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Panoche Energy Center

06-AFC-5C

Petition to Amend
Final Commission Decision

Submitted to:
California Energy Commission

Submitted by:
PANOCHE ENERGY CENTER, LLC

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APPENDICES

APPENDIX A LAND USE

1.0 SECTION SUMMARY OF AMENDMENT

Panoche Energy Center, LLC (PECL) files this Petition to Amend (Petition) the California Energy Commission's (CEC) December 19, 2007 Final Decision approving the Application for Certification (AFC) for the Panoche Energy Center (PEC). The PEC Final Decision was previously modified through PECL's first petition to amend dated October 2008. A second petition to amend the Final Decision was submitted in September 2009 and consists of wastewater disposal changes that included the addition of wastewater surface impoundments to dispose of wastewater by percolating it into an underlying highly degraded and unusable aquifer. The 2009 Petition remains under review by CEC staff.

This current Petition does not seek to undo what was proposed in the September 2009 Petition; rather, it is intended to serve as an alternative solution should the wastewater surface impoundments be approved but not be built. Thus, PECL is not seeking to replace or rescind the September 2009 Petition and urges CEC Staff to continue to act on that Petition. This Petition focuses on several urgent and necessary modifications to the project that will resolve wastewater disposal difficulties encountered during project operations. The proposed changes in this Petition are hereinafter referred to as "Enhanced Wastewater System". This Petition sets forth an environmental analysis of the proposed Enhanced Wastewater System to the extent they expand the environmental effects of PEC beyond the existing approved project. The Petition also evaluates compliance with laws, ordinances, regulations and standards (LORS) and the cumulative environmental effects of PEC with the proposed changes. As part of this evaluation, PEC Conditions of Certification (COCs) were reviewed and, where necessary, proposed changes to affected COCs are also included.

1.1 PROPOSED CHANGES

1.1.1 Existing Conditions

The 400 megawatt (MW) simple-cycle PEC attained full commercial status on July 1, 2009. PECL was permitted to design, construct and operate six wastewater injection wells. Of this, four wells have been constructed and are in operation. However, PEC operators encountered difficulties with the injection wells' ability to accept discharged wastewater at flow rates during peak summer load. Specifically, none of the four operating injection wells have the demonstrated capacity to accept peak full summer load wastewater flow rates as they were designed, permitted, and built.

In June 2014, in an effort to diminish the problem with the injection wells, PECL implemented a temporary treatment system to reduce the overall wastewater volume injected into the deep well reservoir. The temporary water treatment system currently in use utilizes multi-media filtration, followed by reverse osmosis (RO) treatment units and mixed-bed ion exchange vessels. The temporary treatment system is connected to the facility with above grade temporary piping. In addition, storage of wastewater is provided by sixty 18,000 gallon temporary water storage trailers, all connected upstream of the temporary treatment system.

While it is not clear why the injection wells have not achieved their predicted and designed functionality, their condition cannot be assured and they must be presumed to be unreliable in the future. Further, the current temporary treatment system is only a temporary measure to assure PEC can continue to operate with reduced injection well flow rates. The purpose of this Petition is to obtain changes to the project to allow a better, permanent means of managing wastewater. Due to the above circumstances, PECL conducted a careful evaluation of alternatives and now urgently seeks approval for modifications to its operational effluent system. Specifically, PECL proposes to construct and operate up to three new permanent wastewater storage tanks and associated permanent wastewater treatment equipment as part of the project. As noted above, such changes are referred to herein as "Enhanced Wastewater System."

1.1.2 Proposed Changes

As explained in detail in Section 3.0 *Overview of Changes*, PECL proposes to construct and operate three new permanent storage tanks and a new stand-by wastewater treatment facility which would provide flexibility to regulate and control the rate of wastewater injection. As explained in Section 3.0 *Overview of Changes* and analyzed in Section 5.0 *Environmental Information*, the proposed changes will have no significant adverse effect on the environment. PEC, as modified, will operate in full compliance with all applicable LORS. A summary of the changes and their effects follows:

- Three new permanent storage tanks and new permanent wastewater treatment facility will be constructed entirely within a 3.5-acre portion of the former PEC construction laydown area.
- The temporary treatment system described in Section 1.1.1 will be removed and replaced by a permanent system that will be located within a 3.5-acre portion of the former construction laydown area.
- The proposed changes will not adversely affect visual, water supply, or other resource issue areas.
- Cultural, biological and agricultural issues were fully analyzed and mitigated as part of the original AFC proceeding and mitigation measures required by the existing Conditions of Certification address any potential impacts associated with the proposed changes.
- Reliability will be greatly improved by resolving the wastewater discharge issue.

1.2 CUMULATIVE IMPACTS

Section 5.0 *Environmental Information* of this Petition addresses each environmental area that may have potential impacts due to the proposed modifications. A cumulative impacts assessment is included within each issue area. The modifications discussed herein, however, will not result in significant, unmitigated cumulative impacts. Furthermore, the modifications discussed herein will not change the assumptions or conclusions made in the CEC's Final Decision.

1.3 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

The December 2007 Final Decision [and the October 2008 First Amendment and the September 2009 Second Amendment (pending approval)] concluded that PEC complied with all applicable LORS. As discussed in detail throughout Section 5.0 *Environmental Information*, the proposed modifications will not affect PEC's ability to comply with all applicable LORS.

2.0 SECTION CONSISTENCY WITH SECTION 1769

Title 20 of the California Code of Regulations, section 1769 (Section 1769) requires a discussion of a requested amendment's consistencies with requisite LORS and whether the requested modifications are based upon new information that changes or undermines the assumptions, rationale, findings, or other bases of a Final Decision. In addition, if a project is no longer consistent with its license, Section 1769 requires the applicant to provide an explanation as to why the modification should be permitted.

Pursuant to and consistent with Section 1769, this Petition provides a complete description of, and an explanation for, the proposed modifications, rationale for the proposed modifications, LORS compliance analysis, and any proposed changes to the COCs set forth in the Final Decision for PEC. Further, the analysis herein contains a discussion of the potential effect of the proposed modifications on nearby property owners, the public, and parties to this proceeding.

2.1 NECESSITY OF PROPOSED CHANGE

Sections 1769(a)(1)(B) and 1769(a)(1)(C) require a discussion of the necessity for the proposed modifications and whether such modifications are based on information known by PECL during the AFC proceeding. PECL's Petition is based upon new information, which was unknown to PECL during the AFC proceeding. Specifically, the new permanent wastewater storage tanks and stand-by wastewater treatment system are required to accommodate the inability of the underlying site geology to accommodate PEC's wastewater discharge via four operating injection wells. While reasonable surveillance and design efforts indicated that these wells and their geologic setting would receive all of PEC's wastewater - even under full load conditions - these wells are not capable of meeting the design and permitted discharge volumes at higher loads.

2.2 URGENCY AND NEED FOR PROMPT ACTION

While PEC has been able to meet operational obligations to date, the temporary solution in place is not reliable enough, nor economically viable, to suffice as a long term solution. Further, as this Petition demonstrates, the best alternative is to use the proposed new permanent wastewater storage tanks and new permanent wastewater treatment facility. PECL requests that this Petition be treated as not only necessary but urgent. It is imperative that a permanent solution be approved as soon as possible such that PEC can construct and operate the new Enhanced Wastewater System before the peak demand season of 2015.

3.0 SECTION OVERVIEW OF CHANGES

3.1 INTRODUCTION

The proposed Enhