potential public health impacts of emissions from the proposed power plant. Staff has reviewed this analysis and concurred that the risks to public health are far below a level of significant. Therefore, the emissions from the plant are not expected to cause any adverse health effects, including cancer.

A member of the public requested a definition of PM10, and asked whether any long term effects studies have been conducted.

Response: PM10 refers to particulate matter (dust) whose diameter is 10 micrometers or less in diameter. Particles this small are able to penetrate deep into the lungs when inhaled and remain there. They then have the potential to cause adverse health effects.

There are a myriad of studies examining the impacts of pollutants and specifically PM10 on human health. Some are short-term while others are long-term. The results of these studies demonstrate that at certain airborne concentrations, PM10 and other pollutants can cause harm to people. They also demonstrate that at lower airborne concentrations, the risk of harm is negligible.

A member of the public expressed concerns that the application doesn't appear to consider background carcinogens and cumulative impacts of existing air pollution. Another issue that was raised is that there are many superfund sites in the area.

Response: Please refer to this Public Health Staff Assessment which describes background carcinogens and cumulative impacts. Regarding nearby Superfund sites, these sites typically have very localized impacts that do not extend at significant distances from the site. Often, off-site migration does not even occur. Although staff has not conducted a review of these Superfund sites, it is doubtful that cumulative risks from the proposed TPP and a site would rise to the level of significance.

CONCLUSIONS

Staff has analyzed potential public health risks associated with construction and operation of the TPP project. Staff does not expect any significant adverse short- or long-term noncancer health effects to occur nor a significant cancer risk to exist from project emissions.

Pursuant to the SJVAPCD and CARB risk management policies, the increased carcinogenic risk attributed to this project is considered “not significant” since it is less than 1.0 in 1 million. The chronic hazard index attributed to the emission of non-carcinogenic air contaminants is considered “not significant” since it is less than 1.0.

PROPOSED CONDITIONS OF CERTIFICATION

None

REFERENCES

CAPCOA. 1993. California Air Pollution Control Officers Association. CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines. Prepared by the Toxics Committee. October.

California Air Resource Board. 2001. California Air Quality Data, http://www.arb.ca.gov/aqd/aqd.htm

GWF 2001a. Application for Certification (01-AFC-16), submitted by GWF Energy LLC. Submitted to the California Energy Commission on August 3, 2001. Draft AFC Supplements submitted on September 19, 2001 and October 9, 2001.

SJVAPCD. 2001. San Joaquin Valley Unified Air Pollution Control District. http://www.valleyair.org.

SOCIOECONOMICS

Testimony of Sally Salavea

INTRODUCTION

The socioeconomics analysis includes several related areas of interest and concern. A typical socioeconomic impact analysis evaluates the effects of short-term and long-term project-induced population changes on housing, employment, and public services within the project area. For example, project impacts on housing stock, local schools, medical and protective services, as well as the fiscal and physical capability of local governmental agencies to meet the needs of project-related changes are evaluated. The socioeconomic analysis also provides demographic data for use in various other technical area analyses to determine the potential for Environmental Justice impacts. The following provides a socioeconomic impact analysis of the Tracy Peaker Project (TPP), proposed in San Joaquin County, California.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

FEDERAL

Executive Order 12898, "Federal Actions to address Environmental Justice (EJ) in Minority Populations and Low-Income Populations," focuses federal attention on the environment and human health conditions of minority communities and calls on agencies to achieve environmental justice as part of this mission. The order requires the US Environmental Protection Agency (EPA) and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

Civil Rights Act of 1964, Public Law 88-352, 78 Stat. 241 (Codified as amended in scattered sections of 42 U.S.C.) Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color, or national origin in all programs or activities receiving federal financial assistance.

STATE

California Government Code, Sections 65995-65997

As amended by SB 50 and other statutory amendments (Stats. 1998, ch. 407, sec. 23), these sections provide that, notwithstanding any other provisions of local or state law, including the California Environmental Quality Act (CEQA), state and local agencies may not require mitigation for the development of real property for effects on school enrollment except as provided by new provisions in the Government Code (Govt. Code, Sec. 65996(a). The local administering agency for implementing school impact fees in the project area is the Building Division of the San Joaquin County Community Development Department (Martin, 2001).

Title 14 California Code of Regulations, Section 15131

Title 14 California Code of Regulations, Section 15131 provides that economic or social effects of a project shall not be treated as significant effects on the environment. However, economic or social factors of a project may be used to determine the significance of physical changes caused by the project. In addition, economic, social and particularly housing factors, shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a project are feasible to reduce and/or avoid the significant effects on the environment.

LOCAL

San Joaquin County General Plan 2010, 1992

The TPP is located in unincorporated San Joaquin County land, and therefore, the TPP is subject to the guidelines identified within the San Joaquin County General Plan. The following San Joaquin County General Plan policy applies to the proposed TPP:

Policy No. 15 Development shall minimize impacts on the County's resources.

SETTING

DEMOGRAPHIC CHARACTERISTICS

The TPP is proposed to be developed on a nine-acre fenced site within a 40-acre parcel in an unincorporated portion of San Joaquin County, immediately southwest of the City of Tracy, and approximately 20 miles southwest of the City of Stockton, California. The following counties border San Joaquin County: Alameda County and Contra Costa County, which are part of the larger San Francisco Bay Area metropolitan region, to the west; Sacramento County, which is part of the Sacramento metropolitan area, to the north; and Amador, Calveras, and Stanislaus Counties to the east and south. The City of Stockton, which houses the County local government, is located approximately 50 and 80 miles from the City of Sacramento and the City of San Francisco, respectively. The City of Tracy, the nearest City to the project site, is approximately 70 and 60 miles from the City of Sacramento and the City of San Francisco, respectively.

The current population of San Joaquin County is 563,598 and is expected to grow by 45 percent to approximately 821,851 over the next 20 years (SJCOG, 2001). The City of Tracy has a current population of 56,929 and is expected to increase by 117 percent, adding approximately 63,588 new residents, by the year 2020 (SJCOG 2001).

San Joaquin County is ranked among the top 10 agricultural-producing counties in the nation. With relatively lower operating costs, a large and expanding labor force, and ample sites and facilities, San Joaquin County is rapidly gaining momentum as an industrial center (EDD, 2001). Between 2000 and 2025, the number of jobs in San Joaquin County is projected to increase from the current estimate of 237,000 jobs (EDD, 2001) by 20 percent to 283,569 (SJOC, 2001).

Socioeconomics Table 1 shows the total 1990 population, minority population percentage (people of color as defined by the U.S. Census), and percent of the population below the poverty level for San Joaquin County, the City of Tracy, and includes data for the six-mile radius surrounding the TPP site, which includes portions of the City of Tracy. Also shown are housing and employment data.

Socioeconomics Table 2 shows the same population characteristics using data sets from the 2000 Census and includes data for the six-mile radius around the proposed TPP site, as well as data for the two-mile radius, and one-mile radius. The 2000 Census does not however, include all poverty level data, as it is currently only available for San Joaquin County. The six-mile radius data is used in staff's environmental justice screening analysis. As indicated, in 1990 the population of San Joaquin County was estimated at 480,628. The year 2000 population is estimated to be 563,598, an increase of 17 percent.

Socioeconomics Table 1
Demographic Profile of San Joaquin County, City of Tracy, and 6-Mile Radius: 1990 Data

	San Joaquin County	City of Tracy	6-Mile Radius
Total Population	480,628	33,558	52,610
Minority %	41.2%	31.7%	13.21%
Poverty %**	15.2%	7.3%	8.30%
Total Housing	166,274 units	12,174 units	N/A
Vacancy Rate	4.9%	7.9%	N/A
Total Employment (jobs within)	195,575	17,098	N/A
Total Labor Force (living within)*	214,347	15,851	N/A

* Indicates civilian labor force – residents between 18-55 years of age
Not Applicable; Minority populations include those describing themselves in the census as Hispanic/Latino and/or any race other than white.
Source: US Census, 1990.

Socioeconomics Table 2
Demographic Profile of San Joaquin County, City of Tracy, and Project 6, 2 and 1-Mile Radius: 2000 Data

	San Joaquin County	City of Tracy	6-Mile Radius	2-Mile Radius	1-Mile Radius
Total Population	563,598	56,929	61,955	1,011	350
Minority %	52.6%	46%	45.2%	37.9%	22.6%
Poverty %	11.1%	U/A	U/A	U/A	U/A
Total Housing	189,160 units	18,087 units	N/A	N/A	N/A
Vacancy Rate	4.0%	2.6 %	N/A	N/A	N/A
Total Employment (jobs within)	237,000	19,280	N/A	N/A	N/A
Total Labor Force (living within)*	260,900	20,810	N/A	N/A	N/A

* Indicates civilian labor force – residents between 18-55 years of age
N/A: Not Applicable; U/A: Unavailable
Minority populations include those describing themselves in the census as Hispanic/Latino and/or any race other than white.
Source: U.S. Census, 2000; Department of Finance, 2001, EDD, 2001. Monthly labor force data for counties provided by EDD, June 2001 (preliminary); 2000. Benchmark, not seasonally adjusted.

Socioeconomics Figure 1 includes population and poverty data for the six-mile radius surrounding the proposed TPP site. It also shows the distribution of minorities within the six-mile radius. As shown, minority populations within the six-mile radius do not exceed the 50 percent threshold.

EMPLOYMENT AND ECONOMY

Socioeconomics Table 3 identifies labor force characteristics for San Joaquin County. Statistics for year 2000 for San Joaquin County indicate a civilian labor force of 260,900 with an unemployment rate of 8.8 percent (EDD, 2001). Agriculturally-oriented counties tend to have greater seasonal variations in employment and higher unemployment rates (EDD, 2001). The civilian labor force represents all residents between 18-55 years of age and currently employed.

In San Joaquin County, the service sector accounts for 18 percent of total employment, the highest proportion of any sector. In addition, trade accounts for 16.7 percent of jobs, the government sector accounts for 14 percent of jobs, manufacturing accounts for 9.8 percent of jobs, agriculture accounts for 6.6 percent, and the construction sector makes up approximately 4.5 percent of total employment in San Joaquin County.

Socioeconomics Table 3
Labor Force Characteristics in San Joaquin County, 2000

Sector	San Joaquin County
Civilian labor force	260,900
Unemployment	23,000
Agriculture	17,300
Construction	11,800
Manufacturing	25,500
Transportation/public utilities	13,500
Trade	43,500
Finance/insurance	8,400
Services	47,000
Government	37,000
Mining	100
Other	33,800
Source: EDD, 2001. Labor Market Information Division 2000 Benchmark	

Socioeconomics Table 4 identifies the San Joaquin County labor force characteristics for the required trades.

Socioeconomics Table 4
Labor Force Characteristics of Potential Labor Force in San Joaquin County

Annual Averages[1]			
Occupational Title	**1997**[2]	**2004**	**Percentage Increase**[3]
Construction:			
Boilermakers	520	650	25.0
Bricklayers/Cement Mason	360	500	38.9
Carpenters	1,000	1,460	46.0
Electricians	740	1,020	37.8
Ironworkers (structural metal workers)	520	650	25.0
Laborers	790	1,240	57.0
Millwrights	50	60	20.0
Operating Engineers	390	420	7.7
Pipefitters/Sprinklerfitters	290	380	31.0
Supervisors (construction)	3,140	3,720	18.5
Truck Drivers	4,590	5,880	28.1
Field Staff	270	390	44.4
Total Construction:	**12,660**	**16,370**	**29.3**

1 Employment and projections contained in this table are considered estimates.

2 March 1998 benchmark.

3 Estimated increase.

Source: California Employment Development Department, 1999

As shown in **Socioeconomics Table 4**, more than 12,000 potential workers are in the construction labor force in San Joaquin County. Construction and operation of this project may also draw on the labor pool in Alameda and Contra Costa Counties.

Fiscal

San Joaquin County adopted on June 21, 2001, a revenue budget of approximately $888 million for fiscal year 2001/2002. The revenue budget includes a basic budget totaling approximately $743 million plus enterprise funds for the General Hospital, Stockton Metropolitan Airport, Solid Waste, and Solid Waste Closure of approximately $145 million (County of San Joaquin Final Budget 2001/2002). Sources of revenue include the following: aid from other governmental agencies (62.2 percent); services charges (12.1 percent); other revenues (15.3 percent); property taxes (7.7 percent); other taxes (3.4 percent); and fund balances (1.1 percent). The requirements to finance all County programs are allocated in ten functional areas as follows: General Government (8.6 percent); Capital Maintenance and Improvement (2.7 percent); Environmental Protection (2.1 percent); Law & Justice (17.1 percent); Roads and Facilities (7.6 percent); Health Services (32.6 percent); Human Services (27.6 percent); Education (.5 percent); Parks and Recreation (.4 percent); and Contingencies (.8 percent). A breakdown of County revenue for the current and recent fiscal years is presented in **Socioeconomics Table 5.**

Socioeconomics Table 5
County of San Joaquin General Fund Tax Revenue

Revenue Source	1999-2000	2000-2001	2001-2002 (Budgeted)
Property Taxes	$57,664,311	$63,988,896	$68,357,641
Sales and Use Taxes	$11,200,457	$12,051,001	$13,437,500
Other Taxes	$9,117,917	$9,851,139	$17,055,265
License, Permits and Franchises Taxes	$3,780,624	$4,003,097	$4,331,832
Total:	**$81,763,308**	**$89,894,133**	**$103,182,238**
Source: San Joaquin County Administrator's Office, 2001			

Under current law, property taxes are levied and collected in accordance with Proposition 13. Property taxes for the proposed TPP will be calculated at 1 percent of assessed value at the time the TPP goes into operation and increased at up to 2 percent per year thereafter. Based on the TPP projected value of $107 million, initial property tax revenue to San Joaquin County is expected to increase by $1 million. This represents approximately 1 percent of the County's budgeted property tax revenue for fiscal year 2001/2002. **Socioeconomics Table 6** provides a breakdown of how property taxes would be distributed within San Joaquin County assuming the property tax is $1 million per year. In addition, the County imposes an annual fee of $78.54, based on the square footage of the land, and independent of the value of improvements. The fee consists of contributions to a mosquito abatement fund and a groundwater investigation fund (Siojo, 2001).

SOCIOECONOMICS TABLE 6
Estimated Incremental Property Tax for the Tracy Peaker Project

County Functional Areas	Approximate Share of Tax Increment	Approximate Incremental Revenue
General Government	8.6%	$86,000
Capital Maintenance and Improvement	2.7%	$27,000
Environmental Protection	2.1%	$21,000
Law & Justice	17.1%	$171,000
Roads and Facilities	7.6%	$76,000
Health Services	32.6%	$326,000
Human Services	27.6%	$276,000
Education	0.5%	$5,000
Parks and Recreation	0.4%	$4,000
Contingencies	0.8%	$8,000
Total	**100%**	**$1,000,000**
Source: Estimates based on applicants projection of property value and San Joaquin County Administrator's Office Allocation Factors.		

PUBLIC SERVICES

Police Protection

The San Joaquin County Sheriff's Department provides police protection for the TPP area. The San Joaquin County Sheriff's Department is located 20 miles northeast of the TPP site, on Michael Canlis Boulevard in French Camp. All Sheriff's Department patrol officers are assigned from this location (Mayoya, 2001).

The Sheriff's Department includes 132 sworn deputy sheriffs, consisting of 124 patrol officers and eight supervisory officers. The patrol officers work 10-hour shifts with rotating days off. Four shifts cover the 24-hour period: 6:00 a.m. to 4:00 p.m.; 8:00 a.m. to 6:00 p.m.; 4:00 p.m. to 2:00 a.m.; and 9:00 p.m. to 7:00 a.m. The TPP site is located in Beat No. 8 of the Sheriff's Department, which includes at least one officer patrolling at all times. The on-duty officer patrols the general area in a car and responds to calls for service on a priority basis. Officers from other Sheriff's Department beats are also available to respond in an emergency. In addition, the Sheriff's Department is within Mutual Aid Region IV, which ensures that other law enforcement agencies from surrounding counties are available to respond if needed. The Sheriff's Department works closely with the Tracy Police Department, headquartered at 1000 Civic Center Drive, and the California Highway Patrol in this area (Mayoya, 2001). The Tracy Police Department is located approximately four miles northeast of the TPP site, on Civic Center Drive in Tracy (Tracy, 2001). California Highway Patrol Communications Center 266 is located approximately four miles northeast of the TPP site, on West Grantline Road.

Schools

There are 15 school districts located within San Joaquin County. The TPP site is located within Lammersville Elementary School District (LESD) and Tracy Joint Unified School District (TSD). LESD educates students in grades K through 8 and includes Lammersville Elementary School and Lammersville Charter School (home school). TSD educates students in grades K through 12 and includes 11 elementary schools, three middle schools, two high schools, and one continuation school. Lammersville

Elementary School is the closest school to the TPP site, located on West Von Sosten Road in the City of Tracy, approximately 3 miles from the TPP site (Muela, 2001).

Socioeconomics Table 7 presents enrollment trends for LESD and TSD. Compared to the 1999-2000 school year, 2000-2001 enrollment in LESD decreased by 9 percent. TSD enrollment in the 2000-2001 year increased by 8 percent, compared to the 1999-2000 school year.

Socioeconomics Table 7
Enrollment in Project Area Schools

School	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01
Lammersville Elementary School District	294	304	317	307	329	298
Tracy Joint Unified School District	N/A	N/A	11,518	12,176	12,761	13,816
San Joaquin County Total	106,277	108,494	110,587	114,141	117,382	122,349

Source: Education Data Partnership web page: www.ed-data.k12.ca.us/fiscal/enrollment.asp
California Department of Education web page: www.cde.ca.gov/demographics Muela, 2001.

Other Public Services in San Joaquin County

Other public services in the San Joaquin area include medical facilities and utilities.

There are eight hospitals with more than 1,100 beds in San Joaquin County. The closest facility is Sutter Tracy Community Hospital, located on Tracy Boulevard, in the City of Tracy, approximately 4 miles from the TPP site. Sutter Tracy Community Hospital is a 79-bed facility that provides a wide range of medical services, including 24-hour emergency care (Sutter Tracy, 2001).

The TPP site is located within the Tracy Rural Fire District, for which the Tracy Fire Department (TFD) provides fire protection services. Of the seven fire stations that TFD operates throughout their coverage area, Fire Stations No. 94 located two miles to the northwest of the TPP site, No. 95 located three miles to the east, and No. 97 located three miles to the southeast, would respond to fire, emergency medical, and hazardous materials situations at the site (Mehring, 2001). While the TFD provides basic life support handled by the closest engine, American Medical Response, a private ambulatory company, would provide advanced life support services to the proposed TPP site (Shehan, 2001). American Medical Response staffs each ambulance with two personnel who provide advanced life support. Fire protection is discussed in further detail in the section on **Worker Health and Safety.**

Public utilities required for the TPP operation include electricity, natural gas, sewer, and water. Pacific Gas and Electric (PG&E) provides electricity and natural gas to the area surrounding the City of Tracy (SJP, 2001). The TPP site currently is not served with potable water or sewer service, as it is vacant and undeveloped.

ANALYSIS AND IMPACTS

PROJECT SPECIFIC IMPACTS

The Environmental Checklist (see below) is presented in the California Environmental Quality Act (CEQA) guidelines to assist lead agencies in their analysis of project impacts. We provide this checklist as a summary of staff's conclusions regarding the potential for adverse significant project impacts. Following the checklist is a discussion of staff's analysis and rationale for these conclusions.

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 effects on local 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

The following assessment of potential socioeconomic impacts is based upon staff's review of the Applicant's Tracy Peaker Project Application for Certification (GWF 2001a, AFC) and Application for Certification Supplemental Filing (GWF 2001b, Supplement to AFC), subsequent conversations with appropriate agencies, and independent research to address socioeconomic effects that could potentially occur from construction and operation of the proposed TPP.

a) Employment and Economy

According to the Application for Certification (GWF 2001b, Supplement to AFC page 2-21) for the TPP, construction would occur over eight months. During this time, an average and peak on-site workforce of approximately 95 and 178 workers, respectively, from varying trades common to the construction industry including craft laborers, and supervisory, support, and construction management personnel would work daytime shifts at the TPP site from Monday through Saturday. It is anticipated that the peak workforce would be needed from the third month through the seventh month of the construction period, and that an adequate supply of skilled labor by craft would be available for the construction of the TPP (GWF 2001a, AFC page 8.8-13).

As shown in **Socioeconomics Table 4**, there is a sufficient labor force in San Joaquin County and the surrounding counties from which to draw the required construction trades. **Socioeconomics Table 8** presents the distribution of workers by craft and month required for TPP construction. It should be noted that **Socioeconomics Table 7** identifies a breakdown of workers over an 11-month construction period, which reflects construction that would occur over eight months, plus construction that would occur during the first few months of initial operation.

The TPP would result in indirect jobs during plant construction and operation. To estimate the **number** of indirect jobs it would produce, the Applicant employed the IMPLAN Input-Output model for San Joaquin County and adjacent counties including Alameda, Contra Costa, Sacramento, Amador, Calaveras, Stanislaus, and Santa Clara. Staff believes this model is a reasonable methodology for determining indirect jobs. The model estimated that during construction of the TPP, the project would produce 70 indirect jobs. These jobs will result in an estimated $3.3 million in local construction expenditures and $6.51 million from local spending by construction workers. The multiplier for the construction phase was determined to be 1.8 for employment (i.e., for every construction job directly generated by the proposed TPP, 1.8 jobs would be indirectly generated).

Secondary employment that would be generated within San Joaquin County (i.e., any increase in employment that would directly result from the indirect jobs created by the TPP) **would** be a small portion of the 70 indirect jobs, since some construction employees could commute from outside the County, and a portion of the labor income earned from construction could be spent outside San Joaquin County. This increase would be temporary, since it is attributable to temporary construction activities, and would lag behind the direct effects of construction by approximately six to 12 months.

Socioeconomics Table 8
Projected Monthly Construction Labor By Craft

Month	Carpenters	Electricians	Ironworkers	Laborers	Millwrights	Insulation Workers	Boilermakers	Painters	Pipefitters	Plasterers	Teamsters	Direct Craft	Indirect Craft	Startup Craft	Supervisors	Total Site Staff
1	0	0	12.5	23.5	0	0	0	0	0	0	5.9	29.4	7.4	0	12	48.8
2	7.6	0	15.9	40.1	0	0	0	0	0	2.4	7.5	70.1	10.5	0	14	94.6
3	9.7	25.4	6.9	25.8	0	0	0	0	13	3.1	3.2	96.1	17.7	0	15	128.8
4	4.2	41.2	5.1	5.5	0	0	10.9	0	21.6	1.3	0	91.6	21.7	0	17.3	130.6
5	0	40.9	7.7	0	12.4	0	48.1	9	31.4	0	0	137.9	22.3	0.4	17.8	178.4
6	0	29.5	6.3	0	16.5	0	32.7	0	21.6	0	0	108	19.6	2.1	18.9	148.6
7	0	10.7	2.4	0	9.9	18.6	22.6	7.4	3.1	0	0	78.6	17.7	5.1	17	118.4
8	0	0	0	0	3.4	4.5	8.6	1.8	0	0	0	20.7	13.7	6	17	57.4
9	0	0	0	0	0	0	0	0	0	0	0	0	9.4	8.3	12	29.7
10	0	0	0	0	0	0	0	0	0	0	0	0	8	0	11	19
11	0	0	0	0	0	0	0	0	0	0	0	0	5	0	7	12
Total*	**21.5**	**147.7**	**56.8**	**94.9**	**58.0**	**51.0**	**122.9**	**9.2**	**90.7**	**6.8**	**16.6**	**632.4**	**153.0**	**21.9**	**159.**	**966.3**

Source: GWF, 2001a, AFC page .8-38.
Person-Months calculated based on a one-person (i.e., one construction worker) average work month of 166 hours. A task that requires 166 hours to complete in one month would equal one person-month, however, the task could be completed by any combination of hours-to-personnel (i.e. two persons each working 83 hours, or four persons each working 41.5 hours, per month).
Direct craft represents workers preparing the site and erecting equipment. Indirect craft represents workers who will support the direct craft.
Startup craft includes workers who support direct craft during startup activities (GWF, 2001a, AFC page 8.8-38)

For the operations phase, the model estimated that three indirect permanent jobs would be created, based on $2.84 million in annual operating budget. The IMPLAN multiplier was determined to be 2.6 for employment (i.e., for every operations employee generated by the proposed TPP, 2.6 indirect permanent jobs would be generated).

As shown in **Socioeconomics Table 4**, more than 12,000 construction workers resided in San Joaquin County in 1999. The 178-peak construction workers needed for the TPP represents 1.4 percent of the total construction workforce of San Joaquin County. In addition, construction workers are expected to be found outside of San Joaquin County but within commute distance. For major construction projects such as the TPP, a two-hour commute for construction workers is considered acceptable.

By employing a primarily local and regional workforce for plant construction, the TPP will result in no adverse employment or economic effects. It will benefit the local economy in the short-term by providing construction employment and assisting businesses through local procurement of goods and services. The TPP would require one skilled full-time production operator at all times, and one on-call maintenance worker; however, the Applicant would not hire additional employees to fill the two positions, but would transfer existing employees from other facilities owned by GWF to commute to the site on a daily basis (GWF 2001a, AFC page 8.8-14). Therefore, operations and management of the TPP will result in no adverse employment or economic effects.

b) Population Growth

Because the number of construction workers is relatively small and predominantly local and regional in nature, it is expected that few, if any, construction personnel would relocate to the area. Since a large local and regional workforce exists relative

to the number of construction workers required for the TPP project construction, it is expected that most of the construction workers will commute daily to the TPP construction site. Therefore, construction of the TPP will not directly or indirectly cause substantial population growth in the area during construction phase of the TPP.

Some construction workers may prefer to commute weekly and seek temporary housing. As can be seen from **Socioeconomics Table 2**, San Joaquin County had a 4.0 percent housing vacancy rate in 2000. The City of Tracy's vacancy rate was 2.6 percent. A total of 189,160 housing units are in San Joaquin County, and 18,087 in Tracy. The vacancy rates translate into approximately 7,566 available housing units in the County and 470 units in the City. Although the County and City vacancy rates are below 5 percent, commonly regarded as the threshold for what is considered to be a housing shortage, the actual number of available units should be ample to meet the housing demand that could be generated by the TPP.

In addition, there are 340 hotel and motel rooms in the City of Tracy (Malik, 2001) and additional hotel and motel rooms in the Stockton metropolitan area of San Joaquin County. Therefore, sufficient vacant housing exists within a short commute range for those construction workers who may wish to seek temporary accommodations during the eight-month construction period.

As indicated previously, one full-time production operator and one on-call maintenance worker would be required to operate and maintain the TPP (GWF 2001a, AFC page 8.8-14). The operations and on-call maintenance personnel would be provided by existing GWF facilities and would commute on a daily basis. Operation of the TPP would not involve an increase in population nor a demand on the available housing supply base in San Joaquin County. Therefore, the operations and on-going management of the TPP would not directly or indirectly induce substantial population growth in the area, or impact housing supply during operation.

c) Displacement of Housing

As described in Item B (above), no housing or population would be displaced by the TPP. Therefore, no impacts to displaced housing will occur.

d) Displacement of People

As described in Item B (above), no people would be displaced by the TPP. Therefore, no impacts to displaced population will occur.

e) Fiscal Impacts

Of the total project construction cost of $107 million, $8 million would be expended for locally purchased materials and supplies, representing 7.5 percent of total construction cost (GWF 2001a, AFC page 8.8-18). Approximately $250,000 of the $8 million would result from taxed purchases within San Joaquin County. Labor costs including base wages, benefits, taxes, and overtime would represent approximately 12 percent of the total construction cost. In addition, additional sales tax revenue would be generated from construction workers and TPP operators, but this amount is expected to be small relative to the County's total sales tax revenues.

Property taxes assessed on the TPP by San Joaquin County consist of 1 percent of the TPP assessed value, unless other levies are added. An additional $78.54 total (based on square footage) is charged per year; therefore, the total property tax revenue on the TPP parcel would be approximately $1 million and $78.54 annually (Siojo, 2001).

The school impact fees resulting from TPP construction would support education in the immediate project area in San Joaquin County and would be approximately $0.33 per square foot of covered and enclosed space for new industrial or commercial development. The owners of the TPP would pay a school impact fee of $1,650.00, based on 5,000 square feet of proposed covered and closed structures to be built at the TPP site (GWF 2001a, AFC page 8.8-17).

As stated in the Fiscal Setting section above, under current law the TPP should initially generate $1 million in property tax revenue, or 1 percent of this year's total property tax revenue expected for the County of San Joaquin. However, there are two pending actions at the State level that would alter the method by which power plants are assessed and the way property tax revenue they generate is allocated.

First is AB 81 (Migden), held in the Senate Appropriations Committee for consideration in 2002. This bill would change the method by which the TPP property and other large power plant properties are taxed. It would shift the responsibility for property tax assessment of large power plants from the County Assessor to the State Board of Equalization by making it a "state assessed property," require annual reassessment at fair market value, and provide that the property taxes collected be distributed exclusively to the taxing jurisdictions within the Tax Rate Area in which the facility is located. (A "Tax Rate Area" is a grouping of properties within a county wherein each parcel is subject to the taxing powers of the same combination of taxing agencies). AB 81 could substantially increase total property tax revenue derived from the TPP over its lifespan. However, local governments, schools and other special districts in the TPP Tax Rate Area would receive the property tax revenue from the property at the same percentage of the total that they currently receive from property that is locally assessed by the County Assessor in that same Tax Rate Area.

Second is the State Board of Equalization's (BOE) November 28, 2001 action to amend Rule 905, "Assessment of Electric Generation Facilities," to provide that electric generation facilities with a generating capacity over 50 megawatts and owned or used by an electrical corporation, as defined in the Public Utilities Code, will be State assessed property. Certain small generating facilities would be excluded. If approved by the Office of Administrative Law (OAL), the amended Rule 905 would become effective on January 1, 2003.

If it takes effect, the BOE action would return the power plant assessment methodology to that which existed prior to California's deregulation of Public Utilities in 1997, consistent with the assessment jurisdiction provisions in AB 81. However, Rule 905 does not address revenue allocation. For State assessed property, the property tax collected is distributed to all the taxing jurisdictions in the county according to a statutory formula. For locally assessed property, only those taxing

jurisdictions in the Tax Rate Area where the property is located receive the property tax collected. The allocation of the revenue derived is solely within the purview of the Legislature and the Governor. Now that the BOE has acted, it is expected that the Legislature will address the issue of revenue allocation in 2002 in order to find a formula that is equitable to all of the affected parties.

f) Minority and Low-Income Populations (Environmental Justice Screening Analysis)

The purpose of the environmental justice screening analysis is to determine whether a low-income and/or minority population exists within the potential affected area of the proposed site.

Minority populations, as defined by United States Environmental Protection Agency's (USEPA) April 1998 National Environmental Policy Act Compliance Analysis are identified where either:

The minority population of the affected area is greater than 50 percent of the affected area's general population; or

The minority population percentage of the area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

Energy Commission staff has determined the potential affected area as a six-mile radius of the proposed TPP site. The six-mile radius is consistent with the radius used for staff's cumulative air quality analysis. When a minority and/or low-income population is identified per the above, staff in the technical areas of air quality, public health, hazardous materials, noise, water, waste, traffic and transportation, visual resources, land use, socioeconomics and transmission line safety and nuisance consider possible impacts on the minority/low-income population as part of their analysis. This Environmental Justice (EJ) analysis consists of identification of significant impacts (if any), identification of mitigation, and determination of whether there is a disproportionate impact if an unmitigated significant impact has been identified. Staff's environmental justice approach includes providing notice (in appropriate languages) of the proposed project and opportunities for participation in public workshops to minority and/or low-income communities, and providing information on staff's EJ approach to minority and/or low-income persons who attend staff's public workshops.

As presented in **Socioeconomics Table 2**, minorities comprise 46 percent of the City of Tracy's and 52.6 percent of San Joaquin County's population. Minorities also comprise 45.2 percent of the population within a six-mile radius of the TPP site. The largest minority group in Tracy and San Joaquin County is Hispanic representing approximately 27.7 percent of Tracy's population and 30.6 percent of San Joaquin County. The minority populations within a two- and one-mile radius of the TPP site are 37.9 percent and 22.6 percent, respectively.

As depicted on **Socioeconomics Figure 1,** minority populations within the six-mile radius do not exceed the 50 percent threshold. According to the 1990 Census, 7.3 percent of Tracy's population and 8.3 percent of residents within 6 miles of the TPP

had incomes below the poverty level. These percentages are well below the threshold of greater than 50 percent that staff uses to determine if there is a significant low-income population. Although Census 2000 low-income data for these areas is not yet available, the area's low-income population is not expected to exceed 50 percent. Staff believes the proposed TPP will not result in any significant adverse socioeconomic impacts on the surrounding minority and low-income populations.

g) Police Protection

The Applicant would provide security services at the TPP site during construction. In addition, the San Joaquin Sheriff's Department, supplemented by surrounding counties and the Tracy Police Department support in cases of emergency, will be able to provide adequate existing police response to the TPP with their existing resources (Mayoya, 2001). Therefore, the TPP would not significantly increase the existing demand for police services or adversely affect police protection in and around the TPP area.

h) Schools

As shown in **Socioeconomics Table 7,** enrollment within the Lammersville Elementary School District dropped between 1999 and 2001. Although it is anticipated that schools within San Joaquin County could accommodate any new students accompanying construction worker parents, it is not anticipated that the construction of the TPP would result in the relocation of construction workers with children that would relocate to schools near the TPP site.

As noted earlier, industrial development within a school district is assessed a one-time School Impact Fee intended to help school districts address their capacity problems by requiring developments to provide a fair share of the cost to develop new school facilities. Staff has proposed Condition of Certification **Socio-2** to ensure that the $1,650.00 School Impact Fee is paid.

Because area school districts are generally below capacity at present, and given the TPP's payment of School Impact Fees, no significant socioeconomic impacts to schools would occur as a result of the TPP.

i) Other Public Services

As noted earlier, the project would not directly or indirectly cause substantial population growth in the area. Any short-term increase in population due to construction activities is considered to be minimal, with adequate numbers of construction workers currently residing within the surrounding counties. Therefore, no further constraints would be placed on any current public services providers, including utilities, medical services and libraries, as a result of the TPP. No adverse physical impacts associated with the provision of public services would occur.

CUMULATIVE IMPACTS

Related existing uses in the vicinity of the TPP site include agricultural uses and isolated farming residences associated with these uses, light industrial and manufacturing uses, warehousing, and trucking distribution centers. Current or reasonably foreseeable future development in the vicinity of the TPP site includes: residential development within the City limits of Tracy, pursuant to an approved Specific

Plan; and commercial/industrial development. In addition, other power plants are currently being considered for development in proximity to the TPP site. These facilities include the East Altimont Facility and the Tesla Power Plant.

The proposed TPP, in conjunction with the existing and reasonably foreseeable future related projects, could result in potential significant cumulative socioeconomic impacts. A large construction labor force exists in San Joaquin County and adjacent Counties and construction workers are not expected to relocate to the area. The construction schedule for TPP and the other power projects only overlap for two months, and staff believes the construction and operation of the TPP and associated power plant projects would not result in any significant socioeconomic impacts to population and housing, or public services.

It is unlikely that the TPP, in conjunction with related projects would contribute considerably to cumulative socioeconomic impacts. Therefore, staff concludes that there are no adverse cumulative socioeconomic impacts.

RESPONSE TO PUBLIC AND AGENCY COMMENTS

WRITTEN COMMENTS FROM THE PUBLIC

Laura Swickard

SW-3 I am greatly concerned that tax money will not in all probability not go to the most impacted communities because of the county insistence of collecting and dispersing the monies. I want assurances that the money will benefit communities that suffer under this proposed plan.

Response to SW-3 As previously described, the proposed TPP would not directly or indirectly induce substantial population growth in the area that would result in the potential to significantly impact surrounding communities. No further constraints would be placed on any current public services providers, including utilities, medical services, and libraries. The Applicant would be responsible for the payment of approximately $ 1 million in property taxes annually to the County of San Joaquin which would be dispersed as noted in Table 6 above, as well as school impact fees. In addition, the proposed TPP is anticipated to expend approximately 7.5 percent of its total construction costs (i.e., $8 million) on locally purchased materials and supplies.

Don Washburn

DW-3 Other than the obvious pollution, how will the aesthetics of the area be effected and who makes this judgment? How will this lower/impact property value?

Response to DW-3 For a detailed discussion of potential impacts of the TPP related to aesthetics, refer to the section on **Visual Resources**. In addition, staff has met with the Applicant to discuss the need for further data collection and study in order to appropriately assess whether the TPP would have an effect on property values. The Applicant has agreed to provide a study, which will assess whether the industrial facilities in the southwest unincorporated area of the City of Tracy, specifically the

Owens-Brockway Glass Container plant and the Tracy Biomass Plant, has had an adverse impact on real estate values in the southwest area of Tracy. The study will use property sales data from various real estate data sources in the City of Tracy and San Joaquin County. Sales values for the City of Tracy and specific areas within the City will be analyzed for real estate value growth trends from 1996 to 2001, including:

- Trend of value in resale of existing homes;
- Trend of value in new home development in southwest Tracy;
- Trend of value in the Redbridge community;
- Trend of value in the Lakes community; and
- Trend in value in overall market within the City of Tracy.

This study is anticipated to be complete prior to the supplemental filing by staff, at which time staff will review and comment on the study, and make a determination based on supporting data, as to whether it is anticipated that the TPP would affect property values in the area.

Melinda Bettencourt

MB-2 City Growth: How will this effect the rapid growth of Tracy? Will property value decline? How will this effect local and incoming business owners?

Response to MB-2 Refer to response to SW-3 and DW-3 above.

David Howey

DH-1 Power Plant: Air pollution, air quality, health issue, property value, value of business interest.

Response to DH-1 While your comment regarding property value is not specific, refer to response to DW-3 above, which details how staff met with the Applicant to discuss the need for further data collection and study in order to appropriately assess whether the TPP would have a negligible effect on property values.

Ranny Chaw

RC-1 Power Plants: Where is the revenue going to be? How do I benefit from all this? Impact the plants will make towards property value.

Response to RC-1 Refer to responses to SW-3 and DW-3 above.

Ena Aguirre

EA-3 Economic Benefits: 250-300 jobs – construction, temporary. There are no permanent jobs available. I don't understand the economic benefits. There is no community benefits package that benefits organizations in Tracy that are involved Health/environment?

Response to EA-3 Please refer to responses to SW-3 and DW-3. In terms of a community benefits package that would specifically benefit organizations in Tracy, the Applicant has indicated they intend to maintain their corporate policy of supporting

communities as they have in the past with other projects in the Cities of Hanford, Pittsburg, and Antioch (Stein, 2001).

ORAL COMMENTS FROM THE PUBLIC

In addition, questions and comments were raised by several members of the public at the November 28 Informational Hearing regarding tax money going to the County, potential impacts to surrounding property values and potential impacts to the City of Tracy.

Response to Verbal Comments Please refer to responses to comments SW-3, DW-3, and EA-3 above.

CONCLUSIONS

The TPP is consistent with all applicable Federal, state, and local Laws, Ordinances, Regulations, and Standards, as previously described.

The TPP would not induce significant population growth in the area, nor would it involve the displacement of housing or people. In addition, it would not result in a significant adverse impact on law enforcement, medical, school or other local public services. The TPP would have a positive effect on employment during construction and operation, contribute to sales tax revenue and add an estimated $1 million annually to San Joaquin's property tax base.

Staff has reviewed Census 2000 information that shows the minority population within a six-mile radius of the proposed TPP is less than 50 percent. Census 1990 information shows the low-income population is less than 50 percent within the same radius. Based on this Socioeconomic analysis, staff has not identified significant direct or cumulative socioeconomic impacts resulting from the construction or operation of the project, and concludes there are no socioeconomic environmental justice issues related to this project.

PROPOSED CONDITIONS OF CERTIFICATION

Socio-1 The project owner and its contractors and subcontractors shall recruit employees and procure materials and supplies within San Joaquin County unless:

- To do so will violate federal and/or state statutes;
- The materials and/or supplies are not available;
- Qualified employees for specific jobs or positions are not available; or
- There is a reasonable basis to hire someone for a specific position from outside the local area.

Verification: At least 60 days prior to the start of construction, the project owner shall submit to the Energy Commission CPM copies of contractor, subcontractor, and vendor solicitations and guidelines stating hiring and procurement requirements and procedures. In addition, the project owner shall notify the CPM in each Monthly

Compliance Report of the reasons for any planned procurement of materials or hiring outside the local regional area that will occur during the next two months.

Socio- 2 The project owner shall pay the one-time statutory school facility development fee as required prior to obtaining the in-lieu building permit from San Joaquin County.

Verification: The project owner shall provide proof of payment of the statutory development fee in the next Monthly Compliance Report following the payment.

REFERENCES

DOE (Department of Education, State of California). Educational Demographics Unit. 2001. Enrollment in California Public Schools by County by District by Grade, 1995/1996-2000/2001. Internet Website, http://www.cde.ca.gov.

DOF (Department of Finance, State of California). 2001. Internet Website, City/County Population and Housing Estimates. http://www.dof.ca.gov/HTML/DEMOGRAP/repndat.

Education Data Partnership. 2001 Internet Website, http://www.ed-data.k12.ca.us.

EDD (Employment Development Department, State of California). 2001. Monthly Labor Force Data For Counties: June 2001 (Preliminary); 2000 Benchmark, Not Seasonally Adjusted, EDD Labor Market Information Division. http://www.calmis.ca.gov/file/lfmonth/0106pcou.txt and http://www.calmis.ca.gov/file/occproj/sanjotb6.htm.

GWF (Tracy Peaker Project) 2001a. Application for Certification No. 01-AFC-16. Dated August 3 and docketed at the California Energy Commission on August 16, 2001.

GWF (Tracy Peaker Project) 2001b. Supplement to Application for Certification for the Tracy Peaker Project. Dated and docketed at the California energy Commission on October 9, 2001.

Malik, Andres. 2001. Economic Development Director of City of Tracy. Personal communication with Paula Fell, Planner, PCR Services Corporation, Consultant to California Energy Commission. December 3, 2001.

Martin, Chandler. 2001. Senior Planner, San Joaquin County Community Development Department. Personal communication with Sally Salavea, Senior Planner, PCR Services Corporation, Consultant to California Energy Commission. December 3, 2001.

Mayoya, Lieutenant. 2001. San Joaquin County Sheriff's Department. Personal communication with Sally Salavea. November 30, 2001.

Mehring, Mark. 2001. City of Tracy Fire Department. Personal communication with Sally Salavea, December 3, 2001.

Muela, Lillian. 2001. Lammersville Elementary School District. Personal communication with Sally Salavea. November 30, 2001.

San Joaquin County. 2001. County of San Joaquin Final Budget 2001-2001 Schedule 4 Summary of Estimated Additional Financing Sources.

Shehan, Brad. 2001. Media and Public Relations Manager. Advanced Medical Response. Personal communication with Paula Fell. December 5, 2001.

Siojo, Ed. 2001. San Joaquin County Auditor's Office. Personal communication with Sally Salavea. December 4, 2001.

SJCOG (San Joaquin Council of Governments). 2001. Projections; Research & Forecasting Center. Internet Website. http://www.sjcog.org/RFC/kim2025.htm.

SJP (San Joaquin Partnership). 2001. Internet Website. http://www.sjpnet.org/economic/qualityoflife.htm.

Stein, David A., P.E. 2001. URS Corporation, Program Dorector, Consultant to GWF. Personal communication with sally salavea. December 17, 2001.

Sutter Tracy. 2001. Internet Website. http://suttertracy.org

Tracy. 2001. City of Tracy Internet Website. http://ci.tracy.ca.us/police.html http://ci.tracy.ca.us/fire.html

United States Bureau of the Census. 1990 and 2000 Census of Population and Housing. Internet Website. http://factfinder.census.gov.

U.S. Census Bureau. 2001. Census Data Products. Internet Website. http://www.census.gov/population/www/censusdata/c2kproducts.html

SOIL AND WATER RESOURCES

Testimony of Phillip Lowe, P.E., and Richard Latteri

INTRODUCTION

This section analyzes potential effects on soil and water resources by the Tracy Peaker Project (TPP) as proposed by GWF Energy LLC (Applicant). The analysis specifically focuses on the potential for the project to cause impacts in the following areas:

- whether the project's demand for water affects surface or groundwater supplies;
- whether construction or operation will lead to accelerated wind or water erosion and sedimentation;
- whether project construction or operation will lead to degradation of surface or groundwater quality; and
- whether the project will comply with all applicable laws, ordinances, regulations and standards.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

FEDERAL

Clean Water Act

The Clean Water Act (33 USC § 1251**)** was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The Clean Water Act (CWA) requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water.

Section 402(p) Storm Water Discharge

Section 402(p) of the CWA establishes a framework for regulating municipal and industrial storm water discharges under the National Pollutant Discharge Elimination System (NPDES) Program. United States Environmental Protection Agency (EPA) NPDES regulations require that discharges of storm water to waters of the United States from construction projects that encompass 5 acres or more of soil disturbance must obtain an NPDES Permit. The State Water Resources Control Board (SWRCB) has adopted a statewide General NPDES Permit that applies to all storm water discharges associated with construction activity, except from those on Tribal Lands, in the Lake Tahoe Hydrologic Unit, and those performed by the California Department of Transportation. This general permit requires all dischargers where construction activity disturbs 5 acres or more to:

1. Develop and implement a Storm Water Pollution Prevention Plan (SWPPP), which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off-site into receiving waters.

2. Eliminate or reduce nonstorm water discharges to storm sewer systems and other waters of the nation.

3. Perform inspections of all BMPs.

The General NPDES Permit is implemented and enforced by the nine California Regional Water Quality Control Boards (RWQCBs).

STATE

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 RWQCBs to adopt water quality criteria to protect state waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. The TPP is within the jurisdiction of the Central Valley Regional Water Quality Control Board headquartered in Sacramento. Water quality criteria for the project area are contained in the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. This plan sets numerical and/or narrative water quality standards controlling the discharge of wastes to the state's waters and land. These standards are applied to the proposed project through the Waste Discharge Requirements (WDRs) permit.

California Water Code

California Water Code Section 13550 requires the use of reclaimed water, where available, for nonpotable uses. The use of potable domestic water for nonpotable uses, including industrial uses, is considered a waste or an unreasonable use of the water within the meaning of Section 2 of Article X of the California Constitution if recycled water is available.

California Water Code Section 13260 requires any person discharging waste or proposing to discharge waste within any region that could affect the quality of the waters of the state, other than into a community sewer system, must submit a Report of Waste Discharge to the RWQCB.

The Safe Drinking Water and Toxic Enforcement Act of 1986, Health and Safety Code Section 25249.5 et seq., prohibits the discharge or release of chemicals known to cause cancer or reproductive toxicity into drinking water sources.

LOCAL

San Joaquin County

Chapter 9-1400 of the San Joaquin County Ordinance provides a permitting process for construction excavation, grading, and earthwork within San Joaquin County. San Joaquin County Development Title 9 covers the review of septic tank design and installation

STATE POLICIES

State Water Resources Control Board (SWRCB) Policies

The SWRCB has adopted a number of policies that provide guidelines for water quality protection. The principle policy of the SWRCB that specifically addresses the siting of energy facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling (adopted by the Board on June 19, 1976, by Resolution 75-58). This policy states that 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 wastewaters of low total dissolved solids (TDS); and other inland waters. This policy also addresses cooling water discharge prohibitions.

ENVIRONMENTAL SETTING

REGIONAL AND VICINITY DESCRIPTION

GWF Energy LLC (Applicant) proposes to build the Tracy Peaker Project (TPP), a nominal 169 MW simple-cycle power plant on a 9-acre fenced site within a 40-acre parcel in an unincorporated portion of San Joaquin County. The TPP as proposed would consist of: the power plant; two on-site 115 kilovolt switchyards; an on-site electrical transmission interconnection; a water supply pipeline approximately 1,470 feet long; an on-site natural gas supply interconnection; and improvements to an existing dirt access road approximately 1 mile in length. (GWF 2001i, Attachment 2.11-4.)

The proposed TPP site is located in the San Joaquin Valley to the east of the Coast Range southwest of Tracy, California. The topography is flat, with a moderate downward slope of about 1.6 percent to the northeast. The elevation of the site ranges from approximately 172 feet to 182 feet above mean sea level. (GWF 2001i, Attachment 2.11-4.)

Most of the area surrounding the project site is agricultural. The site itself is fallow agricultural land bounded by the Delta-Mendota Canal (DMC) to the west and southwest, Union Pacific Railroad tracks to the north, and agricultural land to the south and east. Although not naturally occurring, the DMC is the only surface water body in the vicinity of the proposed power plant. (GWF 2001i, Attachment 2.11-4.)

The proposed TPP site is located on land that is under Williamson Act Contract. Notice of nonrenewal of the contract for the 40-acre parcel was filed in March 1992, and the Williamson Act contract will expire in March 2002, prior to TPP commercial operation (See **Land Use** Section of this Staff Assessment). Construction of the TPP would remove 9 acres of the 40 acre parcel from agricultural production.

Soils

Soils on the site are classified as Capay Clay and Stomar Clay Loam. The Capay soils are deep, moderately well drained with low permeability, and formed of fine-textured alluvium derived mostly from sandstone and shale. The Capay soils are used for growing irrigated crops. The Stomar series consists of deep, well-drained soils with low permeability formed in alluvium from sedimentary rocks sources and are used for irrigated and dryland cropland and livestock grazing. Both soils have a relatively low susceptibility to water erosion and a moderate to high susceptibility to wind erosion. Both soils have a potential for shrinking and swelling. (GWF 2001i, Attachment 2.11-4.)

Surface Hydrology

The climate of the San Joaquin Valley is Mediterranean, characterized by hot summers and mild winters, with about 85 percent of the precipitation occurring from November to April. Much of the moisture that moves inland from the Pacific Ocean is intercepted by the Coast Range so that annual precipitation in the valley is relatively low, ranging from 23 inches in the northern part of the Sacramento Valley to about 6 inches in the southern San Joaquin Valley. San Joaquin Valley precipitation is exceeded by potential evapotranspiration, which causes a net annual moisture deficit.

Average annual precipitation at Tracy is approximately 10 inches with 8.5 inches falling between November and April. The temperature ranges from a monthly average minimum of 36.6° F in December to a monthly average maximum of 93.8° F in July (Western Regional Climate Center data for Tracy Carbona Weather Station, 2001).

Major surface hydrologic features in the project vicinity include the DMC, the California Aqueduct and the San Joaquin River and its tributaries. The California Aqueduct is west of the Delta-Mendota Canal and is not considered in detail in this analysis.

The Delta-Mendota Canal

The Delta-Mendota Canal was completed in 1951 as part of the federal Central Valley Project. The DMC has the capacity to deliver approximately 3 million acre-feet of water annually from water supplied by the U.S. Bureau of Reclamation from the Sacramento and San Joaquin River Basins and is operated and maintained by the San Luis & Delta-Mendota Water Authority (SLDMWA). This 116-mile canal carries water southeasterly along the west side of the San Joaquin Valley from the Tracy Pumping Plant to the Mendota Pool about 30 miles west of Fresno (San Luis & Delta-Mendota Water Authority website – www.sldmwa.org).

Soils and Water Table 1 provides a summary of DMC deliveries for the year 2000 based on information provided by the U.S. Bureau of Reclamation. The majority of 2000 water (approximately 77 percent) was diverted to offstream storage at O'Neill Forebay and San Luis Reservoir. The remaining water (approximately 372,000 acre-feet) was delivered directly to various water districts, irrigation districts, and other users including the City of Tracy. The Plain View Water District, which serves the TPP site, received about 6,670 acre-feet, which amounts to about 2 percent of the total deliveries.

Soils and Water Table 1
Delta Mendota Canal (DMC) 2000 Water Deliveries
(Acre Feet)

Deliveries	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Total*
Plainview WD	20	20	140	1,010	1,000	1,170	1,460	1,210	430	190	10	10	6,670
Total DMC	16,740	8,010	8,290	21,390	48,440	60,260	73,610	60,340	52,550	15,640	4,030	2,800	372,110
O'Neill PGP[1]	156,860	173,200	181,170	39,600	-87,350	-22,310	27,920	67,520	98,300	258,760	193,450	192,300	1,279,410
DMC + O'Niell	173,610	181,210	189,460	60,980	-38,910	37,940	101,530	127,860	150,850	274,400	197,480	195,100	1,651,510

Source: U.S. Bureau of Reclamation.
[1] The O'Neill Pumping Generating Plant (PGP) pumps into O'Neill Forebay.

San Joaquin River

The TPP site is within the San Joaquin River watershed, which drains approximately the middle third of the Central Valley and the adjoining slopes of the Sierra Nevada and Coast Range. The San Joaquin River discharges into the Sacramento-San Joaquin Delta and San Francisco Bay. At San Joaquin County in the vicinity of the project site, the San Joaquin River watershed is approximately 13,500 square miles. Average annual flow at San Joaquin County since 1930 is approximately 3.4 million acre-feet. The project site is approximately 10 miles southwest of the San Joaquin River at the nearest point. The Old River channel (a branch of the San Joaquin River) is approximately 5 miles north of the TPP site.

Groundwater Hydrology

The TPP site is within California's Central Valley Groundwater Aquifer that is comprised of three hydraulically connected subregions: the Sacramento Valley subregion, which extends over the northern one-third of the Central Valley and is drained by the Sacramento River; the Sacramento-San Joaquin Delta subregion, which is south of the Sacramento River subbasin and consists of a network of meandering channels at the junction of the Sacramento and the San Joaquin Rivers; and the San Joaquin Valley subregion, south of the delta, which extends over two-thirds of the Central Valley and is drained by the San Joaquin River to the north. The southern part of the San Joaquin subbasin, which is called the Tulare Basin, is characterized by interior drainage and does not drain to the sea (USGS, 1995).

The Central Valley aquifer system is formed primarily of sand and gravel with significant amounts of silt and clay consisting primarily of eroded older rocks at the boundaries of the valley. The environments in which the continental sediments were deposited varied but most were deposited in fluvial environments. Beds and lenses of fine-grained materials such as silt and clay constitute up to 50 percent of the Central Valley aquifer system. The most extensive clay bed consists primarily of the Corcoran Clay Member of the Tulare Formation and underlies much of the western San Joaquin Valley. Because beds of silt and clay do not readily transmit water under natural conditions, they act as barriers to vertical flow and cause variances in hydraulic head with depth (USGS, 1995). Groundwater level in the vicinity of the TPP is about 50 feet below the surface, though levels in local wells vary from around 30 feet to 200 feet below ground surface (GWF 2001i, Attachment 2.11-4).

Water Sources

Plain View Water District has indicated it will supply the TPP cooling and plant service water from the Delta-Mendota Canal. The 40-acre TPP site has an existing allocation of 136 acre-feet per year, which the Applicant claims will be used only for the TPP site (GWF 2001e, Section 8.14). Whereas the remaining 29.7 acres of the 40-acre site could be used for farming after construction of the TPP, the Applicant maintains that any farming would be done by leasing the land to a local farmer who has the capacity to provide irrigation water from other allocations leaving the entire allocation of 136 acre-feet per year available to the TPP (GWF 2001i, Attachment 2.11-1.)

The Delta-Mendota Canal is the only source of water proposed for the TPP site (not considering the small amount of potable water to be used for drinking). During drought years, the supply of Delta-Mendota Canal water is curtailed to users according to the available supply. Based on a comparison of DMC deliveries with Plain View Water District deliveries to the 40-acre TPP site, it appears unlikely that the supply of Delta-Mendota water would be curtailed to the point where the Applicant would be forced to seek other supplies for TPP operations.

For the twelve year period from 1990 to 2001, the minimum deliveries by the Plain View Water District was 34 acre-feet per year to the TPP site. Those minimum deliveries occurred during the drought years of 1991 and 1922 with non-drought year deliveries ranging from 122 to 136 acre-feet per year. In the event of curtailed deliveries from the Delta-Mendota Canal resulting in less than the required 0.09 to 0.22 acre-feet per day, the Applicant has stated that the TPP would access the unused allocation for the nearby Tracy Biomass Generating Plant or curtail TPP production to the point where evaporative cooling water is not necessary. Potable water would be imported to the site as bottled water for drinking (GWF 2001e, Section 8.14).

Power Plant Water Requirements

The operation of the TPP would require water for evaporative cooling in the air intake, plant service water for general maintenance activities such as washing equipment and plant areas, demineralized water for combustion turbine generator (CTG) washing, and potable water for domestic use. **Soil and Water Table 2** provides a summary of maximum daily and average annual water requirements.

The average water use with both turbines operating at 100 percent capacity at an ambient temperature of 59° F with 60 percent relative humidity would be 20 gpm, of which 19 gpm would be routed through the reverse osmosis (RO) system and 1 gpm would be used as plant service water. The 19 gpm RO water would go to the evaporative coolers where 18 gpm would be lost to the atmosphere with 1 gpm blowdown. The blowdown would be routed through the wastewater recovery system to a wastewater storage tank for eventual transportation and off-site disposal. The 1 gpm plant service water would be collected by the plant and equipment drains and routed through an oil-water separator to the wastewater storage tank for eventual off-site disposal. A small amount of demineralized water would come from the RO stream for CTG wash, which would occur intermittently. Each wash would use approximately 3,200 gallons of water. Domestic water use (for

drinking, showers and employee restrooms) would be approximately 1 gpm or less. Fire storage would be 200,000 gallons. The average annual water use by the TPP site is estimated by the Applicant at approximately 30 acre-feet (GWF 2001e, Section 2).

The maximum water use with both turbines operating at 100 percent capacity at an ambient temperature of 98° F with 24percent relative humidity would be approximately 53 gpm including sanitary water. All of the difference between the maximum use rate and the average annual use rate is taken up by the CTG evaporative coolers, which would use 51 gpm at the maximum rate.

Soil and Water Table 2
Daily and Annual Water Requirements

Water Use	Maximum Summer[1] (gpm)	Average Annual[2] (gpm)
Evaporative Cooler Makeup[3]	51	19
Demineralized Water	Intermittent[3]	Intermittent[3]
Service Water (Untreated)	1	1
Treated Water for Domestic Use	<1	<1
Total	53[2]	21[2]

Notes:
1. Based on both turbines operating at a full load at an ambient temperature of 98 degrees F with 24 percent relative humidity .
2. Based on both turbines operating at a full load at an ambient temperature of 59 degrees F with 60 percent relative humidity.
3. Demineralized water would be used intermittently for CTG washing. Each wash would use approximately 3,200 gallons of water per CTG.

Water use during construction is estimated by the Applicant to be approximately 2,000 gallons per day, with a maximum of 12,000 gallons per day, for a period of about three months. Most of this water will be used for fugitive dust control. Additional water, estimated at 2,000 gallons per day, will be used for flushing and commissioning of water treatment systems. Flushing is estimated to take five days (GWF 2001e, Section 8.14). Based on these water use rates, the total construction water use is estimated at 192,500 gallons, or about 0.6 acre feet (GWF 2001e, Section 8.14).

Wastewater Discharge

Wastewater sources from the TPP include evaporative cooler blowdown, plant drains, CTG wash, storm water, and domestic wastes from employee sanitary facilities.

Evaporative cooler blowdown would be routed to a wastewater recovery package plant consisting of a softening/filtration/reverse osmosis system. Non-recoverable wastewater from this system would be stored in a 10,000-gallon tank to be transported by a licensed waste management company to a Class II liquid waste landfill in Kern County (McKittrick Waste Treatment site). Recovered water would be routed back to be used as evaporative cooler makeup.

Plant drain (service) water, consisting of area wash water, sample drain water, equipment leakage and contact storm water would be collected in drains and routed through an oil-water separator. Water from the oil-water separator would be taken to the McKittrick

treatment site. The oil would be taken off-site for recycling. Contact storm water is defined as storm water originating from those parts of the plant where there is a potential for hydrocarbon contamination (the combustion turbine compartment, turbine exhaust stack drains, ammonia storage area drains, and transformer containment areas where equipment containing hydrocarbons is located).

CTG wash water would be routed to storage tanks for storage. When the tanks are drained, the CTG wash water would be transported to the McKittrick Waste Treatment site.

Non-contact storm water from the plant site (storm water from areas other than the immediate vicinity of the combustion turbine compartment, turbine exhaust stack drains, ammonia storage area drains, and transformers) would be routed to the evaporation/percolation basin.

Domestic wastes from employee restrooms would be discharged to an on-site septic system. This system will consist of a 1,500-gallon tank and a 1,000 square-foot leach field.

(GWF 2001e, Section 2)

ANALYSIS AND IMPACTS

PROJECT SPECIFIC IMPACTS

The Environmental Checklist (see below) is presented in the California Environmental Quality Act (CEQA) guidelines to assist led agencies in their analysis of project impacts. we provide this checklist as a summary of staff's conclusions regarding the potential for adverse significant project impacts. Following the checklist is a discussion of staff's analysis and rationale for these conclusions.

Environmental Checklist	Potentially Significant Impact	Less than Significant With Mitigation incorporated	Less Than Significant Impact	No Impact
SOIL AND WATER RESOURCES -- Would the Tracy Peaker 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?			X	
c) Use potable or other good quality freshwater for power plant cooling if feasible recycled or other low quality nonpotable water sources are available, or other feasible technology is available?			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, in a manner that would result in substantial erosion or siltation on- or off-site?		X		

Environmental Checklist	Potentially Significant Impact	Less than Significant With Mitigation incorporated	Less Than Significant Impact	No Impact
SOIL AND WATER RESOURCES -- Would the Tracy Peaker Project:				
e) 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 that would result in flooding on- or off-site?		X		
f) Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems?			X	
g) Provide substantial additional sources of polluted runoff or otherwise substantially degrade surface or groundwater quality?			X	
h) 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
i) Place structures in a flood prone area or stream flow path that would impede or redirect flood flows?			X	
j) Expose people or structures to a significant risk of loss, injury or death involving flooding,?			X	
k) Be subject to inundation by seiche, tsunami, or mudflow?				X
l) Disturb the ground surface in a manner that would substantially increase wind or soil erosion of the soil?		X		

The checklist above summarizes the Soils and Water Resources Impact analysis. Each of the potential impacts is discussed below. For ease of reference the issue letter and short description is included with the checklist item.

a) Violate any water quality standards or waste discharge requirements?

Storm runoff from the TPP site would not reach surface waters. Contact storm water from those parts of the plant where there is a potential for hydrocarbon contamination would be collected in drains and routed through an oil-water separator. Water from the oil-water separator would be collected and stored on-site to be taken to an appropriate disposal site and the oil taken off-site for recycling. With the exception of non-developed areas within the parcel, the entire TPP plant site would drain into an evaporation-percolation pond with a capacity to hold twice the runoff volume of a 100-year, 24-hour storm with 2 feet of freeboard in the pond. With no freeboard, the evaporation-percolation pond would have capacity for 3.2 times the 100-year, 24-hour storm runoff volume. In effect, the TPP is a zero-storm-water-discharge facility resulting in less than significant impact from storm water discharge.

Non-recoverable wastewater removed from the evaporative cooler blowdown would be stored on-site then transported by a licensed waste management company to an appropriate off-site disposal location. Plant drain (service) water would be passed through an oil-water separator then taken to an appropriate off-site location for disposal; the oil would be recycled. CTG wash effluent would be collected and hauled to an appropriate off-site disposal location.

The Applicant proposes the McKittrick Waste Treatment site in Kern County as the disposal site for the industrial wastewater. The McKittrick facility is a Class II liquid

waste landfill that accepts Resource Conservation and Recovery Act, non-Resource Conservation and Recovery Act, and non-hazardous wastes. There will be no discharge of industrial wastes from the property. Since these wastes will be collected and transported to an appropriate, licensed landfill for disposal, there is less than significant impact.

Domestic wastes from employee restrooms would be discharged to an on-site septic system located approximately 3,000 feet from the nearest groundwater well. Groundwater at this location is approximately 175 to 200 feet below the ground surface.

Staff proposes **Condition of Certification Soil & Water 1** to ensure no violation of water quality or waste discharge requirements.

b) SUBSTANTIALLY DEPLETE GROUNDWATER SUPPLIES?

The TPP would not use groundwater for the plant or any TPP operations. Infiltration through the valley floor is only a small part of groundwater recharge in the Central Valley. The plant buildings and associated paved areas will be impervious to infiltration but this will be offset by routing all plant site runoff to a percolation basin. There will be less than significant impact on groundwater supplies and recharge.

C) USE POTABLE WATER, OTHER GOOD QUALITY FRESHWATER, OR SURFACE WATER FOR POWER PLANT COOLING?

The Applicant proposes to use surface water from the Delta-Mendota Canal for the TPP. Delta-Mendota Canal water is nonpotable but it is of relatively good quality. Potential sources of alternative water include reclaimed water from the Tracy Wastewater Treatment Plant approximately seven miles from the TPP site and groundwater from a well drilled on-site. According to a cost analysis of alternative water sources provided by the Applicant, both alternative sources of water are technically feasible, but would result in additional potential environmental impacts and increased costs (GWF 2001e, Section 5).

Potential environmental impacts associated with the use of reclaimed water include those associated with construction of a 7 mile pipeline from the Tracy Wastewater Treatment Plant to the TPP site. According to the analysis provided by the Applicant, the cost of using treated wastewater would be higher than the proposed use of canal water by a factor of 3.4, or a nominal increase of $6.4 million over the life of the project. The higher upfront costs are based on initial pipeline construction, additional water treatment equipment, and first year operation and maintenance (O&M) costs. In addition, the analysis assumes the City of Tracy would construct and operate a tertiary treatment facility at the Tracy Wastewater Treatment Plant (GWF 2001i, Attachment 2.11-3).

The use of groundwater could have a potential adverse effect due to local drawdown of the groundwater table. The magnitude of this impact has not been evaluated but given the relatively low rate of pumping required (21 gpm on average for the TPP compared with an average well yield of 1,100 gpm in the San Joaquin Valley) it is unlikely the adverse effect would be significant.

According to the cost analysis, the cost of using groundwater from an on-site well is represented by the Applicant as approximately twice the cost of using Delta-Mendota Canal water or an increase of $2.45 million over the life of the project. The higher upfront costs are based on initial well drilling (200 feet) and associated equipment, additional water treatment equipment, and first year O&M costs.

The surface water use for the TPP is relatively small (less than 0.01 percent of the total canal deliveries based on year 2000 Delta Mendota Canal deliveries (see **Soil and Water Table 1**). The prior land use on the TPP site was farming. Average water use on the site for the years 1990 to 2001 was 92 acre-feet per year (GWF 2001i, Section 2.11).

Staff doesn't consider the moderate cost related to the use of reclaimed water to be prohibitive. Staff sees no real conservation of water by the proposed project regarding historic water use. Staff does see the treatment of water on-site and other Applicant proposed recycling of on-site water as beneficial. Overall, staff finds that the quantity of water used for the proposed TPP is small and therefore, find no significant impacts on water supply.

d) Substantially alter the existing drainage pattern of the site or area?

There are no streams or rivers on the site. The entire TPP plant site will drain to an evaporation/percolation basin resulting in no off-site discharge except from undisturbed areas. The plant site and surrounding plant areas would either be impervious to erosion, restored and seeded to the original condition, or covered with aggregate to prevent erosion. Erosion protection (riprap) would be provided at flow concentration points such as storm drain catch basins, storm drain outlets, and culverts.

The Applicant has prepared a preliminary Storm Water Pollution Prevention Plan (SWPPP) for construction activity in compliance with Section 402(p) of the Clean Water Act. The SWPPP includes proposed erosion-control practices, which include diversion ditches, temporary sediment traps, temporary seeding and mulching, soil stabilizers, soil compaction, silt fences, and gravel. Staff proposes **Condition of Certification Soil & Water 2** that requires the SWPPP be reviewed and approved by the CEC RWQCB prior to site mobilization in order to ensure less than significant erosion and siltation impact.

e) Substantially alter the existing drainage pattern of the site or area?

The TPP site would not alter the existing drainage pattern except to direct all plant runoff to an evaporation/percolation basin on site. This basin is designed with substantially more capacity than the expected post-development flood volume from a 24-hour, 100-year storm. As currently proposed by the Applicant, there would be no adverse alteration of drainage pattern and increases in runoff will be contained on-site. Staff proposes **Condition of Certification Soil & Water 3** to ensure less than significant impact.

f) Create or contribute runoff water that would exceed the capacity of existing or planned drainage systems?

The TPP plant site would not discharge water to existing or planned drainage systems. The impact is less than significant.

g) Provide substantial additional sources of polluted runoff?

The TPP site would not discharge water to the surface drainage system. Water discharged to the evaporation/percolation basin would contain non-point source pollutants typical of urban areas (for instance oil from cars in parking lots and on roads) but this is not considered substantial given the size of the project and the fact that areas where storm water runoff is likely to be contaminated through contact with plant equipment would be separated from the rest of the plant site runoff and hauled off-site to be disposed of in a certified liquid waste landfill. All of the industrial wastewater from the site would be collected and transported to a liquid waste landfill. Sanitary wastes from employee restrooms would go into a septic system with leach field. Any impacts are expected to be less than significant.

h) 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?

The TPP does not include housing and there is no 100-year flood hazard area on the site. No impacts are expected.

i) Place structures in a flood-prone area?

The Delta-Mendota Canal blocks flow from entering the site except at one location on the western end of the property. The proposed access road would cross this flow path, and a culvert under the road is proposed to avoid blocking this drainage. The drainage area between the Delta-Mendota Canal and the proposed plant site is not large enough to create a discernable stream flow path. Plant site drainage would be directed into the evaporation/percolation basin. No significant impacts are expected.

j) Expose people or structures to a significant risk of loss, injury or death involving flooding?

The property is not within a flood-prone area. The only drainage entering the project site is minor, not within the developed area, and cannot reach the plant site. No significant impacts are expected.

k) Be subject to inundation by seiche, tsunami, or mudflow?

The site is not in an area subject to seiche, tsunami or mudflow. No significant impacts are expected.

l) Disturb the ground surface in a manner that would substantially increase wind or water erosion of the soil?

The Capay Clay and Stomar Clay Loam soils on the site have low natural susceptibility to water erosion and a moderate to high susceptibility to wind erosion. Disturbance of these soils through construction would alter the soils from their natural condition, which would result in an increased potential for wind and water erosion.

Approximately 18.4 acres of the site would be used for construction laydown. The soils in this area would be compacted through the storage of vehicles, equipment and soil stockpiling during wet weather.

Earthwork would be 28,000 cubic yards of cut and 21,000 cubic yards of fill not including topsoil excavations made for geotechnical reasons. The topsoil and excavation soil, after stockpiling, would be disposed of on-site by spreading for restoration of the laydown areas without changing the existing drainage pattern. According to the Application for Certification the disturbed areas such as the construction laydown area would be revegetated or covered with a synthetic mat to reduce the potential for wind and water erosion (GWF 2001i, Attachment 2.11-4).

The Applicant has prepared a construction storm water pollution prevention plan that includes wind erosion and dust control management practices. These include mulching or seeding of disturbed areas, application of dust palliatives to disturbed areas, speed limits on unpaved construction areas, and covering open-haul trucks with tarps.

After construction, the plant site would be covered by plant equipment, buildings, parking areas and landscaping, which would have a low potential for wind or water erosion.

Staff proposes **Condition of Certification Soil & Water 3** to ensure less than significant impacts.

CUMULATIVE IMPACTS

The water use proposed for the TPP is not expected to increase overall water use of the 40 acre site. The project site currently uses fresh inland water and the statewide overall demand for fresh inland water is expected to increase in the future. However, the quantity of water needed for the TPP is small and is not considered a significant cumulative impact.

The TPP site would not contribute to off-site runoff quality nor quantity, nor affect groundwater. Soils not covered by the plant buildings, pavement, and ancillary improvements would not be changed over the long-term. Aside from the removal of land from agricultural production, discussed previously, the TPP site would not contribute to a cumulative soil and water resources impact.

No significant cumulative impacts are expected to result from the proposed Tracy Peaker Project.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is approximately 22 percent within a one-mile radius, 38 percent within a two-mile radius, and 45 percent within a six-mile radius of the project site. Staff has identified no significant direct or cumulative soil and water resources impact resulting from the construction or operation of the project. Therefore, there are no environmental justice issues related to this project in the area of soil and water resources.

COMPLIANCE WITH LORS

Staff believes this project, if approved, will comply with all applicable LORS. California Water Code Section 13550 and SWRCB Resolution 75-58 encourage the use of reclaimed water and discourages the use of fresh water. Staff feels that the quantity of water required for the TPP is small, and that the cost of obtaining an alternative source (wastewater from the City of Tracy) is high considering the amount of water under consideration. Therefore, the use of water as proposed is acceptable and in compliance with LORS.

FACILITY CLOSURE

The TPP is expected to operate for a minimum of 30 years. Closure options range from "mothballing," with the intent of a restart at some time, to the removal of all equipment and facilities. A decommissioning plan would be submitted to the Energy Commission for approval prior to decommissioning. Compliance with all applicable LORS and any local and/or regional plans would be required. The plan would address all concerns in regard to potential erosion and other water quality impacts.

RESPONSES TO PUBLIC AND AGENCY COMMENTS

During the November 28, 2001, Informational Hearing in Tracy, public comments were received addressing Soil and Water Resources as proposed by the Applicant. These comments are paraphrased as follows:

Comment MB-3: How will groundwater be affected?

Response: The Tracy Peaker Project (TPP) will use Delta-Mendota Canal water supplied by the Plain View Water District for plant operations and bottled water for drinking water. Therefore, the TPP will put no demand on local groundwater. The TTP will be a near-zero wastewater discharge facility with all process water and contact storm water transported from the plant by a licensed hauler for off-site recycling or disposal, thereby eliminating the possibility for groundwater contamination.

Comment EA-4: Will the required 30 acre-feet of water be daily, monthly or yearly?.

Response: If the Tracy Peaker Project were to operate for 8,000 hours per year, the plant would require approximately 30 acre-feet of water per year.

Oral Comment: How many homes would the water used by the plant service?

Response: For Northern California, it is estimated that an acre-foot of water meets the needs of a family of 4 for a year. Therefore, if the Tracy Peaker Project uses 30 acre-feet of water a year, the water used by the plant would service approximately 30 homes.

CONCLUSIONS

Staff has determined the proposed project wold result in less than significant impacts to the public and the environment if the following conditions of certification are implemented.

CONDITIONS OF CERTIFICATION

SOIL & WATER 1: The project owner shall not discharge wastewater, other than storm water, and provide evidence that the wastewater is being disposed of at an appropriately licensed facility.

Verification: The project owner will provide evidence of wastewater disposed at an appropriately licensed facility in the annual compliance report.

SOIL & WATER 2: The project owner shall obtain a General National Pollution Discharge Elimination System (NPDES) Permit for discharges of storm water associated with construction activity and develop the Storm Water Pollution Prevention Plan (SWPPP) that is required as a component of the NPDES permit. The project owner shall also obtain an NPDES permit for storm water discharge from an industrial activity and develop a SWPPP as required by the NPDES permit.

Verification: At least 60 days prior to site mobilization, the project owner shall submit a copy of the NPDES permits and the construction SWPPP to the Compliance Program Manager (CPM). Approval by the CPM of the construction SWPPP is required prior to the start of site mobilization. At least 60 days prior to power plant operation, the project owner shall submit an industrial activity SWPPP. Approval by the CPM of the industrial activity SWPPP is required prior to the start of TPP operation.

SOIL & WATER 3: The project owner shall submit for CPM review and approval the proposed site grading and drainage plans including back-up hydrologic and hydraulic calculations. The project owner shall also provide evidence that the plans and analysis have been reviewed by the San Joaquin County Department of Public Works. The CPM will incorporate County comments as applicable.

Verification: Sixty (60) days prior to site mobilization, the project owner shall submit the site grading and drainage plans for CPM approval. Site mobilization shall not be initiated until the plan is approved.

REFERENCES

GWF (Tracy Peaker Project) 2001a. Application for Certification No. 01-AFC-16. Dated August 3 and docketed August 16, 2001.

GWF (Tracy Peaker Project) 2001e. Supplement to Application for Certification for the Tracy Peaker Project. Dated and docketed October 9, 2001.

GWF (Tracy Peaker Project) 2001i. First Set of Data Responses. Dated November 28, 2001 docketed November 30, 2001.

TRAFFIC AND TRANSPORTATION

Testimony of David L. Young

INTRODUCTION

The Traffic and Transportation Section of this staff assessment is an objective analysis of the transportation systems in the vicinity of the project. It addresses the Tracy Peaker Project's (TPP) 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 surrounding transportation systems and roadways, and potential mitigation measures to avoid or lessen those impacts.

LAWS, ORDINANCES, REGULATION AND STANDARDS

Federal, state, and local regulations applicable to the area roadways for the project and transportation of hazardous materials are listed below. These regulations ensure public safety and are implemented to control and mitigate potential impacts arising from the construction, operation and transportation of hazardous related to the TPP.

FEDERAL

- Title 49, Code of Federal Regulations, Sections 171-177, governs the transportation of hazardous materials, the type 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 Regulations, addresses safety considerations for the transport of goods, materials, and substances over public highways.
- Title 14, Code of Federal Regulations, Part 77, Federal Aviation Regulations (FAR) provide regulations and requirements for insuring the safe, efficient, and secure use of the Nation's airspace, by military as well as civil aviation, for promoting safety in air commerce, for encouraging and developing civil aeronautics, including new aviation technology, and for supporting the requirements of national defense.

  FAR Section 77:"(a) Establishes standards for determining obstructions in navigable airspace; (b) Sets forth the requirements for notice to the Administrator of certain proposed construction or alteration; (c) Provides for aeronautical studies of obstructions to air navigation, to determine their effect on the safe and efficient use of airspace; (d) Provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation; and (e) Provides for establishing antenna farm areas."

STATE

- California Vehicle Code, Section 353 defines hazardous materials.

- California Vehicle Code, Sections 31303-31309 regulate the highway transportation of hazardous materials, the routes used, and restrictions thereon.
- California Vehicle Code, Sections 31600-31620 regulate the transportation of explosive materials.
- California Vehicle Code, Sections 32000-32053 regulate the licensing of carriers of hazardous materials and includes noticing requirements.
- California Vehicle Code, Sections 32100-32109 establish special requirements for the transportation of inhalation hazards and poisonous gases.
- California Vehicle Code, Sections 34000-34121 establish special requirements for the transportation of flammable and combustible liquids over public roads and highways.
- California Vehicle Code, Sections 34500 et seq. regulate the safe operation of vehicles, including those that are used for the transportation of hazardous materials.
- California Vehicle Code, Sections 2500-2505 authorize the issuance of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials including explosives.
- California Vehicle Code, 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, these sections require the possession of certificates permitting the operation of vehicles transporting hazardous materials.
- California Streets and Highways Code, Sections 117 and 660-72, and California Vehicle Code 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., and 1480 et seq., regulate right-of-way encroachment and the granting of permits for encroachment on state and county roads.
- California Health and Safety Code, Section 25160 et seq., addresses the safe transport of hazardous materials.

LOCAL

- San Joaquin Regional Transportation Plan (SJTRP) - is administered by the San Joaquin Council of Governments (SJCOG) to establish regional transportation goals, policies, and objectives for all transportation systems and activities within the county.
- San Joaquin County General Plan; Transportation/Circulation Element - is used in conjunction with the General Plan's Land Use element as guidance for developments and improvements in the transportation/circulation system.
- San Joaquin Regional Transit Systems Plan Update - analyzes future service requirements of the public transportation system to meet short and long-term goals.
- San Joaquin County Regional Bicycle Master Plan-also administered by SJCOG to coordinate local and regional plans with a goal of establishing a countywide system of bicycle facilities to lessen traffic congestion and improve air quality.

- City of Tracy General Plan, Circulation Element-- presents goals and policies to coordinate the transportation and circulation system with planned land uses and to promote the efficient movement of people, goods and services within the Urban Management Planning Area.

SETTING

REGIONAL SETTING

The Tracy Peaker Project (TPP) would be located within an unincorporated portion of San Joaquin County, immediately southwest of the city of Tracy and approximately 20 miles southwest of the city of Stockton. Interstate 5 (I-5) runs north-south through San Joaquin County approximately four miles east of the site. Interstate 580 (I-580) is located approximately one-mile west of the project site, running diagonally to I-5 and connecting with I-5 southwest of the project site. I-580 connects with Interstate 205 (I-205) to the northwest of the project site. I-205 runs east-west through San Joaquin County and is approximately two-miles north of the project site. State Route 132 (SR-132) is a four-lane freeway that runs east-west in San Joaquin County between I-580 and I-5. All state highways are under the jurisdiction of Caltrans. Caltrans determines Level of Service (LOS) and performance standards for these roadways.

All of the state roadways in the vicinity of the project are operating at or above an acceptable LOS D during the peak commute hours. The statewide accident average rates for multilane facilities are 2.27 accidents per million vehicle miles traveled and 0.71 per million vehicle miles traveled for freeways. The state highways in the vicinity of the TPP are below the state average for similar roadways and range from 0.15 accidents per million vehicle miles traveled to 1.21 per million vehicle miles traveled. The regional and local roadways and the access routes proposed for use during the construction and operational phases of the project are contained in the Transportation and Traffic Section of the AFC, FIGURES 8.10-1 and 8.10-2. **Figure 1** of this staff assessment displays the regional transportation setting in the vicinity of the project.

LOCAL SETTING

The project would occupy approximately 9 acres of a 40-acre parcel in the unincorporated, southwestern portion of San Joaquin County and within the sphere of influence of the City of Tracy. The site would include an area for construction laydown and parking. A number of local roadways and access routes are proposed for use during the construction and operational phases of the project. These roadways provide access to the project site via the state routes detailed in the **REGIONAL SETTING** above. The local roadways include Patterson Pass Road, W. Schulte Road, Lammers Road, Valpico Road, and Corral Hollow Road. The county does not keep comprehensive data on all local roadways in the vicinity of the site. However, these roadways still must comply with the county standard LOS D or better. Actual peak traffic counts for the above mentioned local roadways are not available but peak hour volumes are assumed to be 10 percent of the annual average daily traffic (AADT) or approximately 500 vehicles, (GWF 2001a, AFC page 8.10-26, Table 8.10-4). San

Joaquin County Planning Department and staff concurs with the applicant's estimates of peak volumes for the above mentioned local roadways.

There are two railroad facilities in the immediate vicinity of the TPP. A Western Pacific line runs east-west and is located approximately 1 mile to the southwest of the project site. A Union Pacific line runs east-west and is adjacent to the site's northern boundary. The Union Pacific line in used for occasional, infrequent deliveries to Musco Olives, the Tesla Substation and Owens-Brockway. This line would provide some equipment deliveries to the project site. The applicant has indicated that an easement is being negotiated for the access road crossing over this line. **TRANS-8** will ensure the crossing at the access road is improved in compliance with all applicable LORS.

ANALYSIS AND IMPACTS

PROJECT SPECIFIC IMPACTS

The California Environmental Quality Act (CEQA) indicates that a project could have a significant effect on traffic and transportation if the project will result in any impacts listed in the checklist below.

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 which 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**

a.- Traffic Increases

Construction Impacts

Construction Workforce Traffic

The construction period for the TPP is expected to take place over an 11-month period with an “active” period of seven months. The “active” period is the timeline in which the majority of physical construction related activities including the deliveries of equipment and materials would occur. This active construction period would occur between months 2-8 and would result in the greatest increases of workforce traffic in the vicinity of the project. During the 11-month construction period, months 1-3 and months 5-7 would have an average daily workforce of approximately 113 workers. This would rise to 178 workers during the peak construction period (months 4-6).

Based on the projected numbers of workers, the average workforce will generate approximately 102 peak hour and 204 total daily vehicle trips during the off peak construction period, and 160 peak hour and 320 total daily vehicle trips at the peak construction period. These total daily vehicle trip volumes are based on the applicant's assumptions that 80 percent of the workforce would be traveling alone and that the remaining 20 percent would be involved in carpooling.

The construction workforce would increase the peak-hour traffic on state highways slightly, which would result in an insignificant impact. The majority of the workforce (up to 50 percent) will travel to the project site via I-580 from the greater San Francisco Bay Area. The remaining workforce will come from the Sacramento and Stockton areas using I-5 to I-205 to the site, and from the Merced and Modesto areas, using I-5 to I-580 and SR-132 to the project site. The increase would be approximately 1.4 percent on I-580 and less than 1 percent on all other state highways. This increase would not result in any change or decrease in LOS; therefore, the impact is expected to be less than significant.

The construction workforce traffic would increase traffic volumes on local roadways to a greater extent than volumes on state roadways. With an estimated work schedule between 6 a.m. and 6 p.m., the workforce traffic will occur six days a week between the hours of 5:00-6:00 a.m. and between 6:00-7:00 p.m. The project is expected to increase traffic volumes by approximately 16 percent on Lammers and W. Schulte Roads and up to 20 percent on Valpico Road. This increase will be temporary and heaviest during the "active" portion of the construction schedule but will not decrease the current LOS to an unacceptable level. Therefore, the construction impacts on local roadways are expected to be less than significant. To ensure that the impact to local roadways is minimal, the workforce commute period should take place outside of the peak a.m. hours of 7:00-8:00 and peak p.m. hours of 5:00-6:00.

Staff concurs with the applicant's proposal that the construction workforce traveling from the Bay Area would use eastbound I-580 to I-205, where half the workers would exit southbound onto Patterson Pass Road, then turn eastbound onto W. Schulte Road and proceed to the access road and project site. The other half of the workers from the Bay Area would exit northbound on Patterson Pass Road, turn eastbound onto W. Schulte Road and proceed to the project site. Workers from the Stockton/Sacramento areas would travel southbound on I-5 to I-205 west, exit southbound on Patterson Pass Road, turn eastbound onto W. Schulte Road, and proceed to the project site. From areas south of the project site, (e.g., Stanislaus and Merced Counties), workers would travel northbound on I-5 or eastbound on SR-132 and merge onto I-580 north, exiting at Corral Hollow Road, turning west onto Valpico Road, north on Lammers Road and west on W. Schulte Road to arrive at the project site.

The workforce and material deliveries during the construction phase of the TPP project would temporarily increase traffic from 5.3 percent to 20 percent on local roadways and by less than 1.5 percent on all state highways in the vicinity of the project site. Based on these projected increases and the existing acceptable LOS, it is staff's belief that the project would not degrade nor significantly impact the local or regional transportation system in the area. Furthermore, **TRANS-7** addresses the construction workforce travel

routes and ridesharing and requires that the project's construction workers arrive and depart during off peak traffic times.

The temporary access road proposed by the applicant, as part of its Wet Weather Construction Contingency Plan would be used during the initial 3-4 weeks of construction. During this construction startup period, the changes to the workforce travel routes and material deliveries would be minor and interim. The temporary access will not substantially increase traffic volumes on state or local roadways to an unacceptable level; therefore, its affect would be less than significant.

Truck Traffic

The amount of truck traffic on state roadways in the vicinity of the project ranges from 9.4 percent on I-580 to 30.5 percent on I-5. The construction phase of the TPP would generate an estimated 1,500 truck deliveries over the 11-month construction period. The project would generate an estimated average of 210 truck deliveries per month during the active construction period. The high would be up to 330 deliveries per month throughout the peak construction period, occurring during months 2 and 3. This would increase truck traffic in the vicinity by approximately 18 daily truck trips over existing levels during the overall construction period and up to 27 daily truck trips during the peak construction period. The roadways in the vicinity of the project and the state routes proposed for truck use currently have high percentages of truck traffic, with the exception of Lammers Road, Valpico Road, and Corral Hollow Road. The project will incrementally increase the amount of truck traffic in the area and cause additional wear; however, the increase will be temporary. The greatest impact will be during the construction phase, with little or no impact expected from truck traffic during the operational phase of the project (see below). The project would not substantially increase the amount of truck traffic on the roadways in the vicinity; therefore, the impacts would be less than significant.

Linear Construction

The construction of linear facilities for the TPP project will be on site or within existing, adjacent facilities. Neither construction nor routine maintenance of the linears is expected to affect traffic levels in the area. The electrical transmission line tie-in would be directly adjacent to the project site through a connection to an existing PG&E 115-kV line that runs east-west on the site's southern boundary. The water supply for the project would be delivered via a new 1,470 foot-long pipeline from the Delta-Mendota Canal (adjacent to the site's southwestern boundary) to the project site. The proposed natural gas pipeline runs northwest to southeast beneath the project site and will tie into PG&E's existing Line 401. A 16 inch-diameter pipeline would be constructed with the tap point located on the project site. No off-site construction would be required for linear facilities; therefore, there are no linear-related impacts for traffic and transportation.

OPERATIONAL IMPACTS

<u>Permanent Workforce Traffic</u>

The operations phase of the project is expected to generate eight additional daily trips on local roadways for on-site personnel (four workers, two trips a day) during a 24 hour period. Adequate parking for the employees will be provided on site. This increase will

have less than significant impact on state and local roadways, as all are currently operating well within an acceptable LOS, and no decrease in service is expected.

Truck Traffic

The volume of truck traffic during the operational phase will consist mostly of hazardous material deliveries to the site. The most frequent would be that of aqueous ammonia being delivered every four days. The remaining deliveries would be on a monthly or annual basis and would have a minimal impact on the area roadways. Conditions of certification will ensure compliance with all applicable federal, state and local LORS (also discussed in the **Waste Management** and **Hazardous Materials Sections** of this staff assessment regarding the safety requirements, transportation and disposal of hazardous materials). Specified hazardous material routes are detailed below in section **g- Transportation of Hazardous Materials** of this staff assessment. Due to the limited amount of truck traffic associated with the operational phase of the project, impacts would be less than significant.

Summary

The TPP will cause a temporary increase in traffic levels in the region surrounding the site. Impacts will be less than significant given the existing LOS levels and the project's minor additions.

b.- Changes to Levels of Service

Level of Service (LOS) is a measure of roadway performance that assigns a letter grade A-F describing various ranges of operating conditions. "A" represents free flow and an uninterrupted traffic stream; stop-and-go waves, and traffic saturation with delays characterize "F." In addition, Volume to Capacity (V/C) Ratio is used to determine roadway efficiency. V/C is indicative of traffic conditions, speeds and driver maneuverability on given roadway segments. The County requires the roadways in the vicinity of the project site to operate at a V/C between 0.51 percent to 0.89 percent of their overall capacities.

The San Joaquin General Plan, Transportation Element states: "The County shall maintain a LOS no lower than D at all intersections and C or D on throughways depending on road classification and capacity." The local roadways in the vicinity of the TPP are subject to the LOS D requirement at all intersections and LOS C for throughways. The San Joaquin County Planning Department and staff concur with the applicant's estimates, that peak hour volumes for these roadways are 10 percent of the AADT or approximately 500 vehicles. Therefore, the project would not decrease the LOS or cause any roadway to exceed its V/C ratio to unacceptable level. The criteria for LOS on state highways are established by Caltrans policies. A LOS D is considered as a minimum acceptable level for planning purposes. All state highways in the vicinity of the project are operating at or above the minimum acceptable LOS D.

Staff has concluded that while the TPP will add some traffic to the existing transportation network it will not cause established Levels of Service to be exceeded. Therefore, impacts from this perspective will be less than significant.

Tables 1 and 2 display current characteristics of the state and local roadways in the vicinity of the project area. The tables include roadway classification (number of lanes), AADT volumes, annual average daily truck traffic, percentage of truck traffic, peak hour highway capacity and LOS. These traffic estimates are presented for various road segments between mileposts or junctions on each road.

Table 1

CURRENT TRAFFIC CHARACTERISTICS OF STATE HIGHWAYS IN THE PROJECT AREA

Milepost (County)[a]/ Location	Total # of Lanes Both Directions	AADT[b]	Peak Hour Traffic (2-way)[b]	Annual Average Daily Truck Traffic[c]	% of Truck Traffic[c]	Peak-Hour Highway Capacity Per Lane[d]	LOS
Interstate 580							
8.27-5.98 (*ALA*) Livermore, Greenville Rd. to North Flynn Rd	8	117,000	9,000	11,000	9.4%	2,048	B
5.98-1.48 (ALA) North Flynn Rd. to Grand Line Rd.	8	117,000	9,000	11,000	9.4%	2,048	B
1.48-0.39 (ALA) Grand Line Rd. to I-205	8	112,000	8,600	14,000	12.5%	2,048	B
0.39-0.09 (ALA) I-205 to Alameda/San Joaquin Co. Line	4	28,500	2,850	4,700	16.5%	2,048	A
15.34-approx. 13.5 (SJ) Alameda/San Joaquin Co. Line to Patterson Pass Rd.	4	28,500	2,850	4,700	16.5%	2,048	A
8.15-4.34 (SJ) Corral Hollow Rd. to SR-132	4	32,500	3,350	5,360	16.5%	2,048	A
4.34-0.0 (SJ) SR-132 to I-5 (begin Freeway)	4	19,100	2,000	4,010	21%	2,048	A
Interstate 205							
0.21-0.0 (ALA) I-580 to Alameda/San Joaquin Co. Line	5	83,000	5,100	16,600	20%	2,048	B
0.0-1.38 (SJ) Alameda/San Joaquin Co. Line to Patterson pass Rd.	4	83,000	5,100	16,600	20%	2,048	C
1.38-3.37 (SJ) Patterson Pass Rd. to Old Route 50	4	90,000	5,500	18,000	20%	2,048	C

Milepost (County)[a]/ Location	Total # of Lanes Both Directions	AADT[b]	Peak Hour Traffic (2-way)[b]	Annual Average Daily Truck Traffic[c]	% of Truck Traffic[c]	Peak-Hour Highway Capacity Per Lane[d]	LOS
3.37-8.13 (SJ) Old 0Route 50 to MacArthur Dr.	4	81,000	4,650	9,320	11.5%	2,048	C
8.13-12.69 (SJ) MacArthur Dr. to I-5	4	82,000	8,100	9,430	11.5%	2,048	C
Interstate 5							
22.99-0.0 (STA) Ingram Creek (Howard Rd.) to Stanislaus/San Joaquin Co. Line	4	24,900	3,950	7,600	30.5%	2,048	B
0.0-0.63 (SJ) Stanislaus/San Joaquin Co. Line to I-580	4	24,900	3,950	6,920	27.8%	2,048	B
12.62-14.83 (SJ) I-205 to SR-120	6	125,000	10,100	28,000	22.4%	2,048	D
State Route 132							
0.0-3.24 (SJ) I-580 to I-5	4	15,000	1,650	2,420	16.1%	1,984	A

a ALA = Alameda County; SJ = San Joaquin County; STA = Stanislaus County
b 2000 Traffic Volumes on CA State Highways (Caltrans, 2001)
c Percent of Truck Traffic - % of year 2000 AADT (based on estimates from most current vehicular volumes).
d Highway capacity values represent maximum number of passenger car per hour per lane (pcphpl), based on a LOS D Maximum Service Flow Rate. Capacities calculated from the Highway Capacity manual (TRB, 1997) using peak hour traffic, truck percentages, directional distributions (Caltrans, 1999) and lane counts from the 1997 Route Segment Report (Caltrans, 1997).

Table 2

EXISTING TRAFFIC CHARACTERISTICS OF LOCAL ROADWAYS IN THE IMMEDIATE VICINITY OF THE GWF TRACY PEAKER PROJECT

Roadway / Location	Number of Lanes Both Directions	AADT	Estimated Peak Hour Traffic (2-way)[a]	% of Truck Traffic in AADT	Peak-Hour Roadway Capacity Per Lane	LOS
Patterson Pass Road						
I-580 to Schulte Rd.	2 lane	5,000	500	50%	N/A	N/A
Schulte Rd. to I-205	2 lane	5,000	500	50%	N/A	N/A
W. Schulte Road						
Patterson Pass Rd. to Delta-Mendota Canal/ Hansen Rd.	4 lane	7,500	750	50%	N/A	N/A
Delta-Mendota Canal/Hansen Rd. to TPP access road	2 lane	7,500	750	50%	N/A	N/A
TPP access road to Lammers Rd.	2 lane	7,500	750	50%	N/A	N/A
Lammers Road						
Schulte Rd. to Valpico Rd.	2 lane	2,500	250	3%	N/A	N/A
Valpico Road						
Lammers Rd. to Corral Hollow Rd.	2 lane	2,000	200	3%	N/A	N/A
Corral Hollow Road						
Valpico Rd. to I-580	2 lane	6,000	600	3%	N/A	N/A

Source: Sukh Chahal, San Joaquin County Community Development Department, 2001

N/A = Not Available

a Actual peak hour traffic volumes not available. Peak hour volumes assumed to be 10% of AADT.

c.- Air Traffic Patterns

There are no major commercial aviation centers in the area of the TPP. The Tracy Municipal Airport is approximately two miles southwest of the project site. The project is within the airport's area of influence and may penetrate or cause a projection into navigable airspace. FAR regulations are designed to promote the safety of airport operations by defining a clear zone above which structures are seldom permitted to penetrate. Condition of Certification **TRANS-9** will ensure that the project would not be a hazard to air navigation nor exceed obstruction standards; therefore, no impacts expected.

d.- Hazards Posed by Design Feature or Incompatible Use

There are no identified roadway features (e.g., sharp curves), dangerous intersections or incompatible uses in the project's vicinity that would cause a substantial increase in roadway hazards. Therefore, there is no impact.

e.- Emergency Access

The TPP project would not reduce emergency access nor would it threaten public safety. The closest medical emergency facility is Tracy Community Hospital, approximately three miles northeast of the project site. The nearest fire station is Station 94 located less than one mile west of the project. All proposed access road improvements would comply with the Access Road Requirements of the San Joaquin County Fire Chiefs Association, the Access Road Requirements for the City of Tracy and all other applicable local LORS.

As part of its Wet Weather Construction Contingency Plan, the applicant has proposed the construction of a temporary access road. The interim access road would be used by the construction workforce during the first 3-4 weeks of construction activities while improvements to the original W. Schulte access road are being completed. The applicant has proposed two viable access road alternatives. The primary Alternative Route C (Northern Entrance) would be located off Lammers Road, east of the project site and south of the intersection of Lammers and W. Schulte Roads. The secondary Alternative Route D (Southern Entrance) would be located approximatey 0.3 miles south of Alernative Route C on Lammers Road. Staff concurs with the applicant's proposed primary Alternative Route C and the secondary Alternative Route D, (GWF (Tracy Peaker Project) 2001j), as feasible options for temporary access. Both proposed alternative routes are located approximately 1 mile from the original access road and do not require the crossing of any railroad facilities for site access. Given the close proximity to the original access road, changes to the travel routes for the construction workforce would be minor and interim. In addition, the temporary access road will not decrease LOS on the state highways or local roadways in the vicinity of the project, nor would it affect emergency access.

According to San Joaquin County's Senior Transportation Engineer, prior to the start of construction an encroachment permit would need be obtained to ensure that all public portions of the new access road are paved. Also, the temporary access route would need to comply with emergency access standard provisions that require a width of 20 feet and an adequate turning radius for construction and emergency vehicles.

Prior to the start of any construction activities the applicant shall submit a traffic control plan as required by **TRANS-7**, to Caltrans and the County of San Joaquin addressing emergency access in addition to other noted items. The Energy Commission's Compliance Project Manager will review the plan with input from these agencies. Given the applicant's plans to comply with all LORS and the provisions of **TRANS-7**, staff has concluded that the TPP will have no impact on emergency access.

f.- Parking

Parking for the construction workforce would be provided in a construction laydown area as well as on previously disturbed parking facilities on the adjacent Owens-Brockway and/or Nutting Rice properties. Shuttles would provide transportation to the project site. Condition of Certification **TRANS-7** requires that all project-related parking be in designated parking areas only. Therefore, the TPP project will not affect parking patterns or result in inadequate parking.

g.- Transportation Of Hazardous Materials

The construction and operation of the TPP will require the transportation and disposal of some hazardous materials as indicated in the **Hazardous Materials Section** of this staff assessment. Staff concurs with the applicant's proposed routes for the delivery and transportation of hazardous materials and waste. The delivery route will be via I-5 to I-205, continuing on I-205 to Mountain House Parkway, and continue east on Schulte Road to the facility access road. The proposed temporary access road would not affect the transportation of hazardous materials or affect hazardous waste disposal.

The applicant has proposed two potential sites for the disposal of hazardous wastes and estimates that the hazardous waste generated from the TPP project would need to be transported and disposed of once every 90 days. Traveling to the Kettleman Hills Chemical Waste Management Facility, the trucks would travel west on Schulte Road, then south on Patterson Pass Road to I-580 south. From I-580, trucks would merge onto I-5 south and travel into Kings County, then take SR-41 north and exit to the facility. Traveling to the Safety-Kleen Buttonwillow Facility, the trucks would travel west on Schulte Road, then south on Patterson Pass Road to I-580 south. From I-580, trucks would merge onto I-5 south and travel to Kern County, then take SR-58 west and exit on Lokern Road to the facility. Condition of Certification **TRANS-3** requires the applicant to follow all federal and state LORS for the handling and transportation of hazardous materials. Therefore, no impact is expected.

Railroad Facilities

During the construction phase of the project some deliveries of equipment and materials would be delivered to the site via rail. A Western Pacific Railway line runs east-west and is located approximately 1 mile to the southwest of the project site. However, the applicant has indicated that the Western Pacific line would not be used for the TPP project. A Union (Southern) Pacific line runs east-west and is adjacent to the site's northern boundary. This line would provide deliveries of some equipment to the project site. The applicant has indicated that an easement is being negotiated for the access road crossing over this line and that the line is currently used only for occasional deliveries to Musco Olives, Tesla Substation and Owens Brockway. Union Pacific intends to abandon the line due to landslides and damage to the railway line west of the

project site. The line will only be used for infrequent, occasional deliveries to the facilities mentioned above. **TRANS-8** will ensure the crossing at the access road is improved and in compliance with all applicable LORS. Site control, agreements and easements must be obtained prior to use of railway facilities. Furthermore, given the limited amounts of deliveries scheduled by rail and the infrequency in which the Union Pacific line is used, the project will have a less than significant impact to rail facilities in the vicinity of the project site.

CUMULATIVE IMPACTS

According to the San Joaquin Community Development Department there are a number of proposed or planned projects in the vicinity of the TPP project. Wellhead Power LLC has been granted the approval for the construction and installation of a gas turbine based generating facility at 26088 S. Lammers Road in Tracy.[1] Also, the County has received a pre-application to amend the Patterson Pass Business Park Special Purpose Plan. The amendment would allow 200 acres for a proposed automobile auction facility to be located at 25533 S. Mountain House Parkway in Tracy, approximately three miles from the project site.

There are currently two power generation facilities proposed in the general vicinity of the TPP. The Tesla Power Project is a 1,120-megawatt facility proposed approximately 14 miles northwest of the TPP, with construction expected to take place between October 2002 through November 2004. The East Altamont Energy Center is a 1,100-megawatt facility proposed approximately 8 miles to the northwest of the TPP with construction expected to commence in June 2002 and last through June 2004. The peak construction periods for the Tesla Power Project and the East Altamont Energy Center are expected to take place outside the peak construction period for the TPP. These projects will add approximately 30-40 full-time operating personnel traveling on local roads as they commute to each site after completed construction. Therefore, staff concludes the TPP will not change current or future traffic patterns including those for the other proposed power projects, or cumulatively affect the transportation network.

In addition, the immediate vicinity of the project is experiencing an increase of new residential projects and developments, having an incremental impact on the local roadway system. The project's level of traffic generation will diminish substantially between the construction and operational phases and its contribution to overall traffic volumes in the area will be minimal. The TPP construction schedule is not expected to conflict with any planned, proposed, or approved projects in the vicinity, and the operational phase of the project is expected to have only a minor temporary impact. Therefore, the project's cumulative impact on the transportation system would be less than significant.

[1] Although the Wellhead 49 MW peaking power plant that was planned near Lammers and Valpico Roads, which would be east of and within a mile of the TPP project site, it is staffs opinion that this project will likely not be built. San Joaquin Air Pollution Control District (SJVAPCD) management staff have indicated that their work on an Authority to Construct (ATC) for the Wellhead project has stalled due to a lack of emission offsets, and if no progress is made very soon, the SJVAPCD will deny the ATC

Furthermore, a number of state highway, interchange and roadway improvements are planned in the general vicinity of the project site. These improvements are long range in scope and have construction and completion dates that would not interfere with the TPP schedule.

These improvements are listed in the AFC; however, no major improvements are scheduled concurrently with project construction that would collectively increase traffic volumes or substantially degrade the transportation system.

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 TPP. Census 1990 information shows the minority/low income population is less than 50 percent within the same radius. However, there is a pocket population of minority persons within six miles that staff has considered for impacts. 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. Therefore, there are no Traffic and Transportation environmental justice issues related to this project.

COMPLIANCE WITH LORS

The applicant has stated its intention to comply with all federal LORS. A condition to ensure compliance is included below. Staff believes such compliance will not present any unusual difficulties. Therefore, the project is considered consistent with identified federal, state and local LORS.

FACILITY CLOSURE

Planned closure occurs at the end of a project's life, when the facility is closed in an anticipated, orderly manner, at the end of its useful economic or mechanical life, or due to gradual obsolescence. The applicant would prepare a Facility Closure Plan for submittal to the Energy Commission for review and approval, at least 12 months prior to the proposed closure. At the time of closure, all then-applicable LORS would be identified and the closure plan would address how these LORS will be complied.

Unexpected temporary closure occurs when the facility is closed suddenly and/or unexpectedly, on a short-term basis, due to unforeseen circumstances such as a natural disaster, or an emergency. In the event of temporary closure, the effects on traffic and transportation would be similar to those for normal operation of the power plant facility, and the applicant would have to comply with all applicable LORS section with respect to transportation permits for hazardous materials and equipment deliveries and removal.

Unexpected permanent closure occurs if the project owner closes the facility suddenly and/or unexpectedly, on a permanent basis. This includes unexpected closure where the owner remains accountable for implementing the on-site contingency plan. It can also include unexpected closure where the project owner is unable to implement the

contingency plan, and the project is essentially abandoned. Staff assumes that the facility will either remain idle until such time that new ownership is established, or dismantling of the facility would occur. In any event, the owner would have to secure applicable transportation permits to satisfy the LORS requirements as stated in this report.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

No public comments have been received at this time.

CONCLUSIONS AND RECOMMENDATIONS

The project would have minimal impact on area roadways and intersections. The construction and operational phases would cause increases in roadway demand and traffic but would not result in any decrease in LOS or exceed any volume/capacity ratio thresholds established by local or regional authorities. The applicant would be required to develop and implement a traffic control plan that is acceptable to both Caltrans and San Joaquin County. Therefore, the project would result in less than significant impacts to the transportation system in the vicinity. If the Energy Commission certifies the GWF (TPP) facility, staff recommends that the Commission adopt staff's proposed conditions of certification.

PROPOSED CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall comply with the California Department of Transportation (Caltrans) and the County of San Joaquin on limitations on vehicle sizes and weights. In addition, the project owner or their contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

Verification: In the Monthly Compliance Reports, the project owner shall submit copies of any oversize and overweight transportation permits received during that reporting period to the Compliance Project Manager (CPM). In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-2 An access road approximately one-mile in length is proposed for the TPP project. The project applicant shall meet with the San Joaquin County Public Works and Fire Departments to determine the applicable road standards regarding improvements to the existing dirt access road.

Verification: At least 60 days prior to the start of earth moving activities, the project owner shall provide to the CPM a copy of the construction plan for the access road.

TRANS-3 The project owner shall ensure that all federal and state regulations for the transportation of hazardous materials are observed during both construction and operation of the facility and that all permits and/or licenses are secured from the California Highway Patrol and Caltrans for the transportation of hazardous material.

Verification: The project owner shall include in its Monthly Compliance Reports to the CPM copies of all permits and licenses acquired by the project owner and/or subcontractors concerning the transportation of hazardous substances.

TRANS-4 The project owner or its contractor shall comply with the County of San Joaquin and Caltrans limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans and all relevant jurisdictions.

Verification: In the Monthly Compliance Reports, the project owner shall submit copies of any encroachment permits received during that reporting period to the CPM. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-5 The project owner shall designate travel routes for construction workers and truck deliveries in consultation with the County of San Joaquin and Caltrans.

Verification: The project owner shall provide a copy of the designated route in its contracts for construction workers and truck deliveries, and maintain copies onsite for inspection by the CPM.

TRANS-6 Following completion of construction of the power plant and all related facilities, the project owner shall return all roadways to original or as near original condition as possible.

Protocol: Prior to start of construction, the project owner shall photograph sections of public roadways that will be affected by project construction traffic. The project owner shall provide the CPM and the affective jurisdiction (County of San Joaquin and /or Caltrans) with copies of these photographs.

Verification: Within 30 days of the completion of project construction, the project owner will meet with the CPM and the County of San Joaquin and Caltrans to determine and receive approval for the action necessary and schedule to complete the repair of identified sections of public roadways to original or as near original condition as possible.

TRANS-7 Prior to the start of construction, the project owner shall consult with the County of San Joaquin and Caltrans to prepare and submit a construction traffic control plan and implementation program that addresses the following issues to the extent practical:

- timing of heavy equipment and building material deliveries:
- signing, lighting, and traffic control device placement;
- provision of a person to direct traffic if necessary for workers leaving the site during the peak period of construction;
- on-site parking for construction workers;
- construction work hours outside of peak traffic periods;
- emergency access;
- temporary travel lane closures;
- access to adjacent property, and
- requirements for construction workforce travel routes and ridesharing.

The project owner shall submit the traffic control plan to the County of San Joaquin and Caltrans for review and comments, and to the CPM for review and approval.

Verification: At least 30 days prior to start of construction the project owner shall provide to the CPM for review and approval a copy of its traffic control and implementation program that has been reviewed and commented on by the appropriate jurisdictions.

TRANS-8 The Union Pacific rail line crossing located at the access road to the TPP project site shall comply with all applicable LORS for railway crossings and crossing improvements.

Verification: The project owner shall provide a copy of improvements plans for the access road railway crossing within 30 days prior to the start of construction that is acceptable to the County of San Joaquin and all relevant jurisdictions.

TRANS-9 The project owner shall mark and/or light the project's new exhaust stacks in accordance with FAA Advisory Circular 70/7460-1K Obstruction Marking and Lighting, Chapters 3, 5, and 12.

Protocol: The project owner shall complete FAA Form 7640-2, Notice of Actual Construction or Alteration. Said Form shall be completed and returned to the FAA Western/Pacific Region office at least 10 days prior to the construction and also within 5 days after construction reaches its greatest height. This requirement shall also be applied if at any time the project is abandon.

Verification: At least 30 days prior to start of commercial operation, the project owner shall submit proof that the project's stacks have been marked and/or lighted

Figure 1: Regional Transportation Setting

REFERENCES

Butler, Scott, Planner San Joaquin Council of Governments, meeting and personal conversation, November 19, 2001.

Chahal, Sukh, Traffic Engineer (San Joaquin County), telephone conversation November 6, 2001.

Chahal, Sukh, Traffic Engineer (San Joaquin County), telephone conversation December 12, 2001.

City of Tracy. 1993. General Plan; Circulation Element. (City of Tracy is currently in progress of updating General Plan).

GWF Energy LLC (GWF). Application for Certification, Tracy Peaker Plant (01-AFC-16). Submitted to the Californian Energy Commission on August 16, 2001.

GWF Energy LLC (GWF). Wet Weather Construction Contingency Plan. December 2001.

GWF Energy LLC (GWF). Application for Certification Supplement. September 2001.

Lucchini, Eric, Associate Planner (City of Tracy) telephone conversation November 6, 2001.

Martin, Chandler, Senior Planner (San Joaquin County) telephone conversation November 1, 2001.

McDowell, Mike, Transportation Planner (San Joaquin County) telephone conversation, October 8, 2001.

San Joaquin County. 2001. Regional Transportation Plan.

San Joaquin County. 1992. County of San Joaquin General Plan. Amended September 2000.

TRANSMISSION LINE SAFETY AND NUISANCE

Testimony of Obed Odoemelam, Ph.D.

INTRODUCTION

The energy from the proposed Tracy Peaker Project (or TPP) will be delivered to the Pacific Gas and Electric (PG&E) power grid through a single-circuit, 230 kV line running between a new TPP Switchyard and PG&E's Tesla Substation. The line will be owned by PG&E and will consist of a new segment and another segment from modification of an existing line. Operating such a line could pose specific health and safety hazards whose prevention depends on compliance with specific health and safety laws, ordinances, regulations and standards (LORS).

The purpose of this staff analysis is to assess the proposed line construction and operational plan for incorporation of the measures necessary for compliance these LORS. If such compliance is established, staff would recommend approval, if not, staff would recommend revisions as appropriate. Staff's analysis will focus on the issues noted below, which relate primarily to the physical presence of each line or secondarily to the physical interactions of its electric and magnetic fields:

- Aviation safety;
- Interference with radio-frequency communication;
- Audible noise;
- Fire hazards;
- Hazardous shocks;
- Nuisance shocks; and
- Electric and magnetic field (EMF) exposure

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

Discussed below by subject area are design-related federal or state LORS and industry standards and practices applicable to the physical impacts of the TPP-related line and transmission systems in general. There presently are no local laws or regulations specifically applicable to the physical structure or dimensions of electric power lines to limit the impacts noted above.

AVIATION SAFETY

Any hazard to area aircraft relates to the potential for collision with the line in the navigable air space. The applicable federal LORS as discussed below are intended to ensure the location and visibility necessary to prevent such collisions.

Federal

- Title 14, Part 77 of the Code of Federal Regulations (CFR), "Objects Affecting the Navigation Space." 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 circular 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.

INTERFERENCE WITH RADIO-FREQUENCY COMMUNICATION

Transmission line-related radio-frequency interference is one of the perceivable impacts produced by the line's electric fields. The level of such interference usually depends on the magnitude of the electric fields involved. Because of this, the potential for such impacts could be assessed from field strength or intensity estimates obtained for the line. The following regulations are intended to ensure that such lines are located away from areas of potential interference and that any interference is mitigated whenever it occurs.

FEDERAL

- Federal Communications Commission (FCC) regulations in Title 47 CFR, Section 15.25. Provisions of these regulations prohibit operation of any devices producing force fields, which interfere with radio communications, even if (as with transmission lines) such devices are not intentionally designed to produce radio-frequency energy. Such interference results from the radio noise produced by the action of the electric fields on the surface of the energized conductor. The process involved is known as corona discharge but is referred to as spark gap electric discharge when it occurs within gaps between the conductor and insulators or metal fittings. When generated, such noise manifests itself as perceivable interference with radio or television signal reception or interference with other forms of radio communication. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines. The FCC requires each line operator to mitigate all complaints about interference on a case-specific basis. Staff usually recommends specific conditions of certification to ensure compliance with this FCC requirement as necessary. The applicable condition for this project is **TLSN-3**.

STATE

- General Order 52 (GO-52), California Public Utilities Commission (CPUC). Provisions of this order govern the construction and operation of power and communications lines and specifically deal with measures to prevent or mitigate

inductive interference. Such interference is produced by the electric field induced by the line in the antenna of a radio signal receiver.

Several design and maintenance options are available for minimizing these electric field-related impacts. When incorporated in the line design and operation, such measures also serve to reduce the line-related audible noise discussed below.

AUDIBLE NOISE

Industry Standards

There are no design-specific federal regulations to limit the audible noise from transmission lines. As with radio noise, such noise is limited instead by using design and maintenance standards established from industry research and experience as effective without significant impacts on line safety, efficiency maintainability and reliability. All high-voltage lines are designed to assure compliance. Such noise usually results from the action of the electric field at the surface of the line conductor and could be perceived as a characteristic crackling, frying or hissing sound or hum. Since (as with communications interference) the noise level depends on the strength of the line electric field, the potential for occurrence can be assessed from estimates of the field strengths expected during operation. Such noise is usually generated during wet weather and from lines of 345 kV or higher. Research by the Electric Power Research Institute (EPRI 1982) has validated this by showing the fair-weather audible noise from modern transmission lines to be generally indistinguishable from background noise at the edge of a 100-ft right-of-way.

NUISANCE SHOCKS

Industry Standards

There are no design-specific federal regulations to limit nuisance shocks in the transmission line environment. For modern high-voltage lines, such shocks are effectively minimized through grounding procedures specified in 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). Nuisance shocks are caused by current flow at levels generally incapable of causing significant physiological harm. They result mostly from direct contact with metal objects electrically charged by fields from the energized line. Such electric charges are induced in different ways by the line electric and magnetic fields. The line owner is responsible in all cases for ensuring compliance with these grounding-related practices within the right-of-way. Staff usually recommends specific conditions of certification to ensure that both the applicant and property owners make such grounding within the right-of-way. The applicable condition for this project is **TLSN-2**.

FIRE HAZARDS

The fire hazards addressed through the following regulations are those that could be caused by sparks from conductors of overhead lines or that could result from direct contact between the line and nearby trees and other combustible objects.

STATE

- 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.

Compliance with these regulation would minimize the potential for such fires.

HAZARDOUS SHOCKS

The hazardous shocks that are addressed by the following regulations and standards are those that could result 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.

STATE

- 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 line workers.
- Title 8, Sections 2700 through 2974 of the California Code of Regulations, “High Voltage Electric Safety Orders”. These safety orders establish essential requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment.

Industrial Standards

There are no design-specific federal regulations to prevent hazardous shocks from power lines. Safety is assured through compliance with the requirements in the National Electrical Safety Code, Part 2: Safety Rules for Overhead Lines. These provisions specify the minimum national safe operating clearances applicable in areas where the line might be accessible to the public. They are intended to minimize the potential for direct or indirect contact with the energized line.

ELECTRIC AND MAGNETIC FIELD (EMF) EXPOSURE

The possibility of deleterious health effects from electric and magnetic field exposure has increased public concern in recent years about living near high-voltage lines. Both fields occur together whenever electricity flows, hence the general practice of considering both together as EMF exposure. The available evidence as evaluated by CPUC, other regulatory agencies, and staff has not established that such fields pose a significant health hazard to exposed humans. However, staff considers it important, as does the CPUC, to note that while such a hazard has not been established from the available evidence, the same evidence does not serve as proof of a definite lack of a hazard. Therefore, staff considers it appropriate, in light of present uncertainty, to reduce the strengths of such fields where feasible, until the issue is better understood. The challenge has been to establish when and how far to reduce them.

While there is considerable uncertainty about the EMF health effects issue, the following facts have been established from the available information and have been used to establish existing policies:

- Any exposure-related health risk to the exposed individual will likely be small.
- The most biologically significant patterns of exposures have not been established.
- Most health concerns relate to the magnetic field.
- The measures employed for such field reduction can affect line safety, reliability, efficiency and maintainability, depending on the type and extent of such measures.

STATE

In California, the CPUC (which regulates the installation and operation of high-voltage lines in California) has determined that only no-cost or low-cost measures are presently justified in any effort to reduce power line fields below levels existing before the present health concern arose. The CPUC has further determined that such reduction should be made only for new or modified lines. It required PG&E and the other utilities within its jurisdiction to include effective EMF-reducing measures in their design guidelines for all new or upgraded power lines and related facilities within their respective service areas. The CPUC further established specific limits on the resources to be used for each new or upgraded line with regard to redesign to reduce field strengths or relocation to reduce exposure levels. Utilities not within the jurisdiction of the CPUC voluntarily comply with these CPUC requirements. This CPUC policy resulted from assessments made to implement CPUC Decision 93-11-013.

In keeping with this CPUC policy, the Energy Commission staff requires field strength calculations showing that each proposed line will be designed or upgraded to incorporate the EMF-reducing design guidelines applicable to the utility service area involved. The related field-reducing measures can impact line operation if applied without appropriate regard for environmental and other local issues bearing on safety, reliability, efficiency and maintainability. Therefore, it is up to each applicant to ensure that such measures are applied in ways that do not affect line operation.

The extent of the field-reducing measures will be reflected by ground-level field strengths as calculated in the application process and verified through measurements in the operational phase. Such field strength estimates can be used by staff and other regulatory agencies to compare lines of similar voltage and current-carrying capacity for effective implementation of the required field reduction measures. These field strength estimates can be made using established procedures. Estimates are specified for a height of one meter above the ground, in units of kilovolts per meter (kV/m), for the electric field, and milligauss (mG) for the companion magnetic field. Their magnitude depends on line voltage (in the case of electric fields), the geometry of the structures, degree of cancellation from nearby conductors, distance between conductors and, in the case of magnetic fields, amount of current in the line.

Since each new or modified line in California is currently required to be designed according to the EMF-reducing guidelines of the utility in the service area involved, its fields are required under existing CPUC policies to be similar, in intensity, to fields from

similar lines in that service area. A condition of certification is usually proposed by staff to verify implementation of the reduction measures necessary. The applicable condition for certification for this project is **TLSN-1**.

Industrial Standards

No federal regulations have been established specifying environmental limits on the strengths of fields from power lines. However, the federal government continues to conduct and encourage research necessary for an appropriate policy on the EMF issue.

In the face of the present uncertainty, several states have opted for design-driven regulations ensuring that fields from new lines are generally similar in intensity to those from existing lines. Some states (Florida, Minnesota, Montana, New Jersey, and New York) have set specific environmental limits on one or both fields in this regard. These limits are, however, not based on any specific health effects. Most regulatory agencies believe, as does staff, that health-based limits are inappropriate at this time. They also believe that the present knowledge of the issue does not justify any retrofit of existing lines.

Before the present health-based concern developed, measures to reduce field effects from power line operations were mostly aimed at the electric field component, whose effects can manifest themselves as the previously noted radio noise, audible noise and nuisance shocks. The present focus is on the magnetic field because only it can penetrate building materials to potentially produce the types of health impacts at the root of the present concern. As one focuses on the relatively strong magnetic fields from the more visible transmission and other high-voltage power lines, staff considers it important for perspective to note that an individual in a home could be exposed for short periods to much stronger fields while using some common household appliances (National Institute of Environmental Health Services and the U.S Department of Energy, 1995). Scientists have not established which of these types of exposures would be more biologically meaningful in the individual. Staff notes such exposure differences only to show that high-level magnetic field exposures regularly occur in areas other than the power line environment.

SETTING

The site for TPP as proposed by the applicant, GWF Energy LLC, is a nine-acre site within a 40-acre land parcel in an unincorporated area of San Joaquin County. The site is immediately southwest of Tracy, California and approximately 20 miles southwest of Stockton. The proposed route will traverse a sparsely populated area with the nearest house located approximately 180 feet away (GWF 2001a, page 6-14). There are many 115 kV and 230 kV transmission lines in the project area. Those that will be crossed or run parallel to the proposed line at specific locations have been identified by the applicant with respect to route, voltage rating, and support structure. The Tesla Substation to which the TPP line will be connected is a major distribution point for electrical power in the PG&E service area. More than a dozen 500 kV, 230 kV, and 115 kV PG&E grid lines are connected to it (GWF 2001a, page 6-1 and 6-2), marking the general location as an area with existing line EMF.

PROJECT DESCRIPTION

According to information from the applicant (GWF 2001a, pages 6-1, through 6-5, 6-28 and 6-29,d Appendix A), the proposed project line will consist of the components listed below:

- A 5-mile, single-circuit that will transmit the generated power to the Tesla Substation;
- An on-site 230 kV project substation through which the power will be transmitted; and
- Project-related modifications at the connection points within the Tesla Substation.

The first 2.8-mile segment will exit the TPP Switchyard to the southwest, cross the Delta-Mendota Canal, and proceed parallel to the existing 115 kV Tesla-Manteca line until connecting to the existing Tesla-Wesley 230 kV line, which is a double-tower circuit line whose two circuits are tied together and suspended from their support towers. The two circuits will be separated to allow one circuit to be connected to TPP while the other is retained (and reconductored) to continue the existing current flow for the Tesla-Wesley circuit. The modified lines will remain on the existing support structures. This modified line will then continue westward for approximately 2.1 miles for entry into the Tesla Substation.

The new segment of the proposed line will be supported on tubular steel poles while the modified segment will be supported on steel towers. The line height will vary from 80 feet to 110 feet tall to provide a ground clearance of between 28.5 feet and 30 feet. Details of these support structures have been provided by the applicant as related to field reduction efficiency. The right-of-way will average 75 feet. Part of the project-related modification at the Tesla Substation will be the relocation of the existing Tesla-Newark line from its connection point at the substation; the proposed line will be connected at this point.

ANALYSIS AND IMPACTS

GENERAL IMPACTS

GO-95 and Title 8, CCR Section 2700 et seq. provide the minimum regulatory requirements necessary to avoid the direct or indirect contact previously discussed in connection with hazardous shocks and aviation hazards. Of secondary concern are the field-related impacts manifesting as nuisance shocks, radio noise, communications interference and magnetic field exposure. The relative magnitude of all such impacts would be reflected in the field strengths characteristic of a given line design. Since the field strength-reducing measures can affect line operations, the extent of their implementation, together with related field strengths, will vary according to environmental and other local conditions bearing on line safety, efficiency, reliability and maintainability. They will, therefore, vary from one service area to the other according to prevailing conditions. It is up to each project proponent to apply such measures (to each new or upgraded line) to the extent appropriate for the geographic area involved. It is such field-reducing measures that staff would recommend for this project if we were to find these fields to be of higher intensities than we consider appropriate for such

lines. The potential for each type of impact is assessed separately for each proposed project.

PROJECT SPECIFIC IMPACTS

Aviation Safety

As noted by the applicant (GWF 2001a, pages 6-9 and 6-10) there are no major commercial aviation centers in the general vicinity of the proposed TPP and related transmission line. The Stockton Airport is over 20 miles to the northeast, although the smaller local Tracy Municipal Airport is within two miles of the project. In spite of its closeness, the proposed line is unlikely to pose a significant hazard to utilizing aircraft because its runway is oriented away from the line. This means that an FCC notice of Construction would not be required although transmission line owners usually provide such notice as an industry practice.

Since the line will be located within or near existing line corridors, it is not expected to pose a significant hazard to crop dusting aircraft.

Interference with Radio-Frequency Communication

The previously noted corona-related communications interference is most commonly caused by irregularities (such as nicks and scrapes on the conductor surface), sharp edges on suspension hardware, and other discontinuities on the conductor surface. Since the proposed line will be owned by PG&E, it will be maintained by PG&E according to PG&E's practices, which minimizes the potential for the noted surface irregularities that produce line corona (GWF 2001a, page 6-12). Moreover, the potential for such corona-related interference is usually of concern only for lines of 345 kV and above, and not the proposed 230 kV lines except in rainy weather (when the raindrops would increase the strengths of the electric fields responsible for corona generation at the conductor surface). The low-corona design for the line (as a PG&E line) should further protect against such corona generation. In the unlikely event of specific complaints in this sparsely populated area, the applicant would be responsible for ensuring specific mitigation by PG&E as required by the FCC. Staff recommends a specific condition of certification (**TLSN-3**) to address this issue.

Audible Noise

As happens with radio noise, the low-corona design for the proposed lines will minimize the potential for corona-related audible noise (as with similar PG&E and other area lines designed using the same corona-reducing measures). This means, as reflected by the applicant's calculations (GWF 2001a, page 6-30) that the proposed interconnection line will not add significantly to current background noise levels in the project area. For an assessment of the noise from all phases of the proposed project and related facilities, please refer to staff's analysis in the **Noise** section.

Fire Hazards

As is current PG&E policy and industry practice, the fire prevention and suppression measures for area PG&E lines will be implemented for the proposed lines (GWF 2001a, page 6-18). The intended compliance with the clearance-related aspects of GO-95 is an important part of this compliance approach.

Hazardous Shocks

The applicant's noted intention to ensure implementation of the GO-95-related measures against direct contact with the energized line (GWF 2001a, page 6-17) will serve to minimize the risk of hazardous shocks. Staff recommends condition of certification **TLSN-1** to ensure implementation of the necessary mitigation measures.

Nuisance Shocks

As is current PG&E practice, the potential for nuisance shocks around the proposed lines will be minimized through standard grounding practices (GWF 2001a, page 5-17). Staff recommends condition of certification **TLSN-2** to ensure such grounding.

Electric And Magnetic Field Exposure

Maximum field strengths along the routes of the proposed interconnecting line were calculated by the applicant (GWF 2001a, pages 6-14, 6-31, and Appendix A-3) to establish the potential contribution of TPP's lines to the area's electric and magnetic field levels and any related need for additional mitigation in light of the present health concern. Staff has verified the accuracy of the applicant's calculations with regard to parameters bearing on field strength dissipation and exposure assessment.

The maximum magnetic field intensity within the proposed route was calculated as 185.8 mG, diminishing to 41.2 mG at the edge of the right-of-way. The maximum intensity of the companion electric field was calculated as 2.3 kV/m, diminishing to a maximum level of 0.42 kV/m at the edge of the right-of-way. These field strength values are within the levels that staff would expect for PG&E lines of the same voltage and current-carrying capacity. The line magnetic fields of the present health concern are much lower for this project than the 150 to 250 mG established for the edge of the right-of-way by the few states with regulatory limits on these line magnetic fields.

The applicant has presented the field reduction approaches incorporated in the design of the proposed line. These measures include the following:

1. Increasing the distance between the conductors and the ground;
2. Reducing the spacing between the conductors;
3. Minimizing the current in the line; and
4. Arranging current flow to maximize the cancellation effects from interacting fields from nearby conductors.

The proposal to locate the line close to, or within, existing line rights-of-way is in keeping with present state policy on the routing of high-voltage lines.

Staff recommends a specific condition of certification (**TLSN-4**) to validate the field strength reduction assumed by the applicant for the line.

CUMULATIVE IMPACTS

The reported field strengths were calculated by the applicant to factor the interactive effects of the fields from the proposed and nearby PG&E lines. Therefore, these values should be seen as representing cumulative exposures from the project's and existing

area PG&E lines. As reflected in the calculated values, any such exposures would be similar to those associated with PG&E lines of similar voltage and current-carrying capacity.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Since electric field or magnetic field health effects have neither been established nor ruled out for overhead and underground lines, the public health significance of any TPP-related field exposures cannot be characterized with certainty. The long-term, mostly residential magnetic exposure at the root of the present health concern will be insignificant for the proposed interconnection lines given the general absence of residences along the proposed route. Since the line is proposed as a PG&E line, on-site worker or public exposures would be at levels expected for similar PG&E designs and current-carrying capacity. Such short-term exposures are well understood and have not been established as posing a health hazard to humans.

The potential for nuisance shocks will be minimized through grounding and other field-reducing measures to be implemented in keeping with current PG&E guidelines reflecting common industry practices. Since there are no major airports or aviation centers in the immediate project area, staff does not expect the proposed line to pose a significant aviation hazard. The use of low-corona line design together with appropriate corona-minimizing maintenance practices will minimize the potential for corona noise and its related interference with radio-frequency communication anywhere in the project area.

RECOMMENDATIONS

Since the project's interconnecting 230 kV lines will be designed according to PG&E guidelines reflecting compliance with the applicable health and safety LORS and routed through any area without nearby residences, staff recommends approval of the line with specific respect to the line-related impacts of concern in this analysis. If such approval is granted, staff recommends that the Energy Commission adopt the conditions of certification specified below to ensure implementation of the measures necessary to achieve the field reduction and line safety assumed by the applicant.

CONDITIONS OF CERTIFICATION

TLSN-1 The applicant shall ensure that the proposed interconnection transmission line is designed and built according to the requirements of CPUC's GO-95, GO-52, Title 8, Section 2700 et seq. of the California Code of Regulations and PG&E's EMF reduction guidelines arising from CPUC Decision 93-11-013.

Verification: At least 30 days before the start of ground disturbance for TPP's transmission line or related structures and facilities, the applicant shall submit to the Commission's Compliance Project Manager (CPM) a letter affirming that the proposed line will be constructed according to the requirements GO-95, GO 52, Title 8, Section

2700 et seq. of the California Code of Regulations, and PG&E's EMF-reduction guidelines arising from CPUC Decision 93-11-013.

TLSN-2 The applicant shall ensure that PG&E implements a plan to ensure that all metallic objects along the route of the proposed project line are grounded according to industry standards.

Verification: At least 30 days before the lines are energized, the project owner shall transmit to the CPM a letter confirming compliance with this condition.

TLSN-3 The applicant shall ensure that PG&E implements a plan for resolving any complaints of interference with radio or television signals from operation of the proposed line.

Verification: Any PG&E reports of line-related complaints shall be summarized along with related mitigation measures for the first five years of operation, and provided by the applicant in an annual report to the CPM.

TLSN-4 The project owner shall ensure that PG&E engages a qualified consultant to measure the strengths of the line electric and magnetic fields from the proposed lines before and after they are energized. Measurements shall be made at points along the route for which the applicant provided maximum field strength estimates.

Verification: The project owner shall obtain the results of the pre-and post-energization measurements from PG&E and file them with the CPM within 60 days after completion of the measurements.

REFERENCES

GWF Energy, LLC (GWF), 2001a. Application for Certification, Volumes I and II, (01-AFC-16). Submitted to the California Energy Commission on May 31 2000.

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.

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.

VISUAL RESOURCES

Testimony of Joe Donaldson

INTRODUCTION

Visual resources are the natural and cultural features of the environment that can be viewed. This analysis focuses on whether the Tracy Peaker Project (TPP) would cause visual impacts and whether the project would be in compliance with applicable laws, ordinances, regulations, and standards (LORS). The determination of the potential for visual impacts resulting from the proposed project is required by the California Environmental Quality Act (CEQA).

This analysis includes the following:

- Description of applicable laws, ordinances, regulations and standards;
- Assessment of the visual resources setting of the proposed power plant site and linear facility routes;
- Evaluation of the visual impacts of the proposed project on the existing setting;
- Evaluation of compliance of the project with applicable laws, ordinances, regulations, and standards;
- Conclusions and Recommendations;
- Proposed Conditions of Certification; and
- References

A summary of the visual resources analysis is presented in table form in Appendix VR-1. A discussion of the visual resources analysis methodology is provided in Appendix VR-2. Appendix VR-3 is a lighting complaint resolution form. The visual resources figures are presented in Appendix VR-4.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

FEDERAL

The proposed project, including the linear facilities, is not located on federally administered public lands and is not subject to federal regulations pertaining to visual resources.

STATE

Interstate 580 (I-580) in San Joaquin County from Interstate 5 to the Alameda County line is designated as a State Scenic Highway (State Scenic Highway System Web Site). Therefore, state standards pertaining to scenic resources are applicable to the project.

No other roadways in the project vicinity are eligible or designated as State Scenic Highways; therefore, no additional state standards pertaining to scenic resources are applicable to the project.

LOCAL

The proposed power plant and linear facilities are located within the County of San Joaquin. Therefore, the project would be subject to local LORS pertaining to the protection and maintenance of visual resources. LORS applicable to the proposed project are found in the San Joaquin County General Plan (San Joaquin County 1992). There are several LORS related to visual resources in the county general plan that are pertinent to this project. Applicable LORS in the San Joaquin County General Plan regarding visual resources are found primarily in the Open Space section of the plan. These include Open Space Policy 12, which identifies I-580 as a scenic route, and Open Space Implementation regulation 7, which requires that landscape plans be prepared for development along scenic routes. An assessment of the project's consistency with the relevant LORS is presented in a later section of this analysis.

PROJECT DESCRIPTION

The following section describes the aspects of the proposed project that may have the potential to cause adverse impacts to visual resources. Please refer to the **PROJECT DESCRIPTON** section of the Staff Assessment (SA) for a more complete discussion.

POWER PLANT

The project site would occupy a 9-acre fenced area within a 40-acre parcel. The major visible components of the proposed power plant include:

a) two exhaust stacks (100 feet high and 16 feet in diameter);

b) two SCR reactors (approximately 60 feet high);

c) two combustion turbine generators (CTGs) (30 feet high, 130 feet long, and 40 feet wide);

d) two air inlet structures, one for each CTG (50 feet high);

e) an air pollution control structure (55 feet high, 85 feet long, and 25 feet wide);

f) a water storage tank (30 feet high and 40 feet in diameter);

g) a control building (15 to 22 feet high, 100 feet long, and 50 feet wide); and

h) a 115-kV fenced switchyard containing various structures up to 25 feet in height and some interconnecting frames and poles 75 to 100 feet in height.

The project would also include an on-site natural gas supply interconnection and an improved access road approximately 3,300 feet in length. An 8-foot-high galvanized fence with a non-reflective finish and vertical slats would surround the 9-acre project

site. Some landscaping is proposed around the periphery of the fenced project site. The applicant has stated that the colors of plant structures would be neutral earth tones. No visible plumes are expected to be produced by the project (see discussion of Visible Plumes below).

LINEAR FACILITIES

The project would include an on-site transmission interconnection consisting of a 115-kV switchyard located immediately north of and adjacent to the existing 115-kV power transmission lines. The switchyard would contain various structures up to 25 feet in height and some interconnecting frames and poles 75 to 100 feet in height.

A natural gas supply pipeline runs through the project site. A natural gas interconnection would be made at an on-site gas metering station located in the northeast portion of the site. An underground water supply pipeline would run from the site approximately 1,470 feet southeast to connect with an existing water supply line. Because the water pipelines would be buried, they would not be noticeable.

An existing gravel road would be improved to an asphalt surface to provide access to the site. The improved road would be approximately 3,300 feet long. It would run south from West Schulte Road and enter the site from the west.

CONSTRUCTION LAYDOWN AREAS

A 5.2-acre construction laydown and parking area would be located immediately west of the plant's western fence line at the periphery of the 9-acre project site. An additional 13.2-acre construction laydown area would be located adjacent to the northeast boundary of the 9-acre project site. Both laydown areas would lie completely within the 40-acre parcel. The applicant has stated that the construction laydown areas would be in use for up to 7 months and restored to their pre-construction conditions following completion of construction.

SETTING

REGIONAL SETTING

The proposed project is located just southwest of the City of Tracy in an unincorporated area of San Joaquin County in the northern San Joaquin Valley. The project site is located within an area that is typical of this portion of the northern San Joaquin Valley. The area is generally flat and slopes gently to the northeast. It is bounded to the west and south by steep and rolling grass-covered coastal hills that provide a prominent backdrop to views west and south from Tracy and the general project area. The Delta-Mendota Canal and California Aqueduct run roughly parallel to each other from northwest to southeast along the valley floor near the base of the coastal hills. The heavily-traveled Interstate 580 (I-580) runs along the base of the coastal hills just southwest of and roughly parallel to the aqueduct. I-580 is designated as both a county and state scenic route. Other than orchards and plantings around rural residences, there are few large trees in the area. Large trees in the region are generally found

along small drainages and within larger riparian corridors or occur as scattered oaks on hillsides and on the valley floor.

The area is predominately agricultural and rural in character. However, the area's character is becoming more urbanized, with rapidly expanding residential, commercial, and industrial development. Agriculture in the area consists largely of tilled fields, orchards, and grazed grasslands. Numerous rural residences dot the landscape and there are many paved and unpaved rural roads. Several large power transmission lines run through the region and many lines of wooden power poles and fences crisscross the area. Housing developments are expanding southwest from Tracy and there are several large commercial distribution and warehouse facilities in the area. The area also contains several large industrial plants and manufacturing facilities.

PROJECT AREA SETTING

VISUAL RESOURCES Figures 1A and 1B show the project site and the surrounding area. The project site consists of 9 acres within a 40-acre parcel of flat, agricultural land lying northeast of and adjacent to the Delta-Mendota Canal. The area surrounding the site is also generally flat except for the low levee of the Delta-Mendota Canal that borders the site's southwestern edge. An inactive railway runs along the parcel's north edge. Surrounding land uses include tilled fields, orchards, and several large industrial facilities. The industrial facilities, which include the Owens-Brockway glass container manufacturing plant, Nutting Rice facility, and Tracy Biomass energy facility, and a 122-foot-high water tower are located just north of the rail line and 40-acre parcel. The water tower and industrial facilities are the most visually prominent features in the immediate vicinity of the project site. Power transmission lines with widely spaced, tall, metal lattice towers run in a northeast-southwest alignment through the southeast portion of the parcel and within 100 feet of the 9-acre project site. The transmission lines and towers are noticeable elements in the open landscape of the area but appear less dominant than the massive industrial facilities near the project site.

There are approximately 27 residences within the near middleground and foreground distance zones (i.e., within about 1 mile) of the project site (GWF 2001i). These residences are shown on **VISUAL RESOURCES Figures 1A and 1B**. Two rural residences are located about 0.5 mile west and southwest of the project site. Approximately 20 more residences are located within a range of 0.75 mile to 1 mile from the project site. The majority of these residences are located east of the project site along Lammers Road, which runs north-south. Five of the residences are located south and southwest of the site. A new residential development is located just northeast of the intersection of West Schulte Road and Lammers Road; some residences in this development have views of the project site about 1.5 miles to the southwest.

The project site is also visible from portions of I-580, which is a heavily traveled, scenic highway. Views from I-580 are primarily by westbound travelers looking northwest and north at distances of about one to two miles from the site. For westbound travelers, the area of the project site is within their normal cone of vision and visible from just west of Corral Hollow Road to due south of the project site. Views by eastbound travelers are intermittent and obscured by topography and structures as the route runs along the base of the hills west of the project site.

Both the Delta-Mendota Canal, which borders the project site, and the California Aqueduct have access roads that run along their northeastern edges. The access road along the Delta-Mendota Canal is accessible to the public to drive on and to use as access to fishing or for other recreation purposes. The access road along the aqueduct is not accessible to the public to drive on, but is identified and signed as a recreation trail where it intersects roads in the area. Neither the Central Valley Project nor the State Water Project maintains records of recreation use for these facilities in the project area (GWF 2001i). However, recreation use of both the canal and aqueduct is currently very low in the vicinity of the project site (GWF 2001i). Also, neither the San Joaquin County General Plan nor the City of Tracy General Plan identifies the canal or aqueduct as recreation features. There are no other designated bicycle routes, trails, or other recreation features in the project area (GWF 2001i).

Within the context of the region and surrounding area, the visual quality of the project site and its surroundings is generally moderately low. Although views of orchards, agricultural fields, and the coastal hills are of moderate to moderately high quality, the large industrial facilities, in combination with the water tank and transmission towers, encroach on the area's rural character. These encroaching elements reduce the overall visual integrity of the area and render its visual quality moderately low.

View Areas and Key Observation Points

VISUAL RESOURCES Figures 1A and 1B show the approximate viewshed for the project site. This is the general area within which the project may be visible. Because the landscape is generally flat and has few obstructions (e.g., trees or topographic features) to block views, the power plant would be most visible and noticeable from roads, residences, and I-580 by viewers within the foreground and near middleground distance zones (i.e., within approximately 1 mile of the project site). Views from residences in the area and westbound travelers on scenic-designated I-580 would be of greatest concern because of the higher sensitivity of these viewer groups.

The Applicant initially identified locations in the vicinity of the proposed project with potentially important views of the project. Seven key observation points (KOPs) were selected by the applicant to represent these important views and characterize the existing visual setting within which the proposed project would be evaluated. KOP 6 was subsequently dropped from further consideration when the transmission line crossing of I-580 was eliminated from the project. In consultation with Energy Commission Staff, three new locations, represented by KOPs 8, 9, and 10, were added. **VISUAL RESOURCES Figures 1A and 1B** show the location and view direction of each of the nine KOPs for the proposed project.

At each KOP, a visual analysis was conducted (a summary is presented in Appendix VR-1). The following discussion provides an assessment of the existing visual quality, viewer concern, viewer exposure, and overall visual sensitivity from the locations represented by these KOPs. Overall visual sensitivity takes into account existing landscape visual quality, viewer concern, and overall viewer exposure, which considers visibility, distance zone, number of viewers, and duration of views.

For purposes of reducing redundancy and the overall length of the discussion, some KOPs in close proximity to each other have been combined in the following discussion.

Specifically, KOPs 3, 4, and 5 are analyzed together and KOPs 8 and 9 are analyzed together. KOPs 3, 4, and 5 represent similar views from several residences in an area located about one mile southwest of the project site. KOPs 8 and 9 represent similar views from residences and travelers on roads in an area located about 0.75 to 1 mile northeast of the project site.

KOP 1: View West from Lammers Road and Residences

KOP 1 was established to represent views of the TPP site from residences and by travelers along Lammers Road. **VISUAL RESOURCES Figure 2A** depicts the existing view of the TPP site from the Kagehiro property on Lammers Road approximately 0.75 mile east of the project site.

Visual Quality

Views from this area are of broad, tilled agricultural fields; fences; background hills; industrial facilities; the water tower; and transmission towers. The broad, agricultural fields are flat and lack visual complexity of topography or vegetation. Although the background hills provide a small amount of complexity, they lie mostly outside of the general direction of views of the site and are not a prominent element in these views to the west. The industrial facilities, water tower, and, to some degree, the transmission towers dominate the views west from Lammars Road and the residences along it. Because these views lack visual complexity and are dominated by encroaching industrial elements, the visual quality of these views is moderately low.

Viewer Concern

Because of the sensitivity with which people regard their places of residence, viewer concern for KOP 1 is high.

Viewer Exposure

There are approximately 12 residences located along the west side of Lammers Road that are within 0.75 to 1 mile (i.e., the near middleground distance zone) of the project site. Lammars Road deadends to the south and is traveled mostly by local residents. Therefore, the number of viewers is moderately low. Views by travelers on Lammars Road are intermittent because of intervening vegetation and houses. Views toward the site from many of the residences are across open fields and are unobstructed; consequently, visibility is high for the residences. Areas in and around residences are frequented by the residents and their visitors; therefore, frequency of views is high. Also, these views by residents are of long (or high) duration. For these reasons, overall viewer exposure for KOP 1 is moderately high.

Overall Visual Sensitivity

Although visual quality is moderately low for views of the site from KOP 1, viewer concern is high and overall viewer exposure is moderately high. Consequently, overall visual sensitivity of the setting viewed from the area of KOP 1 is moderately high.

KOP 2: View East from Hansen Road Residence

KOP 2 was established to represent the view from the area of a residence located on the east side of Hanson Road just north of the Delta-Mendota Canal. **VISUAL**

RESOURCES Figure 3A depicts the existing view of the TPP site from the area of the residence in middleground views approximately 1.5 miles west of the project site.

Visual Quality

Views east from this area are of broad agricultural fields; agricultural facilities, such as stock pens and sheds; industrial facilities, such as tanks and other structures; the water tower; the levee and access road bordering the canal; and various power poles. The broad agricultural fields are flat and lack visual complexity of topography or vegetation. Very minor topographic relief is evident in the canal berm in the foreground. The industrial facilities and water tower are on the horizon line and penetrate the skyline in the middleground distance zone. A cluster of light colored buildings is visible on the horizon in the background beyond the project site. The agricultural and industrial facilities, water tower, and broad, open fields dominate the views west toward the project site from this area. Because these views lack visual complexity and are dominated by encroaching structures, the visual quality of these views is moderately low.

Viewer Concern

Because of the sensitivity with which people regard their places of residence, viewer concern for KOP 2 is high.

Viewer Exposure

The view from KOP 2 toward the site is generally unobstructed, so visibility is high. The project site is located in the middleground distance zone from KOP 2. Areas in and around residences are frequented by the residents and their visitors; therefore, frequency of views is high. However, because only one residence is located here, the number of viewers is low. Also, these views by residents are of long (or high) duration. For these reasons, overall viewer exposure for KOP 2 is moderately high.

Overall Visual Sensitivity

Although visual quality is moderately low for views of the site from KOP 2, viewer concern is high and overall viewer exposure is moderately high. Consequently, overall visual sensitivity of the setting viewed from the area of KOP 2 is moderately high.

KOPs 3, 4, and 5: View Northeast from Residences

KOPs 3, 4, and 5 represent views from three residences located approximately 1 mile southwest of the project site near the southern terminus of Hanson Road. The residences are positioned between I-580 and the California Aqueduct on the lower slopes of the coastal hills and have fairly broad, panoramic views across the valley that include views of Tracy, the project site, and the surrounding area. **VISUAL RESOURCES Figures 4A, 5A, and 6A** depict the existing views of the TPP site, which is in the near middleground of views from the area of the residences. Because views from the area around these residences are similar for all three residences, they are analyzed together.

Visual Quality

Views northeast from this area are of the broad, northern portion of the San Joaquin Valley. On particularly clear days, the Sierra Nevada range is visible across the valley. Because the residences are somewhat elevated above the valley, views northeast are panoramic and include the community of Tracy; agricultural fields; orchards; industrial facilities, such as tanks, warehouses, and other structures; the water tower; residences; berms, access roads, and other facilities associated with the canal and aqueduct; power transmission towers and poles; fences; and various other small structures and equipment. The agricultural fields and orchards are mostly flat and lack visual complexity of topography. Minor topographic relief is evident in the foreground and berms along the canal and aqueduct. The orchard trees provide some visual variety and interest. Lines of mature trees visible in the middleground of all three figures provide some variety and visual interest in the landscape. Extensive residential and other development in the middleground and background of the views is indicative of the expanding urban character of the area. The large industrial facilities and water tower visible in the middleground of all three views are dominant and encroaching elements in the views. Transmission towers in the foreground and middleground of views are also noticeable encroaching elements. Because these views have some visual interest and variety but are dominated by encroaching and incongruous structures in the foreground and middleground, the visual quality of these panoramic views from KOPs 3, 4, and 5 is moderately low.

Viewer Concern

Because of the sensitivity with which people regard their places of residence, viewer concern for KOPs 3, 4, and 5 is high.

Viewer Exposure

The views from KOPs 3, 4, and 5 toward the site are largely unobstructed, so visibility is high. The project site is located in the near middleground distance zone from the residences. Areas in and around residences are frequented by the residents and their visitors; therefore, frequency of views is high. However, because only three residences are located here, the number of viewers is low. Also, these views by residents are of long (or high) duration. For these reasons, overall viewer exposure for the combination of KOPs 3, 4, and 5 is moderately high.

Overall Visual Sensitivity

Although visual quality is moderately low for views of the site from KOPs 3, 4, and 5, viewer concern is high and overall viewer exposure is moderately high. Therefore, overall visual sensitivity of the setting viewed from the area of KOPs 3, 4, and 5 is moderately high.

KOP 6: View of Transmission Line Crossing at I-580

KOP 6 was eliminated because the transmission line crossing of I-580 was eliminated from the project description. Therefore, KOP 6 is not analyzed.

KOP 7: View Northeast from Delta-Mendota Canal

KOP 7 was established to represent the view from the access road that runs along the northeast side of the Delta-Mendota Canal adjacent to the project site. **VISUAL RESOURCES Figure 7A** depicts the existing view of the TPP site looking northeast from the road. From this location, the project site is in the immediate foreground of the view.

Visual Quality

The view from the area represented by KOP 7 is open, with a broad tilled agricultural field dominating the foreground, and with industrial facilities, a water tower, power poles, and transmission towers visible in the far foreground on the periphery of the view. Other elements, including trees and structures, are visible in the middleground along a thin strip near the horizon. The broad field is flat and lacks visual complexity of topography or vegetation. Although the industrial facilities and water tower are not a central part of the view, they are the most evident elements in views north and northeast from the canal road. The open, rural panoramic view provides some visual benefit, but lacks visual complexity and interest, and contains evident industrial elements, so its visual quality is moderately low.

Viewer Concern

The access road along the canal is open to public use. Viewers that use the access road in this area include people traveling the road to access fishing spots along the canal. Occasionally, some people may use the road for walking, jogging, or bicycling. Although viewers would generally be recreationists with a high awareness of their visual surroundings, it is likely that they would have a somewhat lower level of concern for their surroundings than recreationists using an area of higher visual quality without the dominant industrial elements. Therefore, viewer concern for KOP 7 is moderate.

Viewer Exposure

The view from KOP 7 toward the site is unobstructed and visibility is high. The project site is located in the near foreground distance zone. The access road is only occasionally used; therefore, the number of viewers and the frequency of views is low. Because there does not appear to be any particular features that may attract viewers to pause in this area, it is assumed that viewers would be traveling past the project site and the duration of views would be somewhat short (low). For these reasons, overall viewer exposure for KOP 7 is moderate.

Overall Visual Sensitivity

Because visual quality is moderately low, viewer concern is moderate, and overall viewer exposure is moderate, overall visual sensitivity of the setting viewed from the area of KOP 7 is moderately low.

KOPs 8 and 9: Views Southwest from Residences near West Schulte Road and Lammers Road Intersections

KOPs 8 and 9 represent views from at least four residences located along Lammers Road and just northeast and east of the intersection of the western portion of West

Schulte Road and Lammers Road. These residences are approximately 0.75 to 1.25 miles northeast of the project site. KOPs 8 and 9 also represent views by travelers along these roads and the eastern portion of West Schulte Road in the vicinity of the project site. **VISUAL RESOURCES Figure 8A** depicts the existing views of the TPP site, which is in the near middleground of views from the area of the residences. Because views from the areas around these residences and along the roads in this area are similar for both of these KOPs, they are analyzed together.

Visual Quality

Views from this area are of broad, tilled agricultural fields; background hills; industrial facilities; a water tower; transmission towers; and power poles. The broad agricultural fields are flat and lack visual complexity of topography or vegetation. However, the background hills provide complexity and interest in the views and are a prominent element of the views to the southwest. The industrial facilities, water tower, and, to a lesser degree, the power poles and transmission towers, are noticeable elements in these mostly open views. They encroach on the rural agricultural character and reduce the visual quality of these views. Although these views have some visual complexity and interest, the encroaching industrial facilities and other structures reduce the visual quality of these views to moderately low.

Viewer Concern

Because of the sensitivity with which people regard their places of residence, viewer concern for KOPs 8 and 9 is high.

Viewer Exposure

There are at least four residences located along the east side of Lammers Road that are within 0.75 to 1.25 miles (i.e., the near middleground distance zone) of the project site and potentially have views of it. Lammars Road deadends to the south and is traveled mostly by local residents. Therefore, the number of viewers is moderately low. Views toward the site from the areas around these residences are across open fields and are generally unobstructed; consequently, visibility is high for the residences. Views by travelers on Lammars Road and West Schulte Road are also generally open toward the project site. Areas in and around residences are frequented by the residents and their visitors; therefore, frequency of views is high. Also, these views by residents are of long (or high) duration. For these reasons, overall viewer exposure for KOPs 8 and 9 is moderately high.

Overall Visual Sensitivity

Although viewer concern is high and overall viewer exposure is moderately high, visual quality is moderately low for views of the site from KOPs 8 and 9. Consequently, overall visual sensitivity of the setting viewed from the area of KOPs 8 and 9 is moderately high.

KOP 10: View from I-580

KOP 10 represents the view toward the project site by westbound travelers on I-580. Westbound travelers on I-580 have mostly open views of the project area from just west of Coral Hollow Road to approximately due south of the project site. Eastbound

travelers have few and intermittent views of the project site. **VISUAL RESOURCES Figure 9A** depicts the existing view north toward the TPP site, which is in the middleground of views from the highway.

Visual Quality

Views northwest and north from I-580 are of the broad, northern portion of the San Joaquin Valley. On particularly clear days, the Sierra Nevada range is visible across the valley to the east. Because viewers are somewhat elevated above the valley, views are panoramic and include the community of Tracy in the far middleground and background; broad, open agricultural fields in the foreground and middleground; the aqueduct and canal; fences; orchards; industrial facilities; the water tower; an occasional residence; and power transmission towers and poles. The broad agricultural fields are mostly flat or gently sloping and have low visual complexity of topography or vegetation. Extensive residential and other development in the far middleground and background of the views is indicative of the expanding urban character of the area. The large industrial facilities and water tower visible in the middleground are dominant and encroaching elements in the views. Because these views have some visual interest and variety but are dominated by encroaching and incongruous structures, the visual quality of these panoramic views from KOP 10 is moderately low.

Viewer Concern

I-580 is a designated state and county scenic route and a major carrier of travelers in the state. This portion of the highway receives heavy use by a broad cross section of travelers, including people traveling for leisure and to and from recreation destinations. Consequently, many viewers, including both drivers and passengers, have a high awareness of their surroundings and are conscious of the character and quality of the visual environment. Therefore, viewer concern for KOP 10 is high.

Viewer Exposure

Views toward the project site from I-580 for westbound travelers are largely unobstructed between Coral Hollow Road and the area due south of the site. For this segment of the highway, the site is within the normal cone of vision for drivers and passengers and visibility is high. The project site is visible within the middleground distance zone between about 1 mile and 2.5 miles from KOP 10. The number of motorists on I-580 is very high. Although the travel speed for motorists on I-580 is high, view duration would be moderate due to the long distance over which travelers could view the project area as they approach it from the southeast. Overall, viewer exposure would be moderately high.

Overall Visual Sensitivity

Although viewer concern is high and overall viewer exposure is moderately high, visual quality is moderately low for views of the site from KOP 10. Consequently, overall visual sensitivity of the setting viewed from the area of KOP 10 is moderately high.

ANALYSIS OF IMPACTS

A summary of the analysis of the project's impacts is presented in a table in Appendix VR-1. The impact assessment methodology and significance criteria utilized in this study are described in detail in Appendix VR-2.

PROJECT SPECIFIC IMPACTS

The Environmental Checklist (see below) is presented in the California Environmental Quality Act (CEQA) guidelines to assist lead agencies in their analysis of project impacts. We provide this checklist as a summary of staff's conclusions regarding the potential for adverse significant project impacts. Following the checklist is a discussion of staff's analysis and rationale for these conclusions.

Environmental Checklist

VISUAL RESOURCES	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		

a) Scenic Vistas

No scenic vistas have been identified in the immediate project area. Therefore, the project would not impact a scenic vista and no mitigation is required.

b) Scenic Resources

I-580 is a designated state and county scenic route. However, the visual quality of views from I-580 toward the site is moderately low and, although viewer exposure is moderately high, the site's location within the middleground distance zone reduces its visibility and importance in views from the scenic route in this area. The applicant has prepared a landscape plan to comply with LORS that require landscape plans for development along scenic routes. Furthermore, the project would not substantially damage scenic resources such as trees, rock outcroppings, and historic buildings. Thus, the project would not have a substantial adverse effect on scenic resources.

Although no measures are required to mitigate significant impacts, the applicant has prepared a landscape plan intended to help blend the project with its surroundings. Staff has proposed Condition of Certification **VIS-1** that would improve the effectiveness of the landscape plan in helping the plant blend with its surroundings and screen it from view to the extent feasible. Proper implementation of condition **VIS-1** would ensure that the project would blend better with the surrounding landscape and not significantly affect views from the scenic-designated I-580.

c) Visual Character or Quality

Project aspects evaluated in the assessment of visual character or quality include project construction; linear facilities (electric transmission line, natural gas supply, water supply, and wastewater pipelines, and access road); and project operation, including visible water vapor plumes.

Construction Impacts

Construction of the proposed power plant and linear facilities would cause temporary visual impacts due to the presence of equipment, vehicles, materials, excavated piles of dirt, and workforce. Construction activities would include site clearing and grading, trenching, construction of actual facilities, use of construction laydown areas, and cleanup and restoration of the site, laydown areas, and linear facilities rights-of-way. Project construction would occur over approximately a 7-month period.

Construction Laydown Area

The construction laydown areas consist of a 5.2-acre area located adjacent to the western boundary of the 9-acre project site and a 13.2-acre area located adjacent to the northeastern boundary of the 9-acre project site. Both laydown areas are within the 40-acre parcel. The laydown areas would be used to store equipment, vehicles, materials, excavated piles of dirt, and workforce. The 13.2-acre laydown area would also be used to temporarily move and store soil that is unsuitable for construction during wet weather. The applicant has stated that the laydown areas will be returned to their pre-construction conditions and seeded following completion of construction (GWF 2001i and GWF 2001j). The applicant has also stated that the laydown areas will be in use for not more than 7 months (GWF 2001i). Therefore, the construction laydown areas would not cause significant visual impacts and no mitigation is required.

Linear Facilities

Linear facilities would consist of a short electric transmission line interconnection on the site, a natural gas supply interconnection on the site, an underground water supply pipeline, and a paved access road.

The electric transmission line interconnection would consist of a short line between the power plant and the existing 115 kV transmission lines running next to the site. The natural gas supply interconnection would be constructed at the northeast corner of and adjacent to the project site. Both of these lines would be constructed at the same time as the power plant and would appear to be part of it. Therefore, their construction impacts are evaluated together with those of the power plant.

The water supply line would run from the site approximately 1,470 feet southeast to connect with an existing water supply line. The water supply line would be placed beneath an existing dirt road for its entire length and would have no aboveground features associated with it. Because construction of the water supply line would be temporary (i.e., occurring for less than one year) and the construction area of the water supply line would be cleaned up and restored to its original condition as a road, it would not cause any significant visual impacts.

Approximately 3,300 feet of an existing dirt and gravel access road would be paved to provide access to the project site. Because construction of the road would be temporary (i.e., occur for less than one year) and its alignment would be cleaned up following construction, it would not cause any significant visual impacts.

Power Plant

Construction activities for the power plant would occur for less than 1 year and are considered temporary. The area would be cleaned up after construction is completed. Therefore, construction of the power plant would not cause significant visual impacts and no mitigation is required.

Mitigation Measures

No mitigation is required. The applicant has stated it will clean up all construction areas after construction is complete. The applicant has also stated it will restore the construction laydown area to its original condition after the construction period. Early implementation of an approved landscape plan toward the beginning of the construction period would help reduce visual impacts of the project during construction. Staff has proposed conditions of certification (**VIS-1 and VIS-2**) incorporating these measures. The proper implementation of **VIS-1** and **VIS-2** would ensure that potential visual impacts associated with project construction would be less than significant.

Operation Impacts

Linear Facilities

Both the electric transmission line interconnection and the natural gas supply line would be constructed at the same time as the power plant and would appear to be part of it. Therefore, their construction impacts are evaluated together with those of the power plant. Because there would be no visible evidence of the underground water supply line during operation, it would cause no significant visual impacts. Because the access road would follow an existing road alignment, the change from the existing condition would be very small; therefore, operation of the access road would not cause significant visual impacts.

<u>Mitigation Measures</u>

Because visual impacts of linear facilities would not be significant, no mitigation is required.

Power Plant

VISUAL RESOURCES Figures 2B, 3B, 7B, 8B, and 9B (Appendix VR-4) depict views of the project from selected project KOPs with landscaping 5 years after planting. **VISUAL RESOURCES Figures 2C, 3C, 4C, 5C, 7C, 8C, and 9C** (Appendix VR-4) depict views of the project from selected project KOPs with landscaping at maturity.

KOP 1: View West from Lammers Road and Residences

Contrast

VISUAL RESOURCES Figure 2B is a visual simulation of the project from the area of KOP-1 with landscaping 5 years after planting. The vertical, complex geometric lines and forms of the proposed power plant would contrast strongly with the horizontal lines of the broad, open field and fences in the landscape. However, existing industrial facilities in the view have already introduced similar levels of contrast. The power plant would have forms and lines similar to but more ordered and less complex than those of the nearby industrial facilities and water tower and its scale would be similar to that of the industrial facilities when viewed from the area of KOP-1. Therefore, the increment of contrast with the rural features in the landscape that the power plant would cause with regard to form, line, and scale would be small. The power plant's light gray colors would be similar to those of the nearby industrial facilities and produce little color contrast. Similarly, the smoother and less coarse textures of the power plant would produce a low level of textural contrast with the industrial facilities. Therefore, the increment of color and texture contrast with the existing rural landscape would be small. For these reasons, the proposed project would cause a low level of visual contrast with the existing setting.

Project Dominance

The view from the area of KOP 1 is panoramic. Silhouetted against the sky, the power plant would be highly noticeable in the open landscape. However, because it is somewhat distant its spatial dominance would be co-dominant. The power plant would occupy a small portion of the total field of view, so scale dominance would be subordinate.

View Blockage

In the views from the area of KOP 1, the coastal hills are visible but have a low profile and are not a major feature. Some existing built features, such as transmission towers, cause some minor, filtered screening of small portions of the hills. The project would block a moderate portion of the background hills and a small portion of the sky. Overall, the project would block a moderate portion of a low to moderate quality view, resulting in a negligible degree of view blockage.

Overall Visual Change and Visual Impact Significance

As explained above, from the view area represented by KOP 1 the proposed project would cause a low level of contrast with the existing setting. Its level of spatial dominance would be co-dominant, and its scale dominance would be subordinate. The project would cause a negligible degree of view blockage. The overall visual change due to the power plant would be moderate due to its co-dominant level of spatial

dominance. Considering the moderately high overall visual sensitivity of the views from the area of KOP 1, the project would cause potentially significant visual impacts to those views.

Mitigation Measures

The Applicant has proposed landscape treatment to help blend the power plant with its surroundings. **VISUAL RESOURCES Figure 2B** is a visual simulation of the project as viewed from KOP 1, 5 years after trees and shrubs are planted based on the applicant's proposed landscape plan. **VISUAL RESOURCES Figure 2C** shows the appearance of the project with trees and shrubs at maturity based on the applicant's proposed landscape plan. The heights, density, and placement of plantings are not effective in blending the power plant with its surroundings. Condition of Certification **VIS-1** should be implemented to ensure that the plantings will be more effective in helping blend the power plant with its surroundings, and in screening the plant from view to the extent feasible. However, potential areas along the power plant's east edge for planting trees and shrubs that would help blend the power plant with its surroundings and provide partial screening for views from the east are constrained by the existing power transmission lines and proposed switchyard and transmission lines. The Applicant is currently working to identify additional opportunities for planting along the east side of the power plant that would provide partial screening and help blend the project with its surroundings. Staff will review the revised plan and report its evaluation in an addendum to the Staff Assessment. If sufficient additional planting along the east side of the power plant cannot be accomplished, the project would cause potentially significant visual impacts for views from the area represented by KOP 1.

Conditions of Certification **VIS-3** and **VIS-4** should be implemented to ensure that project structures, fences, and walls would be treated so they do not unduly contrast with their surroundings in regard to color and finish.

KOP 2: View East from Hansen Road Residence

Contrast

VISUAL RESOURCES Figure 3B is a visual simulation of the project from the area of KOP-2 with landscaping 5 years after planting. The complex geometric lines and forms of the proposed power plant would cause a moderately high contrast with the horizontal lines and forms of the broad, open field. However, the power plant would have forms and lines similar to, but more ordered and less complex than, those of the nearby industrial facilities and water tower, and its scale would be similar to that of the industrial facilities when viewed from the area of KOP-2. From this direction, the power plant would appear fairly close to the existing industrial facilities and somewhat unified with them. The water tank at the power plant is similar in form and scale to the existing pale blue tank at the nearby industrial facilities. Although the power plant's contrast with the open field would be moderately high, its contrast with the nearby industrial facilities would be very low. The power plant's light gray colors would contrast moderately with the tan and green shades of the rural landscape. However, the plant's colors would be similar to the light grays and pastels of the nearby industrial facilities and would produce little color contrast with these highly visible nearby elements. Similarly, the smoother

and less coarse textures of the power plant would produce a low level of textural contrast with the industrial facilities.

The existing industrial facilities in the view have already introduced levels of contrast to the rural landscape similar to those of the proposed project. Therefore, the increment of contrast that the power plant would cause with regard to form, line, color, scale, and texture would be small, and the power plant's degree of overall contrast with the existing setting would be moderately low.

Project Dominance

The view from the area of KOP 2 is fairly open. Silhouetted against the sky, the power plant would be highly noticeable in the open landscape. However, because the project would be approximately 1.5 miles from the view area, it would not be very noticeable, so its spatial dominance would be subordinate. The power plant would occupy a small portion of the total field of view, so scale dominance would be subordinate.

View Blockage

In the views from the area of KOP 2, the moderately high visual quality coastal hills are not visible and there are no other important features in the direction of the power plant that would be blocked. The power plant would be positioned in front of and block views of an existing cluster of light-colored industrial structures on the horizon in the background as well as a small portion of sky. Overall, the project would block a minor portion of a low to moderate quality view, so view blockage would be negligible from the view area represented by KOP 2.

Overall Visual Change and Visual Impact Significance

As explained above, the project would cause a moderately low overall degree of visual contrast. It would be subordinate in spatial dominance and scale dominance, and it would cause negligible view blockage. The degree of overall visual change due to the project would be moderately low based on the moderately low degree of visual contrast. Therefore, even considering the moderately high overall visual sensitivity of views from the area represented by KOP 2, the resulting impact would be less than significant.

Mitigation Measures

Although no mitigation is required for visual impacts to views from the areas of KOP 2, the project would be highly visible in the landscape and easily seen from the area of the residences, which have high viewer sensitivity. The applicant has proposed landscape treatment to help blend the power plant with its surroundings. **VISUAL RESOURCES Figure 3B** is a visual simulation of the project as viewed from KOP 2, 5 years after trees and shrubs are planted based on the applicant's proposed landscape plan. **VISUAL RESOURCES Figure 3C** shows the appearance of the project with trees and shrubs at maturity based on the applicant's proposed landscape plan. The heights, density, and placement of plantings are not effective in blending the power plant with its surroundings. Condition of Certification **VIS-1** should be implemented to ensure that the plantings will be more effective in helping blend the power plant with its surroundings, and in screening the plant from view to the extent feasible. In addition, Conditions of Certification **VIS-3** and **VIS-4** should be implemented to ensure that project structures,

fences, and walls would be treated so they do not unduly contrast with their surroundings in regard to color and finish.

KOPs 3, 4, and 5: View Northeast from Residences

Contrast

VISUAL RESOURCES Figures 4C and 5C are visual simulations of the project from the area of KOPs 3 and 4 with landscaping at maturity. The complex geometric lines and forms of the proposed power plant would cause moderately high contrast with the open fields in the views. However, the power plant would have forms and lines somewhat similar to those of the nearby industrial facilities, tanks, and water tower. The power plant's forms tend to be more vertical than those of the massive horizontal buildings nearby, but somewhat similar to those of the water tower and industrial facility nearby. The power plant's scale would be similar to that of the industrial facilities when viewed from the area of any of the three residences. From this direction, the power plant would appear fairly close to the existing industrial facilities and somewhat unified with them. This is especially true for views from the two eastern-most residences. The water tank at the power plant would be similar in form and scale to the existing pale blue and rust-colored tanks at the nearby industrial facilities. The power plant's light gray colors would be similar to the light grays and pastels of the nearby industrial facilities and produce little color contrast with these or other elements in the views. From the direction and distance of these combined KOPs, the textures of the power plant would appear very similar to those of the nearby industrial facilities. Therefore, the power plant's contrast with regard to form, line, color, scale, and texture of the nearby industrial facilities would be moderately low.

The existing industrial facilities in the view have already introduced levels of contrast to the rural landscape similar to those of the proposed project. Therefore, the increment of contrast that the power plant would cause with regard to form, line, color, scale, and texture would be small, and the power plant's degree of overall contrast with the existing setting would be moderately low.

Project Dominance

Views from KOPs 3, 4, and 5 are panoramic and elevated in relation to the proposed power plant site. The power plant would be backdropped by the background trees and residences of Tracy and fields on the valley floor. The plant would be central in the view. Because the power plant would be in the middleground distance zone approximately one mile away, it would be only slightly noticeable so its spatial dominance would be subordinate. The power plant would occupy a small portion of the total field of view, so scale dominance would be subordinate.

View Blockage

From the view areas represented by KOPs 3, 4, and 5, the project would block fields, trees, and residences in and near Tracy that comprise a minor portion of the background in a moderately low quality view of the valley. Therefore, view blockage would be negligible from these view areas.

Overall Visual Change and Visual Impact Significance

As explained above, the power plant would cause moderately low contrast with the existing setting. It would be subordinate in regard to scale dominance and spatial dominance. The project would cause negligible view blockage. The degree of overall visual change due to the project would be moderately low due to the moderately low visual contrast. Therefore, even considering the moderately high overall visual sensitivity of the views from the areas of KOPs 3, 4, and 5, the visual impacts of the project to those views would be less than significant.

Mitigation Measures

Although no mitigation is required for visual impacts to views from the areas of KOPs 3, 4, and 5, the project would be highly visible in the landscape and easily seen from the area of the residences which have high viewer sensitivity. The applicant has proposed landscape treatment to help blend the power plant with its surroundings. **VISUAL RESOURCES Figures 4C and 5C** show the appearance of the project with trees and shrubs at maturity based on the applicant's proposed landscape plan. The heights, density, and placement of plantings are not effective in blending the power plant with its surroundings. This effect is particularly evident in **VISUAL RESOURCES Figure 5C,** which shows the open spacing and low heights of plantings at maturity. Given the moderately high overall visual sensitivity of the project's setting, Condition of Certification **VIS-1** should be implemented to ensure that the plantings will be more effective in helping to blend the power plant with its surroundings and to screen it from view to the extent feasible. In addition, Conditions of Certification **VIS-3 and VIS-4** would ensure that project structures, fences, and walls would be treated so they do not unduly contrast with their surroundings in regard to color and finish.

KOP 6: View of Transmission Line Crossing at I-580

KOP 6 was eliminated because the transmission line crossing of I-580 was eliminated from the project description. Therefore, KOP 6 is not evaluated in this analysis.

KOP 7: View Northeast from Delta-Mendota Canal

Contrast

VISUAL RESOURCES Figure 7B is a visual simulation of the project from the area of KOP-7 with landscaping 5 years after planting. The vertical, complex geometric lines and forms of the proposed power plant and its electric line interconnection elements would contrast strongly with the horizontal lines and forms of the broad, open field dominating this view of the landscape. The power plant would have forms and lines similar to but busier and more varied than those of the nearby industrial facilities and water tower, creating moderate form and line contrast with the existing nearby industrial facilities. The existing structures have created a high level of form and line contrast with the open field. Because the power plant's contrast with the existing industrial facilities in regard to form and line would be moderate, and the plant would cause a high increment of contrast with the form and line of the open field in the view, overall contrast in form and line would be moderately high. From the area of KOP-7, the power plant would appear much larger than that of the existing industrial facilities because of its closer proximity to viewers. Therefore, the power plant's contrast with existing structures in

regard to scale would be high. The power plant's light gray colors would contrast moderately with the tan and green colors of the fields. The plant's colors would be similar to those of the nearby industrial facilities so color contrast with existing structures would be low.

The existing industrial facilities have already introduced a moderate level of color contrast to the rural landscape similar to those of the proposed project. Because the projects' colors would be similar to those of the existing structures, the increment of color contrast with the field that the power plant would cause would be small, and the power plant's degree of overall contrast with the existing setting in regard to color would be low. Because of its proximity to viewers, the power plant would appear much coarser in texture than the nearby industrial facilities so it would produce a high level of textural contrast.

Project Dominance

Viewed from this near foreground position, the project would appear to be of considerable size and occupy most of the viewer's field of view and setting, so scale dominance would be dominant. Because the power plant would be central to the view and extremely close to viewers and tower above them, its spatial dominance would be dominant.

View Blockage

From the view area represented by KOP 7 the project would block views of most of the existing landscape to the north and northwest, including views of the nearby industrial facilities and water tower. Overall, the project would block most of a view that has low to moderate visual quality, so the level of view blockage would be low.

Overall Visual Change and Visual Impact Significance

As explained above, in views from the area represented by KOP 7 the project would cause high contrast in regard to texture, moderately high contrast in regard to form and line, and moderately low contrast in regard to color. Its overall visual contrast would be moderately high. It would also have high scale dominance and spatial dominance. The level of view blockage would be low. The overall visual change caused by the proposed project would be high due to the high scale dominance and high spatial dominance. Nevertheless, because of the moderately low overall visual sensitivity of the setting, the visual impacts to views from the area of KOP 7 would be less than significant.

Mitigation Measures

Although no mitigation is required for visual impacts to views from the area of KOP 7, the project would be highly dominant in the extremely close-up views from the publicly accessible canal access road. The applicant has proposed landscape treatment to help blend the power plant with its surroundings. **VISUAL RESOURCES Figure 7B** is a visual simulation of the project as viewed from KOP 7, 5 years after trees and shrubs are planted based on the applicant's proposed landscape plan. **VISUAL RESOURCES Figure 7C** shows the appearance of the project with trees and shrubs at maturity based on the applicant's proposed landscape plan. The heights, density, and placement of plantings are not effective in even partially screening the power plant or helping blend it

with its surroundings. This effect is particularly evident in **VISUAL RESOURCES Figure 7C,** which shows the open spacing and low heights of plantings at maturity. Given the close proximity of the power plant to viewers who would use the canal road for recreation purposes, Condition of Certification **VIS-1** should be implemented to ensure that the plantings are more effective in helping blend the power plant with its surroundings and in screening close-up views of it to the extent feasible. In addition, Conditions of Certification **VIS-3 and VIS-4** would ensure that project structures, fences, and walls are treated so they will not unduly contrast with their surroundings in regard to color and finish.

KOPs 8 and 9: Views Southwest from Residences near West Schulte Road and Lammers Road Intersections

Contrast

VISUAL RESOURCES Figure 8B is a visual simulation of the project from the area of KOP 8 with landscaping 5 years after planting. The vertical, complex geometric lines and forms of the proposed power plant would contrast strongly with the horizontal lines of the broad, open field and the more rounded and somewhat horizontal overall form of the background hills in the landscape. However, the power plant would have forms and lines similar to, but more ordered and less complex than, those of the nearby industrial facilities and water tower. It would appear similar to, but smaller and less massive than, that of the industrial facilities when viewed from the area of KOPs 8 and 9. Also, the water tower appears noticeably taller than the stacks of the power plant. The power plant would appear smaller in scale than the nearby industrial facilities in views from the area of KOPs 8 and 9. Therefore, the power plant's contrast with nearby industrial facilities with regard to form, line, and scale would be low. The existing structures have created a high level of form and line contrast with the open field. Because the power plant's contrast with the existing industrial facilities in regard to form, line, and scale would be low, the plant would cause a small increment of contrast with the open field in regard to those elements, and overall contrast in regard to form, line, and scale would be low to moderate. The power plant's light gray colors would be similar to those of the nearby industrial facilities and so would produce a low level of color contrast with those structures. The power plant would have a slightly finer texture than, and produce a low level of textural contrast with, the existing industrial facilities.

The existing industrial facilities have caused a moderate level of color and texture contrast with the open field. Because the proposed project would create low levels of color and texture contrast with those structures, it would create a very small increment of contrast with the field, so overall color and texture contrast would be low.

Project Dominance

The views from the area of KOPs 8 and 9 are open. Backdropped by the background hills, the power plant would be moderately noticeable in the central portion of the view, so its spatial dominance would be subordinate. Because the project would be somewhat distant in the middleground, it would occupy a small portion of the field of view so its scale dominance would be subordinate.

View Blockage

In the views from the area of KOPs 8 and 9, the coastal hills are highly visible and views of the landscape are of moderately high visual quality. Some elements, such as transmission towers, power poles, the water tower, and the industrial facilities, already cause some fragmentation and blockage of portions of the hills. However, the project would be smaller than both the hills and the industrial facilities and it would not penetrate the skyline above the hills. Also, in these middleground views, the power plant would block a small portion of the hills. Overall, the project would block a minor portion of a view with moderately low quality visual quality, so it would cause a negligible degree of view blockage.

Overall Visual Change and Visual Impact Significance

As explained above, in views from the area of KOPs 8 and 9 the project would cause low to moderate levels of contrast in form, line, and scale; and low levels of contrast in color and texture. It would be subordinate in scale dominance and spatial dominance, and its degree of view blockage would be negligible. The overall visual change due to the project would be weak. Therefore, even considering the moderately high overall visual sensitivity of the setting from KOPs 8 and 9, the resulting visual impact would be less than significant.

Mitigation Measures

Although no mitigation is required for impacts to views from the area of KOPs 8 and 9, the power plant would be highly visible in the open landscape and easily seen from residences with high viewer sensitivity. The applicant has proposed landscape treatment to help blend the power plant with its surroundings. **VISUAL RESOURCES Figure 8B** is a visual simulation of the project as viewed from KOP 8, 5 years after trees and shrubs are planted based on the applicant's proposed landscape plan. **VISUAL RESOURCES Figures 8C** shows the appearance of the project with trees and shrubs at maturity based on the applicant's proposed landscape plan. The heights, density, and placement of plantings are not effective in blending the power plant with its surroundings. Given the moderately high overall visual sensitivity of the project's setting, Condition of Certification **VIS-1** should be implemented to ensure that the plantings will be more effective in helping blend the power plant with its surroundings and in screening it from view to the extent feasible. In addition, Conditions of Certification **VIS-3 and 4** would ensure that project structures, fences, and walls are treated so they do not unduly contrast with their surroundings in regard to color and finish.

KOP 10: View from I-580

Contrast

VISUAL RESOURCES Figure 9B is a visual simulation of the project from the area of KOP 10 with landscaping 5 years after planting. The geometric lines and forms of the proposed power plant would cause a moderate contrast with the forms and lines of the elements visible in the middleground and background of the view and it would cause moderately high contrast with the forms and lines of the open field in the foreground.

Although the power plant would have forms and lines somewhat similar to those of the nearby industrial facilities and water tower, its forms would be somewhat more vertical than those of the industrial facilities nearby. Because it would be nearer to the viewers than the existing industrial facilities, the power plant would appear slightly larger and more massive than those facilities when viewed from I-580. Therefore, the power plant's contrast with the nearby industrial facilities with regard to form and line would be moderate. However, the existing structures have created a moderately high level of form and line contrast with the open field. Because the power plant's contrast with the existing industrial facilities in regard to form and line would be moderate and the existing industrial facilities have already caused a moderately high contrast in form and line with the open field, the overall increment of contrast in form and line that would be caused by the power plant would be moderate.

The power plant's light gray colors would be similar to the light grays and pastels of the nearby industrial facilities and produce a low level of color contrast. The gray colors of the power plant would contrast moderately with the tan and green colors of the fields in the view. Therefore, overall color contrast would be moderately low.

The plants' texture would appear somewhat smoother than that of the fields, so texture contrast would be moderate. From the direction and distance of this KOP, the textures of the power plant would be similar to, but slightly less coarse than, those of the nearby industrial facilities, so texture contrast with those structures would be low. Overall texture contrast would be moderately low.

Because the proposed project would create moderately low levels of color and texture contrast and a moderate overall contrast in form and line with the landscape and nearby industrial facilities, its overall contrast would be moderately low.

Project Dominance

The views from the area of KOP 10 are somewhat elevated and look out over the broad valley. Travelers on the highway would look slightly down at and beyond the power plant. The upper portions of the HRSG stacks would be silhouetted against the sky for some views from the highway, and the rest of the power plant would be backdropped against the valley, including background trees and residences of Tracy. The project would be somewhat noticeable in the landscape. The project's relative location would change from near the center of the travelers' primary cone of vision to near its edge as travelers approach the project. Considering these factors, the project would be spatially subordinate. Because the project would be seen in the middleground between 1 and 2 miles away, it would occupy a minor portion of the field of view so its scale dominance would be subordinate.

View Blockage

The project would block a minor portion of a view of the valley, including background fields, trees, and residences in and near Tracy. The HRSG stacks would extend slightly above the horizon into the sky. The project would also partially block views of nearby industrial facilities for some portions of the travel route. It would not block important or scenic features in the landscape. Also, because viewers would be in motion, blockage of any particular area or view would be very brief. Overall, the project would block a

minor portion of a moderately low quality view, so the level of view blockage would be negligible.

Overall Visual Change and Visual Impact Significance

As explained above, the project would cause moderate contrast in form and line and moderately low contrast in color and texture. Its overall visual contrast in views from the highway would be moderately low. Its scale dominance and spatial dominance would be subordinate. It would cause a negligible degree of view blockage. Therefore, the overall visual change due to the project would be moderately low. Although the overall visual sensitivity of the views along I-580 is moderately high, the resulting visual impacts would be less than significant.

Mitigation Measures

The applicant has proposed landscape treatment to help blend the power plant with its surroundings, with special emphasis on protecting views from the scenic highway and to comply with local LORS. **VISUAL RESOURCES Figure 9B** is a visual simulation of the project as viewed from KOP 10, 5 years after trees and shrubs are planted based on the applicant's proposed landscape plan. **VISUAL RESOURCES Figure 9C** shows the appearance of the project with trees and shrubs at maturity based on the applicant's proposed landscape plan. The heights, density, and placement of plantings are not effective in blending the power plant with its surroundings. This effect is particularly evident in **VISUAL RESOURCES Figure 9C,** which shows the open spacing and low heights of plantings at maturity. Condition of Certification **VIS-1** should be implemented to help ensure that the plantings are more effective in helping blend the power plant with its surroundings and in screening the project from view to the extent feasible. In addition, Conditions of Certification **VIS-3 and VIS-4** would ensure that project structures, fences, and walls are treated so they do not unduly contrast with their surroundings in regard to color and finish. With proper implementation of staff's proposed conditions of certification, the visual impacts of the project would remain less than significant.

Visible Plumes

To evaluate the potential for visible HRSG water vapor plumes, staff compared exhaust temperatures and moisture content, based on anticipated stack exhausts for the simple-cycle Tracy Peaker Project (using GE Model PG7121 turbines), to the results of the plume analysis completed for the simple-cycle Spartan I Energy Center Project (using GE Model LM6000 turbines). A review of the Applicant's turbine exhaust data presented in the AFC (GWF 2001a) found that the exhaust temperatures are essentially equivalent (850°F vs. 810-861°F), while the moisture content is significantly lower for Tracy than for Spartan (Spartan 2000). Therefore, the results from plume analysis for Spartan would conservatively estimate the plume potential for Tracy (Walters 2001).

For Spartan, a psychometric modeling analysis was performed to determine the potential for turbine exhaust visible water vapor plumes. This modeling analysis (Fagundes 2001) indicates that no visible plumes would form. The extremely high turbine exhaust temperature precludes the formation of visible water vapor plumes, even under the most extreme weather conditions. Similarly, no turbine exhaust plumes are expected to form for the Tracy project. There is the potential that other visual

phenomena, such as heat distortion of the view directly through the exhaust plume, may be observed (Walters 2001). However, this effect would be extremely minor for the middleground views of the project from most KOPs and would also not be very noticeable in foreground views from KOP 7. Therefore, this effect would not cause a significant adverse visual impact.

No wet cooling equipment is proposed for the project (Walters 2001), therefore the project would cause no cooling-related visible plumes.

d) Light or Glare

The project site is undeveloped and has no sources of nighttime lighting. There are some existing sources of night lighting in the vicinity of the project site. These sources include nearby industrial facilities and residential areas. Scattered rural residences in the area also produce small amounts of light.

The proposed project would require night lighting for safety and security during both operation and construction. The project would also use some materials, such as galvanized steel and aluminum, that would have reflective surfaces. Therefore, the project has the potential to create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

To minimize the potential visual impacts of nighttime light and glare, the Applicant has stated (GWF 2001a) that light would be directed toward the interior of the plant to minimize off-site light and glare impacts, and lighting fixtures would include shields and hoods to produce downcast that would minimize backscatter of light. To minimize daytime glare from reflective surfaces, the Applicant has stated (GWF 2001a) that surface finishes for the project would primarily be painted steel and a minimal number of features would have galvanized steel and aluminum surfaces. The Applicant has stated that these surfaces typically corrode, oxidize, and become dull within a few years of installation and that the potential impacts from glare would be temporary.

GWF (2001i) has developed a night lighting plan that would be implemented throughout construction and operation of the power plant to ensure safety and minimize the potential for visual impacts. GWF (2001i) has stated that its design objectives for night lighting are to maximize energy efficiency, assure safety and convenience of construction workers, and minimize the potential visual impacts to the TPP vicinity. To reduce the potential for offsite visual impacts due to night lighting and glare, GWF (2001i) has proposed the following measures:

- All new lighting will be the minimum necessary brightness consistent with operational safety.
- All new lighting will be shielded and directed downward to prevent up-lighting and direct light trespass (direct lighting extending outside the boundaries of the TPP).
- All night lighting height will be limited to avoid excessive illumination.
- Wherever feasible and safe, lighting shall be kept off when not in use.

- A lighting complaint resolution form shall be maintained at the TPP site by plant operations, to record all lighting complaints received and to document the resolution of that complaint.
- Lighting consistent with local requirements shall be installed.
- Emergency lighting equipment will be available and maintained in full functional condition on-site at all times.
- Emergency exit routes shall be illuminated at all times.
- Use of fossil-fueled lighting, such as kerosene lanterns and gas lamps, is prohibited except for emergency purposes.
- No lights shall be installed that may distract offsite motorists.

GWF (2001i) has stated that it will comply with all OSHA standards for construction lighting and, in addition, will implement the following measures:

- Remove temporary construction lighting units when no longer required.
- Construction lighting would minimize on- and off-site glare.
- Use of searchlights, spotlights, and floodlights is subject to review and approval by the appropriate authorities except for emergency purposes.
- Operation of lighting equipment beyond construction hours is prohibited, except lighting for security purposes and lighting for the areas like water, telephones, fire alarms, traffic signs, parking lots, and power control cabinets.
- Lighting of billboards and advertisements and holiday lights at the construction site is prohibited.

In addition, staff recommends the following measures to ensure that visual impacts of light and glare for the project are minimized:

- Lighting will be restricted to areas required for safety, security, and operation;
- High illumination areas not occupied on a regular basis will be provided with switches or motion detectors to light these areas only when occupied; and
- To reduce offsite visibility and potential glare, non-glare fixtures will be specified, lights will be directed to illuminate only those areas where the light is needed, and lights will be hooded and shielded.

Staff has incorporated these measures in proposed Condition of Certification **VIS-5**. With proper implementation of this condition, visible nighttime lighting and glare impacts would be kept to less than significant levels.

To reduce potential glare from project structures that could affect daytime views, Staff recommends the following measures:

- The switchyard equipment will have a neutral gray finish.
- The power poles and other facilities for electric transmission will be treated with a galvanized neutral gray finish.

- Non-specular conductors will be used.
- Insulators will be non-reflective and non-refractive.
- Project elements will use low-glare materials and finishes.
- Minimize the use of features that have galvanized steel and aluminum surfaces.
- For any galvanized steel, aluminum, or other highly reflective surfaces that must be used and will be visible from beyond the project site, treat the visible surfaces with an approved dulling agent that will accelerate the process of surface oxidation, corrosion, or dulling.

Staff has incorporated these measures in proposed conditions of certification (**VIS-3** and **VIS-4**). With proper implementation of these conditions of certification, glare impacts that could affect daytime views would be kept to less than significant levels.

ENVIRONMENTAL JUSTICE

Staff has reviewed Census 2000 information that shows the minority population is less than fifty percent within a six-mile radius of the proposed Tracy Peaker Project (please refer to **Socioeconomics Figure 1** in this Staff Analysis), and Census 1990 information that shows the minority/low income population is less than fifty percent within the same radius. There is, however, a pocket of minority persons within six miles that staff has considered for impacts. Staff has determined that potential impacts would be mitigated to less than significant levels by proper implementation of staff's proposed conditions of certification. Therefore, there are no environmental justice issues related to this project.

CUMULATIVE IMPACTS

Staff has not identified any reasonably foreseeable projects in the vicinity of the project that would contribute to cumulative visual impacts. The development projects identified as reasonably foreseeable in **Land Use Table 4** are either located outside of the general viewshed of the project or would be in locations where they would not be easily noticeable in views from the KOPs analyzed in this assessment. Therefore, the project would not contribute to cumulative visual impacts of reasonably foreseeable projects.

The project has the potential to contribute considerably to the cumulative visual impacts that previous projects have caused in the project viewshed. However, proper implementation of staff's proposed conditions of certification would substantially reduce the project's contribution to cumulative impacts.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

STATE

Interstate 580 (I-580) in San Joaquin County from Interstate 5 to the Alameda County line is designated as a State Scenic Highway (State Scenic Highway System Web Site). Therefore, state standards pertaining to scenic resources are applicable to the project. No other roadways in the project vicinity are eligible or designated as State Scenic

Highways; therefore, no additional state standards pertaining to scenic resources are applicable to the project. No specific state regulations govern development within a state scenic highway corridor; however, this state designation requires that the local jurisdiction must have adopted a scenic corridor protection program that includes identification of ordinances to preserve the scenic quality of the designated corridor. Minimum requirements of a scenic corridor protection program include regulation of land use and density of development, detailed land and site planning, careful attention to design and appearance of structures and equipment, and other requirements. Staff's evaluation of state LORS related to scenic designation of I-580 addresses compliance with these requirements below in the section "Local." Based on Staff's evaluation of local LORS, compliance with local LORS regarding scenic designation of I-580 would also constitute compliance with state LORS.

LOCAL

The County of San Joaquin recognizes in its general plan (San Joaquin County 1992) the value and importance of providing and maintaining a visually attractive environment. One objective identified in the Community Development section of the plan is "to create a visually attractive County" (p. IV-4, San Joaquin County 1992).

VISUAL RESOURCES Table 5 provides a listing of the applicable County of San Joaquin LORS. Several relevant policies were found to pertain to the enhancement and/or maintenance of visual quality. **Table 5** includes a determination of the project's consistency with these policies and standards before mitigation or conditions are applied and provides a summary of the basis for the determination of consistency.

Staff has determined that the project as proposed would be inconsistent with three of seven applicable policies in the San Joaquin County General Plan (San Joaquin County 1992). However, in reviewing this project, Staff has determined that compliance with these three policies could be achieved with implementation of Conditions of Certification **VIS-1, VIS-2, VIS-3, VIS-4, and VIS-5**. Central to achieving consistency with the County's general plan policies is Condition of Certification **VIS-1,** which would require further development and improvement of the project's landscape plan to ensure that the project landscaping is more effective in helping to blend the project with its surroundings and screen views of it. With proper implementation of staff's proposed conditions of certification, the project would be expected to comply with these policies.

VISUAL RESOURCES: Table 5
Proposed Project's Consistency with
Local LORS Applicable to Visual Resources

LORS		Consistency Determination Before Mitigation / Conditions	Basis for Consistency
Source	Policy and Strategy Descriptions		

VISUAL RESOURCES: Table 5
Proposed Project's Consistency with
Local LORS Applicable to Visual Resources

LORS		Consistency Determination Before Mitigation / Conditions	Basis for Consistency
Source	**Policy and Strategy Descriptions**		
County of San Joaquin General Plan, Open Space section	Open Space Policy 10. Views of waterways, hilltops, and oak groves from public land and public roadways shall be protected.	Consistent	The project as proposed would not have a significant adverse effect on views of waterways, hilltops, and oak groves from public land and public roadways in the vicinity of the project. The project would block very small portions of the tops of coastal hills for some very limited viewing locations; however, view blockage is not considered to be substantial. Therefore, the project is expected to comply with this policy.
County of San Joaquin General Plan, Open Space section	Open Space Policy 11. Outstanding scenic vistas shall be preserved and public access provided to them whenever possible.	Consistent	The project would not adversely affect any outstanding scenic vistas in the project area. Therefore, the project is expected to comply with this policy.
County of San Joaquin General Plan, Open Space section	Open Space Policy 12. The County should recognize roads shown in Figure VI-2 as scenic routes and as valuable in enhancing the recreational experience for County residents and non-residents.	Consistent	I-580 is identified in Figure VI-2 as a scenic route and is also designated by the State as a scenic highway. This policy directs the County to recognize that I-580 is a designated scenic route and apply other county policies to I-580 that are applicable to scenic routes. Therefore, the Applicant is not required to comply with this policy.
County of San Joaquin General Plan, Open Space section	Open Space Policy 13. Development proposals along scenic routes shall not detract from the visual and recreational experience.	Potentially Inconsistent	I-580 is designated by both the County and State as a scenic route. The project would be highly visible from I-580 for westbound travelers and has the potential to detract from the visual experience and create a new source of light or glare. By complying with Open Space Implementation Policy 7 (see below), the project would comply with this policy. **Implementation of staff's proposed Conditions of Certification VIS-1 through VIS-5 would ensure that the project complies with this policy.**
County of San Joaquin General Plan, Open Space section	Open Space Implementation Policy 7. Scenic Route Enhancement. The County shall:	Potentially Inconsistent	The Applicant has prepared a landscape plan for the project to comply with item (b) of this implementation policy. Staff has determined that the landscape plan needs further

VISUAL RESOURCES: Table 5 Proposed Project's Consistency with Local LORS Applicable to Visual Resources			
LORS		**Consistency Determination Before Mitigation / Conditions**	**Basis for Consistency**
Source	**Policy and Strategy Descriptions**		
	b) require landscape plans for development along scenic routes (Planning); and c) Include in the Design Review Manual guidelines for development in the viewshed of the scenic route. (Planning)		development and improvement to be effective in helping blend the power plant with its surroundings. **Implementation of staff's proposed** Conditions **of Certification VIS-1 through VIS-5 would ensure that the project complies with this policy.**
County of San Joaquin General Plan, Community Development section	Community Development Policy 11. Development should complement and blend in with its setting.	Potentially Inconsistent	In reviewing this project, Staff has determined that the project could be improved to help better blend the power plant with its setting. To accomplish this, the landscape plan needs further development and improvement to be effective. **Implementation of staff's proposed Conditions of certification VIS-1 through VIS-5 would ensure that the project complies with this policy.**
County of San Joaquin General Plan, Community Development section	Community Development Policy 12. Aesthetics should be considered when reviewing development proposals.	Potentially inconsistent	The Applicant considered aesthetics in preparing the plan for the proposed project by identifying materials and finishes, addressing light and glare, and developing a landscape plan to reduce visual impacts. However, in reviewing this project Staff has determined that the landscape plan needs further development and improvement to be effective in helping blend the power plant with its surroundings and screen it from public views. **Implementation of staff's proposed Conditions of certification VIS-1 through VIS-5 would ensure that the project complies with this policy.**

RESPONSES TO AGENCY AND PUBLIC COMMENTS

AGENCY COMMENTS

No agency comments on visual resources have been received.

PUBLIC COMMENTS

Don Washburn

DW-3 *Other than the obvious pollution, how will the aesthetics of the area be affected and who makes this judgment? How will this lower/impact property value?*

Staff has analyzed the aesthetics of the area and the potential impacts of the proposed project on the visual character and quality of the area to comply with requirements of CEQA. Staff's analysis demonstrates that potentially significant visual impacts could occur and staff has identified mitigation measures that would reduce these potential impacts to less than significant levels. Staff conducting the visual analysis has not determined how potential visual impacts may affect property values in the area and does not have the expertise to make such a determination.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The project as proposed has the potential to cause significant adverse visual impacts to views from several areas because of its location in the view and because of the change that it would cause to the existing setting. Both the Applicant and Staff have identified mitigation measures that would reduce these potential impacts. Staff has incorporated these measures in proposed Conditions of Certification **VIS-1 through VIS-5**. With proper implementation of these conditions, these potential impacts would be less than significant except that the visual impact to the view area represented by KOP 1 would remain significant. Proposed landscaping would not be effective in screening the power plant from view in this area. The applicant is revising its conceptual landscaping plan to achieve effective screening. However, the presence of existing transmission lines and the proposed switchyard on the east side of the project site may prevent this. Staff will review the applicant's revised conceptual landscaping plan and present its evaluation in an addendum to the Staff Assessment.

The project as proposed also has the potential to cause significant adverse visual impacts by creating a new source of substantial nighttime light or glare which would adversely affect day or nighttime views in the area. These impacts would be due to the project introducing new sources of night lighting for safety and security during both construction and operation of the project, as well as using some materials, such as galvanized steel and aluminum, with reflective surfaces that could create daytime glare. Both the Applicant and Staff have identified mitigation measures that would reduce these potential impacts to less than significant levels. Staff has incorporated these measures in proposed Conditions of Certification **VIS-3, VIS-4,** and **VIS-5**. With proper implementation of these conditions, visible nighttime lighting and glare and daytime glare impacts would be kept to less than significant levels.

In addition, the project as proposed appears to be inconsistent with four General Plan policies, addressing preservation of visual quality along scenic routes, landscaping requirements for development along scenic routes, blending new development with its setting, and considering aesthetics when reviewing development proposals. Staff has

developed conditions of certification (**VIS-1, VIS-2, VIS-3, and VIS-4**) that address these policies. Central to achieving consistency with the County's general plan policies is Condition of Certification **VIS-1,** which would require further development and improvement of the project's landscape plan to ensure that the project landscaping is more effective in helping to blend the project with its surroundings and screen views of it. As discussed above, proposed landscaping would not be effective from the area represented by KOP 1, and the applicant is revising its conceptual landscaping plan to address this. Staff will review the revised plan and report its evaluation in an addendum to the Staff Assessment.

RECOMMENDATION

If the Energy Commission decides to approve the project, Staff recommends that the Commission adopt the following conditions of certification.

PROPOSED CONDITIONS OF CERTIFICATION

VIS-1 Prior to start of commercial operation and as early as possible during the construction period, the project owner shall implement an approved revised perimeter landscape plan to help blend the project with its surroundings and to screen the project from public view to the extent feasible. The plan shall indicate types, quantities, sizes, arrangements, and placements of plants in a manner that shall screen views of the power plant to the greatest extent possible from I-580 and other KOPs identified for this project. Landscaping shall consist of a mix of trees and shrubs. The use of fast- and tall-growing, evergreen species suitable to the local growing and weather conditions shall be emphasized to ensure that maximum screening is achieved as quickly as possible and year-round. The use of additional evergreen and deciduous trees and shrubs with more moderate growth rates and sizes are encouraged to create a varied and aesthetic visual effect and screening. Suitable irrigation shall be installed and maintained to ensure survival of the plantings.

Protocol: Prior to start of construction, the project owner shall submit a perimeter landscape plan to the County of San Joaquin for review and comment, and to the Compliance Project Manager (CPM) for review and approval. The plan shall include, but not be limited to:

a) A detailed landscape and irrigation plan, at a reasonable scale, which includes a list of proposed tree and shrub species and installation sizes, and a discussion of the suitability of the plants for the site conditions and mitigation objectives. A list of potential tree species that would be viable in this location shall be prepared by a qualified licensed landscape architect or certified arborist familiar with local growing conditions, with the objective of providing the widest possible range of species from which to choose. The plan shall demonstrate how the screening conditions called for above shall be met, including evidence provided by a qualified licensed landscape architect or certified arborist that the species selected are both viable and available.

b) Maintenance procedures, including any needed irrigation and a plan for routine annual or semi-annual debris removal for the life of the project; and

c) A procedure for monitoring for and replacement of unsuccessful plantings for the life of the project.

The project owner shall not implement the plan until the project owner receives approval of the plan from the CPM.

Verification: At least 30 (thirty) days prior to start of construction, the project owner shall submit the revised perimeter landscape plan to San Joaquin County for review and comment and to the CPM for review and approval.

If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 15 (fifteen) days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within 7 (seven) days after completing installation of the landscape screening that the planting and irrigation system are ready for inspection.

The project owner shall report landscape maintenance activities, including replacement of dead vegetation, for the previous year of operation in the Annual Compliance Report.

VIS-2 The project owner shall ensure that visual impacts of project construction are adequately mitigated by implementing the following measures:

Staging, material, and equipment storage areas, if visible from public rights-of-way, shall be visually screened with opaque fencing.

All evidence of construction activities, including ground disturbance due to staging and storage areas, shall be removed and remediated upon completion of construction. Any vegetation removed in the course of construction shall be replaced on a 1-to-1 in-kind basis. Such replacement planting will be monitored for a period of three years to ensure survival. During this period, all dead plant material shall be replaced.

Protocol: The project owner shall submit a plan for:

a) screening construction activities at the site and staging, material, and equipment storage areas;

b) restoring the surface conditions of staging, material, and equipment storage areas; and

c) restoring any rights-of-way disturbed during construction of the transmission line and underground pipelines. The plan shall include

grading to the original grade, and contouring and revegetation of the rights-of-way.

The project owner shall not implement the plan until receiving written approval of the submittal from the California Energy Commission Compliance Project Manager (CPM).

Verification: At least 60 (sixty) days prior to the start of site mobilization, the project owner shall submit the plan to the CPM for review and approval.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 (thirty) days of receiving that notification, the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within 7 (seven) days after installing the screening that the screening is ready for inspection.

The project owner shall notify the CPM within 7 (seven) days after completing the surface restoration that the areas disturbed during construction are ready for inspection.

VIS-3 Prior to first turbine roll, the project owner shall treat project structures, including the transmission facilities, and buildings in appropriate colors or hues that minimize visual intrusion and contrast by blending with the surrounding landscape, and shall treat those items in non-reflective, appropriately textured finishes. The project owner shall ensure that the transmission facilities use non-specular conductors, and non-reflective and non-refractive insulators. A specific treatment plan shall be developed for review and comment by San Joaquin County and for CPM review and approval to ensure that the proposed colors and treatment do not unduly contrast with the surrounding landscape. The plan shall be submitted sufficiently early to ensure that any pre-colored buildings, structures, and linear facilities will have colors approved and included in bid specifications for such buildings or structures.

Protocol: The treatment plan shall include the following requirements:

a) The switchyard equipment shall have a neutral gray finish.

b) The power poles and other facilities for electric transmission shall be treated with a galvanized neutral gray finish.

c) For any galvanized steel, aluminum, or other highly reflective surfaces that must be used and would be visible from beyond the project site, the visible surfaces shall be treated with an approved dulling agent that would accelerate the process of surface oxidation, corrosion, or dulling.

d) Specification, and 11" x 17" color simulations, of the treatment proposed for use on project structures, including structures treated during manufacture.

e) A list of each major project structure, building, and tank, specifying the color(s) proposed for each item.

f) Documentation that a non-reflective finish will be used on all project elements visible to the public.

g) Documentation that non-specular conductors, and non-reflective and non-refractive insulators will be used on the transmission facilities.

h) A detailed schedule for completion of the treatment.

i) A procedure to ensure proper treatment maintenance for the life of the project.

After approval of the plan by the CPM, the project owner shall implement the plan according to the schedule and shall ensure that the treatment is properly maintained for the life of the project.

For any structures that are treated during manufacture, the project owner shall not specify the treatment of such structures to the vendors until the project owner receives notification of approval of the treatment plan by the CPM.

The project owner shall not perform the final treatment on any structures until the project owner receives notification of approval of the treatment plan from the CPM.

The project owner shall notify the CPM after all pre-colored structures have been erected and all structures to be treated in the field have been treated and the structures are ready for inspection.

Verification: At least 60 (sixty) days prior to ordering the first structures that are color treated during manufacture, the project owner shall submit its proposed plan to the CPM for review and approval.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 (thirty) days of receiving that notification, the project owner shall submit to the CPM a revised plan.

Not less than 30 (thirty) days prior to the start of commercial operation, the project owner shall notify the CPM that all structures treated during manufacture and all structures treated in the field are ready for inspection.

The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report.

VIS-4 All fences and walls for the project shall be non-reflective and treated in appropriate colors or hues that minimize visual intrusion and contrast by blending with the surrounding landscape. Fences and walls for the project shall comply with any applicable requirements of the County of San Joaquin that relate to visual resources or fencing. Fencing shall be installed around the perimeter of

the facility. Perimeter fencing shall be six-foot-high, two-inch mesh non-reflective fabric chain link with sand-colored vertical PVC slats.

Protocol: Prior to ordering fences and walls the project owner shall submit to San Joaquin County for review and comment, and to the CPM for review and approval, design specifications for fences and walls and documentation of their conformance with any requirements of San Joaquin County.

The project owner shall not order fences and walls until the submittal is approved by the CPM.

Verification: At least 30 (thirty) days prior to ordering fences and walls, the project owner shall submit the specifications and documentation to San Joaquin County for review and comment and to the CPM for review and approval.

If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 30 (thirty) days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within 7 (seven) days after completing installation of the fencing that the fencing is ready for inspection.

VIS-5 Prior to first turbine roll, the project owner shall design and install all lighting such that light bulbs and reflectors are not visible from public viewing areas and illumination of the vicinity and the nighttime sky is minimized during both project construction and operation. The project owner shall develop and submit a lighting plan for the project to the County of San Joaquin for review and comment and to the CPM for review and approval. Lighting shall not be installed before the plan is approved.

Protocol: The lighting plan shall require that

a) Exterior lighting and parking lot lighting shall be provided in accordance with any local requirements.

b) Non-glare light fixtures shall be specified.

c) Lighting shall be designed so that exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of this outdoor lighting shall be such that the luminescence or light source, including all reflectors, is shielded to prevent light trespass (direct lighting extending outside the project boundary.

d) High illumination areas not occupied on a continuous basis, such as maintenance platforms, shall be provided with switches or motion detectors to light the area only when occupied.

e) All new lighting will be the minimum necessary brightness consistent with operational safety.

f) All night lighting height will be limited to avoid excessive illumination.

g) Wherever feasible and safe, lighting shall be kept off when not in use.

h) No lights shall be installed that may distract offsite motorists.

i) Remove temporary construction lighting units when no longer required.

j) Construction lighting would minimize on- and off-site glare.

k) Use of searchlights, spotlights, and floodlights is subject to review and approval by the appropriate authorities except for emergency purposes.

l) Operation of lighting equipment beyond construction hours is prohibited, except lighting for security purposes and lighting for the areas like water, telephones, fire alarms, traffic signs, parking lots, and power control cabinets.

m) Lighting of billboards and advertisements and holiday lights at the construction site is prohibited.

n) A lighting complaint resolution form (following the general format of that in Appendix VR-3) shall be used by plant operations, to record all lighting complaints received and to document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.

Verification: At least 90 (ninety) days before ordering the exterior lighting, the project owner shall provide the lighting plan to San Joaquin County for review and comment and to the CPM for review and approval.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 (thirty) days of receiving that notification the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within 7 (seven) days of completing exterior lighting installation that the lighting is ready for inspection.

REFERENCES

Fagundes. 2001. Spartan I Energy Center Project Turbine Exhaust Visible Plume Analysis. Testimony of Matt Fagundes. August 2001.

Federal Highway Administration. 1983. Visual Impact Assessment for Highway Projects. Contract DOT-FH-11-9694. Washington, DC.

GWF (Tracy Peaker Project) 2001a. Application for Certification No. 01-AFC-16. Dated August 3 and docketed August 16, 2001.

GWF (Tracy Peaker Project) 2001e. Supplement to Application for Certification for the Tracy Peaker Project. Dated and docketed October 9, 2001.

GWF (Tracy Peaker Project) 2001i. First Set of Data Responses. Dated November 28, 2001 and docketed November 30, 2001.

GWF (Tracy Peaker Project) 2001j. Wet Weather Construction Contingency Plan. Dated and docketed December 10. 2001.

San Joaquin County. 1992. San Joaquin County General Plan 2010.

Smardon, Richard C., James E. Palmer, and John P. Felleman. 1986. *Foundations for Visual Project Analysis.* John Wiley & Sons. New York.

Spartan (Spartan Power LLC). 2001. Application for Certification, Spartan I Energy Center Project. Volumes 1 and 2. Submitted to the California Energy Commission, August 2001.

U.S. Department of Agriculture, Forest Service. 1995. *Landscape Aesthetics, A Handbook for Scenery Management.* Agriculture Handbook Number 701. USDA, Forest Service.

U.S. Department of Interior (USDI), Bureau of Land Management (BLM). 1986a. *Visual Resource Inventory Manual*. USDI, BLM.

USDI, BLM. 1986b. *Visual Contrast Rating Manual*. USDI, BLM.

USDI, BLM. 1984. *Visual Resource Management Manual*. USDI, BLM.

Walters, Will. 2001. Tracy Peaker Project Turbine Exhaust Visible Plumes Analysis. August 2001.

APPENDIX VR – 1: SUMMARY OF ANALYSIS

APPENDIX VR – 2: ANALYSIS METHODOLOGY

Visual resources are the natural and cultural features of the environment that can potentially be viewed. The evaluation of visual resources requires the application of a process that assesses the visual quality and character of an area within the context of its region and surroundings, identifies the level of visibility of landscape features and people's awareness of and concern for them, and assesses the level of change and impact produced by a proposed action. This general process is similar for all established federal procedures for visual assessment (Smardon et al. 1986) and represents a suitable methodology for visual assessment of power plant siting projects under CEQA. The analysis methodology applied here uses generally accepted criteria for determining impact significance and a clearly described analytical approach. The following is a detailed description of the methodology used in this visual analysis.

SIGNIFICANCE CRITERIA

Commission staff considered the following criteria in determining whether a visual impact would be significant.

STATE

The CEQA Guidelines defines 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 visual significance" (Cal. Code Regs., tit.14, § 15382).

Appendix G of the 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?

LOCAL

Energy Commission staff considers any local goals, policies, or designations regarding visual resources. Conflicts with such laws, ordinances, regulations, and standards can constitute significant visual impacts. See the section on applicable Laws, Ordinances, Regulations, and Standards.

PROFESSIONAL STANDARDS

Professionals in visual impact analysis have developed a number of questions as a means of evaluating the potential significance of visual impacts (see Smardon et al. 1986). The questions listed below address issues commonly raised in visual analyses for energy facilities. Staff considers these questions in assessing whether a project would cause a significant impact in regard to any of the four CEQA criteria listed above.

- Will the project substantially alter the existing viewshed, including any changes in natural terrain?
- Will the project deviate substantially from the form, line, color, and texture of existing elements of the viewshed that contribute to visual quality?
- Will the project dominate the view due to its scale or location?
- Will the project eliminate or block views of valuable visual resources?
- Will the project result in significant amounts of backscatter light into the nighttime sky?
- Will the project be in conflict with directly identified public preferences regarding visual resources?
- Will the project result in a significant reduction of sunlight, or the introduction of shadows, in areas used extensively by the community?
- Will the project result in a substantial and persistent visible exhaust plume?

VIEW AREAS AND KEY OBSERVATION POINTS

The proposed project is visible from a number of areas in the project region. Energy Commission staff evaluated the visual impact of the project from each of these areas. Staff used Key Observation Points[1], or KOPs, as representative locations from which to conduct detailed analyses of the proposed project and to obtain existing conditions photographs and prepare visual simulations. KOPs are selected to be representative of the most critical locations from which the project would be seen. However, KOPs are not the only locations that staff considered in each view area.

EVALUATION PROCESS AND TERMINOLOGY

For each view area, staff considered the existing visual setting and the visual changes that the project would cause to determine impact significance. Staff normally participates in a pre-filing site visit with the Applicant to identify the KOPs presented in the Application for Certification. After the AFC is filed, staff may request that the

[1] The use of KOPs or similar view locations is common in visual resource analysis. The US Bureau of Land Management and the US Forest Service use such an approach.

Applicant provide revised existing setting photographs and visual simulations presented at life-size scale. The results of staff's analysis are summarized in VISUAL RESOURCES Appendix VR-1. Existing conditions photographs and photosimulations from each KOP are presented with all other figures in VISUAL RESOURCES Appendix VR-4.

ELEMENTS OF THE VISUAL SETTING

To assess the existing visual setting, staff considered the following elements:

Visual Quality

Visual quality is an expression of the visual impression or appeal of a given landscape and the associated public value attributed to the visual resource. This analysis used an approach that considers visual quality as ranging from outstanding to low. Outstanding visual quality is a rating reserved for landscapes that would be what a viewer might think of as "picture postcard" landscapes. Low visual quality describes landscapes that are often dominated by visually discordant human alterations, and do not provide views that people would find inviting or interesting (Buhyoff et al., 1994).

Viewer Concern

Viewer concern is a measurement of the level of viewer interest regarding the visual resources in an area. Official statements of public values and goals reflect viewers' expectations regarding a visual setting. This analysis also employed land use as an indicator of viewer concern. Uses associated with 1) designated parks, monuments, and wilderness areas, 2) scenic highways and corridors, 3) recreational areas, and 4) residential areas are generally considered to have high viewer concern. Travelers on other highways and roads, including those in agricultural areas, may have moderate viewer concern depending on viewer expectations as conditioned by regional and local landscape features. Commercial uses, including business parks, typically have low-to-moderate viewer concern, though some commercial developments have specific requirements related to visual quality, with respect to landscaping, building height limitations, building design, and prohibition of above-ground utility lines, that indicate high viewer concern. Industrial uses typically have the lowest viewer concern because workers are focused on their work, and generally are working in surroundings with relatively low visual value.

Viewer Exposure

The visibility of a landscape feature, the viewing distance to the landscape feature, the number of viewers, and the duration of the view all affect the exposure of viewers to a given landscape feature. Visibility is highly dependent on screening and angle of view. The smaller the degree of screening and/or the closer the feature is to the center of the view area, the greater its visibility is. Increasing distance reduces visibility. Viewer exposure can range from low values for all factors, such as a partially obscured and brief background view for a few motorists, to high values for all factors, such as an unobstructed foreground view from a large number of residences.

Visual Sensitivity

The overall level of sensitivity of a view area to impacts due to visual change is a function of visual quality, viewer concern, and viewer exposure and can range from low to high.

TYPES OF VISUAL CHANGE

To assess the visual changes that the project would cause, staff considered the following factors:

Contrast

Visual contrast describes the degree to which a project's visual characteristics or elements (consisting of form, line, color, and texture) differ from the same visual elements established in the existing landscape. The degree of contrast can range from low to high. The presence of forms, lines, colors, and textures in the landscape similar to those of a proposed project indicates a landscape more capable of accepting those project characteristics than a landscape where those elements are absent. This ability to accept alteration is often referred to as visual absorption capability and typically is inversely proportional to visual contrast.

Dominance

Another measure of visual change is project dominance. Dominance is a measure of a feature's apparent size relative to other visible landscape features and the total field of view (scale dominance). A feature's dominance is affected by its relative location in the field of view and the distance between the viewer and the feature (spatial dominance). The level of dominance can range from subordinate to dominant.

View Blockage

View blockage describes the extent to which any previously visible landscape features are blocked from view by the project. Blockage of higher quality landscape features by lower quality features causes adverse visual impacts. The degree of view blockage can range from none to high.

APPENDIX VR – 3

LIGHTING COMPLAINT RESOLUTION FORM

Tracy Peaker Project San Joaquin County, California
Complainant's name and address: Phone number:
Date complaint received: Time complaint received:
Nature of lighting complaint:
Definition of problem after investigation by plant personnel: Date complainant first contacted:
Description of corrective measures taken: Complainant's signature: _____ Date:
Approximate installed cost of corrective measures: $ Date installation completed: Date first letter sent to complainant: _____(copy attached) Date final letter sent to complainant: _____(copy attached)
This information is certified to be correct: Plant Manager's Signature:

(Attach additional pages and supporting documentation, as required.)

VISUAL RESOURCES APPENDIX VR – 4: VISUAL RESOURCES FIGURES

VISUAL RESOURCES FIGURES 1A THROUGH 9C

VISUAL RESOURCES Figure 1A

VISUAL RESOURCES Figure 1B

VISUAL RESOURCES Figure 2A

VISUAL RESOURCES Figure 2B

VISUAL RESOURCES Figure 2C

VISUAL RESOURCES Figure 3A

VISUAL RESOURCES Figure 3B

VISUAL RESOURCES Figure 3C

VISUAL RESOURCES Figure 4A

VISUAL RESOURCES Figure 4C

VISUAL RESOURCES Figure 5A

– **VISUAL RESOURCES Figure 5C**

VISUAL RESOURCES Figure 6A

VISUAL RESOURCES Figure 7A

VISUAL RESOURCES Figure 7B

VISUAL RESOURCES Figure 7C

VISUAL RESOURCES Figure 8A

VISUAL RESOURCES Figure 8B

VISUAL RESOURCES Figure 8C

VISUAL RESOURCES Figure 9A

VISUAL RESOURCES Figure 9B

VISUAL RESOURCES Figure 9C

WASTE MANAGEMENT

Testimony of Alvin Greenberg, Ph.D.

INTRODUCTION

This section discusses potential impacts of GWF Energy's proposed Tracy Peaker Project from the 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 project construction, operation and closure and that the Project will comply with all applicable Laws, Ordinances, Regulations, and Standards. A brief overview of the project is provided, as are discussions regarding selected CEQA 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 may be found in the **Hazardous Materials Management** section of this staff analysis.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

FEDERAL

Resource Conservation and Recovery Act, RCRA (42 U.S.C. § 6922)

RCRA establishes requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal.

Section 6922 requires the generators of hazardous wastes to comply with requirements regarding:

- record keeping practices, which identify the quantities and disposal of hazardous wastes generated,
- labeling practices and use of appropriate containers,
- use of a recording or manifest system for transportation, and
- submission of periodic reports to the EPA or an authorized state agency.

Title 40, Code of Federal Regulations, Sections 260-272

These sections specify the regulations promulgated by the U.S. Environmental Protection Agency to implement the requirements of RCRA as described above. To facilitate such implementation, the defining characteristics of each hazardous waste are specified in terms of toxicity, ignitability, corrosivity, and reactivity.

Title 49, Code of Federal Regulations, Sections 172, 173 and 179

These sections provide standards for the packing, labeling, documenting and shipping of hazardous wastes.

STATE

California Health and Safety Code § 25100 et seq. (Hazardous Waste Control Act of 1972, as amended)

This Act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control or DTSC, under the California Environmental Protection Agency, or Cal EPA) to develop and publish a list of hazardous and extremely hazardous wastes, and to develop and adopt specific criteria and guidelines for classifying such wastes. The Act also requires all hazardous waste generators to file specific notification statements with Cal EPA and creates a manifest system to be used when transporting such wastes.

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."

Title 14, California Code of Regulations, § 17200 et seq. (Minimum Standards for Solid Waste Handling and Disposal)

These regulations specify the minimum standards applicable to the handling and disposal of solid wastes. They also specify the guidelines necessary to ensure that all solid waste management facilities comply with the solid waste management plans of the administering county agency and the California Integrated Waste Management Board.

Title 22, California Code of Regulations, § 66262.10 et seq. (Generator Standards)

These sections establish specific requirements for generators of hazardous wastes with respect to handling and disposal. Under these requirements, all waste generators are required to determine whether or not their wastes are hazardous according to state-specified criteria. As with the federal program, every hazardous waste generator is required to obtain an EPA identification number, prepare all relevant manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, all hazardous wastes are required to be handled only by registered hazardous waste transporters. Requirements for record keeping, reporting, packaging, and labeling are also established for each generator.

LOCAL

The San Joaquin County Public Works Department has the responsibility for the administration and enforcement of the California Integrated Waste Management Act for non-hazardous solid waste from the proposed project. The applicant is required to complete the County's "Construction and Demolition Debris Waste Diversion Plan" and the "Solid Waste Operation Plan". These plans address the quantities of both solid and hazardous wastes generated during the construction phase, the amount and types of

materials to be recycled, reused or disposed, and the projected waste generation when the project becomes operational.

The San Joaquin County Environmental Health Department is the Certified Unified Permitting Authority (CUPA) that will administer and enforce compliance with the Hazardous Waste Control Act. This agency will also regulate hazardous waste management, handling and disposal procedures at the proposed project. County ordinance Code, Chapter 9-1160, requires the applicant to provide a narrative response to the "Requirements for Collection and Recycling" and the location and space for recycling bins.

SETTING

GWF Energy LLC proposes to construct, own, and operate an electric generating facility within an unincorporated portion of San Joaquin County, California, to be known as the Tracy Peaker Project (TPP). The TPP will be a natural gas-fired, simple-cycle electric generating facility rated at a nominal gross generating capacity of 169 megawatts (MW). The proposed 9-acre project site is situated within a 40-acre parcel located immediately southwest of Tracy, California, and approximately 20 miles southwest of Stockton, California. The Union Pacific Railroad, then the Owens-Brockway glass manufacturing plant, and the Nutting-Rice warehouse border the property to the north. Agricultural property exists to the south and east of the proposed project, and the Delta-Mendota Canal forms the southwest border. The Tracy Biomass power plant exists approximately 0.6 miles to the northwest. The proposed project would be accessed by a paved service road running south from W. Schulte Road. The site topography is flat. Please refer to the **Project Description** section for more detail.

Waste of both non-hazardous and hazardous natures will be generated during all phases of the facility's permitted existence as described below.

ANALYSIS OF IMPACTS

PROJECT SPECIFIC IMPACTS

The Environmental Checklist (see below) is presented in the California Environmental Quality Act (CEQA) guidelines to assist lead agencies in their analysis of project impacts. We provide this checklist as a summary of staff's conclusions regarding the potential for adverse significant project impacts. Following the checklist is a discussion of staff's analysis and rationale for these conclusions.

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) 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	

a) Transport or Use of Hazardous Waste

The Tracy Peaker Project would generate minor quantities of hazardous wastes during project construction and operation. Consequently, both the project construction contractor (see AFC section 8.13.2.1) and the project operator would be generators of hazardous waste and would fall under the jurisdiction of both federal law (the Resource Conservation and Recovery Act – 42 U.S.C. 6901 et seq.), and state law (California Hazardous Waste Control Act – Health and safety Code Sections 25100 et seq.). These laws govern the storage, transport, and disposal of hazardous waste. Condition of Certification **WASTE-5** requires both TPP and its construction contractor to obtain unique hazardous waste generator identification numbers.

Construction

The types of hazardous wastes anticipated to be generated during project construction are listed in Table 8.13-1 of the AFC and include solvents, lubricating oils, paints, batteries, oily rags and absorbent, and combustion turbine lubricating flush oil. The construction contractor would be responsible for all hazardous wastes during the construction phase. Many of the wastes would be recycled. All others would be

classified, stored for fewer than 90 days, transported, and disposed of in a licensed hazardous waste treatment or disposal facility in accordance with all applicable LORS. (See recommended Condition of Certification **WASTE-2**).

Operation and Maintenance. Table 8.13-2 on page 8.13-20 of the Application lists the hazardous wastes expected to be generated during facility operation and maintenance, along with a brief description and the estimated annual quantity **of** each. These wastes would include spent air pollution control catalysts, used oils, glycol, paints and thinners, used batteries, and limited other materials.

The most significant hazardous wastes include approximately 525 cubic feet of waste catalyst from the removal of NOx and carbon monoxide from the turbine exhaust gasses every three to five years; approximately 7,400 gallons of used turbine lubricating oil changed-out once each six years; and approximately 300 gallons per year of waste oil.

The majority of the hazardous wastes can be recycled, such as used oils, solvents, batteries, and the spent SCR and CO catalysts. The remaining wastes will require off-site disposal. TPP intends to follow the hierarchical approach to waste management that begins with reduction, then recycling, then treatment, followed finally by disposal when necessary.

All hazardous wastes generated during construction and operation would be managed in accordance with federal, state and local laws and regulations including those for licensing, personnel training, waste storage times, and record keeping and reporting. The wastes would be properly characterized, stored, and accumulated for time periods less than 90 days. They would then be transported offsite to approved treatment, storage, or disposal (TSD) facilities by licensed hazardous waste haulers using appropriate manifests. To help ensure the use of appropriate hazardous waste disposal facilities, staff proposes Condition of Certification **WASTE-1**, which requires the project owner to notify staff of any known enforcement actions against hazardous waste facilities or companies used for project wastes.

Because the waste management and disposal measures proposed by the Applicant would comply with all applicable federal and state laws, ordinances, regulations, and standards, staff expects there will be no significant impacts to the public or the environment from the generation, transport or disposal of project-related hazardous wastes. Since final facility design and operational procedures may impact the amounts and types of wastes ultimately generated, the project owner would be required to submit waste management plans for project construction and operation to staff under Condition of Certification **WASTE-2**. Staff therefore concludes that impacts from the transportation of project-related wastes would be less than significant.

b) Hazardous Substances near Schools

There are no schools within one-quarter mile of the proposed project.

In all cases, licensed hazardous waste transporters using proper containers and transportation procedures conforming to applicable Caltrans requirements would be used. Staff therefore concludes that impacts from the transportation of project-related hazardous wastes would be less than significant.

c) Hazards to the Public or Environment from a Hazardous Materials Site

Harding ESE performed a Phase I Environmental Site Assessment (ESA), of the entire 40-acre parcel that contains the proposed 9-acre project site. The report of the Assessment, included as Appendix G of the AFC, indicates that no adverse environmental conditions exist at the proposed TPP site. Section 8.13.4 of the AFC lists 8 mitigation measures proposed by the applicant to be put into practice to ensure that the project will not result in significant impacts to human health or the environment due to hazardous wastes. Staff recommends similar conditions as included in Staff's proposed Conditions of Certification below. In particular, Condition of Certification **WASTE-2** requires TPP to prepare, submit, and follow a Waste Management Workplan including these eight measures. Therefore, the impacts are less than significant.

d) Solid Waste Disposal

Solid waste disposal sites suitable for recycling and disposal of project-related non-hazardous construction and operation wastes are described in Section 8.13.3.1 of the AFC. Solid wastes in the area of the proposed project (excluding recyclables) are collected by Livermore-Dublin Disposal, a subsidiary of Waste Management Inc. This company uses the Vasco Road landfill in Livermore, California; a Class II/III disposal facility located approximately 15 miles from the proposed TPP site, and possessing a remaining capacity of 10.9 million cubic yards. Both this facility and the Pleasanton Garbage Service Transfer Station provide bins for the receipt of recyclable materials.

The most likely alternative to the Vasco Road landfill is the Altamont Landfill and Resource Recovery Facility located approximately 10 miles from the proposed project site. This facility is a Class I/III disposal site with a remaining capacity of 12.3 million cubic yards.

During construction of the proposed project it is estimated that a total of approximately 40 cubic yards of nonhazardous solid waste would be generated each week consisting of wood, glass, paper, plastics, scrap metal, insulating materials, concrete, and electrical wiring. Recycling of empty containers, absorbent materials, scrap metal and wire would reduce the amounts of solid wastes during construction by about 20 cubic yards every two to three weeks, with the remainder being placed in covered temporary storage for periodic removal to the offsite disposal facility.

Project operation would generate minimal amounts of nonhazardous solid wastes typical of office and maintenance activities at an industrial facility. Anticipated wastes include rags, broken parts and components, empty containers, pallets, and other materials.

The total amounts of all nonhazardous solid wastes from both construction and operation activities would slightly reduce the available capacity of the noted landfills. However, it is estimated that this impact would be less than significant, particularly with the inclusion of recycling efforts.

e) LORS Compliance

All nonhazardous solid wastes from both construction and operation activities would be handled and disposed of according to appropriate standard procedures and all applicable LORS. Project-related solid wastes would typically be placed in covered, temporary storage containers. Recyclable materials, especially metals, will be placed in segregated collection centers for accumulation. All solid wastes will be transported by certified haulers to appropriately permitted facilities in accordance with applicable laws, ordinances, regulations, and standards. Staff concludes that the proposed project will comply with all applicable federal, state, and local statutes and ordinances regarding solid waste management.

CUMULATIVE IMPACTS

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 additional regional landfills, cumulative impacts will be insignificant for both hazardous and nonhazardous wastes.

ENVIRONMENTAL JUSTICE

In the **Socioeconomics** section of this staff analysis, staff presents census tract information that shows that there are minority populations within six miles of the project. Since staff has concluded that there will be no significant direct or cumulative waste management-related impacts, there will also be no significant impact to any minority populations that have been identified. Therefore, there are no environmental justice issues related to the generation and management of hazardous or nonhazardous wastes at the TPP>

FACILITY CLOSURE

Facility closure, with respect to waste management, is discussed in section 8.13.5 of the AFC. During any type of facility closure (see staff's **General Conditions and Compliance** section which discusses planned, unexpected temporary, and unexpected permanent closure), the primary waste management related concern is that project wastes not pose any potentially significant problem to the public, workers, or the environment. Staff has determined that conditions of certification in the **General Conditions and Compliance** section will adequately address waste management issues related to closure.

In the case of unexpected temporary closure, waste management practices normally required by LORS and already in-place (such as limiting hazardous waste accumulation time to 90 days and requiring proper containment) would likely be adequate to avoid significant problems. In addition, staff's General Conditions for Facility Closure require preparation of an on-site contingency plan which shall provide for removal of hazardous wastes and draining of all chemicals from storage tanks and other equipment for temporary closures exceeding 90 days. Section 8.13.5.1 of the AFC commits to actions established prior to construction in Contingency and Hazardous Materials Business plans should temporary closure of the facility be necessary

An approved on-site contingency plan is also required to protect public health and safety in the case of unexpected permanent closure. As above, the plan must provide for the removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment, and the safe shutdown of all equipment.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Agency comments

The San Joaquin Department of Public Works

Comment: The applicant is required to complete the County's "Construction and Demolition Debris Waste Diversion Plan" and the "Solid Waste Operation Plan". Additionally, the applicant shall provide a narrative response to the "Requirements for Collection and Recycling" and the location and space for recycling bins.

Response: The response to the comment can be found in the LORS section of this document, under LOCAL.

CONCLUSIONS

As discussed under section (e) above, staff concludes that the project will comply with all applicable LORS pertaining to the management and disposal of nonhazardous wastes. Additionally, because the Tracy Peaker Project must implement a comprehensive program to manage hazardous wastes and obtain a hazardous waste generator identification number (required by law for any generator of hazardous wastes), staff also concludes that the project will comply with all applicable LORS pertaining to the management and disposal of hazardous wastes. All hazardous wastes will be properly managed on site, transported by permitted hazardous waste haulers, and treated or disposed of at permitted facilities.

Management of hazardous and nonhazardous wastes generated during construction and operation of the Tracy Peaker Project will not result in any significant adverse impacts if GWF Energy implements the waste management procedures described in the Application and staff's proposed conditions of certification.

PROPOSED CONDITIONS OF CERTIFICATION

WASTE-1 Upon becoming aware of any impending waste management-related enforcement action by any local, state, or federal authority, the project owner shall notify the CPM of any such action taken or proposed to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required in the manner in which project-related wastes are managed.

WASTE-2 Prior to the start of construction and operation, the project owner shall prepare and submit to the CPM, for review and approval, a waste management plan for all wastes generated during construction and then operation and maintenance of the facility, respectively. The project owner shall submit any required revisions within 20 days of notification by the CPM (or mutually agreed upon date). In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year compared to planned management methods. The plans shall contain, at minimum, the following:

- A description of all waste streams, including projections of frequency, amounts generated, and hazard classifications;
- Methods of managing each waste, including but not limited to: waste testing methods to assure correct classification, waste segregation and storage procedures and facilities, treatment methods and companies contracted with for treatment services, methods of transportation and companies contracted with for transportation, disposal requirements and sites, employee hazmat training, employee protection, and recycling and waste minimization/reduction plans. These methods must include, but not be limited to, the eight Waste Management Mitigation Measures listed by the applicant in section 8.13.4 of the AFC.
- Methods to be put into place to audit and ensure continuing compliance with the Workplan and all applicable LORS.

Verification: No less than 30 days prior to the start of construction, the project owner shall submit the construction waste management plan to the CPM for review and approval. The operation waste management plan shall be submitted to the CPM for review and approval no less than 30 days prior to the start of project operation.

WASTE-3 The project owner shall have a Registered Professional Engineer or Geologist, with experience in remedial investigation and feasibility studies, available for consultation during soil excavation and grading activities.

Verification: At least 30 days prior to the start of any earth moving activities , the project owner shall submit the qualifications and experience of the Registered Professional Engineer or Geologist contracted for consultation to the CPM for approval.

WASTE-4 If potentially contaminated soil is unearthed during excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the Registered Professional Engineer or Geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner and the CPM stating the recommended course of action. Depending on the nature and extent of contamination, the Registered Professional Engineer or Geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If, in the opinion of the Registered Professional Engineer or Geologist, significant remediation may be required, the project owner shall contact representatives of the Central Valley

Regional Water Quality Control Board, the San Joaquin County Environmental Health Department (CUPA), and the Sacramento Regional Office of the California Department of Toxic Substances Control for guidance and possible oversight.

Verification: The project owner shall submit any reports filed by the Registered Professional Engineer or Geologist to the CPM within 5 days of their receipt.

WASTE-5 Both the project owner and its construction contractor shall obtain unique hazardous waste generator identification numbers from the Department of Toxic Substances Control prior to generating any hazardous waste.

Verification: The project owner and its construction contractor shall keep copies of the identification numbers on file at the project site and notify the CPM via the monthly compliance report of their receipt.

WASTE-6 Prior to any earth moving activities, employees shall receive hazardous-waste-related training that focuses on recognition of potential contaminated soil and/or groundwater; and contingency procedures to be followed to protect worker safety and public health.

Verification: The project owner shall notify the CPM via the monthly compliance report of completion of the hazardous waste training program.

REFERENCES

GWF Energy LLC, 2001. Tracy Peaker Project, Application for Certification. Prepared for submission to the California Energy Commission, August, 2001.

WORKER SAFETY/FIRE PROTECTION

Testimony of Alvin J. Greenberg, Ph.D.

INTRODUCTION

The worker safety and fire protection section of this Staff Assessment provide a discussion of staff's evaluation of the potential for impacts of the proposed Tracy Peaker Project (TPP) associated with worker safety and fire protection issues. Energy Commission staff's objective is to ensure that there will be no significant adverse impacts during project construction, operation and closure. This section begins with a description of all applicable laws, ordinances, regulations, and standards, and a brief summary of the project. Staff's analysis of project impacts follows, organized according to the California Environmental Quality Act checklist. The section concludes with the staff's proposed monitoring and mitigation measures and with the inclusion of two conditions of certification.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

There are many environmental laws, ordinances, regulations and standards (LORS) in place to reduce risks of accidents and routine hazards. The following federal, state, and local laws generally apply **Worker Safety and Fire Protection.** Their provisions have established the basis for staff's determination regarding the significance and acceptability of potential impacts from the TPP.

FEDERAL

In December 1970, Congress enacted Public Law 91-596, the Federal Occupational Safety and Health Act of 1970. This Act mandates safety requirements in the workplace and is found in Title 29 of the United States Code, § 651 (29 U.S.C. §§ 651 through 678). Implementing regulations are codified at Title 29 of the Code of Federal Regulations, under General Industry Standards §§ 1910.1 - 1910.1500 and clearly define the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector. Most of the general industry safety and health standards now in force under this OSH Act represent a compilation of materials from existing federal standards and national consensus standards. These include standards from the voluntary membership organizations of the American National Standards Institute (ANSI) and the National Fire Protection Association (NFPA), which publishes the National Fire Codes.

The congressional purpose of the Occupational Safety and Health Act is to "assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources," (29 U.S.C. § 651). The Federal Department of Labor promulgates and enforces safety and health standards that are applicable to all businesses affecting interstate commerce. The Department of Labor established the Occupational Safety and Health Administration (OSHA) in 1971 to discharge the responsibilities assigned by the OSH Act.

Applicable Federal requirements include:

- 29 U.S.C. § 651 et seq. (Occupational Safety and Health Act of 1970);
- 29 C.F.R. §1910.1 - 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations);
- 29 C.F.R. §1952.170 – 1952.175 (Federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the Federal requirements found in 29 C.F.R. §1910.1 – 1910.1500).

STATE

California passed the Occupational Safety and Health Act ("Cal/OSHA") in 1973, as published in the California Labor Code section 6300. Regulations promulgated as a result of the Act are codified as Title 8 of the California Code of Regulations, beginning with sections 337-560 and continuing with sections 1514 through 8568. The California Labor Code requires that the Cal/OSHA Standards Board adopt standards at least as effective as the federal standards (Labor Code § 142.3(a)) and thus all Cal/OSHA health and safety standards meet or exceed the Federal requirements. Hence, California obtained federal approval of its State health and safety regulations, in lieu of the federal requirements published at 29 C.F.R. §1910.1 - 1910.1500. The Federal Secretary of Labor, however, continually oversees California's program and will enforce any federal standard for which the State has not adopted a Cal/OSHA counterpart.

Title 8, California Code of Regulations, section 3203 requires that employers establish and maintain a written Injury and Illness Prevent Program to identify workplace hazards and communicate them to its employees through a formal employee-training program.

Applicable State requirements include:

- Cal. Code Regs., tit. 8, § 339 - List of hazardous chemicals relating to the Hazardous Substance Information and Training Act;
- Cal. Code Regs., tit. 8, § 337, et seq. Cal/OSHA regulations;
- Cal. Code Regs., tit. 24, § 3, et seq. - incorporates the current addition of the Uniform Building Code;
- Health and Safety Code § 25500, et seq. - Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at the facility;
- Health and Safety Code §§ 25500 - 25541 - Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at the facility.

LOCAL

The California Building Standards Code published at Title 24 of the California Code of Regulations section 3 et seq is comprised of eleven parts containing the building design and construction requirements relating to fire and life safety and structural safety. The Building Standards Code includes the electrical, mechanical, energy, and fire codes applicable to the project. Local planning/building & safety departments enforce the California Uniform Building Code.

National Fire Protection Association (NFPA) standards are published in the California Fire Code. The fire code contains general provisions for fire safety, including but not restricted to: 1) required road and building access; 2) water supplies; 3) installation of fire protection and life safety systems; 4) fire-resistive construction; 5) general fire safety precautions; 6) storage of combustible materials; 7) exits and emergency escapes; and 8) fire alarm systems. The California Fire Code reflects the body of regulations published at Part 9 of Title 24 (H&S Code §18901 et seq.) pertaining to the California Fire Code.

Similarly, the Uniform Fire Code Standards, a companion publication to the California Fire Code, contains standards of the American Society for Testing and Materials and the NFPA. It is the United State's premier model fire code. It is updated annually as a supplement and published every third year by the International Fire Code Institute to include all approved code changes in a new edition.

Applicable local (or locally enforced) requirements include:

- 1998 Edition of California Fire Code and all applicable NFPA standards (24 Cal. Code Regs. Part 9);
- California Building Code Title 24, California Code of Regulations (24 Cal. Code Regs. § 3, et seq.); and
- Uniform Fire Code, Article 80, 1998.

The California Fire Code requires that industrial plants submit plans for review and approval by the City of Tracy Fire Department.

SETTING

GWF (2001) proposes to construct, own, and operate an energy generating facility at a location immediately southwest of Tracy, California, to be known as the TPP. The TPP would be a natural gas-fired, simple-cycle electric generating facility rated at a nominal gross generating capacity of 169 megawatts (MW). The proposed 9-acre project site is part of a 40-acre parcel in an unincorporated portion of San Joaquin County. The project site is bounded by the Delta-Mendota Canal to the southwest, agricultural property to the south and east, and the Union Pacific Railroad to the north. Please refer to the **Project Description** section for more detail.

ANALYSIS AND IMPACTS

WORKER SAFETY

Industrial environments are potentially dangerous, during both construction and operation of facilities. Workers at the proposed project would be exposed to loud noises, moving equipment, trenches, and confined space entry and egress problems. The workers may experience falls, trips, burns, lacerations, and numerous other injuries. They have the potential to be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, and electrical sparks and

electrocution. It is important for the project owner to have well-defined policies and procedures, training, and hazard recognition and control at its facility to minimize such hazards and protect workers. If the facility complies with all LORS, workers would be adequately protected from health and safety hazards. The construction phase is expected to last approximately 8 months and would include site preparation, foundation work, installation of major equipment, and installation of major structures.

FIRE HAZARDS

During construction and operation of the proposed TPP there is the potential for both small fires and major structural fires. Electrical sparks, explosions, over-heated equipment, and combustion of fuel oil, natural gas or flammable liquids, may cause small fires. Major structural fires may develop from uncontrolled fires or be caused by large explosions of natural gas or other flammable gasses or liquids. Compliance with all LORS would be adequate to assure protection from all fire hazards.

PROJECT SPECIFIC IMPACTS

The Environmental Checklist (see below) is presented in the California Environmental Quality Act (CEQA) guidelines to assist lead agencies in their analysis of project impacts. We provide this checklist as a summary of staff's conclusions regarding the potential for adverse significant project impacts. Following the checklist is a discussion of staff's analysis and rationale for these conclusions.

Environmental Checklist

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
WORKER SAFETY/FIRE PROTECTION – Would the project:				
a) Exposes workers to inappropriate occupational safety and health risks and/or structural or chemical fires of undue duration?		X		
b) 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
c) 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
d) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
WORKER SAFETY/FIRE PROTECTION – Would the project:				
e) 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

a) Potential for Occupational Safety and Health Risks and/or Structural or Chemical Fires

The TPP has provided adequate information that all occupational safety and health LORS would be followed and that fire avoidance, detection and suppression systems would be installed as per all LORS. Staff proposed Conditions of Certification **Worker Safety 1** and **2** to ensure compliance with these LORS and that the City of Tracy Fire Department is provided with fire prevention plans prior to construction and operation.

Construction machine diesel exhaust may pose an unacceptable risk and hazard to workers. However, the Applicant is required by condition of certification **AQ-C3** of Appendix K-5 to maintain diesel exhaust control through use of a catalyzed diesel particulate filter for construction equipment rated greater than 100 horsepower output. AFC Supplement section 3.6 (Public Health) presents revised health risks due to diesel exhaust particulate matter emitted from construction vehicles. Under **AQ-C3**, cancer risk is estimated to be 2.34 in one million at the south fence line location and 0.28 in one million at the nearest residence. The estimated chronic noncancer hazard index is estimated to be 0.16 at the south fence line location and 0.02 at the nearest residence. Cancer risk due to diesel exhaust emissions do not exceed 10 in one million nor is the Cal/EPA Reference Exposure Level (REL) exceeded. Therefore, impacts would be mitigated to less than significance.

b) Potential for Worker Safety Hazard from nearby Airports (Public)

The TPP is not located within an airport use plan and therefore no impacts would occur. The Tracy Municipal Airport is within two miles of the project transmission line but there are no anticipated safety hazards from this or any other private airstrip. Therefore, no impacts are expected.

c) Potential for Worker Safety Hazard from nearby Airstrip (Private)

There are no private airstrips within two miles of the proposed project, and thus no impacts.

d) *Potential for Interference with Emergency Response / Evacuation Plan*

When the City of Tracy Fire Department was first contacted, the Battalion Chief Larry Fragoso was not confident with the department's first response capability to a

project fire. Although first response time is estimated at 2-3 minutes from Station No. 94 at 16502 W. Schulte Road, he felt additional staffing was necessary. Battalion Chief Larry Fragoso originally indicated that an additional firefighter would be necessary for each shift, for 3 shifts a day, as well as one relief firefighter, such that the minimum staffing at Station 94 would be three firefighters at all times. Currently only two firefighters are on duty for each shift. Chief Fragoso estimated that the budget for the additional personnel would be about $300,000 annually. He further stated that additional equipment was not required (Fragoso 2001). In a subsequent telephone conversation on December 19, 2001, the Chief stated that he had reconsidered the issue of department staffing and retracted his earlier statements on the need for additional staff. Based on this revised statement, staff concludes that there are no significant impacts.

e) *POTENTIAL FOR WILDLAND FIRES*

The proposed site is currently used for agricultural purposes. Fire hazard from agricultural lands is not a concern since trees, brush, or grass in a buffer zone surrounding the site would be cleared or cut on a regular basis and fire suppression systems are adequate to combat a brush fire. Therefore, there are no impacts.

CUMULATIVE IMPACTS

Staff reviewed the potential for the construction and operation of TPP, combined with existing industrial facilities, to result in impacts on the fire and emergency service capabilities of the City of Tracy Fire Department. Staff finds that, at this time, cumulative impacts during operations would not be significant.

FACILITY CLOSURE

The project owner/operator is responsible for maintaining an operational fire protection system during closure activities. The project must also stay in compliance with all applicable health and safety LORS during that time. A facility closure plan would be developed prior to closure to incorporate these requirements.

APPLICANT'S PROPOSED MITIGATION

WORKER SAFETY

If the project is certified, the Applicant will prepare a Safety and Health ProgramApplicant to minimize worker hazards during construction and operation (GWF 2001a, AFC section 8.7.3). Staff uses the phrase "Safety and Health Program" to refer to the measures that would be taken to ensure compliance with the applicable LORS during the construction and operational phases of the project.

Construction Safety and Health Program

The proposed TPP would include construction and operation of a natural gas-fired facility with ancillary facilities such as transmission lines and pipelines. Workers would be exposed to hazards typical of construction and operation of a gas-fired combined cycle facility. In regards to worker exposures during construction activities, information

provided by the Applicant in the AFC and in the AFC Supplement sections on **Air Quality** and **Public Health** impacts demonstrates that workers may be exposed to construction equipment diesel particulate (PM-10) exhaust at airborne concentrations exceeding the Proposition 65 warning level. Therefore, staff proposes additional mitigation in the form of soot traps and low sulfur fuel, as well as outdoor air monitoring for particulates and appropriate personal protective equipment (i.e., respirators) if the Cal/EPA Reference Exposure Level (REL) or a cancer risk in excess of 10 in one million are exceeded.

Construction Safety Orders are published at Title 8, California Code of Regulations, section 1502, et seq. These requirements are promulgated by Cal/OSHA and are applicable to the construction phase of the project. The Construction Safety and Health Program proposed by the Applicant would include the following:

- Construction Injury and Illness Prevention Program (Cal. Code Regs., tit. 8, § 1509);
- Construction Fire Protection and Prevention Plan (Cal. Code Regs., tit. 8, § 1920); and
- Personal Protective Equipment Program (Cal. Code Regs., tit. 8, §§ 1514 - 1522).

Additional programs under General Industry Safety Orders (Cal. Code Regs., tit. 8, §§ 3200 - 6184), Electrical Safety Orders (Cal. Code Regs., tit. 8, §§2299 - 2974) and Unfired Pressure Vessel Safety Orders (Cal. Code Regs., tit. 8, §§ 450 - 544) would include:

- Electrical Safety Program;
- Unfired Pressure Vessel Safety Orders;
- Equipment Safety Program;
- Forklift Operation Program;
- Excavation/Trenching Program;
- Fall Prevention Program;
- Scaffolding/Ladder Safety Program;
- Articulating Boom Platforms Program;
- Crane and Material Handling Program;
- Housekeeping and Material Handling and Storage Program;
- Hot Work Safety Program;
- Respiratory Protection Program;
- Employee Exposure Monitoring Program;
- Confined Space Entry Program;
- Hand and Portable Power Tool Safety Program;
- Hearing Conservation Program;
- Back Injury Prevention Program;

- Hazard Communication Program;
- Air Monitoring Program;
- Heat and Cold Stress Monitoring and Control Program; and
- Pressure Vessel and Pipeline Safety Program.

The AFC includes adequate outlines of each of the above programs. Prior to construction at the TPP, detailed programs and plans would be provided to the Compliance Project Manager (CPM) pursuant to the condition of certification **WORKER SAFETY-1**.

Operations and Maintenance Safety and Health Program

Upon completion of construction and prior to operations at the TPP, the Operations and Maintenance Safety and Health Program would be prepared. This operational safety program would include the following programs and plans:

- Injury and Illness Prevention Program (Cal. Code Regs., tit. 8,. § 3203);
- Emergency Action Plan (Cal. Code Regs., tit. 8, § 3220);
- Hazardous Materials Management Program;
- Operations and Maintenance Safety Program;
- Fire Protection and Prevention Program (Cal. Code Regs., tit. 8, § 3221); and
- Personal Protective Equipment Program (Cal. Code Regs., tit. 8, §§ 3401-3411).

In addition, the requirements under General Industry Safety Orders (Cal. Code Regs., tit. 8, §§ 3200 - 6184), Electrical Safety Orders (Cal. Code Regs., tit. 8, §§2299 - 2974) and Unfired Pressure Vessel Safety Orders (Cal. Code Regs., tit. 8, §§ 450 - 544) would be applicable to the project. Written safety programs, which the Applicant would develop, for the TPP would ensure compliance with the above-mentioned requirements.

The AFC includes adequate outlines of the Protective Equipment Guide (GWF 2001a, AFC Table 8.7-3), Operations Emergency Action and Evacuation Plan (GWF 2001a, AFC Table 8.7-4), the Construction Training Program (GWF 2001a, AFC Table 8.7-5), and the Operations and Maintenance Training Program (GWF 2001a, AFC Table 8.7-6). Prior to operation of the TPP, all detailed programs and plans would be provided to the CPM pursuant to condition of certification **WORKER SAFETY-2**.

Safety and Health Program Elements

The Applicant provided the proposed outlines for both a Construction Safety and Health Program and an Operation Safety and Health Program. The measures in these plans are derived from applicable sections of state and federal law. The major items required in both Safety and Health Programs are as follows:

Injury and Illness Prevention Program (IIPP)

The Applicant would submit an expanded Construction and Operations Illness and Injury Prevention Program to Cal/OSHA for review and comment 30 days prior to construction and operation of the project.

The IIPP would include the following components as presented in the AFC:

- Identity of person(s) with authority and responsibility for implementing the program;
- Safety and Health Policy
- Work rules and safe work practices
- System ensuring employees comply with safe and healthy work practices;
- System facilitating employer-employee communications;
- Procedures identifying and evaluating workplace hazards, including inspections to identify hazards and unsafe conditions;
- Methods for correcting unhealthy/unsafe conditions in a timely manner;
- Specific safety procedures (e.g. fall protection, lockout/tagout, respiratory protection
- A training and instruction program.

Emergency Action Plan

California regulations require an Emergency Action Plan (Cal. Code Regs., tit. 8, § 3220). The AFC contains a satisfactory outline for an emergency action plan (GWF 2001a, AFC Table 8.7-4).

The outline lists the following features:

- Supervisor/Emergency Coordinator role
- Health and Safety Manager role
- Public relations (news media, etc.) procedures
- Emergency notification list
- Emergency telephone number list
- Emergency equipment locations
- Accident reporting and investigation procedures
- Hazard communication procedures
- Spill containment and reporting procedures
- Releases into the environment and reporting
- Response procedures
- Site security measures
- Evacuation routes, assembly areas, and procedures
- Emergency plant shutdown procedures
- Fire response procedures
- Decontamination procedures
- Evacuation plan

- Personal protective equipment requirements

Fire Prevention Plan

California Code of Regulations requires an Operations Fire Prevention Cal. Code Regs., tit. 8, § 3221). The AFC describes a proposed fire prevention plan that is acceptable to staff. The plan would include the following topics:

- General requirements
- Employee alarm/communication system
- Portable fire extinguisher placement and operation
- Fixed fire fighting equipment placement and operation
- Fire control methods and techniques
- Flammable and combustible liquid storage methods
- Methods for servicing and refueling vehicles
- Fire prevention training programs and requirements

Staff proposes that the Applicant submit a final Fire Protection and Prevention Plan to the California Energy Commission CPM and to the City of Tracy Fire Department for review and comment and to satisfy proposed conditions of certification **WORKER SAFETY 1** and **2**.

Personal Protective Equipment Program

California regulations require Personal Protective Equipment (PPE) and first aid supplies whenever hazards are encountered which, due to process, environment, chemicals or mechanical irritants can cause injury or impair bodily function as a result of absorption, inhalation or physical contact (Cal. Code Regs., tit. 8, § 3380-3400). The TPP operational environment would likely require PPE.

Information provided in the AFC indicates that all employees required to use PPE would be checked for proper fit and to see if they are medically capable of wearing the equipment. All safety equipment would meet NIOSH or ANSI standards and would carry markings, numbers, or certificates of approval. Respirators would meet NIOSH and California Department of Health and Human Services Standards. Each employee would be provided with information pertaining to protective clothing and equipment.

The PPE Program ensures that employers comply with the applicable requirements for PPE and provide employees with the information and training necessary to implement the program.

FIRE PROTECTION

Staff reviewed the information provided in the AFC regarding available fire protection services and equipment (GWF 2001a, AFC page 8.7-9) to determine if the project would adequately protect workers and if it would affect the fire protection services in the area. As proposed by the Applicant, the project would rely on both on site fire protection systems and local fire protection services. The onsite fire protection system provides

the first line of defense for small fires. In the event of a major fire, fire support services including trained firefighters and equipment for a sustained response would be required by the City of Tracy Fire Department.

Staff finds that the proposed project would meet the minimum fire protection and suppression requirements as required by all LORS. Elements include both fixed and portable fire extinguishing systems. A carbon dioxide fire protection system (FM200) would be provided for the combustion turbine and accessory equipment. Fire detection sensors would also be installed. The on-site fire suppression system is designed and operated in accordance with National Fire Protection Association standards and guidelines. Water for fire hydrants and hose stations would be supplied from a dedicated underground fire water system. Two fire pumps would be installed to provide adequate pressure to support the underground firewater loop. In addition to the fixed fire protection system, smoke detectors, combustible gas detectors, and portable extinguishers would be located throughout the plant with size, rating, and spacing in accordance with the Uniform Fire Code.

If the project is approved, the Applicant would be required to provide the final Fire Protection and Prevention Program to staff and to the City of Tracy Fire Department, prior to construction and operation of the project, to confirm the adequacy of the proposed fire protection measures.

CONCLUSIONS

If the Applicant for the proposed TPP provides a Project Construction Injury and Illness Prevention Program and a Project Operations Safety and Health Program as required by conditions of certification **WORKER SAFETY 1** and **2,** staff believes that the project would incorporate sufficient measures to ensure adequate levels of industrial safety, and comply with applicable LORS.

Staff concludes that the proposed plant would not have significant adverse impacts on local fire protection services. The proposed facility is located within an existing industrial area that is currently served by the local fire department.

PROPOSED CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the CPM a copy of the Project Construction Injury and Illness Prevention Program, containing the following:

- A Construction Safety Program;
- A Construction Personal Protective Equipment Program;
- A Construction Exposure Monitoring Program;
- A Construction Emergency Action Plan; and
- A Construction Fire Protection and Prevention Plan.

The Safety Program, the Personal Protective Equipment Program, and the Exposure Monitoring Program shall be submitted to the CPM for review and comment concerning compliance of the program with all applicable Safety Orders. The Construction Fire Protection and Prevention Plan and Emergency Action Plan shall be submitted to the City of Tracy Fire Department for review and comment prior to submittal to the CPM.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the CPM for review and approval a copy of the Project Construction Injury and Illness Prevention Program. The project owner shall provide a letter from the City of Tracy Fire Department stating that they have reviewed and found to be adequate the Construction Fire Protection and Prevention Plan Emergency Action Plan.

WORKER SAFETY-2 The project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety and Health Program containing the following:

- an Operation Injury and Illness Prevention Plan;
- an Emergency Action Plan;
- Hazardous Materials Management Program;
- Operations and Maintenance Safety Program;
- Fire Protection and Prevention Program (Cal. Code Regs., tit. 8, § 3221); and
- Personal Protective Equipment Program (Cal. Code Regs., tit. 8, §§ 3401-3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the Cal/OSHA Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders. The Operation Fire Protection Plan and the Emergency Action Plan shall also be submitted to the City of Tracy Fire Department for review and comment.

Verification: At least 30 days prior to the start of operation, the project owner shall submit to the CPM a copy of the final version of the Project Operations and Maintenance Safety & Health Program. It shall incorporate Cal/OSHA Consultation Service's comments, stating that they have reviewed and accepted the specified elements of the proposed Operations and Maintenance Safety and Health Plan, and shall be found adequate by the City of Tracy Fire Department.

REFERENCES

Fragoso, Larry. 2001. Batallion Chief, City of Tracy Fire Department. Personnal communication. November.

GWF 2001a. Application for Certification (01-AFC-16), submitted by GWF Energy LLC. Submitted to the California Energy Commission on August 3, 2001. Draft AFC Supplement submitted on September 19, 2001.

NFPA (National Fire Protection Association). 1987. NFPA 85A, Prevention of Furnace Explosions in Fuel Oil and Natural Gas Fired Single Burner Boiler Furnaces, National Fire Protection Association, Batterymarch Park, Quincy, MA, 1987.

USOSHA (United States Occupational Safety and Health Administration). 1993. Process Safety Management / Process Safety Management Guidelines For Compliance. U.S. Department of Labor, Washington, DC.

1998 California Fire Code. Published by the International Fire Code Institute comprised of the International Conference of Building Officials, the Western Fire Chiefs Association, and the California Building Standards Commission. Whittier, CA.

1997 Uniform Fire Code, Vol. 1. Published by the International Fire Code Institute comprised of the International Conference of Building Officials and the Western Fire Chiefs Association, Whittier, CA.

ENGINEERING ASSESSMENT

FACILITY DESIGN

Testimony of Shahab Khoshmashrab, Al McCuen and Steve Baker

INTRODUCTION

Facility Design encompasses the civil, structural, mechanical and electrical engineering design of the project. The purpose of the Facility Design analysis is to:

- verify that the laws, ordinances, regulations and standards (LORS) applicable to the engineering design and construction of the project have been identified;
- verify that the project and ancillary facilities have been described in sufficient detail, including proposed design criteria and analysis methods, to provide reasonable assurance that the project can be designed and constructed in accordance with all applicable engineering LORS, and in a manner that assures public health and safety;
- determine whether special design features should be considered during final design to deal with conditions unique to the site which could influence public health and safety; and
- describe the design review and construction inspection process and establish Conditions of Certification that will be used to monitor and ensure compliance with the intent of the engineering LORS and any special design requirements.

FINDINGS REQUIRED

The Warren Alquist Act requires the commission to "prepare a written decision which includes (a) Specific provisions relating to the manner in which the proposed facility is to be designed, sited and operated in order to protect environmental quality and assure public health and safety [and] (d)(1) Findings regarding the conformity of the proposed site and related facilities with public safety standards and with other relevant local, regional, state and federal standards, ordinances, or laws." (Pub. Resources Code, §25523).

SUBJECTS DISCUSSED

Subjects discussed in this analysis include:

- Identification of the engineering LORS applicable to facility design;
- Evaluation of the applicant's proposed design criteria, including the identification of those criteria that are essential to ensuring public health and safety;
- Proposed modifications and additions to the Application for Certification (AFC) that are necessary to comply with applicable engineering LORS; and
- Conditions of Certification proposed by staff to ensure that the project will be designed and constructed to assure public health and safety and comply with all applicable engineering LORS.

SETTING

GWF Energy, LLC (applicant) proposes to construct and operate a nominally rated 169-megawatt simple cycle power plant known as Tracy Peaker Project (GWF). The project will be located in an unincorporated portion of San Joaquin County. The site will occupy approximately 9 fenced acres located immediately southwest of Tracy and will lie in seismic zone 4. For more information on the site and related project description, please see the **Project Description** section of this document. References to "the County" designate San Joaquin County. Additional engineering design details are contained in the Application for Certification (AFC), in Appendices J1 through J5 (GWF 2001a).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

Lists of LORS applicable to each engineering discipline (civil, structural, mechanical and electrical) are described in the AFC (GWF 2001a, Appendices J1 through J5 and Table 2-6). Some of these LORS include; California Building Code (CBC), American National Standards Institute (ANSI), American Society of Mechanical Engineers (ASME), American Society for Testing and Materials (ASTM) and American Welding Society (AWS).

ANALYSIS

The basis of this analysis is the applicant's proposed analysis and construction methods and list of engineering LORS and design criteria set forth in the AFC.

SITE PREPARATION AND DEVELOPMENT

Staff has evaluated the proposed design criteria for grading, flood protection, erosion control, site drainage and site access. Staff has assessed the criteria for designing and constructing linear support facilities such as a natural gas pipeline and electric transmission line. The applicant proposes to use accepted industry standards (see AFC Appendices J1 through J5 for a representative list of applicable industry standards), design practices and construction methods in preparing and developing the site. Staff concludes that the project, including its linear facilities, will likely comply with all applicable site preparation LORS, and proposes Conditions of Certification (see below and the **Geology and Paleontology** section of this document) to ensure compliance.

MAJOR STRUCTURES, SYSTEMS AND EQUIPMENT

Major structures, systems and equipment are defined as those structures and associated components or equipment that are necessary for power production and are costly to repair or replace, that require a long lead time to repair or replace, or that are used for the storage, containment, or handling of hazardous or toxic materials. Major structures and equipment will be identified through compliance with proposed Condition of Certification **GEN-2** (below).

The AFC contains lists of the civil, structural, mechanical and electrical design criteria that demonstrate the likelihood of compliance with applicable engineering LORS, and

that staff believes are essential to ensuring that the project is designed in a manner that protects public health and safety.

The project shall be designed and constructed to the 1998 edition of the California Building Code (CBC) and other applicable codes and standards in effect at the time design and construction of the project actually commence. In the event the initial designs are submitted to the Chief Building Official (CBO) for review and approval when the successor to the 1998 CBC is in effect, the 1998 CBC provisions, identified herein, shall be replaced with the applicable successor provisions.

Certain structures in a power plant may be required, under the CBC, to undergo dynamic lateral force (structural) analysis; others may be designed using the simpler static analysis procedure. In order to ensure that structures are analyzed using the appropriate lateral force procedure, staff has included Proposed Condition of Certification **STRUC-1** (below), which in part requires review and approval by the CBO of the project owner's proposed lateral force procedures prior to the start of construction.

PROJECT QUALITY PROCEDURES

The AFC (GWF 2001a, § 2.4.5) describes a Project Quality Program that will be used on the project to maximize confidence that systems and components will be designed, fabricated, stored, transported, installed and tested in accordance with the technical codes and standards appropriate for a power plant. Compliance with design requirements will be verified through an appropriate program of inspections and audits. Implementation of this Quality Assurance/Quality Control (QA/QC) program will ensure that the project is actually designed, procured, fabricated and installed as contemplated in this analysis.

COMPLIANCE MONITORING

Under Section 104.2 of the CBC, the building official is authorized and directed to enforce all the provisions of the CBC. For all energy facilities certified by the Energy Commission, the Energy Commission is the building official and has the responsibility to enforce the code. In addition, the Energy Commission has the power to render interpretations of the CBC and to adopt and enforce rules and supplemental regulations to clarify the application of the CBC's provisions.

The Energy Commission's design review and construction inspection process is developed to conform to CBC requirements and ensure that all facility design Conditions of Certification are met. As provided by Section 104.2.2 of the CBC, the Energy Commission appoints experts to carry out the design review and construction inspections and act as delegate CBO on behalf of the Energy Commission. These delegates typically include the local building official and/or independent consultants hired to cover technical expertise not provided by the local official. The applicant, through permit fees as provided by CBC Sections 107.2 and 107.3, pays the costs of the reviews and inspections. While building permits in addition to the Energy Commission certification are not required for this project, in lieu permit fees are paid by the applicant consistent with CBC Section 107, to cover the costs of reviews and inspections.

Engineering and compliance staff will invite the local building authority, the County, or a third party engineering consultant, to act as CBO for the project. When an entity has been identified to perform the duties of CBO, Energy Commission staff will complete a Memorandum of Understanding (MOU) with that entity that outlines its roles and responsibilities and those of its subcontractors and delegates.

Staff has developed proposed Conditions of Certification to ensure public health and safety and compliance with engineering design LORS. Some of these conditions address the roles, responsibilities and qualifications of the applicant's engineers responsible for the design and construction of the project (proposed Conditions of Certification **GEN-1** through **GEN-8**). Engineers responsible for the design of the civil, structural, mechanical and electrical portions of the project are required to be registered in California, and to sign and stamp each submittal of design plans, calculations and specifications submitted to the CBO. These conditions require that no element of construction subject to CBO review and approval shall proceed without prior approval from the CBO. They also require that qualified special inspectors be assigned to perform or oversee special inspections required by the applicable LORS.

While the Energy Commission and delegate CBO have the authority to allow some flexibility in scheduling construction activities, these conditions are written to require that no element of construction of permanent facilities subject to CBO review and approval, which would be difficult to reverse or correct, may proceed without prior approval of plans by the CBO. For those elements of construction that are not difficult to reverse and are allowed to proceed without approval of the plans, the applicant shall bear the responsibility to fully modify those elements of construction to comply with all design changes that result from the CBO's plan review and approval process.

FACILITY CLOSURE

The removal of a facility from service, or decommissioning, as a result of the project reaching the end of its useful life, may range from "mothballing" to removal of all equipment and appurtenant facilities and restoration of the site. Future conditions that may affect the decommissioning decision are largely unknown at this time.

In order to assure that decommissioning of the facility will be completed in a manner that is environmentally sound, safe and will protect public health and safety, the applicant shall submit a decommissioning plan to the Energy Commission for review and approval prior to the commencement of decommissioning. The plan shall include a discussion of the following items:

- proposed decommissioning activities for the project and all appurtenant facilities constructed as part of the project;
- all applicable LORS, local/regional plans and the conformance of the proposed decommissioning activities to the applicable LORS and local/regional plans;
- the activities necessary to restore the site if the plan requires removal of all equipment and appurtenant facilities; and
- decommissioning alternatives, other than complete site restoration.

The above requirements should serve as adequate protection, even in the unlikely event of project abandonment. Staff has proposed general conditions (see **General Conditions**) to ensure that these measures are included in the Facility Closure plan.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

1. The laws, ordinances, regulations and standards (LORS) identified in the AFC and supporting documents are those applicable to the project.

2. Staff has evaluated the proposed engineering LORS, design criteria and design methods in the record, and concludes that the design, construction and eventual closure of the project are likely to comply with applicable engineering LORS.

3. The Conditions of Certification proposed will ensure that the proposed facilities are designed and constructed in accordance with applicable engineering LORS. This will occur through the use of design review, plan checking and field inspections, which are to be performed by the CBO or other Energy Commission delegate. Staff will audit the CBO to ensure satisfactory performance.

4. Whereas future conditions that may affect decommissioning are largely unknown at this time, it can reasonably be concluded that if the project owner submits a decommissioning plan as required in the **General Conditions** portion of this document prior to the commencement of decommissioning, the decommissioning procedure is likely to occur in compliance with all applicable engineering LORS.

RECOMMENDATIONS

Energy Commission staff recommends that:

1. The Conditions of Certification proposed herein be adopted to ensure that the project is designed and constructed to assure public health and safety, and to ensure compliance with all applicable engineering LORS;

2. The project be designed and built to the 1998 CBC (or successor standard, if such is in effect when the initial project engineering designs are submitted for review); and

3. The CBO shall review the final designs, conduct plan checking and perform field inspections during construction, and Energy Commission staff shall audit and monitor the CBO to ensure satisfactory performance.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct and inspect the project in accordance with the 1998 California Building Code (CBC) and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval. (The CBC in effect is that edition

that has been adopted by the California Building Standards Commission and published at least 180 days previously.) All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

Protocol: In the event that the initial engineering designs are submitted to the CBO when a successor to the 1998 CBC is in effect, the 1998 CBC provisions identified herein shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

Verification: Within 30 days after receipt of the Certificate of Occupancy, the project owner shall submit to the California Energy Commission Compliance Project Manager (CPM) a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation and inspection requirements of the applicable LORS and the Energy Commission's Decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [1998 CBC, Section 109 – Certificate of Occupancy].

GEN-2 Prior to submittal of the initial engineering designs for CBO review, the project owner shall furnish to the CPM and to the CBO a schedule of facility design submittals, a Master Drawing List and a Master Specifications List. The schedule shall contain a list of proposed submittal packages of designs, calculations and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide specific packages to the CPM when requested.

Verification: At least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO and to the CPM the schedule, the Master Drawing List and the Master Specifications List of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures and equipment listed in **Table 1** below. Major structures and equipment shall be added to or deleted from the Table only with CPM approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

Table 1: Major Structures and Equipment List

Equipment/System	Quantity (Plant)
Combustion Turbine Generator Foundation and Connections	2
SCR Unit Structure, Foundation and Connections	2
Transformer Foundation and Connections	2
Exhaust Plenum Structure, Foundation and Connections	2
CT Inlet Air Filter Compartment Structure, Foundation and Connections	2
Accessory Compartment Structure, Foundation and Connections	2
Exhaust Stack Structure, Foundation and Connections	2
Evaporative Inlet Air Cooler Foundation and Connections	2
Fuel Gas Scrubber Foundation and Connections	2
Fuel Gas Scrubber Drain Tanks Foundation and Connections	2
Switchgear Compartment Foundation and Connections	2
Lube Oil Demister Foundation and Connections	2
Fuel Gas Heater Foundation and Connections	2
Gas Valve Module Structure, Foundation and Connections	2
Exhaust Flame Blower Structure, Foundation and Connections	2
CO_2 Fire Protection Skid Foundation and Connections	2
Underground Water Wash Drains Tank Foundation and Connections	2
Water wash Skid Foundation and Connections	2
PEECC Structure, Foundation and Connections	2
CEMS Shelter Structure, Foundation and Connections	2
Air Processing Unit Foundation and Connections	2
Cooling Module Structure, Foundation and Connections	2
Ammonia Vaporizer Skid Foundation and Connections	2
Oil/Water Separator Structure, Foundation and Connections	1
Service/Fire Water Tank Foundation and Connections	1
Auxiliary Pump/RO Treatment Building Structure, Foundation and Connections	1
Ammonia Storage Tank Foundation and Connections	1
Ammonia Forwarding Pumps Foundation and Connections	2
Switchgear Building Structure, Foundation and Connections	1
SCR Tempering Air Fans Foundation and Connections	2
Waste Water Storage Tank Foundation and Connections	1
Administration/Maintenance Building Structure, Foundation and Connections	1
Emergency Diesel Generator Foundation and Connections	1
Gas Metering Station Structure, Foundation and Connections	1

Equipment/System	Quantity (Plant)
Ammonia Unloading Pad Spill Containment Tank Foundation and Connections	1
Service Water Pumps Foundation and Connections	1
Fire Protection Pumps Foundation and Connections	1
Control Building Structure, Foundation and Connections	1
Cranking Motor Starter Transformer/Switchgear Foundation and Connections	2
Unit 1 Auxiliary Transformer Foundation and Connections	1
Unit 2 Auxiliary Transformer Foundation and Connections	1
Drainage Systems (including sanitary drain and waste)	1 Lot
High Pressure and Large Diameter Piping	1 Lot
HVAC and Refrigeration Systems	1 Lot
Temperature Control and Ventilation Systems (including water and sewer connections)	1 Lot
Building Energy Conservation Systems	1 Lot
Substation/Switchyard, Buses and Towers	2 Lots
Electrical Duct Banks	1 Lot

GEN-3 The project owner shall make payments to the CBO for design review, plan check and construction inspection based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. These fees may be consistent with the fees listed in the 1998 CBC [Chapter 1, Section 107 and Table 1-A, Building Permit Fees; Appendix Chapter 33, Section 3310 and Table A-33-A, Grading Plan Review Fees; and Table A-33-B, Grading Permit Fees], adjusted for inflation and other appropriate adjustments; may be based on the value of the facilities reviewed; may be based on hourly rates; or may be as otherwise agreed by the project owner and the CBO.

Verification: The project owner shall make the required payments to the CBO in accordance with the agreement between the project owner and the CBO. The project owner shall send a copy of the CBO's receipt of payment to the CPM in the next Monthly Compliance Report indicating that the applicable fees have been paid.

GEN-4 Prior to the start of rough grading, the project owner shall assign a California registered architect, structural engineer or civil engineer, as a resident engineer (RE), to be in general responsible charge of the project [Building Standards Administrative Code (Cal. Code Regs., tit. 24, § 4-209, Designation of Responsibilities)]. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

The RE may delegate responsibility for portions of the project to other registered engineers. Registered mechanical and electrical engineers may be delegated responsibility for mechanical and electrical portions of the project respectively. A project may be divided into parts, provided each part is clearly defined as a

distinct unit. Separate assignment of general responsible charge may be made for each designated part.

Protocol: The RE shall:

1. Monitor construction progress of work requiring CBO design review and inspection to ensure compliance with LORS;

2. Ensure that construction of all the facilities subject to CBO design review and inspection conforms in every material respect to the applicable LORS, these Conditions of Certification, approved plans and specifications;

3. Prepare documents to initiate changes in the approved drawings and specifications when directed by the project owner or as required by conditions on the project;

4. Be responsible for providing the project inspectors and testing agency(ies) with complete and up-to-date set(s) of stamped drawings, plans, specifications and any other required documents;

5. Be responsible for the timely submittal of construction progress reports to the CBO from the project inspectors, the contractor and other engineers who have been delegated responsibility for portions of the project; and

6. Be responsible for notifying the CBO of corrective action or the disposition of items noted on laboratory reports or other tests as not conforming to the approved plans and specifications.

   The RE shall have the authority to halt construction and to require changes or remedial work, if the work does not conform to applicable requirements.
   If the RE or the delegated engineers are reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the name, qualifications and registration number of the RE and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within five days of the approval.

If the RE or the delegated engineer(s) are subsequently reassigned or replaced, the project owner has five days in which to submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

GEN-5 Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: A) a civil engineer; B) a geotechnical engineer or a civil engineer experienced and

knowledgeable in the practice of soils engineering; C) a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; D) a mechanical engineer; and E) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730 and 6736 requires state registration to practice as a civil engineer or structural engineer in California.] All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

The tasks performed by the civil, mechanical, electrical or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project (e.g., proposed earthwork, civil structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer.

Protocol: The project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all responsible engineers assigned to the project [1998 CBC, Section 104.2, Powers and Duties of Building Official].

If any one of the designated responsible engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned responsible engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

Protocol: A: The civil engineer shall:

1. Design, or be responsible for design, stamp and sign all plans, calculations and specifications for proposed site work, civil works and related facilities requiring design review and inspection by the CBO. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads and sanitary sewer systems; and

2. Provide consultation to the RE during the construction phase of the project and recommend changes in the design of the civil works facilities and changes in the construction procedures.

Protocol: B: The geotechnical engineer or civil engineer, experienced and knowledgeable in the practice of soils engineering, shall:

1. Review all the engineering geology reports and prepare final soils grading report;

2. Prepare the soils engineering reports required by the 1998 CBC, Appendix Chapter 33, Section 3309.5, Soils Engineering Report; and Section 3309.6, Engineering Geology Report;

3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 1998 CBC, Appendix Chapter 33, section 3317, Grading Inspections;

4. Recommend field changes to the civil engineer and RE;

5. Review the geotechnical report, field exploration report, laboratory tests and engineering analyses detailing the nature and extent of the site soils that may be susceptible to liquefaction, rapid settlement or collapse when saturated under load; and

6. Prepare reports on foundation investigation to comply with the 1998 CBC, Chapter 18, Section 1804, Foundation Investigations.

This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations [1998 CBC, Section 104.2.4, Stop orders].

Protocol: C: The design engineer shall:

1. Be directly responsible for the design of the proposed structures and equipment supports;

2. Provide consultation to the RE during design and construction of the project;

3. Monitor construction progress to ensure compliance with engineering LORS;

4. Evaluate and recommend necessary changes in design; and

5. Prepare and sign all major building plans, specifications and calculations.

Protocol: D: The mechanical engineer shall be responsible for, and sign and stamp a statement with, each mechanical submittal to the CBO, stating that the proposed final design plans, specifications and calculations conform with all of the mechanical engineering design requirements set forth in the Energy Commission's Decision.

Protocol: E: The electrical engineer shall:

1. Be responsible for the electrical design of the project; and

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

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all the responsible engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five days in which to submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 1998 CBC, Chapter 17 [Section 1701, Special Inspections; Section 1701.5, Type of Work (requiring special inspection)]; and Section 106.3.5, Inspection and observation program. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

Protocol: The special inspector shall:

1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection;

2. Observe the work assigned for conformance with the approved design drawings and specifications;

3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action [1998 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]; and

4. Submit a final signed report to the RE, CBO and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable provisions of the applicable edition of the CBC.

   A certified weld inspector, certified by the American Welding Society (AWS) and/or American Society of Mechanical Engineers (ASME) as applicable, shall inspect welding performed on-site requiring special inspection (including structural, piping, tanks and pressure vessels).

Verification: At least 15 days prior to the start of an activity requiring special inspection, the project owner shall submit to the CBO for review and approval, with a copy to the CPM, the name(s) and qualifications of the certified weld inspector(s), or

other certified special inspector(s) assigned to the project to perform one or more of the duties set forth above. The project owner shall also submit to the CPM a copy of the CBO's approval of the qualifications of all special inspectors in the next Monthly Compliance Report.

If the special inspector is subsequently reassigned or replaced, the project owner has five days in which to submit the name and qualifications of the newly assigned special inspector to the CBO for approval. The project owner shall notify the CPM of the CBO's approval of the newly assigned inspector within five days of the approval.

GEN-7 If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend the corrective action required [1998 CBC, Chapter 1, Section 108.4, Approval Required; Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector; Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. The discrepancy documentation shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this Condition of Certification and, if appropriate, the applicable sections of the CBC and/or other LORS.

Verification: The project owner shall transmit a copy of the CBO's approval of any corrective action taken to resolve a discrepancy to the CPM in the next Monthly Compliance Report. If any corrective action is disapproved, the project owner shall advise the CPM, within five days, of the reason for disapproval and the revised corrective action to obtain CBO's approval.

GEN-8 The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. When the work and the "as-built" and "as-graded" plans conform to the approved final plans, the project owner shall notify the CPM regarding the CBO's final approval. The marked up "as-built" drawings for the construction of structural and architectural work shall be submitted to the CBO. Changes approved by the CBO shall be identified on the "as-built" drawings [1998 CBC, Section 108, Inspections]. The project owner shall retain one set of approved engineering plans, specifications and calculations at the project site or at another accessible location during the operating life of the project [1998 CBC, Section 106.4.2, Retention of Plans].

Verification: Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM in the next Monthly Compliance Report, (a) a written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans. After storing final approved engineering plans, specifications and calculations as described above, the project owner shall submit to the CPM a letter stating that the above documents have been stored and indicate the storage location of such documents.

CIVIL-1 Prior to the start of site grading, the project owner shall submit to the CBO for review and approval the following:

1. Design of the proposed drainage structures and the grading plan;

2. An erosion and sedimentation control plan;
3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and
4. Soils report as required by the 1998 CBC [Appendix Chapter 33, Section 3309.5, Soils Engineering Report; and Section 3309.6, Engineering Geology Report].

Verification: At least 15 days prior to the start of site grading (or a lesser number of days mutually agreed to by the project owner and the CBO), the project owner shall submit the documents described above to the CBO for design review and approval. In the next Monthly Compliance Report following the CBO's approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.

CIVIL-2 The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible geotechnical engineer or civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area [1998 CBC, Section 104.2.4, Stop orders].

Verification: The project owner shall notify the CPM, within five days, when earthwork and construction is stopped as a result of unforeseen adverse geologic/soil conditions. Within five days of the CBO's approval to resume earthwork and construction in the affected areas, the project owner shall provide to the CPM a copy of the CBO's approval.

CIVIL-3 The project owner shall perform inspections in accordance with the 1998 CBC, Chapter 1, Section 108, Inspections; Chapter 17, Section 1701.6, Continuous and Periodic Special Inspection; and Appendix Chapter 33, Section 3317, Grading Inspection. All plant site-grading operations for which a grading permit is required shall be subject to inspection by the CBO.

Protocol: If, in the course of inspection, it is discovered that the work is not being performed in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO and the CPM [1998 CBC, Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. The project owner shall prepare a written report detailing all discrepancies and non-compliance items, and the proposed corrective action, and send copies to the CBO and the CPM.

Verification: Within five days of the discovery of any discrepancies, the resident engineer shall transmit to the CBO and the CPM a Non-Conformance Report (NCR) and the proposed corrective action. Within five days of resolution of the NCR, the project owner shall submit the details of the corrective action to the CBO and the CPM. A list of NCRs, for the reporting month, shall also be included in the following Monthly Compliance Report.

CIVIL-4 After completion of finished grading and erosion and sedimentation control and drainage facilities, the project owner shall obtain the CBO's approval of the

final “as-graded” grading plans and final “as-built” plans for the erosion and sedimentation control facilities [1998 CBC, Section 109, Certificate of Occupancy].

Verification: Within 30 days of the completion of the erosion and sediment control mitigation and drainage facilities, the project owner shall submit to the CBO the responsible civil engineer’s signed statement that the installation of the facilities and all erosion control measures were completed in accordance with the final approved combined grading plans, and that the facilities are adequate for their intended purposes. The project owner shall submit a copy of this report to the CPM in the next Monthly Compliance Report.

STRUC-1 Prior to the start of any increment of construction of any major structure or component listed in **Table 1** of Condition of Certification **GEN-2**, above, the project owner shall submit to the CBO for design review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force procedures, designs, plans and drawings shall be those for the following items (from **Table 1**, above):

1. Major project structures;
2. Major foundations, equipment supports and anchorage;
3. Large field fabricated tanks;
4. Turbine/generator pedestal; and
5. Switchyard structures.

Construction of any structure or component shall not commence until the CBO has approved the lateral force procedures to be employed in designing that structure or component.

Protocol: The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;

2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations and specifications [1998 CBC, Section 108.4, Approval Required];

3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations and other required documents of the designated major structures at least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation [1998 CBC, Section 106.4.2, Retention of plans; and Section 106.3.2, Submittal documents]; and

4. Ensure that the final plans, calculations and specifications clearly reflect the inclusion of approved criteria, assumptions and methods used to develop the design. The final designs, plans, calculations and specifications shall be signed and stamped by the responsible design engineer [1998 CBC, Section 106.3.4, Architect or Engineer of Record].

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of any increment of construction of any structure or component listed in Table 1 of Condition of Certification GEN-2 above, the project owner shall submit to the CBO, with a copy to the CPM, the responsible design engineer's signed statement that the final design plans, specifications and calculations conform with all of the requirements set forth in the Energy Commission's Decision.

If the CBO discovers non-conformance with the stated requirements, the project owner shall resubmit the corrected plans to the CBO within 20 days of receipt of the non-conforming submittal with a copy of the transmittal letter to the CPM.

The project owner shall submit to the CPM a copy of a statement from the CBO that the proposed structural plans, specifications and calculations have been approved and are in conformance with the requirements set forth in the applicable engineering LORS.

STRUC-2 The project owner shall submit to the CBO the required number of sets of the following documents related to work that has undergone CBO design review and approval:

1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);

2. Concrete pour sign-off sheets;

3. Bolt torque inspection reports (including location of test, date, bolt size and recorded torques);

4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS)); and

5. Reports covering other structural activities requiring special inspections shall be in accordance with the 1998 CBC, Chapter 17, Section 1701, Special Inspections; Section 1701.5, Type of Work (requiring special inspection); Section 1702, Structural Observation; and Section 1703, Nondestructive Testing.

Verification: If a discrepancy is discovered in any of the above data, the project owner shall, within five days, prepare and submit an NCR describing the nature of the discrepancies to the CBO, with a copy of the transmittal letter to the CPM [1998 CBC,

Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]. The NCR shall reference the Condition(s) of Certification and the applicable CBC chapter and section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

The project owner shall transmit a copy of the CBO's approval or disapproval of the corrective action to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 1998 CBC, Chapter 1, Section 106.3.2, Submittal documents; and Section 106.3.3, Information on plans and specifications, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give the CBO prior notice of the intended filing.

Verification: On a schedule suitable to the CBO, the project owner shall notify the CBO of the intended filing of design changes, and shall submit the required number of sets of revised drawings and the required number of copies of the other above-mentioned documents to the CBO, with a copy of the transmittal letter to the CPM. The project owner shall notify the CPM, via the Monthly Compliance Report, when the CBO has approved the revised plans.

STRUC-4 Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in Chapter 3, Table 3-E of the 1998 CBC shall, at a minimum, be designed to comply with Occupancy Category 2 of the 1998 CBC.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of installation of the tanks or vessels containing the above specified quantities of toxic or hazardous materials, the project owner shall submit to the CBO for design review and approval final design plans, specifications and calculations, including a copy of the signed and stamped engineer's certification.

The project owner shall send copies of the CBO approvals of plan checks to the CPM in the following Monthly Compliance Report. The project owner shall also transmit a copy of the CBO's inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

MECH-1 Prior to the start of any increment of major piping or plumbing construction, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations for each plant major piping and plumbing system listed in Table 1, Condition of Certification GEN 2, above. Physical layout drawings and drawings not related to code compliance and life safety need not be submitted. The submittal shall also include the applicable QA/QC procedures. Upon completion of construction of any such major piping or plumbing system, the project owner shall request the CBO's inspection approval of said construction [1998 CBC, Section 106.3.2, Submittal Documents; Section 108.3, Inspection Requests; Section 108.4, Approval Required; 1998 California

Plumbing Code, Section 103.5.4, Inspection Request; Section 301.1.1, Approval].

Protocol: The responsible mechanical engineer shall stamp and sign all plans, drawings and calculations for the major piping and plumbing systems subject to the CBO design review and approval, and submit a signed statement to the CBO when the said proposed piping and plumbing systems have been designed, fabricated and installed in accordance with all of the applicable laws, ordinances, regulations and industry standards [Section 106.3.4, Architect or Engineer of Record], which may include, but not be limited to:

- American National Standards Institute (ANSI) B31.1 (Power Piping Code);
- ANSI B31.2 (Fuel Gas Piping Code);
- ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
- ANSI B31.8 (Gas Transmission and Distribution Piping Code);
- Title 24, California Code of Regulations, Part 5 (California Plumbing Code);
- Title 24, California Code of Regulations, Part 6 (California Energy Code, for building energy conservation systems and temperature control and ventilation systems);
- Title 24, California Code of Regulations, Part 2 (California Building Code); and
- Specific City/County code.

The CBO may deputize inspectors to carry out the functions of the code enforcement agency [1998 CBC, Section 104.2.2, Deputies].

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of any increment of major piping or plumbing construction listed in Table 1, Condition of Certification GEN-2 above, the project owner shall submit to the CBO for design review and approval the final plans, specifications and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

The project owner shall transmit to the CPM, in the Monthly Compliance Report following completion of any inspection, a copy of the transmittal letter conveying the CBO's inspection approvals.

MECH-2 For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by the applicable LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of said installation [1998 CBC, Section 108.3, Inspection Requests].

Protocol: The project owner shall:

1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and

2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for design review and approval, the above listed documents, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM.

The project owner shall transmit to the CPM, in the Monthly Compliance Report following completion of any inspection, a copy of the transmittal letter conveying the CBO's and/or Cal-OSHA inspection approvals.

MECH-3 Prior to the start of construction of any heating, ventilating, air conditioning (HVAC) or refrigeration system, the project owner shall submit to the CBO for design review and approval the design plans, specifications, calculations and quality control procedures for that system. Packaged HVAC systems, where used, shall be identified with the appropriate manufacturer's data sheets.

Protocol: The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the CBC and other applicable codes. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of said construction. The final plans, specifications and calculations shall include approved criteria, assumptions and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with the applicable LORS [1998 CBC, Section 108.7, Other Inspections; Section 106.3.4, Architect or Engineer of Record].

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the CBO the required HVAC and refrigeration calculations, plans and specifications, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the CBC and other applicable codes, with a copy of the transmittal letter to the CPM.

ELEC-1 Prior to the start of any increment of electrical construction for electrical equipment and systems 480 volts and higher, listed below, with the exception of

underground duct work and any physical layout drawings and drawings not related to code compliance and life safety, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations for such construction [CBC 1998, Section 106.3.2, Submittal documents]. Upon approval, the above listed plans, together with design changes and design change notices, shall remain on the site or at another accessible location for the operating life of the project. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS [1998 CBC, Section 108.4, Approval Required; and Section 108.3, Inspection Requests]. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

Protocol: A. Final plant design plans to include:

1. One-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems; and

2. System grounding drawings.

Protocol: B. Final plant calculations to establish:

1. Short-circuit ratings of plant equipment;

2. Ampacity of feeder cables;

3. Voltage drop in feeder cables;

4. System grounding requirements;

5. Coordination study calculations for fuses, circuit breakers and protective relay settings for the 13.8 kV, 4.16 kV and 480 V systems;

6. System grounding requirements; and

7. Lighting energy calculations.

Protocol: C. The following activities shall be reported to the CPM in the Monthly Compliance Report:

1. Receipt or delay of major electrical equipment;

2. Testing or energization of major electrical equipment; and

3. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission Decision.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for design review and approval the above listed documents. The project owner shall include in this submittal a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

REFERENCES

GWF Energy, LLC (GWF). 2001 a. Application for Certification for the Tracy Peaker Project (01-AFC-16). Submitted to the California Energy Commission, August 16, 2001.

GEOLOGY AND PALEONTOLOGY

Testimony of Neal Mace

INTRODUCTION

The Geology and Paleontology section discusses the geologic setting and hazards associated with the Tracy Peaker Project and the potential impacts of the project to geologic and paleontologic resources. The first objective of this review is to verify that the applicable laws, ordinances, regulations, and standards (LORS) have been identified, and that the project can be designed and constructed in accordance with all applicable LORS in a manner that protects environmental quality, and assures public health and safety.

Energy Commission staff's objective is to ensure there will be no significant adverse impacts to significant geologic and paleontologic resources during project construction, operation and closure. The Geology and Paleontology section concludes with the staff's proposed monitoring and mitigation measures, contained in the Conditions of Certification.

LAWS, ORDINANCES, REGULATION AND STANDARDS

The applicable LORS are listed on pages 8.15-23 to 8.15-24, 8.15-32, 8.16-14 to 8.16-16, and in Appendix J1 of the Application for Certification (01-AFC-16). A brief description of the LORS regarding geologic hazards, geologic resources, and paleontologic resources follows:

FEDERAL

There are no federal LORS for geologic hazards and resources, grading, or paleontologic resources for the project.

STATE

The California Building Code (CBC) 1998 edition is based upon the Uniform Building Code (UBC), 1997 edition, which was published by the International Conference of Building Officials. The CBC incorporates the UBC by reference, and is a series of minimum standards that are used in the investigation, design (Chapters 16 and 18) and construction (including grading as found in Appendix Chapter 33) of civil structures. The CBC supplements the UBC's grading and construction ordinances and regulations.

The California Environmental Quality Act (CEQA) 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 paleontologic resource or site, or a unique geologic 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 Standard Procedures, Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources (SVP 1994) are a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontologic resources, based on the standard-of-practice. They were adopted in October 1994 by a national organization of vertebrate paleontologists (the Society of Vertebrate Paleontologists), and are part of the LORS to which the project is subject.

LOCAL

The San Joaquin County Building Department uses the CBC as the minimum design standard for construction.

SETTING

The Tracy Peaker site is located along the boundary between Diablo Range to the west and the Central Valley. Structurally, this area comprises the Coast Ranges-Sierran Block boundary zone. This structural zone is defined by a series of low hills and a complex system of blind thrust faults.

The 9-acre project site is located near the toe of a series of coalescing alluvial fans. The Quaternary sediments deposited on the fan were derived from Upper Cretaceous and Tertiary marine sediments and bedrock of the Franciscan Complex exposed in the Diablo Range to the west. The Preliminary Geotechnical Investigation for the Tracy Peaker site (Hultgren-Tillis Engineers, 2001) states that the Quaternary soils include a 2 to 7 foot thick expansive clay layer underlain by 4 to 7 feet of silty sand at four locations and sandy silt or sandy clay at the remaining locations. They also reported two layers of dense sand and gravel at depths of approximately 30 and 50 feet below the ground surface. Hultgren-Tillis Engineers estimated a depth to ground water of 25 to 50 feet below the ground surface (125 to 142 feet above mean sea level), using pore pressure data from their cone penetrometer soundings. The groundwater gradient appears to flow toward the southeast.

Energy Commission staff reviewed the California Division of Mines and Geology publication "Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions," dated 1994 (CDMG 1994). No active or potentially active faults are known to cross the power plant footprint. The closest known active fault is a segment of the Great Valley fault system, which lies approximately 1 kilometer (0.6 miles) west of the project site. The Great Valley fault system consists of a series of blind thrust faults that comprise the Coast Ranges –Sierran Block boundary zone. Fault segments within the Great Valley fault system are designated as class "B" faults under the CBC (a fault with a maximum magnitude earthquake 6.5 or greater and a slip rate of less than 5 mm/year). The maximum magnitude earthquake assigned to the nearest segment of Great Valley fault is a moment magnitude 6.7 event (California Division of Mines and Geology, 1996).

In addition, the Greenville and Calaveras faults are located 15 and 35 kilometers (9.5 and 22 miles) west of the site, respectively. The Greenville fault is a north-northwest striking component of the San Andreas fault system. The Working Group on California Earthquake Probabilities (WGCEP, 1999) assigned the Greenville fault a maximum moment magnitude of 7.2. The Calaveras fault is also a north-northwest striking component of the San Andreas fault system. The WGCEP (1999) suggests a maximum earthquake moment magnitude (M) of 7.0 for the northern segment of the Calaveras fault and a maximum earthquake of M 7.2 for the entire length of the fault. A maximum magnitude earthquake on either of these faults will produce strong ground shaking at the proposed Tracy Peaker site.

Using the Abrahamson-Silva 1997 attenuation relationship, a moment magnitude 6.7 earthquake on the nearest segment of the Great Valley fault system would produce an estimated peak ground acceleration for the power plant site of 43 percent of the acceleration of gravity (0.43g). This value is generally consistent with the California Division of Mines and Geology (CDMG) Map Sheet 48 (Petersen et. al., 1996), which predicts a peak ground acceleration with a 10 percent probability of exceedance in 50 years of between 0.4 and 0.5g for the project area.

The applicant's consultant (Lawler and Associates, 2001) reviewed the paleontological literature for the Tracy area and conducted a field survey of the project site in June and July of 2001. Based on the field survey and literature review, Lawler and Associates (2001) concluded that the native soils derived from the Quaternary Alluvium; Late Tertiary, non-marine sedimentary rocks; and the Tertiary, Neroly Formation in the project area have a High Potential Rating for vertebrate paleontological resources.

ANALYSIS AND IMPACTS

PROJECT SPECIFIC IMPACTS

The Environmental Checklist (see below is presented in the California Environmental Quality Act (CEQA) guidelines to assist lead agencies in their analysis of project impacts. We provide this checklist as a summary of staff's conclusions regarding the potential for adverse significant project impacts. Following the checklist is a discussion of staff's analysis and rationale for these conclusions.

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
b) 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?		X		
c) 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		
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
PALEONTOLOGIC RESOURCES – Would the project:				
a) Directly or indirectly destroy a unique paleontologic resource or site or unique geologic feature?		X		

Geology

a) Potential Exposure of People or Structures to Impacts due to:

I. Rupture of Known Earthquake Faults:

The proposed power plant expansion and related linear facilities are not located on a fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist. Therefore, fault rupture is not anticipated.

II. Strong Seismic Ground Shaking:

A map prepared by Petersen et. al. (1996) indicates a 10 percent probability that the peak bedrock accelerations beneath the site will exceed 0.4g in 50 years. Design and construction of the project to conform to the California Building Code (1998) requirements outlined in **Conditions of Certification Gen-1, Gen-5,** and **Civil-1** in the **Facility Design Section** of the Staff Assessment would reduce the impact of strong seismic ground shaking to less than significant.

III. Seismic Related Ground Failure, Including Liquefaction:

Liquefaction is a condition in which a cohesionless soil loses its shear strength due to a sudden increase in pore water pressure that accompanies strong ground shaking. The soils most prone to liquefaction during earthquakes are loose, fine-grained, poorly graded, saturated sands and silts. The preliminary geotechnical investigation for the site encountered stiff clays and silts and dense sands and gravels. As a result, the liquefaction potential of the site is believed to be very low.

Design and construction of the project to conform to the guidance provided by CDMG (1997) and SCEC (1999) and the California Building Code (1998), requirement for a Engineering Geology Report, as outlined in **Conditions of Certification Gen-1, Gen-5,** and **Civil-1** in the **Facility Design Section** should verify that the impact of liquefaction is less than significant.

IV. Landslides:

Since the proposed power plant is located on a broad, gently sloping alluvial fan, the potential for landslides or other slope failures at the proposed power plant site is considered to be low.

b) Geological Unit or Soils Stability

Design and construction of the project to conform to the California Building Code (1998) requirements outlined in **Conditions of Certification Gen-1, Gen-5,** and **Civil-1** in the **Facility Design Section** will reduce potentially significant impacts caused by unstable soil conditions or unstable geological units to less than significant.

c) Expansive Soil:

The site may be subject to expansive soil conditions (i.e. soils that swell when saturated), which are often associated with very plastic clays similar to those present at the surface of this site. Expansive soils may result in the buckling of lightly loaded foundations. Design and construction of the project to conform to the California Building Code (1998) requirements outlined in **Gen-1, Gen-5,** and **Civil-1** in the **Facility Design Section** will reduce the impacts to less than significant.

Mineral Resources

a) Loss of Availability of a Known Mineral Resource:

Construction of the project and its linear facilities would disturb shallow soils, and perhaps limit their use as mineral resources. However, the soils are predominately

clays, so their value as a possible source of aggregate or as firing clays is low. Thus, CEC staff concludes that there is no potential for impacts and no special Conditions of Certification are required for mineral resources.

b) Loss of Availability of a Locally Important Mineral Resource:

The site is not delineated as an important mineral resource recovery area in any local land use plan.

Paleontology

a) Impacts to a Unique Paleontologic Resource:

There are no known vertebrate fossils sites within 3 miles of the project site, but vertebrate fossil discoveries have been reported elsewhere in the Quaternary Alluvium that blankets the Central Valley. Based on this fact, the Applicant has recognized that the Quaternary alluvium present at the project site has a high paleontologic sensitivity rating.

The Applicant has proposed paleontologic monitoring and salvaging as mitigation to reduce the potential impacts to paleontologic resources. CEC staff concurs with this approach and has incorporated a requirement for a paleontologic monitoring program in seven Conditions of Certification **(PALEO-1** through **PALEO-7)** in this staff assessment. Should any unique paleontologic resources be encountered during construction, implementation of the monitoring and mitigation measures required by the Conditions of Certification would reduce the impacts to less than significant.

CUMULATIVE IMPACTS

If the Tracy Peaker Project is constructed according to the proposed Conditions of Certification, it would have little or no impact on paleontologic and geologic resources. Therefore, it is staff's opinion that the project is unlikely to contribute to any significant adverse cumulative impacts on geologic or paleontologic resources.

MITIGATION

The Applicant proposes to mitigate potential impacts caused by seismic hazards and expansive soils by complying with the requirements and design standards of the CBC (1998).

No mitigation measures appear necessary to mitigate impact to geologic resources.

The Applicant proposes to mitigate potential impacts to paleontologic resources by construction monitoring by a Paleontologic Resources Specialist, and salvaging of any identified fossils.

COMPLIANCE WITH LORS

Staff proposes to ensure compliance with applicable LORS for geological hazards and geological and paleontological resources with the adoption of the proposed Conditions of Certification for **Facility Design** and **Paleontologic Resources**.

FACILITY CLOSURE

Facility closure activities are not anticipated to impact geologic or paleontologic resources, since the majority of the ground disturbed in plant decommissioning and closure would have been disturbed in the construction of the plant.

CONCLUSIONS AND RECOMMENDATIONS

The project should have no adverse impact with respect to geologic and paleontologic resources if it complies with applicable LORS and Conditions of Certification for **Facility Design** and **Paleontologic Resources**.

PROPOSED CONDITIONS OF CERTIFICATION

Conditions of Certification with respect to Geology are covered under Conditions of Certification **Gen-1, Gen-5,** and **Civil-1** in the **Facility Design Section**. Conditions of Certification for Paleontological Resources are as follows:

PAL-1 Prior to ground disturbance, the project owner shall ensure that the designated paleontological resource specialist approved by the CPM is available for field activities and prepared to implement the Conditions of Certification.

- The designated paleontological resources specialist shall be responsible for implementing all the paleontological Conditions of Certification and for using qualified personnel to assist in this work.

Protocol: The project owner shall provide the CPM with the name and statement of qualifications for the designated paleontological resource specialist.

- The statement of qualifications for the designated paleontological resource specialist shall demonstrate that the specialist meets the following minimum qualifications: a degree in paleontology or geology or paleontological resource management; and at least three years of paleontological resource mitigation and field experience in California, including at least one year's experience leading paleontological resource mitigation and field activities.
- The statement of qualifications shall include a list of specific projects the specialist has previously worked on; the role and responsibilities of the specialist for each project listed; and the names and phone numbers of contacts familiar with the specialist's work on these referenced projects.

- If the CPM determines that the qualifications of the proposed paleontological resource specialist do no satisfy the above requirements, the project owner shall submit another individual's name and qualifications for consideration.
- If the approved, designated paleontological resource specialist is replaced prior to completion of project mitigation, the project owner shall obtain CPM approval of the new designated paleontological resource specialist by submitting the name and qualifications of the proposed replacement to the CPM, at least ten (10) days prior to the termination or release of the preceding designated paleontological resource specialist.
- Should emergency replacement of the designated specialist become necessary, the project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

Verification: At least 90 days prior to site mobilization, or a lesser number of days mutually agreed upon by the CPM and owner, the project owner shall submit the name, resume, and the availability of its designated paleontological resource specialist, to the CPM for review and approval. The CPM shall provide approval or disapproval of the proposed paleontological resource specialist.

At least 10 days prior to the termination or release of a designated paleontological resource specialist, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and resume of the proposed new designated paleontological resource specialist. Should emergency replacement of the designated specialist become necessary, the project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

PAL-2 Prior to site mobilization, the designated paleontological resource specialist shall prepare a Paleontological Resources Monitoring and Mitigation Plan to identify general and specific measures to minimize potential impacts to sensitive paleontological resources, and submit this plan to the CPM for review and approval. After CPM approval, the project owner's designated paleontological resource specialist shall be available to implement the Monitoring and Mitigation Plan, as needed, throughout the project construction.

Protocol: The Paleontological Resources Monitoring and Mitigation Plan to be developed in accordance with the guidelines of the Society of the Vertebrate Paleontologists (SVP, 1994) shall include, but not be limited to, the following elements and measures:

- A discussion of the sequence of project-related tasks, such as any pre-construction surveys, fieldwork, flagging or staking; construction monitoring; mapping and data recovery; fossil preparation and recovery; identification and inventory; preparation of final reports; and transmittal of materials for curation;

- Identification of the person(s) expected to assist with each of the tasks identified within this condition for certification, and a discussion of the

mitigation team leadership and organizational structure, and the inter-relationship of tasks and responsibilities;

- Where monitoring of project construction activities is deemed necessary, the extent of the areas where monitoring is to occur and a schedule for the monitoring;

- An explanation that the designated paleontological resource specialist shall have the authority to halt or redirect construction in the immediate vicinity of a vertebrate fossil find until the significance of the find can be determined;

- A discussion of equipment and supplies necessary for recovery of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;

- Inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontologists standards and requirements for the curation of paleontological resources; and

- Identification of the institution that has agreed to receive any data and fossil materials recovered during project-related monitoring and mitigation work, discussion of any requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution.

Verification: At least 60 days prior to site mobilization on the project, or a lesser number of days mutually agreed upon by the CPM and owner, the project owner shall provide the CPM with a copy of the Paleontological Resources Monitoring and Mitigation Plan prepared by the designated paleontological resource specialist for review and approval. If the plan is not approved, the project owner, the designated paleontological resource specialist, and the CPM shall meet to discuss comments and necessary changes.

PAL-3 Prior to ground disturbance, and throughout the project construction period, as needed for all new employees, the project owner and the designated paleontological resource specialist shall prepare and conduct CPM-approved training for all project managers, construction supervisors, and workers who operate ground disturbing equipment. The project owner and construction manager shall provide the workers with the CPM-approved set of procedures for reporting any sensitive paleontological resources or deposits that may be discovered during project-related ground disturbance.

Protocol: The paleontological training program shall discuss the potential to encounter paleontological resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training shall also include the set of reporting procedures that workers are to follow if paleontological resources are encountered during project activities. The training program shall be presented by the designated paleontological resource specialist and may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern.

Verification: At least 30 days prior to site mobilization, or a lesser number of days mutually agreed upon by the CPM and owner, the project owner shall submit to the CPM for review, comment, and written approval, the proposed employee training program and the set of reporting procedures the workers are to follow if paleontological resources are encountered during project construction.

If the employee training program and set of procedures are not approved, the project owner, the designated paleontological resource specialist, and the CPM shall meet to discuss comments and necessary changes, before the beginning of construction.

Documentation for training of additional new employees shall be provided in subsequent Monthly Compliance Reports, as appropriate.

PAL-4 The designated paleontological resource specialist shall be present at all times to monitor construction-related grading, excavation, trenching, and/or augering in areas where potentially fossil-bearing sediments have been identified. If the designated paleontological resource specialist determines that full-time monitoring is not necessary in certain portions of the project area or along portions of the linear facility routes, the designated specialist shall notify the project owner and CPM. The CPM will then determine if a reduction in monitoring is appropriate for particular locations.

Verification: The project owner shall include in the Monthly Compliance Reports a summary of paleontological activities conducted by the designated paleontological resource specialist.

PAL-5 The project owner, through the designated paleontological resource specialist, shall ensure the recovery, preparation for analysis, analysis, identification and inventory, the preparation for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its compliance files copies of signed contracts or agreements with the designated paleontological resource specialist and other qualified research specialists who will ensure the necessary data and fossil recovery, mapping, preparation for analysis, analysis, identification and inventory, and preparation for delivery of all significant paleontological resource materials collected during data recovery and mitigation for the project. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved Paleontological Resources Report and shall keep these files available for periodic audit by the CPM.

PAL-6 The project owner shall ensure preparation of a Paleontological Resources Report by the designated paleontological resource specialist. The

Paleontological Resources Report shall be completed following completion of the analysis of the recovered fossil materials and related information. The project owner shall submit the paleontological report to the CPM for approval.

Protocol: The report shall include (but not be limited to) a description and inventory list of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the paleontological resource specialist that project impacts to paleontological resources have been mitigated.

Verification: Within 90 days following completion of the analysis of the recovered fossil materials, the project owner shall submit a copy of the Paleontological Resources Report to the CPM for review and approval under a cover letter stating that it is a confidential document.

PAL-7 The project owner shall include in the facility closure plan a description regarding the potential for closure of the facility to impact paleontological resources. The conditions for closure will be determined when a facility closure plan is submitted to the CPM, 12 months prior to closure of the facility. If no activities are proposed that would potentially impact paleontological resources, then no mitigation measures for paleontological resource management are required in the facility closure plan.

Verification: The closure requirements for paleontological resources are to be based upon the Paleontological Resources Report and the proposed grading activities for facility closure.

The project owner shall include a description of closure activities described above in the facility closure plan.

REFERENCES

Abrahamson, N.A. and Silva, W.J., 1997. Empirical response spectral attenuation relations for shallow crustal earthquakes: Seismological Research Letters, v. 68, p. 94-127.

Bartow, J.A., 1991. Cenozoic Evolution of the San Joaquin Valley, California: U.S. Geological Survey Professional Paper 1501.

California Building Code (CBC), 1998. Volume 2, Structural Engineering Design Provisions.

CDMG (California Division of Mines and Geology), 1997. Guidelines for analyzing and mitigating liquefaction in California: Dept. Of Conservation, California Division of Mines and Geology, Special Publication 117, 74p.

CDMG (California Division of Mines and Geology), 1994. Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions, Scale: 1:750,000.

Hart, E.W., 1994. Fault-rupture hazard zones in California, Alquist-Priolo Earthquake Fault Zoning Act with index to Earthquake Fault Zone Maps: California Division of Mines and Geology, Special Publication 42, 33p.

Hay, O.P., 1927. The Pleistocene of the western region of North America and its vertebrate animals: Carnegie Institute of Washington Publication 322(B), p. 1-346.

Hultgren-Tillis Engineers, 2001. Preliminary Geotechnical Investigation, Power Plant, Tracy, California.

Jefferson, G.T., 1991. A catalogue of Late Quaternary vertebrates from California, Part One, Nonmarine lower Vertebrates and Avian Taxa, Part Two, Mammals: Natural History Museum of Los Angeles County Technical Reports, Number 7, 129 p.

Lawler, David, 2001. Paleontological Resources-GWF Tracy Peaker Project (TPP), San Joaquin County, California.

Mualchin, L., Jones, A.L., 1992. Peak acceleration from maximum credible earthquakes in California (rock and stiff soil sites): California Division of Mines and Geology Open-File Report 92-1.

Petersen, M.D., Bryant, W.A., Cramer, C.H., Cao, T., Reichle, M., Frankel, A.D., Lienkaemper, J.J., Patricia A. McCrory, P.A., and David P. Schwartz, D.P., 1996. Probabilistic seismic hazard assessment for the State of California: California Division of Mines and Geology, Open-File Report 96-08.

Savage, D.E., 1951. Late Cenozoic vertebrates of the San Francisco Bay region: California Univ. Pubs. Dept. Geol. Sci. Bull., v. 28, p.215-314.

SCEC, 1999. Recommended procedures for implementation of CDMG Special Publication 117 - Guidelines for analyzing and mitigating liquefaction in California: Southern California Earthquake Center, University of Southern California, 63p.

Stirton, R.A., 1951. Prehistoric land animals of the San Francisco Bay region: in Jenkins, O.P. (ed.), Geologic guidebook of the San Francisco Bay Counties: California Division of Mines and Geology, Bulletin 154, p.177-186.

SVP (Society of Vertebrate Paleontologists). 1994. Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources: Standard Procedures. October 1994.

Wakabayashi, J. and Smith, D.L., 1994. Evaluation of recurrence intervals, characteristic earthquakes and slip-rates associated with thrusting along the Coast Range-Central Valley geomorphic boundary: Bulletin of the Seismological Society of America, v. 84, p. 1,960 to 1,970.

WGCEP (Working Group on California Earthquake Probabilities), 1999. Earthquake probabilities in the San Francisco Bay Region: 2000 to 2030 – a summary of findings: U.S. Geological Survey Open-file Report 99-517, 60 p.

POWER PLANT EFFICIENCY

Testimony of Steve Baker

INTRODUCTION

The Energy Commission makes findings as to whether energy use by the Tracy Peaker Project (TPP) will result in significant adverse impacts on the environment, as defined in the California Environmental Quality Act (CEQA). If the Energy Commission finds that the TPP's consumption of energy creates a significant adverse impact, it must determine whether there are any feasible mitigation measures that could eliminate or minimize the impacts. 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:

- determine whether the facility will likely present any adverse impacts upon energy resources;
- determine whether these adverse impacts are significant; and if so,
- determine whether feasible mitigation measures exist that would eliminate the adverse impacts, or reduce them to a level of insignificance.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

FEDERAL

No federal laws apply to the efficiency of this project.

STATE

California Environmental Quality Act Guidelines

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).

LOCAL

No local ordinances apply to power plant efficiency.

SETTING

GWF Energy, LLC (GWF) proposes to construct and operate a (nominal) 169 MW simple cycle power plant to generate peaking power, selling under contract with the California Department of Water Resources (DWR) and on the deregulated energy market. (GWF has a contract with DWR that allows for the purchase of up to 4,000 hours per year by DWR at the contract terms) (GWF 2001a, AFC §§ 1.1, 1.2, 1.6, 2.2.15). (Note that this nominal rating of 169 MW 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.) The TPP would consist of two General Electric PG7121(EA) combustion turbine generators (known as the "Frame 7(EA)") producing up to 84.4 MW each, for a total of 169 MW. The gas turbines would be equipped with evaporative inlet air coolers, selective catalytic reduction and oxidation catalysts to control air emissions (GWF 2001a, AFC §§ 1.1, 1.5.2, 2.1, 2.2.2, 2.2.4).

ANALYSIS

ADVERSE IMPACTS ON ENERGY RESOURCES

The inefficient and unnecessary consumption of energy, in the form of non-renewable fuels such as natural gas and oil, constitutes an adverse environmental impact. 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.

Project Energy Requirements and Energy Use Efficiency

Any power plant large enough to fall under Energy Commission siting jurisdiction will consume large amounts of energy. The TPP would burn natural gas at a nominal rate up to 21.4 billion Btu per day LHV[1] (GWF 2001a, AFC § 1.5.5). This is a substantial rate of energy consumption, and may hold the potential to impact energy supplies.

Under expected project conditions, electricity would be generated at a full load efficiency of 32.5 percent LHV (GWF 2001a, AFC Figure 2-6a). This can be compared to the average fuel efficiency of a typical 1960s-era utility company baseload power plant, commonly used for peaking power, at approximately 35 percent LHV. As will be seen below, the project's fuel efficiency does not compare favorably to other possible peaking technologies.

Adverse Effects on Energy Supplies and Resources

The applicant has described its sources of supply of natural gas for the TPP (GWF 2001a, AFC §§ 1.5.2, 1.5.5, 2.1, 2.4.3, 7.0). The project would burn natural gas from

[1] Lower heating value.

the existing Pacific Gas & Electric Company (PG&E) gas transmission pipeline 401, which passes within the boundary of the project site. The PG&E gas supply infrastructure is extensive, offering access to vast reserves of gas from California, the Rocky Mountains, Canada and the Southwest. This source represents far more gas than would be required for a project of this size. Energy Commission predictions are that natural gas supplies will be adequate for many years into the future. It is therefore highly unlikely that the TPP could pose a substantial increase in demand for natural gas in California.

Additional Energy Supply Requirements

Natural gas fuel would be supplied to the project by a new 16 inch diameter pipeline connecting to the existing PG&E pipeline 401 on the project site (GWF 2001a, AFC §§ 1.1, 1.5.2, 2.1, 7.0). This line is of sufficient size to serve the project. Numerous gas pipeline companies, including El Paso Natural Gas, TransWestern, Kern River, PGT and Mojave, compete to provide a means of transporting gas throughout California. This gas transmission network should provide adequate access to natural gas fuel. There is no real likelihood that the TPP would require the development of additional energy supply capacity.

Compliance with Energy Standards

No standards apply to the efficiency of the TPP or other non-cogeneration projects.

Alternatives to Reduce Wasteful, Inefficient and Unnecessary Energy Consumption

The TPP 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 TPP would be configured as two simple cycle power plants in parallel, in which electricity is generated by two gas turbine generators (GWF 2001a, AFC §§ 1.5.2, 2.1, 2.2.2, 2.2.4). This configuration, with its short start-up time and fast ramping[2] capability, is well suited to providing peaking power.

Equipment Selection

The GE Frame 7(EA) gas turbine generator has been on the market since 1984, and does not represent the current standard in fuel efficiency. The PG7121(EA) to be employed in the TPP is nominally rated at 85.4 MW and 32.8 percent efficiency LHV at ISO standard conditions[3] (GTW 2000).

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

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

Efficiency of Alternatives to the Project

The project objective is to generate peaking power. Power would be sold on the spot market or via contract with the DWR (GWF 2001a, AFC §§ 1.1, 1.2, 1.6, 2.2.15). The applicant claims to have a contract with the DWR that allows the purchase of up to 4,000 hours per year of plant output; with a favorable spot market, the applicant envisions being able to operate the plant as much as 8,000 hours per year.

Alternative Generating Technologies

The applicant addresses alternative generating technologies in its application (GWF 2001a, AFC § 5.3). Distillate oil-, crude oil-, produced gas-, petroleum coke- and coal-burning technologies, as well as biomass, were considered. Given the project objective, location and air pollution control requirements, staff agrees with the applicant that only natural gas-burning, simple-cycle gas turbines are feasible.

Natural Gas-Burning Technologies

Fuel consumption is one of the most important economic factors in selecting an electric generator; fuel typically accounts for over two-thirds of the total operating costs of a fossil-fired power plant (Power 1994). Under a competitive power market system, where operating costs are critical in determining the competitiveness and profitability of a power plant, the plant owner is thus strongly motivated to purchase fuel efficient machinery.

Capital cost is also important in selecting generating machinery. Recent progress in the development of gas turbines, incorporating technological advances made in the development of aircraft (jet) engines, combined with the cost advantages of assembly-line manufacturing, has made available machines that not only offer the lowest available fuel costs, but at the same time sell for the lowest per-kilowatt capital cost.

GWF has selected the General Electric (GE) PG7121(EA), known as the Frame 7(EA). This machine has been available since 1984. Alternative machines that can meet the project's objectives are:

Machine	Generating Capacity (MW)	ISO Efficiency (LHV)
GE Frame 7(EA)	**85.4**	**32.8 %**
GE LM2500	24.0	35.1 %
GE LM2500+	31.0	36.7 %
Turbo Power FT8 TwinPac	51.4	38.4 %
GE LM6000 Sprint	48.1	39.6 %
GE LM6000	43.5	40.2 %

Source: GTW 2000

The LM2500, LM6000 and FT8 are aeroderivative machines, adapted from General Electric and Pratt & Whitney aircraft engines. The LM2500 is popular in ships, and sees much service in new and refitted commercial and naval vessels. The LM6000 Sprint incorporates water spray intercooling in the engine's compressor to boost power output. The Frame 7(EA) is not an aeroderivative machine, but rather a heavy-frame industrial-type machine. Its compressor and turbine blades are all fastened to a single shaft and

all spin at the same speed, whereas the aeroderivative machines have two or three shafts spinning at different speeds. The two-shaft design allows more effective aerodynamic design of the machine, resulting in a pressure ratio (equivalent to the compression ratio in an automobile engine) twice that of the 7(EA). The higher pressure ratio helps the aeroderivative machines exhibit fuel efficiency from seven to 21 percentage points greater than the 7(EA).

While any of the aeroderivative machines listed above would exhibit greater fuel efficiency than the machines chosen for the TPP, staff believes the Frame 7(EA) is an acceptable choice for the project for two reasons. First, the heavy-duty Frame machines typically exhibit greater reliability than the aeroderivative machines (see **Power Plant Reliability**). Reliability is crucial in a power plant such as the TPP.

Second, both the electricity and natural gas markets are deregulated. Any project that wastes energy through low fuel efficiency will pay a cost penalty due to the need to purchase greater quantities of fuel. Regardless of GWF's intentions to operate the plant at a capacity factor of 50 percent, if other, more efficient projects are available for dispatch, it is likely that they will underbid the TPP and be dispatched. The TPP would not be dispatched, and would thus consume no fuel. If, however, electricity demand were great enough to justify the expenditure on fuel, the California independent System Operator would likely accept the TPP's bid and dispatch it. The economics of the deregulated electricity and natural gas markets would prevent the TPP from wasting significant amounts of fuel.

Inlet Air Cooling

A further choice of alternatives involves the selection of gas turbine inlet air cooling methods. A gas turbine's power output decreases as ambient air temperatures rise; cooling the turbine's inlet air maintains power output nearer maximum on hot days. The three commonly used techniques are the evaporative cooler, the fogger and the chiller. A mechanical chiller can offer greater power output than the evaporative cooler or fogger 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 substantial inventory of ammonia. An evaporative cooler boosts power output best on dry days; it uses less electric power than a mechanical chiller, possibly yielding slightly higher operating efficiency. The fogger offers the benefits of evaporative cooling without the need to handle and recycle blowdown wastewater. The difference in efficiency among these techniques is relatively insignificant.

GWF proposes to employ evaporative cooling (GWF 2001a, AFC §§ 1.5.2, 2.1, 2.2.4, 2.2.7.2). Given the climate at the project site and the relative lack of clear superiority of one system over the other, staff agrees that the applicant's approach would yield no significant adverse energy impacts.

Conclusions on Efficiency of Alternatives

In conclusion, the project configuration chosen (two simple cycle units in parallel) appears to represent an effective means of satisfying the project objectives. The machines chosen exhibit fuel efficiency from seven to 21 percentage points worse than

feasible alternative machines. While GWF proposes to operate the TPP at an annual capacity factor of 50 percent or more (GWF 2001a, AFC §§ 1.6, 2.2.2, 2.2.15), a high number for a peaking plant,[4] market economics in the form of electricity and natural gas prices would control the TPP's dispatch and, thus, its capacity factor. While operation of the TPP represents an adverse impact on energy resources, Energy Commission staff believes it does not constitute a significant impact because:

1. The project's maximum fuel consumption, 21.4 billion BTU per day, is not a significant portion of natural gas supply to California; and

2. Both the electricity market and the natural gas market are deregulated. If the TPP were too inefficient, other more efficient competitors would displace it, and it would not be dispatched.

Staff, therefore, believes the TPP would not constitute a significant adverse impact on energy resources.

CUMULATIVE IMPACTS

Calpine's proposed East Altamont Energy Center and Midway Power's proposed Tesla Power Plant are two nearby major natural gas-fueled power plant projects that hold the potential for cumulative energy consumption impacts when aggregated with the TPP. However, due to the robust nature of the deregulated market for natural gas, and to the active participation of the pipeline companies that compete to serve California, Energy Commission staff believes there would be no cumulative impacts on fuel supplies due to the TPP.

Staff further believes that construction and operation of the TPP would not bring about indirect impacts, in the form of additional fuel consumption, that would not have occurred but for the TPP. California's electric power will be generated by those power plants that bid most successfully to sell their output to the competitive market. If more efficient peaking power plants compete against the TPP, it would not be dispatched and no indirect impacts are likely.

FACILITY CLOSURE

Closure of the facility, whether planned or unplanned, would not influence, nor would it be influenced by, project efficiency. Any efficiency impacts due to closure of the project would be on the electric system as a whole. The vast size of the electric system serving California, the number of generating plants offering to sell power into it, and the existence of the California Independent System Operator to ensure the efficient management of the system, all lend assurance that closure of this facility would not produce significant adverse impacts on efficiency.

[4] Industry terminology generally refers to a power plant that operates up to 25 percent of the time as a peaker.

CONCLUSIONS AND RECOMMENDATIONS

The TPP, if constructed and operated as proposed, will generate approximately 169 MW of electric peaking power at an overall project fuel efficiency around 32.8 percent LHV. It will consume substantial amounts of energy, but will not require additional sources of energy supply. While more efficient alternatives exist, staff believes that the forces of the competitive markets for electricity and natural gas, combined with the relatively small size of the TPP (169 MW), will result in no significant adverse impacts on energy resources. No energy standards apply to the project.

No cumulative impacts on energy resources are likely. Facility closure would not likely present significant impacts on electric system efficiency. No Conditions of Certification are proposed.

REFERENCES

GTW (Gas Turbine World). 2000. *Gas Turbine World 2000-2001 Performance Specs*, volume 20. December 2000.

GWF Energy, LLC (GWF). 2001 a. Application for Certification, Tracy Peaker Project (01-AFC-16). Submitted to the California Energy Commission, August 16, 2001.

Power (Power Magazine). 1994. "Operating and maintaining IPP/cogen facilities," *Power*, September 1994, p. 14.

POWER PLANT RELIABILITY

Testimony of Steve Baker

INTRODUCTION

In this analysis, Energy Commission staff addresses the reliability issues of the project to determine if the power plant is likely to be built in accordance with typical industry norms for reliability of power generation. Staff uses this level of reliability as a benchmark because the resulting project would likely not degrade the overall reliability of the electric system it serves (see **Setting** below).

The scope of this power plant reliability analysis covers:

- equipment availability;
- plant maintainability;
- fuel and water availability; and
- power plant reliability in relation to natural hazards.

Staff examined the project design criteria to determine if the project is likely to be built in accordance with typical industry norms for reliability of power generation. While GWF Energy, LLC (GWF) has predicted a level of reliability for the power plant (see below), staff believes GWF should not be held responsible for achieving this goal, so long as the plant's reliability matches or exceeds that of similar plants.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

Presently, there are no laws, ordinances, regulations or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation. However, the commission must make findings as to the manner in which the project is to be designed, sited and operated to ensure safe and reliable operation (Cal. Code Regs., tit. 20, § 1752(c)). Staff takes the approach that a project is acceptable if it does not degrade the reliability of the utility system to which it is connected. This is likely the case if the project exhibits reliability at least equal to that of other power plants on that system (see **Setting** below).

SETTING

In the regulated monopoly electric industry of past decades, the utility companies assured overall system reliability, in part, by maintaining a "reserve margin." This amounted to having on call, at all times, sufficient generating capacity, in the form of standby power plants, to quickly handle unexpected outages of generating or transmission facilities. The utilities generally maintained a seven- to ten-percent reserve margin, meaning that sufficient capacity was on call to quickly replace from seven to ten percent of total system resources. This margin proved adequate, in part because of the reliability of the power plants that constituted the system.

Now, in the newly restructured competitive electric power industry, the responsibility for maintaining system reliability falls largely to the California Independent System Operator (CaISO), which purchases, dispatches and sells electric power throughout the state. How CaISO will ensure system reliability is currently being determined; protocols are being employed that will, it is anticipated, allow sufficient reliability to be maintained under the competitive market system. "Must-run" power purchase agreements and "participating generator" agreements are two mechanisms being employed to ensure an adequate supply of reliable power (Mavis 1998, pers. comm.).

The CaISO also requires those power plants selling ancillary services, as well as those holding reliability must-run contracts, to fulfill certain requirements, including:

- filing periodic reports on plant reliability;
- reporting all outages and their causes; and
- scheduling all planned maintenance outages with the CaISO (Detmers 1999, pers. comm.).

The CaISO's mechanisms to ensure adequate power plant reliability apparently are being devised under the assumption that the individual power plants that compete to sell power into the system will each exhibit a level of reliability similar to that of power plants of past decades. However, there is cause to believe that, under free market competition, financial pressures on power plant owners to minimize capital outlays and maintenance expenditures may act to reduce the reliability of many power plants, both existing and newly constructed (McGraw-Hill 1994). It is possible that, if significant numbers of power plants exhibit individual reliability sufficiently lower than this historical level, the assumptions used by CaISO to ensure system reliability will prove invalid, with potentially disappointing results. Until the restructured competitive electric power system has undergone a shakeout period, and the effects of varying power plant reliability are understood and compensated for, staff deems it wise to encourage power plant owners to continue to build and operate their projects to the level of reliability to which all in the industry are accustomed.

GWF proposes to operate the (nominal) 169 MW Tracy Peaker Project (TPP) as a simple cycle peaking power plant, selling peaking power through contract with the California Department of Water Resources (DWR) and on the competitive market (GWF 2001a, AFC §§ 1.1, 1.2, 1.5.2, 1.6, 2.1, 2.2.15). GWF's contract with DWR allows for the purchase by DWR of up to 4,000 hours per year under the contract terms (GWF 2001a, AFC §§ 1.6, 2.2.15). The project is expected to operate reliably enough to allow an annual capacity factor[1] exceeding 50 percent (GWF 2001a, AFC §§ 1.6, 2.2.2, 2.2.15). Reliability typical of peaking power plants should easily allow such a capacity factor.

[1] Annual capacity factor is the amount of electrical energy produced throughout the year divided by the amount of energy that could have been produced had the plant operated at maximum output without interruption. Capacity factor is a function of both reliability and dispatch.

ANALYSIS

A reliable power plant is one that is available when called upon to operate. Throughout its intended life, the TPP will be expected to perform reliably in peaking duty. Peaking power plant systems must typically be able to operate for only a few hours per day without shutting down for maintenance or repairs. The plant will typically be shut down at night, on weekends, and for periods in the fall, winter and spring, allowing time for maintenance and repairs. Achieving acceptable reliability is accomplished by ensuring adequate levels of equipment availability, plant maintainability, fuel and water availability, and resistance to natural hazards. Staff examines these factors for the project and compares them to industry norms. If they compare favorably, staff can conclude that the TPP will be as reliable as other peaking power plants on the electric system, and will therefore not degrade system reliability.

EQUIPMENT AVAILABILITY

Equipment availability will be ensured by use of appropriate quality assurance/ quality control (QA/QC) programs during design, procurement, construction and operation of the plant, and by providing for adequate maintenance and repair of the equipment and systems (discussed below).

QA/QC Program

The applicant describes a QA/QC program (GWF 2001a, AFC §§ 2.4.5, 2.4.5.2) typical of the power industry. Equipment will be purchased from qualified suppliers that employ an approved QA program. Designs will be checked and equipment will be inspected on receipt; installation will be inspected and systems tested. Staff expects implementation of this program to yield typical reliability of design and construction. To ensure such implementation, staff has proposed appropriate conditions of certification under the portion of this document entitled **Facility Design**.

PLANT MAINTAINABILITY

Maintenance Program

GWF proposes to establish a plant maintenance program typical of the industry (GWF 2001a, AFC §§ 1.6, 2.2.15, 2.4.1, 2.4.5.2). A peaking plant is commonly shut down every night, affording plenty of opportunity to perform any needed maintenance and repairs without compromising plant availability. GWF will develop a maintenance plan during plant construction and startup that will ensure plant maintenance consistent with typical industry standards. In addition, the TPP will be maintained by the experienced maintenance organization that already maintains other GWF power plants in California. In light of these plans, staff expects that the project will be adequately maintained to ensure acceptable reliability.

FUEL AND WATER AVAILABILITY

For any power plant, the long-term availability of fuel and of process water is necessary to ensure reliability. The need for reliable sources of fuel and water is obvious; lacking long-term availability of either source, the service life of the plant may be curtailed, threatening the supply of power as well as the economic viability of the plant.

Fuel Availability

The TPP will burn natural gas from the Pacific Gas & Electric Company (PG&E) system. Gas will be supplied to the plant from PG&E's high pressure backbone transmission line 401 via a new 16-inch diameter pipeline (GWF 2001a, AFC §§ 1.1, 1.5.2, 1.5.5, 2.1, 2.4.3). This natural gas system, which provides access to gas from California, the Rocky Mountains, Canada and the Southwest, represents a resource of considerable capacity. This system offers access to far more gas than the plant would require. Staff agrees with the applicant's prediction that there will be adequate natural gas supply and pipeline capacity to meet the project's needs.

Water Supply Reliability

The TPP will obtain recycled water for evaporative inlet air cooling, fire protection and other plant uses from the Plain View Water District via a new 1,470 foot long, 12-inch diameter pipeline (GWF 2001a, AFC §§ 1.1, 1.5.2, 1.5.6, 2.1, 2.2.7.2, 2.4.4). Bottled water will be supplied for drinking purposes. Note that there is no substantial consumptive use of cooling water, as would be the case with a combined cycle power plant. Staff believes these sources yield sufficient likelihood of a reliable supply of water. (For further discussion of water supply, see that portion of this document entitled **Water Resources**.)

POWER PLANT RELIABILITY IN RELATION TO NATURAL HAZARDS

Natural forces can threaten the reliable operation of a power plant. High winds, tsunamis (tidal waves) and seiches (waves in inland bodies of water) will not likely represent a hazard for this project, but seismic shaking (earthquake) and flooding present a credible threat to reliable operation (see those portions of this document entitled **Facility Design** and **Geology and Paleontology**).

Seismic Shaking

The site lies within Seismic Zone 4 (GWF 2001a, AFC §§ 1.7, 2.3, 2.3.1); see that portion of this document entitled **Geology and Paleontology**. The project will be designed and constructed to the current LORS. Compliance with current LORS applicable to seismic design represents an upgrading of performance during seismic shaking, compared to older facilities, due to the fact that these LORS have been periodically and continually upgraded. By virtue of being built to the latest seismic design LORS, this project will likely perform at least as well as, and perhaps better than, existing plants in the electric power system. Staff has proposed conditions of certification to ensure this; see that portion of this document entitled **Facility Design**. In light of the historical performance of California power plants and the electrical system in seismic events, staff believes there is no special concern with power plant functional reliability affecting the electric system's reliability due to seismic events.

Flooding

The project site lies at an elevation of 176 feet above mean sea level, and does not lie within either a 100-year or a 500-year floodplain (GWF 2001a, AFC §§ 1.7, 2.3.1). Staff therefore believes that flooding presents no threat to the project.

COMPARISON WITH EXISTING FACILITIES

Industry statistics for availability factors (as well as many other related reliability data) are kept by the North American Electric Reliability Council (NERC). NERC continually polls utility companies throughout the North American continent on project reliability data through its Generating Availability Data System (GADS), and periodically summarizes and publishes the statistics on the Internet (http://www.nerc.com). NERC reports the following summary generating unit statistics for the years 1995 through 1999 (NERC 2000):

For Gas Turbine units (50 + MW)

- Availability Factor = 90.29 percent

The gas turbine that will be employed in the project, the General Electric PG7121(EA), has been on the market since 1984, and can be expected to exhibit typically high availability. The applicant's prediction of an annual capacity factor greater than 50 percent (GWF 2001a, AFC §§ 1.6, 2.2.2 , 2.2.15) appears reasonable compared to the NERC figure for similar plants throughout North America (see above). In fact, the TPP can be expected to achieve greater availability than the NERC figures show for four reasons. First, since the plant will be utilized chiefly for peaking, it will be shut down many nights and weekends. Necessary maintenance, and noncritical repairs, can be performed when the plant is not dispatched, thus not affecting availability.

Second, since there are to be two gas turbine generators, each capable of operating independently, any required maintenance to one machine can be performed while the other machine continues to operate.

Third, the Frame 7 is a heavy-duty gas turbine, with a single shaft rotating on sleeve bearings. This basic design has proven itself not only in gas turbines, but has been used for over a century in steam turbines and in reciprocating steam and internal combustion engines. The aeroderivative gas turbines that could be substituted in this project (see **Power Plant Efficiency**) utilize two or three shafts running on antifriction (ball or roller) bearings. Such machines require more frequent maintenance and overhaul than a single-shaft machine, and sometimes fail before their scheduled maintenance interval.

Finally, the GE PG7121(EA) has been improved and updated since its introduction 17 years ago. In particular, control systems have been greatly improved in that time. Where control systems were once a frequent cause of plant outages, the new triply-redundant computer-based control systems (GWF 2001a, AFC § 2.2.12.3) are much more reliable than those making up the NERC statistics; those statistics are heavily weighted by much older power plants, some of which have seen service for over 25 years.

The modern Frame 7(EA), then, can be expected to show much higher availability and reliability than the NERC statistical population. Even if the plant should be dispatched for extended periods, staff believes the selected machines are adequately reliable to yield the desired performance. The applicant's estimate of plant capacity factor therefore appears realistic. The stated procedures for assuring design, procurement

and construction of a reliable power plant appear to be in keeping with industry norms, and staff believes they are likely to yield an adequately reliable plant.

FACILITY CLOSURE

Closure of the facility, whether planned or unplanned, cannot impact project reliability. Reliability impacts on the electric system from facility closure, should there be any, are dealt with in that portion of this document entitled **Transmission System Engineering**.

CONCLUSION

The applicant predicts an annual capacity factor of 50 percent or greater, which staff believes is achievable in light of the industry norm for similar plants incorporating older gas turbines, and the reliability record of the gas turbines selected for this project. Based on a review of the proposal, staff concludes that the plant will be built and operated in a manner consistent with industry norms for reliable operation. This should provide an adequate level of reliability. No Conditions of Certification are proposed.

REFERENCES

Detmers, Jim. 1999. Director of Maintenance and Reliability, California Independent System Operator. Interview with Steve Baker (California Energy Commission), July 13, 1999.

GWF Energy, LLC (GWF). 2001a. Application for Certification, Tracy Peaker Project (01-AFC-16). Submitted to the California Energy Commission, August 16, 2001.

Mavis, Steve. 1998. Transmission Planner, California Independent System Operator. Telephone conversation with Steve Baker (California Energy Commission), January 23, 1998.

McGraw-Hill (McGraw-Hill Energy Information Services Group). 1994. *Operational Experience in Competitive Electric Generation, an Executive Report*, 1994.

NERC (North American Electric Reliability Council). 2000. 1995-1999 Generating Availability Report.

TRANSMISSION SYSTEM ENGINEERING

Testimony of Richard Minetto P.E. and Ajoy Guha P.E.

INTRODUCTION

The Transmission System Engineering (TSE) analysis provides the basis for the findings in the Energy Commission's decision. This staff assessment indicates whether or not the transmission facilities associated with the proposed project conform to all applicable laws, ordinances, regulations and standards (LORS) required for safe and reliable electric power transmission.

Staff's analysis evaluates the power plant switchyard, outlet line, termination and downstream facilities identified by the applicant for Phase I of the Tracy Peaker project. Staff's analysis provides proposed conditions of certification to ensure the project complies with applicable LORS during the design review, construction, operation and potential closure of the project.

Additionally, under the California Environmental Quality Act (CEQA), the Energy Commission must conduct an environmental review of the "whole of the project," 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 beyond the project's interconnection with the existing transmission system that are required as a result of the power plant addition to the California 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 Cal-ISO will provide testimony at the Energy Commission hearings. This staff assessment indicates whether or not the applicant has accurately identified all transmission facilities needed for the project.

GWF Energy Limited Liability Company (applicant) proposes to construct and operate the Tracy Peaker Project (TPP), a nominal 169 megawatt (MW) natural gas-fired simple cycle power plant as Phase I of the project to be located in western San Joaquin County, about 8 miles southwest of the City of Tracy, California. The applicant proposes to connect the TPP through a new 115 kilovolt (kV) switching station at the plant site to the Pacific Gas and Electric (PG&E) existing Tesla-Kasson 115 kV transmission line, which is a part of the California Independent Operator (Cal-ISO) controlled power system grid. The Application for Certification (AFC) states that the project is scheduled to be on line by July 2002 (GWF 2001a). However, it is likely that with an anticipated 8-month construction schedule, the project will not be on-line until Fall 2002.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

California Public Utilities Commission (CPUC) General Order 95 (GO-95), “Rules for Overhead Electric Line Construction”, and General Order 128 (GO-128) “Rules for Underground Electric Line Construction”, formulate uniform requirements for construction of overhead and underground lines. Compliance with these orders ensures adequate service and safety to persons engaged in the construction, maintenance and operation or use of overhead and underground electric lines and to the public in general.

CPUC Rule 21 provides standards for the reliable connection of parallel generating stations connected to participating transmission owners.

The National Electric Safety Code (NESC), 1999 provides electrical, mechanical, civil and structural requirements for overhead electric line construction and operation.

Western Systems Coordinating Council (WSCC) Reliability Criteria provides the performance standards used in assessing the reliability of the interconnected system. These Reliability Criteria require the continuity of service to loads as the first priority and preservation of interconnected operation as a secondary priority. The WSCC Reliability Criteria includes the Reliability Criteria for Transmission System Planning, Power Supply Design Criteria, and Minimum Operating Reliability Criteria. Analysis of the WSCC system is based to a large degree on WSCC Section 4 “Criteria for Transmission System Contingency Performance,” which requires that the results of power flow and stability simulations verify established performance levels. Performance levels are defined by specifying the allowable variations in voltage, frequency, loading 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) to 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, load, or system separation is permitted in certain circumstances, their uncontrolled loss is not permitted (WSCC 2000).

North American Electric Reliability Council (NERC) Planning Standards provides policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC’s Criteria for Transmission System Contingency Performance. The NERC planning standards provide for acceptable system performance under normal and contingency conditions. The NERC planning standards apply not only to interconnected system operation but also to individual service areas (NERC 1998).

Cal-ISO Reliability Criteria also provide policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system. The Cal-ISO Reliability Criteria incorporate the WSCC Criteria and NERC Planning Standards. However, the Cal-ISO Reliability Criteria also provide some additional requirements that are not found in the WSCC Criteria or the NERC Planning Standards. The Cal-ISO Reliability Criteria apply to all existing and proposed facilities interconnecting to the Cal-ISO controlled grid. It also applies when there are any impacts to the Cal-ISO grid due to facilities interconnecting to adjacent controlled grids not operated by the Cal-ISO.

SETTING

The existing transmission facilities in the vicinity of the TPP plant area include:

- PG&E's Tesla substation: This substation is located four miles west of the TPP site and is connected to the 500 kV and 230 kV, bulk transmission systems as well as the 115 kV subtransmission system. For purposes of the project, this substation is the end point for the proposed interconnection line (Tesla-Kasson).
- PG&E's 115 kV Tesla-Manteca transmission line: This line crosses the TPP site at the southeast corner of the proposed Schulte switching station.
- PG&E's 115 kV Tesla-Kasson transmission line: This line crosses the TPP site at the southeast corner of the proposed Schulte switching station. The line then interconnects to the Tesla substation. This is the line proposed for interconnection of the TPP.
- PG&E's 115 kV Tesla-Stockton Cogen transmission line: This line crosses the TPP site at the southeast corner of the proposed Schulte switching station. The line interconnects to the Tesla substation.
- The Weber-Tesla and Tesla-Bellota 230 kV transmission lines are approximately 3 miles to the north west of the project site.
- The Tesla-Stockton Junction, the Tesla-Salado-Manteca, the Tesla-Salado #1 115 kV lines are located approximately 3 miles to the west and 2 miles to the north of the project site.
- The Tesla-Westley 230 kV lines are located approximately 3 miles to the west and 2 miles to the north of the project site.
- The Tracy-Los Banos 500 kV line is approximately 3 miles west of the project site.

Figure 1 of Attachment A to this section is a map depicting the general project setting. The TPP site is near the 115 kV and 230 kV transmission corridor for PG&E facilities. Since the TPP will be interconnected to the existing 115 kV subtransmission system, the bulk 500 kV and 230 kV systems surrounding Tesla substation will have no potential impacts, but the 115 kV subtransmission system will experience an impact due to the generator interconnection and increased line loading.

PROJECT DESCRIPTION

Switchyard and Interconnection Facilities

The applicant proposes to construct and operate a nominal 169-megawatt (MW) simple-cycle power plant to be located in western San Joaquin County. The plant site is about 8 miles southeast of the City of Tracy, California in an area near the 115 kV and 230 kV transmission corridor for PG&E facilities (GWF 2001e, Section 2). The plant will consist of two General Electric (GE) combustion turbine generators (CTG), each with a nominal output of 84.4 MW at annual average conditions (GWF 2001e, Section 2). Each generating unit will be connected through a 13.8 kV breaker to a dedicated 13.8/115 kV step-up transformer and the high voltage terminals of the transformers will be connected to the new TPP switchyard by overhead conductors (GWF 2001e, Section 6).

TPP switchyard
The TPP switchyard will have a single bus configuration with a 115 kV dedicated circuit breaker connected to high voltage side of each generator step-up transformer (GWF 2001e, Section 6, Figure 6.2).

Interconnection of TPP switchyard to Schulte switching station
The TPP switchyard will be interconnected to the proposed new Schulte switching station by construction of approximately 400 feet of single circuit 115 kV overhead transmission line with disconnect switches at both ends. The line will utilize steel structures and 1,431 kilo circular mills (kcmil) all aluminum conductor (AAC) with a normal rating of 1,220 amperes which will be adequate for full output of the plant (GWF 2001e, Section 6).

Schulte switching station
The proposed Schulte switching station will initially be constructed by the applicant and later on will be owned and operated by PG&E. The interconnection of Schulte switching station to the PG&E electrical grid will be accomplished by looping the existing Tesla-Kasson 115 kV transmission line through the Schulte switching station. The proposed interconnection would consist of single 477-kcmil steel-supported aluminum conductor (SSAC) with a normal rating of 1,205 amperes. The new loop overhead line lengths will be between 120 to 200 feet. The Schulte switching station in phase I of the TPP, per the Application of Certification (AFC), will be constructed in a ring bus configuration with three circuit breakers (GWF 2001e, Section 6).

The TPP switchyard, the overhead line interconnection of TPP switchyard to Schulte switching station and the Schulte switching station will be built in accordance with good utility practices and are acceptable. These interconnection facilities will be built within the fenced yard of the TPP plant. The overhead loop lines from Schulte switching station to the existing Tesla-Kasson 115 kV line will extend from the TPP fenced yard to the existing PG&E right of way.

ANALYSIS AND IMPACTS

SYSTEM RELIABILITY

Introduction

A System Impact/Facilities Study (SI/FS) for connecting a new power plant to the existing power system grid is performed to determine the alternate and preferred interconnection facilities to the grid, downstream transmission system impacts and associated 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 will 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 generators and the transmission system) 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 includes 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. In addition to the above analysis, studies may be performed to verify whether sufficient active or reactive power is available in the area system or area sub-system to which the new generator project will be interconnected.

Any new transmission facilities such as a power plant switchyard, the outlet line, and downstream facilities required for connecting a project to the grid are considered part of the project and are subject to the full Application for Certification review process.

SCOPE OF SYSTEM IMPACT/FACILITIES STUDY (SI/FS)

The SI/FS was performed by PG&E for two phases of the TPP plant construction. The study included Power Flow Study under normal and contingency conditions, Short Circuit Study, and Dynamic Stability Analysis (GWF 2001h & GWF 2001k). The first phase modeled the project at 172 MW of maximum generation output into the transmission system. The Power Flow Study was conducted with 2002 Summer Peak and 2003 Spring Peak cases. The Short Circuit Study was conducted for Phase I. The second phase modeled the project at 258 MW of total output with an increase of 86 MW to first phase. For the second phase, Power Flow Study was conducted with 2003 Summer Peak and 2003 Spring Peak cases, and Dynamic Stability Analysis was conducted with 2003 Summer case. The Short Circuit Study was also conducted for Phase II. The AFC (01-AFC-16) is only for consideration of the Phase I construction. The conclusions and conditions contained herein, therefore, apply to the Phase I study results for Power Flow and Short Circuit Studies, and to Phase II study results for Dynamic Stability Analysis. The results of the analysis provide assessment of the overloads that violate reliability criteria under normal and contingency conditions of the system.

POWER FLOW STUDY RESULTS

Based on the SI/FS results, there are some adverse impacts on the 115 kV transmission system due to interconnection of the TPP as proposed. The results indicate the following violations of reliability criteria:

- There is one overload violation under normal (N-0) conditions. This overload violation was identified as aggravating a pre-project existing overload under normal conditions.
- There are five overload violations under emergency conditions for single contingency (N-1) or Cal-ISO Category B conditions. Of the five identified violations, two were identified as aggravating pre-project existing emergency overloads and three were identified as new emergency overload violations.
- There were 26 overload violations under emergency conditions for double contingency (N-2) or Cal-ISO Category C conditions.

NORMAL (N-0) CONDITIONS AND MITIGATION

Under normal operating conditions, no normal overloads were caused due to the addition of the proposed project. However, the SI/FS identified that the project will aggravate the pre-project normal base case overload of the Pittsburg-San Mateo 230 kV line by marginally increasing rated line loading from 100 percent to 101percent.

- MITIGATION: The mitigation measure to offset this violation is identified as the PG&E Pittsburg 230 kV Line Reactors Project T-768. The project proposes to install 10-ohm line reactors on the Pittsburg-San Mateo and Pittsburg-East Shore 230 kV lines at Pittsburg substation by April, 2002 and staff considers it acceptable.

CONTINGENCY (N-1/CAL-ISO CATEGORY B) CONDITIONS AND MITIGATION

Under single (N-1) or Cal-ISO Category B contingency conditions, the following conclusions and necessary mitigation strategies were developed:

- The SI/FS concluded that no emergency overloads were caused under 2003 Spring peak conditions.
- The SI/FS concluded that the project would cause the following adverse impacts during 2002 summer peak conditions:

1. The Schulte-Kasson 115 kV line violated overload planning criteria for four different contingencies. The critical contingency identified was an outage of the Tesla-Tracy 115 kV line and the Stainslaus Power House. For this contingency, the line loading increased from 90percent to 115 percent of rated ampacity due to the TPP.

MITIGATION: The selected mitigation measure is re-rating of the Schulte-Kasson 115 kV 715 Aluminum conductor line to 4 feet per second wind speed rating. The new emergency rating of the line will increase from 742 amperes (Amps) to 876 Amps. Per PG&E letter (GWF 2001k), PG&E believes that according to the location of the line and its prevailing conditions, the re-rating of this line is feasible and staff considers it acceptable. If the re-rating of the line is not implemented before the scheduled on-line date of the TPP, Fall 2002, a Special Protection Scheme (SPS) will be required on a temporary basis for maintaining system reliability.

2. The Vierra-Tracy-Kasson 115 kV line violated overload planning criteria for an outage of Tesla-Tracy 115 kV line and the Stainslaus Power House. For this contingency, the line loading increased from 97percent to 101percent of rated ampacity due to the TPP.

MITIGATION: The selected mitigation measure is re-rating of the Vierra-Tracy-Kasson 115 kV 715 Aluminum conductor line to 4 feet per second wind speed rating. The new emergency rating of the line will increase from 742 amperes (Amps) to 876 Amps. Per PG&E letter (GWF 2001j), PG&E believes that according to the location of the line and its prevailing conditions, the re-rating of this line is feasible and staff considers it acceptable. If the re-rating of the line is not implemented before the scheduled on-line date of the TPP, Fall 2002, a SPS will be required on a temporary basis for maintaining system reliability.

3. The Schulte-Manteca 115 kV line for Phase II analysis violated overload planning criteria for four different contingencies. The critical contingency identified was an outage of the Schulte-Kasson 115 kV line and the Stainslaus Power House. For this contingency, the line loading increased from below 100 percent to 142 percent of rated ampacity, limiting factors are the 600 Amps switches 147 and 149 at Kasson Junction of the line.

MITIGATION: Since the switch 147 is scheduled to be replaced with a 1200 Amps switch in Phase I of the TPP, the SI/FS study determined to mitigate this impact also by replacing switch 149 with a 1200 Amps one during Phase I of the project construction to match the capacity of the 477 Steel Supported Aluminum Conductor (SSAC) on the rest of the line and staff considers it acceptable.

4. The Tracy-Tesla 115 kV line violated overload planning criteria for an outage of the Schulte-Kasson 115 kV line and the Stainslaus Power House. For this contingency the line loading increased from 105 percent to 107 percent of rated ampacity. This violation marginally increases pre-project existing emergency overloads.

MITIGATION: The mitigation measure determined in the SI/FS to eliminate this overload is to modify the PG&E Tesla Control Center operating procedure through the Transmission Expansion Plan Process.

5. The Pittsburg-East Shore 230 kV line violated overload planning criteria for five different contingency conditions. The critical contingency violation was due to an outage of the Pittsburg-San Mateo 230 kV line. For this contingency, the line loading increased from 121 percent to 122 percent of rated ampacity due to the TPP. All the emergency violations for this line are considered pre-project due to the existing overloads prior to addition of the TPP.

MITIGATION: The mitigation measure to eliminate emergency overloads is identified as the PG&E Pittsburg 230 kV Line Reactors Project T-768. The project proposes to install 10-ohm line reactors on the Pittsburg-San Mateo and Pittsburg-East Shore 230 kV lines at Pittsburg substation by April, 2002.

CONTINGENCY (N-2/CAL-ISO CATEGORY C) CONDITIONS AND MITIGATION

The SI/FS identified 26 overloads under multiple contingency conditions (N-2) due to the addition of the TPP. Twenty-three, majority of these emergency overloads, aggravate pre-project existing system overloads, and only three overloads are due to the addition of the TPP. For one of the most severe contingencies, due to an outage of the Tesla 230/115 kV Bank 3 and the Tesla Lawrence Livermore Lab 115 kV, the Tesla 230/115 Bank 1 loading increased form 48 percent to 105 percent of rated capacity due to addition of the TPP. For another severe contingency due to an outage of the East Shore substation 230 kV Bus Section D, the East Shore 230/115 kV Bank 2 loading increased form 165 percent to 166 percent of rated capacity. The Attachment B summarizes the emergency overload violations in the system for Cal-ISO Category C contingencies (GWF 2001k).

MITIGATION: According to the Cal-ISO guidelines, the Cal-ISO could apply SPS as mitigation measure to offset these violations, since the applicant has not opted for selecting the mitigation measures. Staff considers SPS acceptable per Cal-ISO guidelines because it will effectively mitigate the violations.

FEASIBILITY OF TRANSMISSION LINE RE-RATING

To eliminate emergency overloads on the Schulte-Kasson and Vierra-Tracy-Kasson 115 kV lines, mitigation measure selected is re-rating of 715 Aluminum conductor lines to 4 feet per second wind speed rating. PG&E has indicated that according to the location of the lines and their prevailing conditions the re-rating of these two lines is feasible (GWF 2001k). Staff considers it acceptable, as staff believes the re-rating is feasible based on the reasons given below.

The maximum current rating for a transmission line is dependant ultimately on the conductor temperature. This temperature determines the sag of the conductor and is applied to ensure appropriate clearance codes are not violated. The two primary factors that determine the allowable conductor ampacity are ambient temperature and wind speed. Line ampacity will increase if a greater wind speed is used for calculation of overall line rating. With a higher wind speed, the likely result is that the line re-rating would be adequate to mitigate the overloads identified by the SI/FS. The process of determining if 4 feet per second is an acceptable wind speed will require measuring wind speed and ambient temperatures for a period of time to determine actual allowable maximum ampacity.

The average wind speed in the TPP area can be determined using the Wind Energy Resource Atlas for the United States (Elliott et al, 1986, Figure 3-54, Table 1-1). This guide assesses the average wind speed for particular areas. For the project site, the area is shown as a Class 2 wind area. The wind densities are provided by class for each season. Because it would be expected that the worst case condition for the Tracy Peaker Project would be summer when ambient temperatures are higher, the average air flow density for these classes during summer conditions as follows:

- Class 3 – Between 17 and 18 feet per second – at 33 feet from surface
- Class 2 – Between 14 and 17 feet per second – at 33 feet from surface
- Class 1 – Between 0 and 14 feet per second – at 33 feet from surface
- Class 3 – Between 21 and 23 feet per second – at 164 feet from surface
- Class 2 – Between 18 and 21 feet per second – at 164 feet from surface
- Class 1 – Between 0 and 18 feet per second – at 164 feet from surface

The technical evaluation for re-rating by PG&E would include determination of the appropriate Class for the specific transmission line and assess the actual average wind speed during the peak conditions for re-rating. Given that the line is most likely in a Class 2 zone, there is a good likelihood that the re-rating process will yield adequate ampacity for mitigation of the line overload condition.

Another type of technology related to transmission line ratings is “dynamic” rating of facilities. Because the calculation of the “maximum” ampacity is based on a specified ambient temperature and specified wind speed, there is a great probability that one of these two variables will be different during real time operations (Douglass et al, 2000). Dynamic systems utilize technology that actually measures conductor core temperature to determine real time ampacity rating for the transmission line. Studies have pointed to increases of up to 40 percent in line ampacity during real time operations (Seppa et al, 2000). This type of approach may also offer acceptable mitigation for the system overload conditions.

Dynamic Stability Study Results

Dynamic stability studies were conducted by PG&E using a 2003 summer peak case to determine if the proposed TPP project addition would result in adverse impact on the stable operation of the transmission system. Selected disturbances per Cal-ISO category B (single) and C (double) contingencies as outlined in the SI/FS plan were simulated for this purpose (GWF 2001h).

The results indicate there are no identified transient stability concerns following selected disturbances for integration of the project.

Short Circuit Study Results and Mitigation

The short circuit study performed by PG&E evaluated the impact of the first phase of the TPP on the fault duties within PG&E facilities (GWF 2001h & 2001k). The study indicates that three 230 kV circuit breakers at the Tesla substation (CB 372, CB 382 and CB Newark #2) are currently subject to overstress even without the integration of the TPP project. The TPP will aggravate the overstress by about 1 percent. According to current PG&E guidelines, the applicant is not responsible for their replacement.

MITIGATION: The overstress on Tesla substation breakers will be mitigated by PG&E as part of the Tesla-Newark #2 230 kV line relocation project. The Tesla-Newark #2 230 kV line will be relocated from its present position on Tesla Bus E to the new Bus C. The scope of the work includes installing reactors between Tesla 230 kV Buses C and D to reduce the fault current. Staff considers it acceptable.

The study also identified third party 115 kV equipment at Owens Illinois, a customer of PG&E, being overstressed due to interconnection of the TPP.

MITIGATION: The applicant has selected to replace existing three in line fuses rated 10 kA with three Trans-Rupter units rated 31.5 kA and staff considers it acceptable.

New Transmission Line

Besides the interconnection facilities, switchyard and switching station as proposed by the applicant (discussed above), accommodating the power output of the TPP will not require any new transmission facility

CAL-ISO REVIEW

The Cal-ISO has reviewed the SI/FS and provided preliminary interconnection approval (Cal-ISO 2001a). The Cal-ISO will provide testimony as required on the SI/FS the same day as staff, will discuss the conclusions and additional analysis requested in their preliminary approval letter, and will provide conclusions and recommendations in the Energy Commission's hearings. The Cal-ISO's final interconnection approval will assure conformance with NERC, WSCC and Cal-ISO reliability criteria.

CUMULATIVE IMPACTS

This project will be interconnected to the 115 kV subtransmission system, and most of the other proposed projects in the area such as East Altamont Energy Center, Tesla Power Project, Cosumnes Power Plant pending certification at the Energy Commission are larger and proposed to be interconnected with the bulk 230 kV system in Northern California. Staff, therefore, believes this project will not have any significant potential cumulative impacts to the interconnected transmission system. The SI/FS identified cumulative impacts due to the TPP, as previously discussed will be mitigated.

ALTERNATIVE TRANSMISSION LINE ROUTES

The applicant considered one alternative transmission line route (GWF 2001b, Section 5.4.2). This alternative would require approximately five miles of new single circuit 230 kV transmission line construction from the plant site to interconnect to the existing Tesla-Westly 230 kV line. The alternative also would require reconductoring of a portion of the existing Tesla-Wesley line, and relocation of one circuit breaker at Tesla substation. The applicant because of environmental impacts, right-of-way and land acquisition, engineering constraints, and overall project costs did not choose this alternative. The preferred alternative for looping the existing Tesla-Kasson 115 kV line is acceptable to Staff.

COMPLIANCE WITH LORS

The SI/FS complies with WSCC, Cal-ISO, and NERC planning and reliability criteria. The proposed TPP switchyard, the overhead 115 kV interconnection line between TPP switchyard and Schulte switching station, and Schulte switching station will be located within the fenced yard of the TPP site. The overhead loop lines from Schulte switching station to the existing Tesla-Kasson 115 kV line will extend from the TPP fenced yard to the existing PG&E right of way. The re-rating of Schulte-Kasson and Vierra-Tracy-Kasson 115 kV lines will be implemented within the existing PG&E right of way. All facilities are acceptable and will comply with LORS assuming the Conditions of Certification are met.

FACILITY CLOSURE

The parallel operation of generating stations is controlled, in part by CPUC Rule 21, which provides for contractual provisions, which may be developed, to provide backup or other power service during extended periods of non-operation and codify procedures to be followed during parallel operation. Procedures for planned, unexpected temporary closure and unexpected permanent closure must be developed or verified to facilitate effective

communication and coordination between the generating station owner, Participating Transmission Owner (PTO) and the Cal-ISO to ensure safety and system reliability.

CPUC General Order 95, Rule 31.6 requires that "lines or portions of lines permanently abandoned shall be removed by their owners so that such lines shall not become a public nuisance or a hazard to life or property." Condition of certification **TSE-5a** requires compliance with this rule.

The ability of the applicable LORS to reasonably assure safe and reliable conditions in the event of facility closure was evaluated for three scenarios: Planned Closure, Unexpected Temporary Closure, and Unexpected Permanent Closure. Planned Closure occurs in a planned and orderly manner such as at the end of its useful economic or mechanical life or due to gradual obsolescence. Under such circumstances the requirement for the owner to provide a closure plan 12 months prior to closure in conjunction with applicable LORS is considered sufficient to provide adequately for safety and reliability. For instance, a planned closure provides time for the owner to coordinate with the PTO[1] to assure that the PTO's system will not be closed into the outlet thus energizing the power plant switchyard. Alternatively, the owner may coordinate with the PTO to maintain some power service via the outlet line to supply critical station service equipment or other loads[2].

Unexpected temporary closure occurs when the facility is closed suddenly and/or unexpectedly for a short term due to unforeseen circumstances such as a natural or other disaster or emergency. During such a closure the facility cannot insert power into the utility system. Closures of this sort can be accommodated by establishment of an on-site contingency plan (see General Conditions Including Compliance Monitoring and Closure Plan). Unexpected Temporary Closure occurs when the project owner closes the facility suddenly and/or unexpectedly, or abandons the facility or a permanent basis. This includes unexpected closure where the owner remains accountable for implementing the on-site contingency plan. It can also include unexpected closure where the project owner is unable to implement the contingency plan, and the project is essentially abandoned. An on-site contingency plan that is in place and approved by the CPM prior to the beginning of commercial operation of the facilities will be developed to assure safety and reliability (see General Conditions Including Compliance Monitoring and Closure Plan).

RESPONSE TO AGENCY AND PUBLIC COMMENTS

No agency or public comments related to the TSE discipline have been referred to TSE staff for this case.

[1] The PTO in this instance is PG&E e.g., the system owner to which the project is interconnected.

[2] These are mere examples; many more exist.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Staff concludes as follows:

1. Staff's analysis and findings indicate that the TPP will have some adverse impacts especially in the PG&E 115 kV transmission system. The mitigation measures selected to eliminate the overload violations are according to good utility practices, are considered acceptable to staff and will be effective.

2. To accommodate interconnection of the TPP and to offset downstream adverse impacts, it will be essential to increase the rated capacity of the Schulte-Kasson and Vierra-Tarcy-Kasson 115 kV transmission lines by re-rating to 4 feet per second wind speed or reconductoring the lines. Staff considers re-rating of these lines is technically feasible.

3. The Cal-ISO has issued a preliminary interconnection approval for the TPP and will confirm staff's conclusion upon issuance of the final approval. The issuance of the Cal-ISO's final interconnection approval will assure conformance with NERC, WSCC and Cal-ISO reliability criteria.

4. The Cal-ISO will provide testimony at the Commission's hearing on the System Impact/Facilities Study and any supplemental studies, and will provide conclusions and recommendations.

5. The proposed power plant switchyard, outlet lines, and terminations which will be located within the fenced yard of the TPP and PG&E right of way, are acceptable and will comply with LORS assuming the recommended conditions of certification are implemented.

RECOMMENDATIONS

If the Commission approves the project, Staff recommends the following Conditions of Certification to insure system reliability and conformance with LORS.

CONDITIONS OF CERTIFICATION FOR TSE

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

Verification: At least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO

and to the CPM. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for equipment (see a list of major equipment in **Table 1: Major Equipment** below). Additions and deletions shall be made to the table only with CPM and CBO approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

Table 1: Major Equipment

DESCRIPTION
Breakers
Powerhouse 13.8 kV
Switchyards 115 kV
Buses
Underground cables
Disconnects
Take off facilities
Overhead lines
Switchyard control building
Step-up transformer
Others

TSE-2 The project owner shall assign an electrical engineer and at least one of each of the following to the project: A) a civil engineer; B) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; C) a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; or D) a mechanical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730 and 6736 require state registration to practice as a civil engineer or structural engineer in California.]

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

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

The electrical engineer shall:

1. Be responsible for the electrical design of the power plant switchyard, outlet and termination facilities; and
2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all the responsible engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five days in which to submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

TSE-3 The project owner shall keep the CBO informed regarding the status of engineering design and construction. If any discrepancy in design and/or construction is discovered, the project owner shall document the discrepancy and recommend the corrective action required. The discrepancy documentation shall become a controlled document and shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this condition of certification.

Verification: The project owner shall submit monthly construction progress reports to the CBO and CPM to be included in response to **TSE-3**. The project owner shall transmit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.

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

a) receipt or delay of major electrical equipment;
b) testing or energizing of major electrical equipment; and
c) the number of electrical drawings approved, submitted for approval, and still to be submitted.

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

TSE-5 The project owner shall ensure that the design, construction and operation of the proposed transmission facilities will conform to all applicable LORS, including the requirements listed below. The substitution of Compliance Project Manager (CPM) and CBO approved "equivalent" equipment and equivalent substation configurations is acceptable. The project owner shall submit the required number of copies of the design drawings and calculations as determined by the CBO.

a) The power plant switchyard, interconnecting switching station, interconnecting line between the plant switchyard and switching station, and outlet line interconnecting switching station with existing transmission facilities shall meet or exceed the electrical, mechanical, civil and structural requirements of CPUC General Order 95, General Order 128, or National Electric Safety Code (NESC), Title 8 of the California Code and Regulations (Title 8), Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", National Electric Code (NEC) and related industry standards.

b) Breakers and buses in the power plant switchyard, other switchyards and switching stations, and substations, where applicable, shall be sized to comply with a short-circuit analysis

c) Outlet line crossings and line parallels with transmission and distribution facilities shall be coordinated with the transmission line owner and comply with the owner's standards.

d) Termination facilities shall comply with CPUC Rule 21 and PG&E applicable interconnection standards.

e) The project conductors shall be sized to accommodate the full output from the project.

f) The re-rating of Tesla-Kasson and the Vierra-Tesla-Kasson 115 kV lines shall be implemented prior to Fall 2002. If the re-rating of the line is not implemented before the scheduled on-line date of the TPP, Fall 2002, a SPS will be required on a temporary basis.

g) The existing 115 kV equipment at Owens Illinois, an existing PG&E customer, which is overstressed due to the project, shall be replaced with equipment rated to meet with fault duty requirements.

h) The project owner shall provide:

i) The final Facility Cost Report including a description of facility upgrades, operational mitigation measures, and/or special protection scheme (SPS) sequencing and timing if applicable.

ii) Re-rating Study Report approved by PG&E and any additional mitigation measures required to supplement re-rating of the lines.

iii) Executed Generator Special Facilities Agreement.

iv) Verification of Cal-ISO Notice of Synchronization

Verification: At least 60 days prior to the start of rough grading of transmission facilities, the project owner shall submit to the CBO for approval:

a) Design drawings, specifications and calculations conforming with CPUC General Order (GO) 95, 128 or NESC, Title 8, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", NEC, CPUC Rule 21, applicable interconnection standards and related industry standards, for the poles/towers, foundations, anchor bolts, conductors, underground cables, grounding systems and major switchyard equipment.

b) For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions"[3] and a statement signed and sealed by the registered engineer in responsible charge, or other acceptable alternative verification, that the transmission element(s) will conform with CPUC General Order 95, 128 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", NEC, CPUC Rule 21, applicable interconnection standards, and related industry standards.

c) Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in responsible charge, a route map, and an engineering description of equipment and the configurations covered by requirements **TSE-5** a) through h) above.

d) Generator Special Facilities Agreement shall be provided concurrently to the CPM and CBO. Substitution of equipment and substation configurations shall be identified and justified by the project owner for CBO approval.

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

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

TSE-7 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM and CBO approved changes thereto, to ensure conformance with CPUC GO-95, GO-128, or NESC, Title 8, CCR, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", CPUC Rule 21, and applicable interconnection standards, NEC and

[3] Worst-case conditions for the foundations would include for instance, a dead-end or angle pole.

related industry standards. In case of non-conformance, the project owner shall inform the CPM and CBO in writing, within 10 days of discovering such non-conformance and describe the corrective actions to be taken.

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

a) "As built" engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO-95, GO-128, or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", CPUC Rule 21, and applicable interconnection standards, NEC, related industry standards, and these conditions shall be provided concurrently.

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

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

TSE-8 The applicant shall provide the following Notice to the California Independent System Operator (Cal-ISO) prior to synchronizing the facility with the California Transmission system:

1. At least one (1) week prior to synchronizing the facility with the grid for testing, provide the Cal-ISO a letter stating the proposed date of synchronization; and
2. At least one (1) business day prior to synchronizing the facility with the grid for testing, provide telephone notification to the ISO Outage Coordination Department, Monday through Friday, between the hours of 0700 to 1530 at (916)-351-2300.

The applicant shall provide a copy of the letter addressed to the Cal-ISO to the CPM when it is sent to the Cal-ISO one (1) week prior to initial synchronization with the grid. A report of conversation with the Cal-ISO shall be provided electronically to the CPM one (1) day before synchronizing the facility with the California transmission system for the first time.

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) 2001a. Letter of Preliminary Approval and Comments on the System Impact /Facilities Study for GWF's Tracy Peaker (TPP). Submitted and docketed on December 4, 2001.

DOUGLASS ET AL (D.A. Douglass, Y. Motlis, T.O. Seppa) 2000. IEEE's Approach for Increasing Transmission Line Ratings In North America.

ELLIOT ET AL (D.L. Elliot, C.G. Holladay, W.R. Barchet, H.P. Foote, W.F. Sandusky) 1986. Wind Energy Resource Atlas of the United States.

GWF (Tracy Peaker Project) 2001a. Application for Certification No. 01-AFC-16, Dated August 3 and docketed August 16, 2001.

GWF (Tracy Peaker Project) 2001e. Supplement to the Application for Certification for the Tracy Peaker Project. Dated and docketed October 9, 2001.

GWF (Tracy Peaker Project) 2001h. System Impact Study for the Tracy Peaker Project. Dated and docketed November 28, 2001.

GWF (Tracy Peaker Project) 2001k. Summary of Cal-ISO Category C contingencies, supplemental information on re-rating selected transmission lines, and supplemental information on third party short circuit study results for Tracy Peaker Project Phase I. Dated and docketed December 19, 2001.

GWF (Tracy Peaker Project) 2001l. Phase I Dynamic Stability Study for the Tracy Peaker Project. Dated and docketed December 20, 2001.

NERC (North American Electric Reliability Council). 1998. NERC Planning Standards, September 1997.

SEPPA ET AL (T.O. Seppa, S. Damsgaard-Mikkelesen, M. Clements, R. Payne, N. Coad) 2000. Application of Real Time Thermal Ratings for Optimizing Transmission Line Investment and Operating Decisions.

WSCC (Western Systems Coordinating Council) 2000. Reliability Criteria, December 2000.

DEFINITION OF TERMS

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.

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) will 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.

Loop line 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 Mega-volt-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 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, will 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.

Tap

A transmission configuration creating an interconnection through a short 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.

Tracy Peaker Project

Attachment A

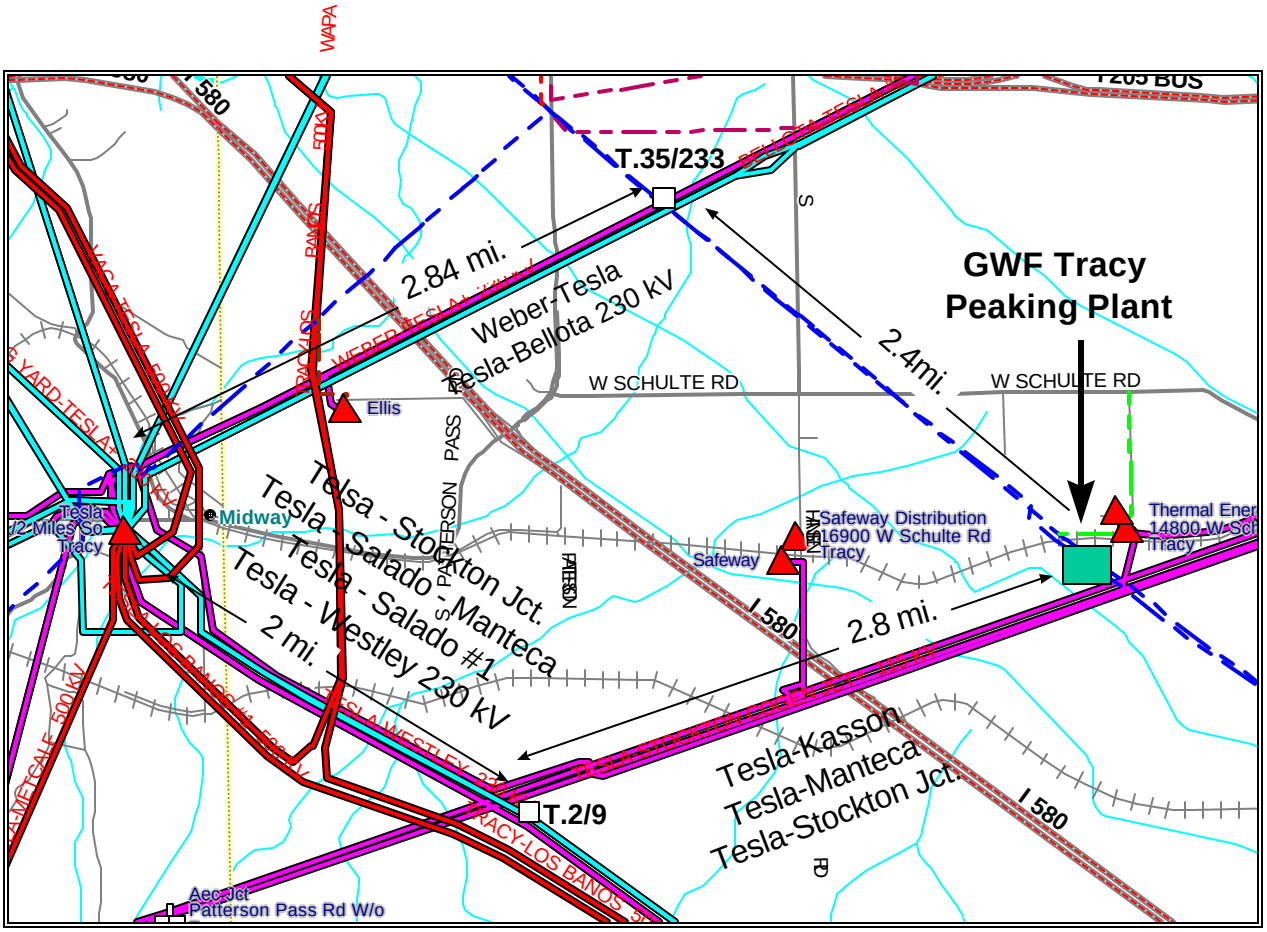


Figure 1: Tracy Peaker Project Vicinity

Tracy Peaker Project - Attachment B

GWF Tracy Phase 1 Category C Power Flow Overload Summary

Contingency	Over Loaded Component	Rating (Amps)	Pre- Project Loading (Amps |%Rating)		Post-Project Loading (Amps |%Rating)		% Change from Pre-Project Loading
Category C Overloads – Phase 1 Summer Peak 2002							
San Ramon 230 kV Bus 1 Outage	Pittsburg – East Shore 230 kV Line	1225	1279	104%	1282	105%	+1%
Newark 230 kV Bus 1 Section D Outage	Pittsburg – East Shore 230 kV Line	1225	1280	104%	1283	105%	+1%
Newark 230 kV Bus 1 Section E Outage	Pittsburg – East Shore 230 kV Line	1225	1302	106%	1305	107%	+1%
Tidewater - Sobrante and Pittsburg - Sobrante #2 230 kV	Pittsburg – East Shore 230 kV Line	1225	1280	104%	1283	105%	+1%
Tassajara - Research - Newark and Castro Valley - Newark 230 kV	Pittsburg – East Shore 230 kV Line	1225	1365	111%	1368	112%	+1%
Tesla - Newark #1 and Telsa - Ravenswood 230 kV	Pittsburg – East Shore 230 kV Line	1225	1389	113%	1392	114%	+1%
Newark - Tesla #1 and #2 230 kV	Pittsburg – East Shore 230 kV Line	1225	1328	108%	1332	109%	+1%
Pittsburg - San Mateo and Pittsburg - East Shore 230 kV	Pittsburg – East Shore 230 kV Line	1225	1375	118%	1379	119%	+1%
East Shore - San Mateo and Pittsburg - San Mateo 230 kV	East Shore 230/115 kV Bank 1	161 MVA	169 MVA	105%	170 MVA	106%	+1%
East Shore 230 kV Bus Section D Outage	East Shore 230/115 kV Bank 2	144 MVA	238 MVA	165%	239 MVA	166%	+1%
Tesla 500/230 kV Bank 2 and Tesla - Weber 230 kV	Tesla 230 kV Bus D – E Tie	2000	2476	124%	2518	126%	+2%
Pittsburg 230 kV Bus 2 Section D Outage	Sobrante – Moraga – Lakewood 115 kV Line (Sobrante – Moraga Jct)	1044	1079	103%	1081	104%	+1%
Pittsburg - San Mateo and Pittsburg - East Shore 230 kV	Sobrante – Moraga – Lakewood 115 kV Line (Sobrante – Moraga Jct)	1044	1193	114%	1200	115%	+1%
Sobrante - Grizzly - Claremont #1 and #2 115 kV	Sobrante – Moraga – Lakewood 115 kV Line (Sobrante – Moraga Jct)	1044	1278	122%	1280	123%	+1%
Pittsburg - San Mateo and Pittsburg - East Shore 230 kV	Sobrante – Moraga – Lakewood 115 kV Line (Moraga – Moraga Jct)	1602	1670	104%	1677	105%	+1%
Tesla 230/115 kV Bank 3 and Tesla - GWF Tracy 115 kV/Tesla – Kasson 115 kV	GWF Tracy – Kasson 115 kV Line (Kasson – Owenstap)	738	n/a	n/a	742	101%	n/a
Tesla - GWF Tracy/Tesla - Kasson and Tesla - Manteca 115 kV	GWF Tracy – Kasson 115 kV Line (Kasson – Owenstap)	738	n/a	n/a	746	101%	n/a
Tesla - Manteca and GWF Tracy - Kasson 115 kV/Tesla – Kasson 115 kV	Tesla – Tracy 115 kV Line (Leprino – Tracy Jct)	974	1003	103%	1024	105%	+2%
Tesla - Manteca and GWF Tracy - Kasson 115 kV	Tesla – Tracy 115 kV Line (Leprino – Tracy)	974	977	100%	998	103%	+3%
Tesla - Manteca and GWF Tracy - Kasson 115 kV/Tesla – Kasson 115 kV	Tesla – Tracy 115 kV Line (Ellis – Tracy Jct)	753	1002	133%	1023	136%	+3%
GWF Tracy – Kasson/Tesla - Kasson and Tesla - Salado - Manteca 115 kV	Tesla – Tracy 115 kV Line (Ellis – Tracy Jct)	753	767	102%	785	104%	+2%
Kasson 115 kV Bus Outage	Manteca – Louise 60 kV Line (Louise Jct – Manteca)	327	613	187%	614	188%	+1%
Bellota - Tesla and Bellota - Weber 230 kV	Tracy – Hurley #2 230 kV Line	800	923	115%	925	116%	+1%

Contingency	Over Loaded Component	Rating (Amps)	Pre- Project Loading (Amps |%Rating)		Post-Project Loading (Amps |%Rating)		% Change from Pre-Project Loading
Category C Overloads – Phase 1 Spring Peak 2003							
Tesla 230/115 kV Bank 3 and Tesla - Lawrence Livermore Lab 115 kV	Tesla 230/115 kV Bank 1	144 MVA	41 MVA	48%	151 MVA	105%	+57%
Tesla - Newark #1 and Telsa - Ravenswood 230 kV	Tesla – Newark #2 230 kV Line (Newark – ADCC)	1714	1820	106%	1836	107%	+1%
Tesla - Newark #1 and Telsa - Ravenswood 230 kV	Tesla – Newark #2 230 kV Line (Tesla – ADCC)	1714	1819	106%	1834	107%	+1%

ALTERNATIVES

Testimony of Susan V. Lee

INTRODUCTION

The purpose of staff's alternatives analysis is to identify the potential significant impacts of the Tracy Peaker Project (as defined in the other sections of this Staff Assessment) and then evaluate whether there are alternatives capable of reducing or avoiding those impacts. This alternatives analysis is provided to inform the decisionmakers in this case. If an alternative is identified that meets these criteria, the California Energy Commission (Energy Commission) may only disapprove the proposed project. The Energy Commission does not have the authority to approve the alternative or require the applicant to move the proposed project to another location.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

GWF proposes to interconnect the proposed Tracy Peaker Project (TPP) to the Tesla substation. The Energy Commission is the Lead Agency under CEQA.

CALIFORNIA ENVIRONMENTAL QUALITY ACT CRITERIA

The "Guidelines for Implementation of the California Environmental Quality Act," Title 14, California Code of Regulation §15126.6(a), provides direction by requiring an evaluation of the comparative merits of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." In addition, the analysis must address the "no project" alternative (Cal. Code Regs., tit. 14, §15126.6(e)).

The range of alternatives is governed by the "rule of reason," which requires consideration only of those alternatives necessary to permit informed decision-making and public participation. CEQA states that an environmental document does not have to consider an alternative of which the effect cannot be reasonably ascertained and of which the implementation is remote and speculative (Cal. Code Regs., tit. 14, §15125(d)(5)). However, if the range of alternatives is defined too narrowly, the analysis may be inadequate (City of Santee v. County of San Diego (4th Dist. 1989) 214 Cal. App. 3d 1438).

PROJECT DESCRIPTION

The Tracy Peaker Project (TPP) is a nominal 169 MW, simple-cycle plant on a 10.3-acre fenced site within a 40-acre parcel located in unincorporated San Joaquin County (GWF, 2001g). The TTP would consist of the power plant, two on-site 115 kilovolt (kV) switchyards, an on-site natural gas supply interconnection, an on-site electric transmission interconnection, an approximately 1,470-foot water supply pipeline (measured from the fence line), and improvements to an existing dirt access road approximately one mile in length.

Two new switchyards would interconnect TPP with the electrical grid: the TPP Switchyard and the Schulte Switching Station. Both switchyards would be built on the plant site and connect to the PG&E Tesla-Kasson 115 kV line, which is adjacent to the site. The two switchyards would be connected with a 340-foot tie line (GWF, 2001e, Section 6). The TPP would have an on-site electrical interconnection (GWF, 2001e, Page 2-1).

The TPP parcel is currently zoned Agricultural and is under Williamson Act contract; however under the San Joaquin County Development Title, power generating facilities can be conditionally permitted for areas zoned Agricultural (GWF, 2001a, Page 8.4-8). The landowner put the parcel into "non-renewal status" in 1992 and therefore the Williamson Act Contract will not renew once its current term expires in March 2002. The site is expected to be re-zoned as ARM in January or February of 2002 (Van Buren, 2001). The proposed TPP would be viewed from I-580 primarily by westbound travelers looking northwest and north at distances of about one to two miles from the site. The I-580 is a designated scenic highway and has an Annual Average Daily Trips (AADT) of 28,500 travelers where I-580 crosses the Alameda and San Joaquin County border (Caltrans, 2001; Midway, 2001, Page 5.11-6). Schulte Road has an AADT of 7,500 travelers (GWF, 2001a, Page 8.10-26). A detailed description of the project and its setting is provided in the **Project Description** section of this Staff Assessment (SA).

SCOPE AND METHODOLOGY OF THE ALTERNATIVES ANALYSIS

The purpose of staff's alternatives analysis is to provide a reasonable range of feasible alternatives that could substantially reduce or avoid any potentially significant adverse impacts of the proposed project. To accomplish this, staff must determine the appropriate scope of analysis. Consequently, it is necessary to identify and determine the potentially significant impacts of the proposed project and then focus on alternatives that are capable of reducing or avoiding significant impacts.

To prepare this alternative analysis, the staff used the methodology summarized below:

- Describe the basic objectives of the project.
- Identify the potential significant environmental impacts of the project.
- Identify and evaluate technology alternatives to the project that could mitigate project impacts.
- Identify and evaluate alternative sites for the project to determine whether these sites could reduce or eliminate project impacts.
- Evaluate the "No Project" Alternative to determine whether this alternative would be superior to the project as proposed.

Alternatives to the proposed project include two general types: (1) other sites where the proposed project (a natural gas burning turbine) could be utilized, and (2) different power generation technologies (not requiring natural gas as fuel). These alternatives are discussed and evaluated below.

PROJECT OBJECTIVES

After studying the Applicant's Application for Certification (AFC), Energy Commission staff has determined TPP project's objectives to be:

- To provide peak load electrical energy in the newly deregulated power market as soon as possible.
- To be located near key infrastructure, such as transmission line interconnections, supplies of process water (preferably wastewater), and natural gas.
- To be located in the San Joaquin Valley Air Pollution Control District and to connect to a major substation North of Path 15 (north of PG&E's Los Banos Substation).
- To be online before the end of 2002.

POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACTS

Staff's assessment of environmental impacts is presented in detail in the individual sections of this Staff Assessment. No significant impacts are identified, assuming that all recommended mitigation is incorporated. The issues of most concern for the TPP are the following:

- **Biological Resources:** Staff recognizes that the construction of the TPP will cause permanent, temporary, and possible cumulative impacts to San Joaquin kit fox (SJKF) habitat. Impacts to SJKF, however, will be mitigated to less than significant levels by the purchase of a minimum of 19.5 acres of compensatory credits in the San Joaquin County Multi-Species Habitat Conservation Plan, and through the implementation of mitigation measures presented in the **Biological Resources** section.
- **Cultural Resources:** Two resources of historic age were identified: Delta-Mendota Canal and the Union (Southern) Pacific Railroad. Staff believes that the implementation of conditions of certification will prevent significant impacts to cultural resources.
- **Land Use:** Staff believes that the proposed project would not physically divide an established community, and would not conflict with any applicable habitat conservation plan. The project would convert 9 acres of prime farmland, which is a potentially significant impact; however, implementation of conditions of certification will reduce impacts to less than significant. Although staff has questions regarding the TPP's consistency with individual General Plan policies and the County's conditional use permit findings, staff will accept the County's interpretation of its General Plan goals and policies, and the conditional use permit findings required in its zoning regulations.
- **Noise:** Mitigation for construction noise is recommended, including making sure that all equipment is fitted with original mufflers, silencers and enclosures, and that the equipment is maintained in proper operating conditions. Other measures include the adoption of noise control programs and the implementation of noise reducing facilities to cope with construction and operational noise.

- **Soil and Water:** Staff has determined the proposed project will result in less than significant impacts to soil and water if the conditions of certification are implemented that ensure proper disposal of wastewater and storm water and if the site drainage plan is reviewed and approved by the Energy Commission.
- **Visual Resources:** Staff evaluates the potential adverse visual impacts that could result from the project: (a) views of the project from several areas, (b) nighttime light or glare, and (c) potential inconsistencies with three General Plan policies. Mitigation would ensure that all impacts are less than significant, and includes an approved revised perimeter landscape plan to help blend the project with its surroundings and to screen the project from public view, recommended use of appropriate colors or hues to minimize visual intrusion and contrast by blending with the surrounding landscape, use of non-specular conductors, and non-reflective and non-refractive insulators of transmission facilities. Also, the project owner shall design and install all lighting such that light bulbs and reflectors are not visible from public viewing areas.

SITE ALTERNATIVES

SCREENING CRITERIA USED TO SELECT ALTERNATIVE SITES

The purpose of this section is to evaluate the site alternatives provided by the Applicant and to consider other site possibilities. The evaluation criteria for each site are the following: 1) Will the alternative fulfill the project objectives and siting criteria? 2) Will it reduce the potential significant impacts identified for the proposed project? 3) Will it cause other significant environmental impacts?

In considering site alternatives, staff defined a geographic area within which alternative sites were evaluated. Since alternatives must consider the underlying objectives of the proposed project, staff confined the geographic area for location alternatives to the San Joaquin Valley. These location alternatives are consistent with the applicant's project objectives and siting criteria: proximity to centers of electrical demand, cooling water (preferably treated wastewater), electrical transmission and natural gas facilities; site acceptable for industrial use or heavy industry; and site located greater than 1,000 feet from human receptors.

Potential impacts that would affect all sites are air emissions, loss of habitat for biological resources, nearby cultural resources, transportation of hazardous materials, noise, potential impact to public health, wastewater disposal, and adverse changes to the visual character of the area. Other issues evaluated for each site are air quality, land use compatibility, and impacts to transportation and traffic. In addition, for each site, the advantages and disadvantages of each alternative site are compared, by issue area, to the proposed project.

Potential alternatives sites were considered if they met the following requirements:

- Appropriate zoning (including large-parcel agricultural zoning designation which would be consistent with the siting of an electrical generating facility according to the San Joaquin County planning department).

- Sufficient land available to construct and operate a generating facility of this size (approximately 10 acres would be required).
- Connections to infrastructure (gas, water, transmission) available within a reasonable distance.

Staff examines three site alternatives in this report, as illustrated on **Alternatives Figure 1**:

- Two sites proposed by the Applicant: Schulte Road Site and I-580 Site (GWF, 2001a, Section 5.2.2.1), and
- One site (Midway Road Site) proposed as an alternative in the AFC for the Tesla Power Project (Midway, 2001, Section 3.10).

SCHULTE ROAD SITE

The Schulte Road Site (Site B in the AFC) is located west of and adjacent to the existing Tracy Biomass Plant, in unincorporated San Joaquin County. This parcel is located on West Schulte Road, approximately 2,000 feet east of the intersection of Hansen Road and West Schulte Road, and approximately 2 miles east of the Patterson Pass Road exit off Interstate 580 (I-580). The proposed site is approximately one mile to I-580, whereas the Schulte Road Site is approximately 1.4 miles to the I-580. Schulte Road is a well-traveled road that has an AADT of 5,000 travelers (GWF, 2001a, Page 8.10-26). The site is about 12 miles southwest of central Tracy, and no residences are located nearby.

There are 15 acres available that are zoned manufacturing-industrial. This site is currently used for storage of agricultural waste, which is used as fuel for the Tracy Biomass Plant. An industrial use would be consistent with the neighboring industrial uses. Surrounding land uses include the Tracy Biomass Plant to the east and the Owen Brockway glass manufacturing plant to the south-southeast. Southern Pacific Railroad tracks run east to west, approximately 3,600 feet south of the Schulte Road Site. The Delta Mendota Canal runs northwest to southeast approximately 3,000 feet south of the western side of the parcel. The site is at 140 feet of elevation (GWF, 2001a, Figure 8.16-3).

Construction and operation of a power plant at this location would not introduce new elements into the local viewshed that would be substantially different in character to the adjacent industrial development (GWF, 2001a, Page 8.11-14). Viewers traveling on I-580 have limited views of this site because of the intervening terrain bordering the freeway (GWF, 2001a, Page 8.11-5). A number of residences east of I-580 are on elevated terrain and would have a clear view of the area (GWF, 2001a, Page 8.11-5). There are restricted views from the north and east of the site because of the natural topography and intervening industrial uses (GWF, 2001a, Page 8.11-5).

ALTERNATIVES
Figure 1
Map of Alternative Sites

The AFC states that according to the U.S. Environmental Protection Agency (US EPA), a power plant at this location would be considered as a major modification to the existing Tracy Biomass Power Plant and would, therefore, trigger a permit for Prevention of Significant Deterioration of Air Quality (PSD) in order to comply with the Federal Clean Air Act. This permit takes approximately 6 months for the US EPA to process (GWF, 2001e, Page 5-4). In addition, a power plant at this location would require the San Joaquin Valley Air Pollution Control District (SJVAPCD) to reanalyze and reissue permits for Preliminary Determination of Compliance (PDOC) and Final Determination of Compliance (FDOC). These permits would require a considerable amount of additional time in order to be analyzed and issued and the project's permitting would be delayed beyond that required for the proposed site.

GWF's AFC (Section 5.2.2.1) states that this site is 5 miles from transmission, 1 mile to natural gas interconnection, and 1.5 miles from water supply. However, a map subsequently provided by GWF (CEC, 2001e) shows that the Schulte Road Site is less than 1 mile north of the proposed site (so transmission access and water would be available within 2 miles). The Schulte Road site is also within 1,000 feet of a PG&E gas line. In comparison the proposed site requires 1,470-foot water supply pipeline, on-site natural gas, and an on-site electric transmission connection. The infrastructure connection for each connection: natural gas pipeline, water supply line and electrical transmission, will be a one mile long line that would run due south from the southwest corner of the Schulte Road Site to connect at the same location as the proposed project. The infrastructure connection would run on the west side of the parcels for the Tracy Biomass Plant and the Owen-Brockway glass container manufacturing plant, which are industrial also uses (GWF, 2001e; GWF, 2001g).

The following lists present the advantages and disadvantages of the Schulte Road site in comparison to the proposed project. Issue areas not listed have impacts comparable to those of the proposed site.

Advantages

- **Land Use**: The site is zoned industrial and is currently used to support the Tracy Biomass Plant's operations. This site would be appropriate for use as a power plant.
- **Visual Resources**: This site would be immediately adjacent to the Tracy Biomass Plant so it would be behind that plant when viewed from the City of Tracy (east of the plant), but in the foreground when viewed from I-580. In comparison to the proposed site, the Schulte Road site is 0.4 miles further from I-580, which is designated a scenic corridor (Caltrans, 2001). The site is already industrial in character.
- **Biological Resources:** This site is within the fenced boundary of the existing GWF facility adjacent to the Tracy Biomass Plant. The area has been disturbed and is currently used for storage of agricultural waste fuel for the biomass plant.

Disadvantages

- **Air Quality:** The US EPA would have to conduct a PSD review for modification of the Biomass Power Plant facility, and the SJVAPCD would be required to reanalyze

PDOC and FDOC permits. Therefore, the approval needed for project may not meet the project objectives of being online in 2002.

- **Infrastructure Connection:** The natural gas pipeline, water supply line and electric transmission connections would be a total of three miles longer than the proposed project. These relatively short linears would be constructed across industrial lands.

I-580 SITE

The I-580 Site (Site C in the AFC) is located immediately adjacent to and southwest of I-580. The site would be accessed from Patterson Pass Road west of I-580, via an existing dirt road adjacent to the railroad tracks. It is located in San Joaquin County, approximately 2.5 miles west of the proposed TPP site. The site is zoned agricultural and no Williamson Act contract applies. The neighboring uses are zoned industrial and agricultural, which would make this site appropriate for use as a power plant. Site access is good, and there are no nearby residences.

I-580 crosses at the northeastern corner of the site, and the Southern Pacific Railroad forms the southern boundary. Patterson Pass Road is the western border of the site and there is an artesian well located on the opposite (east) side of Patterson Pass Road. Patterson Pass Road, at the intersection of I-580, has an AADT of 5,000 travelers (Midway, 2001, 8.10-26). I-580 at the San Joaquin and Alameda County boarder has an AADT of 28,500 travelers (GWF, 2001a, Page 5.11-6). Both the California Aqueduct and the Delta Mendota Canal run northwest to southeast on the opposite (east) side of I-580. The site is at approximately 240 feet of elevation (GWF, 2001a, Figure 8.16-3).

According to the AFC, this site is 3 miles from transmission, 3 miles to natural gas, and 2 miles to water supply. However, based on the map provided by GWF (GWF, 2001h), the site is about 1.5 miles from both natural gas and water, and about 2 miles from the Tesla Substation (where transmission could be connected).

The following lists present the advantages and disadvantages of the I-580 site in comparison to the proposed project. Issue areas not listed have impacts comparable to those of the proposed site.

Advantages

- **Biological Resources**: This site is currently agricultural, so the land is disturbed. However, surveys for sensitive species should be performed.

Disadvantages

- **Visual resources**: This site would be immediately adjacent to I-580, which is a designated scenic highway (Caltrans, 2001). While other industrial land uses are already located along this portion of the I-580 corridor, a power plant at this site, with its required transmission interconnection, even in comparison to the existing industrial uses would be highly visible to the nearly 30,000 travelers on this freeway. In comparison, the proposed site is approximately one mile northeast of the I-580.

MIDWAY ROAD SITE

The Midway Road Site is located adjacent to the western side of Midway Road, approximately 0.25 miles north of PG&E's Tesla Substation, in unincorporated Alameda County (just west of the San Joaquin County line) in the Altamont Range. The Altamont Range is a series of hills that reach a peak of 1,500 feet and separate the flat valley lands of the Livermore Valley from those of the San Joaquin Valley to the east (Midway, 2001 page 5.10-1). The region's visual character is heavily influenced by wind farms in the Altamont Pass, which contains approximately 6,000 wind turbines, some of which stand approximately 300 feet tall (Midway, 2001 page 5.10-2). Infrastructure facilities contribute to the landscape and include Interstate 580 and 5, PG&E's 500 kV Tesla Substation and the network of high voltage electric transmission lines. The most visually prominent features are several 230 and 115 kV transmission lines that supported by steel lattice towers that pass the site in a general north-south direction (Midway, 2001 page 5.10-2).

Patterson Pass Creek runs along the southeastern corner of the parcel. This parcel is a nearly 50-acre parcel that is zoned large parcel agricultural, however under the San Joaquin County Development Title, power generating facilities can be conditionally permitted for areas zoned agricultural (GWF, 2001a, Page 8.4-8). The Midway Road Site is currently used for grazing and the habitat consists of non-native grassland. The site is at approximately 400 feet of elevation (GWF, 2001a, Figure 8.16-3).

The clearest view of the Midway Road Site would be from Midway Road, which forms the eastern boarder of the site (Midway, 2001 page 5.10-3). The project could be seen intermittently from Patterson Pass Road, however the Tesla Substation would obstruct views of the site along Patterson Pass Road to a large degree (Midway, 2001 page 5.10-2). These roads are lightly traveled: Midway Road has an AADT of 130 travelers and Patterson Pass Road has an AADT of 450 travelers (Midway, 2001, Page 5.11-6).

This site is located under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD) whereas the proposed site is located under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). This would require the Applicant to acquire Air Pollution Credits from the BAAQMD or coordinate a transfer of credits in the San Joaquin Valley to the Bay Area, which could require additional processing time.

Access to the site would be from Midway Road, about 0.25 miles north of its southern terminus at Patterson Pass Road. The site would require a 0.3 mile-long transmission line (to the Tesla Substation), a 2.5 mile-long natural gas pipeline, and about a 2.0 mile-long water supply line.

The following lists present the advantages and disadvantages of the Midway Road site in comparison to the proposed project. Issue areas not listed have impacts comparable to those of the proposed site.

Advantages

- **Visual Resources**: While the Midway Road Site would be located on land that is currently open space, the site is crossed by one set of the numerous transmission

lines that serve the Tesla Substation, immediately south of the site. The site would be visible only to travelers on lightly traveled Patterson Pass or Midway Roads, because hills protect the site from viewers in the San Joaquin Valley and from I-580.

- **Land Use:** The site is currently used for grazing so no agricultural production would be lost. The use of this parcel for a power plant would be consistent with the nearby industrial land uses.

Disadvantages

- **Air Quality:** Since this project would not be under the jurisdiction of the SJVAPCD, the Applicant would have to secure Air Pollution Credits from the BAAQMD or transfer credits to the Bay Area, which would be a timely process. Therefore, the project would not meet the on-line date of Summer 2002.
- **Biological Resources:** The undeveloped nature of the land allows for the potential presence of sensitive species. The construction of a power plant at this location could displace the wildlife that lives there (Midway, 2001 figure 5.3-2). Surveys would need to be conducted, and appropriate mitigation implemented to ensure avoidance of existing resources, if any. Although much of the wildlife is common, the non-native grasslands do provide nesting for burrowing owls and this area could provide foraging habitat for some special status species (Midway, 2001 page 5.3-36). Sensitive plant species are not anticipated to be present due to the extensive grazing of the area.

THE "NO PROJECT" ALTERNATIVE

CEQA Guidelines and Energy Commission regulations require consideration of the "No Project" Alternative. This alternative assumes that the project is not constructed, and the impacts of that scenario are compared to those of the proposed project.

In the AFC, the Applicant states that the "No Project" Alternative would not provide increased peaking generation to serve the State's electricity demand. Also, the "No Project" Alternative would eliminate the expected economic benefits that the proposed project would bring to San Joaquin County, including increased property taxes, employment, sales taxes, and sales of services, manufactured goods, and equipment (see the **Socioeconomics** chapter of this Staff Assessment).

While no significant impacts have been identified for this project, the "No Project" Alternative would eliminate all impacts to the environment that would result from the construction and operation of the plant at the proposed site. Construction and operation of the proposed project would contribute to the State's policy goals of increasing in-state generation within the next two years; with the "No Project" Alternative, that benefit would not occur. The benefit of a peaker plant such as TPP is that it can respond within 10 minutes to peaks in the demand for energy.

ALTERNATIVES ELIMINATED FROM DETAILED ANALYSIS

This section describes alternatives that did not satisfy the screening criteria for inclusion in the analysis.

TECHNOLOGY ALTERNATIVES

Conservation and Demand-Side Management

Conservation and demand-side management (DSM) includes a variety of approaches, including energy efficiency and conservation, building and appliance standards, load management and fuel substitution. Public Resources Code Section 25305(c) states that conservation, load management, or other demand reducing measures reasonably expected to occur shall be explicitly examined in the Energy Commission's energy forecasts and shall not be considered as alternatives to a proposed facility during the siting process. The forecast that will address this issue is the Commission's California Energy Outlook. Thus, such alternatives are not included in this analysis.

Since 1975, the displaced peak demand from all of these efforts has been roughly the equivalent of eighteen 500-MW power plants. The annual impact of building and appliance standards has increased steadily, from 600 MW in 1980 to 5,400 MW in 2000, as more new buildings and homes around the U.S. are built under increasingly efficient standards. Savings from energy efficiency programs implemented by utilities and state agencies have also increased (from 750 to 3,300 MW). Recent demand reducing proposals from the Governor and Legislature have proven to have an impact by reducing consumption by an average of 3,500 MW during the summer of 2001 (CEC, 2001g). In addition, voluntary conservation measures adopted by residential and commercial/industrial users in response to the current energy situation led to a 7.5 percent drop in electricity use throughout the state as of August 2001, but that dropped to 1.5 percent in October 2001 (CEC, 2001g).

GENERATION TECHNOLOGY ALTERNATIVES

Staff considered several alternative generation technologies that do not burn fossil fuels: solar, wind, biomass, geothermal, and hydropower.

Solar Generation

There are two types of solar generation: solar thermal power and photovoltaic (PV) power generation.

Solar thermal power generation involves the conversion of solar radiation to thermal energy, which is then used to run a conventional steam power system. Solar thermal is a viable alternative to conventional generation systems and, depending on the technology, is suited to either distributed generation on the kW scale or to centralized power generation on scales up to several hundred MW. Solar thermal systems utilize three designs to generate electricity: parabolic trough concentrating collectors, power tower/heliostat configurations, and parabolic dish collectors. Parabolic trough and power tower systems typically run conventional power units, such as steam turbines, while parabolic dish systems power a small engine at the focal point of the collector.

PV power generation involves the direct conversion of light to electricity. PV is best suited to a distributed generation uses rather than centralized power generation. PV is the most capital intensive of any alternative generation technology. PV power systems consist of solar electric modules (built from PV cells) assembled into arrays of varying sizes to produce electric power proportional to the area of the array and the intensity of

the sunlight. PV arrays can be mounted on either the ground or on buildings. They can be installed on dual-purpose structures such as covered parking lots.

Solar resources would require large land areas in order to generate 169 MW of electricity. Specifically, assuming location in an area receiving maximum solar exposure (such as desert areas of San Bernardino County), central receiver solar thermal projects require approximately 5 acres per MW, so 169 MW would require approximately 845 acres, or over 20 times the amount of land area taken by the proposed plant site and linear facilities. At 10 percent sun conversion efficiency, PV generation requires 1 square kilometer (about 400 acres) to produce at least 100 MW of power and 600 MWh of energy per day.

Although air emissions are significantly reduced or eliminated for solar facilities, they can have significant visual effects. Solar generation results in the absence or reduction in air pollutant emissions, and visible plumes. Water consumption for solar generation is substantially less than for a natural gas fired plant because there is no thermal cooling requirement.

Like all technologies generating power for sale into the State's power grid, solar thermal facilities and PV generation require near access to transmission lines. Large solar thermal plants must be located in desert areas with high direct normal insolation, and in these remote areas, transmission availability is limited. Additionally, solar energy technologies cannot provide full-time availability due to the natural intermittent availability of sunlight. Therefore, solar energy technologies do not meet the project needs, which is to supply immediate electric generation to accommodate peaks in electricity demand.

Wind Generation

Wind carries kinetic energy that can be utilized to spin the blades of a wind turbine rotor and an electrical generator, which then feeds alternating current (AC) into the utility grid. Most state-of-the-art wind turbines operating today convert 35 to 40 percent of the wind's kinetic energy into electricity. Modern wind turbines represent viable alternatives to large bulk power fossil power plants as well as small-scale distributed systems. The range of capacity for an individual wind turbine today ranges from 400 watts up to 3.6 MW. California's 1,700 MW of wind power represents 1.5 percent of the state's electrical capacity.

Although air emissions are significantly reduced or eliminated for wind facilities, they can have significant visual effects and wind turbines also cause bird mortality (especially for raptors) resulting from collision with rotating blades.

Wind resources would require large land areas in order to generate 169 MW of electricity. Depending on the size of the wind turbines, wind generation "farms" generally can require between 5 and 17 acres to generate one megawatt (resulting in the need for between 800 and 2,800 acres to generate 169 MW) (CEC, 2001k). Although 7,000 MW of new power wind capacity could cost-effectively be added to California's power supply, the lack of available transmission access is an important barrier to wind power development (Beck, 2001). California has a diversity of existing and potential wind resource regions that are near load centers such as San Francisco,

Los Angeles, San Diego and Sacramento. However, wind energy technologies cannot provide full-time availability due to the natural intermittent availability of wind resources. Therefore, wind generation technology would not meet the project's goal, which is to provide immediate power to meet peaks in demand.

Biomass Generation

Biomass generation uses a waste vegetation fuel source such as wood chips (the preferred source) or agricultural waste. The fuel is burned to generate steam. Biomass facilities generate substantially greater quantities of air pollutant emissions than natural gas burning facilities. In addition, biomass plants are typically sized to generate less than 20 MW, which is substantially less than the capacity of the 169 MW TPP project. Although at the peak of biomass industry, 66 biomass plants were in operation in California. Currently, there are about 30 direct-combustion biomass facilities in operation (CEC, 2001h).

GWF currently operates the Tracy Biomass plant, 0.6 miles north of the proposed TPP site. The Tracy Biomass plant is an 18.5 MW (net) wood-fired plant that burns a little under 50 percent orchard wood waste (agriculture fuel) and a little over 50 percent urban wood waste. The agriculture fuel is required by the permit, which provides an offset from open burning emissions that would normally result from field burning of agricultural waste. A single biomass facility would not be able to meet the goal to generate 169 MW, which is proposed for TPP, but nine biomass facilities could generate 169 MW. However, nine biomass power plants would have potentially significant environmental impacts of their own.

Geothermal

Geothermal technologies use steam or high-temperature water (HTW) obtained from naturally occurring geothermal reservoirs to drive steam turbine/generators. There are vapor dominated resources (dry, super-heated steam) and liquid-dominated resources where various techniques are utilized to extract energy from the HTW. Geothermal is a commercially available technology, but it is limited to areas geologic conditions resulting in high subsurface temperatures. There are no viable geothermal resources in the Alameda County or San Joaquin County region (CEC, 2001i).

Hydropower

Hydropower facilities require large quantities of water (either stored or flowing water), and sufficient topography to allow power generation as water drops in elevation and flows through a turbine. Neither the water resources nor the topographic conditions are present in the project region.

Conclusion Regarding Alternative Technologies

Because of the typically lower efficiencies, specific resource needs, and intermittent availability of alternative generation technologies, they do not fulfill a basic objective of this plant: which is to provide reliable peak power in order to ensure reliability for electricity in California. Consequently, staff does not believe that geothermal, hydropower, solar, wind, and biomass technologies present feasible alternatives to the proposed project.

CONCLUSIONS AND RECOMMENDATION

Staff does not believe that alternative technologies (geothermal, solar, wind, biomass, and hydroelectric) currently present feasible alternatives to the proposed project, since the major objective of a peaker project is to provide power immediately on demand. While the “No Project” Alternative would eliminate all impacts of this project, the benefits of increasing in-state generation would also not be achieved.

When comparing the three alternative sites to the proposed project, the proposed TPP site would have the shortest connections to infrastructure. Of the three site alternatives considered in this section, the Midway Road and I-580 Sites are considered to be inferior to the proposed site. The I-580 Site would be highly visible from the I-580, which is designated a scenic highway. Since the Midway Road Site is undeveloped, sensitive species could exist there and surveys would need to be conducted in order to determine the presence of species. The Schulte Road Site is comparable to the proposed site in its potential for environmental impact and it is on an existing industrial parcel but it would require a total of three miles of additional linear facilities. Also, due to permits required by both the US EPA and SJVAPCD, relocating the proposed TPP to the Schulte Road Site would require additional time for air quality permitting.

The three site alternatives considered in this section offer some advantages and disadvantages in comparison to the proposed project, but overall the proposed site has no identified significant impacts. Therefore, no alternative is recommended over the proposed project.

REFERENCES

Beck (Beck, Fredric and Singh, Virinder et al) 2001. *Renewable Energy for California: Benefits, Status and Potential,* Washington, DC: Renewable Energy Policy Project, August 24, p.17.

Caltrans (California Department of Transportation) 2001. Internet website at http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm

CEC (California Energy Commission). 2001g. Internet Website at http://www.energy.ca.gov/electricity/peak_demand_reduction.html.

CEC (California Energy Commission). 2001h. Internet Website at http://38.144.192.166/development/biomass/biomass.html.

CEC (California Energy Commission). 2001i. Internet Website at http://www.energy.ca.gov/maps/geothermal_map.html.

CEC (California Energy Commission). 2001j. Internet Website at http://www.energy.ca.gov/maps/windmap.html

CEC (California Energy Commission). 2001k. Internet Website at http://www.energy.ca.gov/wind/overview.html.

GWF (Tracy Peaker Project) 2001a. Application for Certification No. 01-AFC-16. Dated August 3 and docketed August 16, 2001.

GWF (Tracy Peaker Project) 2001e. Supplement to Application for Certification for the Tracy Peaker Project. Dated and docketed October 9, 2001.

GWF (Tracy Peaker Project) 2001g. Supplement Information for Data Responses #6, 42, 46, 60 and 62. Dated November 12, 2001 and docketed November 15, 2001.

GWF (Tracy Peaker Project) 2001h. Map of alternative sites identified in the AFC, provided by D. Stein, URS Corp. Dated November 7, 2001

Midway (Midway Power LLC). 2001. Tesla Power Plant Application for Certification. Volume 1. October.

Van Buren, Jim. 2001. San Joaquin County Planning/Development Services. Personal communication with Jacob Hawkins, Aspen Environmental Group. October 25, 2001.

GENERAL CONDITIONS
INCLUDING
COMPLIANCE MONITORING AND CLOSURE PLAN

Testimony of Christian Huntley

INTRODUCTION

The project General Conditions Including Compliance Monitoring and Closure Plan (Compliance Plan) have been established as required by Public Resources Code section 25532. The plan provides a means for assuring that the facility is constructed, operated and closed in conjunction with air and water quality, public health and safety, environmental and other applicable regulations, guidelines, and conditions adopted or established by the California Energy Commission (Energy Commission) and specified in the written decision on the Application for Certification or otherwise required by law.

The Compliance Plan is composed of the following elements:

1. General conditions that:
   a) set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;
   b) set forth the requirements for handling confidential records and maintaining the compliance record;
   c) state procedures for settling disputes and making post-certification changes;
   d) state the requirements for periodic compliance reports and other administrative procedures that are necessary to verify the compliance status for all Energy Commission approved conditions; and
   e) establish requirements for facility closure plans.

2. Specific conditions of certification:

   Specific conditions of certification that follow each technical area contain the measures required to mitigate any and all potential adverse project impacts associated with construction, operation and closure to an insignificant level. Each specific condition of certification also includes a verification provision that describes the method of verifying that the condition has been satisfied.

GENERAL CONDITIONS OF CERTIFICATION

DEFINITIONS

To ensure consistency, continuity and efficiency, the following terms, as defined, apply to all technical areas, including Conditions of Certification:

SITE MOBILIZATION:

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:

Onsite activity that 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:

Onsite activity conducted with earth-moving equipment that 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:

a. The installation of environmental monitoring equipment.
b. A soil or geological investigation.
c. A topographical survey.
d. Any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility.
e. Any work to provide access to the site for any of the purposes specified in a., b., c., or d.

START OF COMMERCIAL OPERATION

a. The project startup team has completed work.
b. The plant manager accepts control from the construction manager.
c. Expenses for the project are switched from construction to operation.
d. The facility has reached steady state with reliability at the rated capacity.
e. Financing accounting switches from construction (capital costs) to operations (Income-producing expenses) financing.

COMPLIANCE PROJECT MANAGER (CPM) RESPONSIBILITIES

A CPM will oversee the compliance monitoring and shall be responsible for:

1. ensuring that the design, construction, operation, and closure of the project facilities is in compliance with the terms and conditions of the Commission Decision;
2. resolving complaints;
3. processing post-certification changes to the conditions of certification, project description, and ownership or operational control;
4. documenting and tracking compliance filings; and,
5. ensuring that the compliance files are maintained and accessible.

The CPM is the contact person for the Energy Commission and will consult with appropriate responsible agencies and the Energy Commission when handling disputes, complaints and amendments.

All project compliance submittals are submitted to the CPM for processing. Where a submittal required by a condition of certification requires CPM approval, it should be understood that the approval would involve all appropriate staff and management.

The Commission has established a toll free compliance telephone number of **1-800-858-0784** for the public to contact the Commission about power plant construction or operation-related questions, complaints or concerns.

Pre-Construction and Pre-Operation Compliance Meeting

The CPM may schedule pre-construction and pre-operation compliance meetings prior to the projected start-dates of construction, plant operation, or both. The purpose of these meetings will be to assemble both the Energy Commission's and the project owner's technical staff to review the status of all pre-construction or pre-operation requirements and milestones contained in the Energy Commission's conditions of certification to confirm that they have been met, or if they have not been met, to ensure that the proper action is taken. In addition, these meetings shall ensure, to the extent possible, that Energy Commission conditions will not delay the construction and operation of the plant due to oversight or inadvertence and to preclude any last minute, unforeseen issues from arising. Pre-construction meetings held during the certification process must be publicly noticed unless they are confined to administrative issues and processes.

Energy Commission Record

The Energy Commission shall maintain as a public record, in either the Compliance file or Docket file, for the life of the project (or other period as required):

1. all documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;
2. all monthly and annual compliance reports filed by the project owner;
3. all complaints of noncompliance filed with the Energy Commission; and,
4. all petitions for project or condition changes and the resulting staff or Energy Commission action taken.

PROJECT OWNER RESPONSIBILITIES

It is the responsibility of the project owner to ensure that the general compliance conditions and the conditions of certification are satisfied. The general compliance conditions regarding post-certification changes specify measures that the project owner must take when requesting changes in the project design, compliance conditions, or ownership. Failure to comply with any of the conditions of certification or the general compliance conditions may result in reopening of the case and revocation of Energy Commission certification, an administrative fine, or other action as appropriate.

Access

The CPM, responsible Energy Commission staff, and delegate agencies or consultants, shall be guaranteed and granted unrestricted access to the power plant site, related facilities, project-related staff, and the records maintained on site, for the purpose of conducting audits, surveys, inspections, or general site visits. Although the CPM will normally schedule site visits on dates and times agreeable to the project owner, the CPM reserves the right to make unannounced visits at any time.

Compliance Record

The project owner shall maintain project files on-site or at an alternative site approved by the CPM, for the life of the project. The files shall contain copies of all “as-built” drawings, all documents submitted as verification for conditions, and all other project-related documents for the life of the project, unless a lesser period is specified by the conditions of certification.

Energy Commission staff and delegate agencies shall, upon request to the project owner, be given unrestricted access to the files.

Compliance Verifications

Each condition of certification is followed by a means of verification. The verification describes the Energy Commission’s procedure(s) to ensure post-certification compliance with adopted conditions. The verification procedures, unlike the conditions, may be modified, as necessary by the CPM, and in most cases without full Energy Commission approval.

Verification of compliance with the conditions of certification can be accomplished by:

- reporting on the work done and providing the pertinent documentation in monthly and/or annual compliance reports filed by the project owner or authorized agent as required by the specific conditions of certification;
- appropriate letters from delegate agencies verifying compliance;
- Energy Commission staff audits of project records; and/or
- Energy Commission staff inspections of mitigation and/or other evidence of mitigation.

Verification lead times (e.g., 90, 60 and 30-days) associated with start of construction may require the project owner to file submittals during the certification process, particularly if construction is planned to commence shortly after certification.

A cover letter from the project owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. **The cover letter subject line shall identify the involved condition(s) of certification by condition number and include a brief description of the subject of the submittal**. The project owner shall also identify those submittals **not** required by a condition of certification with a statement such as: "This submittal is for information only and is not required by a specific condition of certification." When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal.

The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed by the project owner or an agent of the project owner.

All submittals shall be addressed as follows:

Compliance Project Manager
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

If the project owner desires Energy Commission staff action by a specific date, they shall so state in their submittal and include a detailed explanation of the effects on the project if this date is not met.

Compliance Reporting

There are two different compliance reports that the project owner must submit to assist the CPM 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 Compliance Reports. During operation, an Annual Compliance Report must be submitted. These reports, and the requirement for an accompanying compliance matrix, are described below. The majority of the conditions of certification require that compliance submittals be submitted to the CPM in the monthly or annual compliance reports.

Compliance Matrix

A compliance matrix shall be submitted by the project owner to the CPM along with each monthly and annual compliance report. The compliance matrix is intended to provide the CPM with the current status of all compliance conditions in a spreadsheet format. The compliance matrix must identify:

1. the technical area,
2. the condition number,
3. a brief description of the verification action or submittal required by the condition,
4. the date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.),
5. the expected or actual submittal date,
6. the date a submittal or action was approved by the Chief Building Official (CBO), CPM, or delegate agency, if applicable,
7. the compliance status for each condition (e.g., “not started”, “in progress” or “completed date”), and
8. the project’s preconstruction and construction milestones, including dates and status.

Completed or satisfied conditions do not need to be included in the compliance matrix after they have been identified as completed/satisfied in at least one monthly or annual compliance report.

Pre-Construction Matrix

Prior to commencing construction a compliance matrix addressing only those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to the CPM. This matrix will be included with the project owner’s **first** compliance submittal. It will be in the same format as the compliance matrix referenced above.

Tasks Prior to Start of Construction

Construction shall not commence until the pre-construction matrix is submitted, all pre-construction conditions have been complied with, and the CPM has issued a letter to the project owner authorizing construction. Project owners frequently anticipate starting project construction as soon as the project is certified. In some cases it may be necessary for the project owner to file submittals prior to certification 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 certification are performed at the owner’s own risk. Failure to allow specified lead-time may cause delays in start of construction.

Various lead times for verification submittals to the CPM for conditions of certification 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.

Monthly Compliance Report

The first Monthly Compliance 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. The first Monthly Compliance Report shall include an initial list of dates for each of the events identified on the Key Events List. The Key Events List is found at the end of this section.

During pre-construction and construction of the project, the project owner or authorized agent shall submit an original and five copies of the Monthly Compliance Report within 10 working days after the end of each reporting month. Monthly Compliance Reports shall be clearly identified for the month being reported. The reports shall contain at a minimum:

1. a summary of the current project construction and milestones status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;
2. documents required by specific conditions to be submitted along with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Monthly Compliance Report;
3. an initial, and thereafter updated, compliance matrix which shows the status of all conditions of certification and preconstruction and construction milestones (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);
4. a list of conditions and milestones that have been satisfied during the reporting period, and a description or reference to the actions which satisfied the condition;
5. a list of any submittal deadlines that were missed accompanied by an explanation and an estimate of when the information will be provided;
6. a cumulative listing of any approved changes to conditions of certification;
7. a listing of any filings with, or permits issued by, other governmental agencies during the month;
8. a projection of project compliance activities scheduled during the next two months. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance with conditions of certification or milestones;
9. a listing of the month's additions to the on-site compliance file; and
10. any requests to dispose of items that are required to be maintained in the project owner's compliance file.
11. a listing of complaints, notices of violation, official warnings, and citations received during the month; a description of the resolution of any complaints which have been resolved, and the status of any unresolved complaints.

Annual Compliance Report

After the air district has issued a Permit to Operate, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each year of commercial operation and are due to the CPM each year at a date agreed to by the CPM. Annual Compliance Reports shall be submitted over the life of the project unless otherwise specified by the CPM. Each Annual Compliance Report shall identify the reporting period and shall contain the following:

1. an updated compliance matrix which shows the status of all conditions of certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);
2. a summary of the current project operating status and an explanation of any significant changes to facility operations during the year;
3. documents required by specific conditions to be submitted along with the Annual Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Annual Compliance Report;
4. a cumulative listing of all post-certification changes approved by the Energy Commission or cleared by the CPM;
5. an explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;
6. a listing of filings made to, or permits issued by, other governmental agencies during the year;
7. a projection of project compliance activities scheduled during the next year;
8. a listing of the year's additions to the on-site compliance file, and
9. an evaluation of the on-site contingency plan for unexpected facility closure, including any suggestions necessary for bringing the plan up to date [see General Conditions for Facility Closure addressed later in this section].
10. a listing of complaints, notices of violation, official warnings, and citations received during the year; a description of the resolution of any complaints which have been resolved, and the status of any unresolved complaints.

Confidential Information

Any information, which the project owner deems confidential shall be submitted to the Energy Commission's Docket with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information, which is determined to be confidential, shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501 et. seq.

Department of Fish and Game Filing Fee

Pursuant to the provisions of Fish and Game Code Section 711.4, the project owner shall pay a filing fee in the amount of eight hundred and fifty dollars ($850). The payment instrument shall be provided to the Commission's Project Manager at the time of project certification and shall be made payable to the California Department of Fish and Game. The Commission's Project Manager will submit the payment to the Office of Planning and Research at the time of filing of the notice of decision pursuant to Public Resources Code Section 21080.5.

Reporting of Complaints, Notices, and Citations

Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering, with date and time stamp recording. All recorded inquiries shall be responded to within 24 hours. The telephone number shall be posted at the project site and made easily visible to passersby during construction and operation. The telephone number shall be provided to the CPM who will post it on the Energy Commission's web page at www.energy.ca.gov/sitingcases.

Any changes to the telephone number shall be submitted immediately to the CPM who will update the web page.

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies of all complaint forms, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt, to the CPM. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the **NOISE** conditions of certification. All other complaints shall be recorded on the complaint form on the following page.

COMPLAINT REPORT/RESOLUTION FORM

PROJECT NAME:
AFC Number:

COMPLAINT LOG NUMBER _____
Complainant's name and address:

Phone number:

Date and time complaint received:

Indicate if by telephone or in writing (attach copy if written):
Date of first occurrence:

Description of complaint (including dates, frequency, and duration):

Findings of investigation by plant personnel:

Indicate if complaint relates to violation of a CEC requirement:
Date complainant contacted to discuss findings:

Description of corrective measures taken or other complaint resolution:

Indicate if complainant agrees with proposed resolution:
If not, explain:

Other relevant information:

If corrective action necessary, date completed:
Date first letter sent to complainant: _____(copy attached)
Date final letter sent to complainant: _____(copy attached)

This information is certified to be correct.
Plant Manager's Signature: _____ Date:

(Attach additional pages and supporting documentation, as required.)

CONSTRUCTION MILESTONES

The following is the procedure for establishing and enforcing milestones, which include milestone dates for pre-construction and construction phases of the project.

Milestones, and method of verification must be established and agreed upon by the project owner and the CPM no later than 30 days after project approval, the date of docketing. If this deadline is not met, the CPM will establish the milestones.

I. ESTABLISH PRE-CONSTRUCTION MILESTONES TO ENABLE START OF CONSTRUCTION WITHIN ONE YEAR OF CERTIFICATION

1. Obtain site control.
2. Obtain financing.
3. Mobilize site.
4. Begin rough grading for permanent structures (start of construction).

II. ESTABLISH CONSTRUCTION MILESTONES FROM DATE OF START OF CONSTRUCTION

1. Begin pouring major foundation concrete.
2. Begin installation of major equipment.
3. Complete installation of major equipment.
4. Begin gas pipeline construction.
5. Complete gas pipeline interconnection.
6. Begin T-line construction.
7. Complete T-line interconnection.
8. Begin commercial operation.

The CPM will negotiate the above-cited pre-construction and construction milestones with the project owner based on an expected schedule of construction. The CPM may agree to modify the final milestones from those listed above at any time prior to or during construction if the project owner demonstrates good-cause for not meeting the originally-established milestones. Otherwise, failure to meet milestone dates without a finding of good cause is considered cause for possible forfeiture of certification or other penalties.

III. A FINDING THAT THERE IS GOOD CAUSE FOR FAILURE TO MEET MILESTONES WILL BE MADE IF ANY OF THE FOLLOWING CRITERIA ARE MET:

1. The change in any milestone does not change the established commercial operation date milestone.
2. The milestone is changed due to circumstances beyond the project owner's control.
3. The milestone will be missed, but the project owner demonstrates a good-faith effort to meet the project milestone.
4. The milestone is missed due to unforeseen natural disasters or acts of God which prevent timely completion of the milestones.

If a milestone date cannot be met, the CPM will make a determination whether the project owner has demonstrated good cause for failure to meet the milestone. If the determination is that good cause exists, the CPM will negotiate revised milestones.

If the project owner fails to meet one or more of the established milestones, and the CPM determines that good cause does not exist, the CPM will make a recommendation to the Executive Director. Upon receiving such recommendation, the Executive Director will take one of the following actions.

1. Conclude that good cause exists and direct that revised milestones be established; or
2. Issue a reprimand, impose a fine, or take other appropriate remedial action and direct that revised milestones be established; or
3. Recommend, after consulting with the Energy Facility Siting and Environmental Committee, that the Commission issue a finding that the project owner has forfeited the project's certification.

The project owner has the right to appeal a finding of no good cause, or any recommended remedial action, to the Energy Facility Siting and Environmental Committee, and to the full Commission.

FACILITY CLOSURE

At some point in the future, the project will cease operation and close down. At that time, it will be necessary to ensure that the closure occurs in such a way that public health and safety and the environment are protected from adverse impacts. Although the project setting for this project does not appear, at this time, to present any special or unusual closure problems, it is impossible to foresee what the situation will be in 30 years or more when the project ceases operation. Therefore, provisions must be made which provide the flexibility to deal with the specific situation and project setting which that exist at the time of closure. LORS pertaining to facility closure are identified in the sections dealing with each technical area. Facility closure will be consistent with LORS in effect at the time of closure.

There are at least three circumstances in which a facility closure can take place, planned closure, unexpected temporary closure and unexpected permanent closure**.**

PLANNED CLOSURE

A planned closure occurs at the end of a project's life, when the facility is closed in an anticipated, orderly manner, at the end of its useful economic or mechanical life, or due to gradual obsolescence.

UNEXPECTED TEMPORARY CLOSURE

An unplanned unexpected temporary closure occurs when the facility is closed suddenly and/or unexpectedly, on a short-term basis, due to unforeseen circumstances such as a natural disaster, or an emergency.

UNEXPECTED PERMANENT CLOSURE

An unplanned unexpected permanent closure occurs if the project owner closes the facility suddenly and/or unexpectedly, on a permanent basis. This includes unexpected closure where the owner remains accountable for implementing the on-site contingency plan. It can also include unexpected closure where the project owner is unable to implement the contingency plan, and the project is essentially abandoned.

GENERAL CONDITIONS FOR FACILITY CLOSURE

PLANNED CLOSURE

In order to ensure that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure, will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a proposed facility closure plan to the Energy Commission for review and approval at least twelve months prior to commencement of closure activities (or other period of time agreed to by the CPM). The project owner shall file 120 copies (or other number of copies agreed upon by the CPM) of a proposed facility closure plan with the Energy Commission.

The plan shall:

1. identify and discuss any impacts and mitigation to address significant adverse impacts associated with proposed closure activities and to address facilities, equipment, or other project related remnants that will remain at the site.

2. identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project;

3. identify any facilities or equipment intended to remain on site after closure, the reason, and any future use; and

4. address conformance of the plan with all applicable laws, ordinances, regulations, standards, local/regional plans in existence at the time of facility closure, and applicable conditions of certification.

Also, in the event that there are significant issues associated with the proposed facility closure plan's approval, or the desires of local officials or interested parties are inconsistent with the plan, the CPM shall hold one or more workshops and/or the Commission may hold public hearings as part of its approval procedure.

In addition, prior to submittal of the proposed facility closure plan, a meeting shall be held between the project owner and the Commission CPM for the purpose of discussing the specific contents of the plan.

As necessary, prior to, or during the closure plan process, the project owner shall take appropriate steps to eliminate any immediate threats to public health and safety and the

environment, but shall not commence any other closure activities, until Commission approval of the facility closure plan is obtained.

UNEXPECTED TEMPORARY CLOSURE

In order to ensure that public health and safety and the environment are protected in the event of an unexpected temporary facility closure, it is essential to have an on-site contingency plan in place. The on-site contingency plan will help to ensure that all necessary steps to mitigate public health and safety, and environmental impacts, are taken in a timely manner.

The project owner shall submit an on-site contingency plan for CPM review and approval. The plan shall be submitted no less that 60 days (or other time agreed to by the CPM) prior to commencement of commercial operation. The approved plan must be in place prior to commercial operation of the facility and shall be kept at the site at all times.

The project owner, in consultation with the CPM, will update the on-site contingency plan as necessary. The CPM may require revisions to the on-site contingency plan over the life of the project. In the annual compliance reports submitted to the Energy Commission, the project owner will review the on-site contingency plan, and recommend changes to bring the plan up to date. Any changes to the plan must be approved by the CPM.

The on-site contingency plan shall provide for taking immediate steps to secure the facility from trespassing or encroachment. In addition, for closures of more than 90 days (unless other arrangements are agreed to by the CPM), the plan shall provide for removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment and the safe shutdown of all equipment (also see specific conditions of certification for the technical areas of Hazardous Materials Management and Waste Management).

In addition, consistent with requirements under unexpected permanent closure addressed below, the nature and extent of insurance coverage, and major equipment warranties must also be included in the on-site contingency plan. In addition, the status of the insurance coverage and major equipment warranties must be updated in the annual compliance reports.

In the event of an unexpected temporary closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, e-mail, etc., within 24 hours and shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the circumstances and expected duration of the closure.

If the CPM determines that a temporary closure is likely to be permanent, or for a duration of more than twelve months, a closure plan consistent with that for a planned closure shall be developed and submitted to the CPM within 90 days of the CPM's determination (or other period of time agreed to by the CPM).

UNEXPECTED PERMANENT CLOSURE

The on-site contingency plan required for unexpected temporary closure shall also cover unexpected permanent facility closure. All of the requirements specified for unexpected temporary closure shall also apply to unexpected permanent closure.

In addition, the on-site contingency plan shall address how the project owner will ensure that all required closure steps will be successfully undertaken in the unlikely event of abandonment.

In the event of an unexpected permanent closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, e-mail, etc., within 24 hours and shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the status of all closure activities.

A closure plan consistent with that for a planned closure shall be developed and submitted to the CPM within 90 days of the permanent closure (or other period of time agreed to by the CPM).

DELEGATE AGENCIES

To the extent permitted by law, the Energy Commission may delegate authority for compliance verification and enforcement to various state and local agencies that have expertise in subject areas where specific requirements have been established as a condition of certification. If a delegate agency does not participate in this program, the Energy Commission staff will establish an alternative method of verification and enforcement. Energy Commission staff reserves the right to independently verify compliance.

In performing construction and operation monitoring of the project, the Energy Commission staff acts as, and has the authority of, the Chief Building Official (CBO). The Commission staff retains this authority when delegating to a local CBO. Delegation of authority for compliance verification includes the authority for enforcing codes, the responsibility for code interpretation where required, and the authority to use discretion, as necessary, in implementing the various codes and standards.

Whenever an agency's responsibility for a particular area is transferred by law to another entity, all references to the original agency shall be interpreted to apply to the successor entity.

ENFORCEMENT

The Energy Commission's legal authority to enforce the terms and conditions of its Decision is specified in Public Resources Code sections 25534 and 25900. The Energy Commission may amend or revoke the certification for any facility, and may impose a civil penalty for any significant failure to comply with the terms or conditions of the Commission Decision. The specific action and amount of any fines the Commission may impose would take into account the specific circumstances of the incident(s). This would include such factors as the previous compliance history, whether the cause of the

incident involves willful disregard of LORS, inadvertence, unforeseeable events, and other factors the Commission may consider.

Moreover, to ensure compliance with the terms and conditions of certification and applicable laws, ordinances, regulations, and standards, delegate agencies are authorized to take any action allowed by law in accordance with their statutory authority, regulations, and administrative procedures.

NONCOMPLIANCE COMPLAINT PROCEDURES

Any person or agency may file a complaint alleging noncompliance with the conditions of certification. Such a complaint will be subject to review by the Energy Commission pursuant to Title 20, California Code of Regulations, section 1230 et. seq., but in many instances the noncompliance can be resolved by using the informal dispute resolution process. Both the informal and formal complaint procedure, as described in current State law and regulations, are described below. They shall be followed unless superseded by current law or regulations.

INFORMAL DISPUTE RESOLUTION PROCEDURE

The following procedure is designed to informally resolve disputes concerning interpretation of compliance with the requirements of this compliance plan. The project owner, the Energy Commission, or any other party, including members of the public, may initiate this procedure for resolving a dispute. Disputes may pertain to actions or decisions made by any party including the Energy Commission's delegate agents.

This procedure may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 1230 et. seq., but is not intended to be a substitute for, or prerequisite to it. This informal procedure may not be used to change the terms and conditions of certification as approved by the Energy Commission, although the agreed upon resolution may result in a project owner, or in some cases the Energy Commission staff, proposing an amendment.

The procedure encourages all parties involved in a dispute to discuss the matter and to reach an agreement resolving the dispute. If a dispute cannot be resolved, then the matter must be referred to the full Energy Commission for consideration via the complaint and investigation process. The procedure for informal dispute resolution is as follows:

Request for Informal Investigation

Any individual, group, or agency may request the Energy Commission to conduct an informal investigation of alleged noncompliance with the Energy Commission's terms and conditions of certification. All requests for informal investigations shall be made to the designated CPM.

Upon receipt of a request for informal investigation, the CPM shall promptly notify the project owner of the allegation by telephone and letter. All known and relevant information of the alleged noncompliance shall be provided to the project owner and to the Energy Commission staff. The CPM will evaluate the request and the information to

determine if further investigation is necessary. If the CPM finds that further investigation is necessary, the project owner will be asked to promptly investigate the matter and within seven (7) working days of the CPM's request, provide a written report of the results of the investigation, including corrective measures proposed or undertaken, to the CPM. Depending on the urgency of the noncompliance matter, the CPM may conduct a site visit and/or request the project owner to provide an initial report, within forty-eight (48) hours, followed by a written report filed within seven (7) days.

Request for Informal Meeting

In the event that either the party requesting an investigation or the Energy Commission staff is not satisfied with the project owner's report, investigation of the event, or corrective measures undertaken, either party may submit a written request to the CPM for a meeting with the project owner. Such request shall be made within fourteen (14) days of the project owner's filing of its written report. Upon receipt of such a request, the CPM shall:

1. immediately schedule a meeting with the requesting party and the project owner, to be held at a mutually convenient time and place;

2. secure the attendance of appropriate Energy Commission staff and staff of any other agency with expertise in the subject area of concern as necessary;

3. conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner; and,

4. after the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance and to the project file, a summary memorandum which fairly and accurately identifies the positions of all parties and any conclusions reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230 et. seq.

FORMAL DISPUTE RESOLUTION PROCEDURE-COMPLAINTS AND INVESTIGATIONS

If either the project owner, Energy Commission staff, or the party requesting an investigation is not satisfied with the results of the informal dispute resolution process, such party may file a complaint or a request for an investigation with the Energy Commission's General Counsel. Disputes may pertain to actions or decisions made by any party including the Energy Commission's delegate agents. Requirements for complaint filings and a description of how complaints are processed are in Title 20, California Code of Regulations, section 1230 et. seq.

The Chairman, upon receipt of a written request stating the basis of the dispute, may grant a hearing on the matter, consistent with the requirements of noticing provisions. The Commission shall have the authority to consider all relevant facts involved and make any appropriate orders consistent with its jurisdiction (Title 20, California Code of Regulations, sections 1232 - 1236).

POST CERTIFICATION CHANGES TO THE COMMISSION DECISION: AMENDMENTS, INSIGNIFICANT PROJECT CHANGES AND VERIFICATION CHANGES

The project owner must petition the Energy Commission, pursuant to Title 20, California Code of Regulations, section 1769, to 1) delete or change a condition of certification; 2) modify the project design or operational requirements; and 3) transfer ownership or operational control of the facility.

A petition is required for **amendments** and for **insignificant project changes**. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to the Commission's Docket in accordance with Title 20, California Code of Regulations, section 1209.
The criteria that determine which type of change process applies are explained below.

AMENDMENT

A proposed change will be processed as an amendment if it involves a change to the requirement or protocol (and in some cases the verification) portion of a condition of certification, an ownership or operator change, or a potential significant environmental impact.

INSIGNIFICANT PROJECT CHANGE

The proposed change will be processed as an insignificant project change if it does not require changing the language in a condition of certification, have a potential for significant environmental impact, and cause the project to violate laws, ordinances, regulations or standards.

VERIFICATION CHANGE

The proposed change will be processed as a verification change if it involves only the language in the verification portion of the condition of certification. This procedure can only be used to change verification requirements that are of an administrative nature, usually the timing of a required action. In the unlikely event that verification language contains technical requirements, the proposed change must be processed as an amendment.

KEY EVENT LIST

PROJECT: _____

DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

EVENT DESCRIPTION	DATE
Certification Date	
Online Date	
POWER PLANT SITE ACTIVITIES	
Start Site Mobilization	
Start Ground Disturbance	
Start Rough Grading	
Start Construction	
First Combustion of Gas Turbine	
Start Commercial Operation	
Complete All Construction	
TRANSMISSION LINE ACTIVITIES	
Start T/L Construction	
SYNCHRONIZATION WITH GRID	
COMPLETE T/L CONSTRUCTION	
FUEL SUPPLY LINE ACTIVITIES	
Start Fuel Supply Line Construction	
COMPLETE FUEL SUPPLY LINE CONSTRUCTION	
WATER SUPPLY LINE ACTIVITIES	
START WATER SUPPLY LINE CONSTRUCTION	
COMPLETE WATER SUPPLY LINE CONSTRUCTION	

GWF TRACY POWER PROJECT
PREPARATION TEAM

Executive Summary.....Cheri Davis

Introduction.....Cheri Davis

Project Description.....Cheri Davis

Air Quality ..... William Walters and Lisa Blewitt

Biological Resources ..... Natasha Nelson and Nick Kautzman

Cultural Resources ..... Caprice (Kip) Harper and Gary Reinoehl

Hazardous Materials and Worker Safety/Fire Protection .....Alvin Greenberg, Ph.D.

Land Use..... Negar Vahidi and Eileen Allen

Noise and Vibration ..... Fred Greve

Public Health .....Alvin Greenberg, Ph.D.

Socioeconomics .....Sally Salavea

Soil and Water Resources.....Phillip Lowe, P.E. and Richard Latteri

Traffic and Transportation..... David Young

Transmission Line Safety and Nuisance..... Obed Odoemelam, Ph.D.

Visual Resources ..... Joe Donaldson

Waste Management.....Alvin Greenberg, Ph.D.

Facility Design.....Shahab Khoshmashrab/Al McCuen/Steve Baker

Geology and Paleontology .....Neal Mace

Power Plant Efficiency.....Steve Baker

Power Plant Reliability.....Steve Baker

Transmission System Engineering.....Richard Minetto, P.E. and Ajoy Guha, P.E.

Compliance Monitoring and Facility Closure..... Christian Huntley

Project Assistant .....Pat Owen/Luz Manriquez

Support Staff .....Raquel Rodriguez, Michelle Cox, Adrian McCullough/Angie Hockaday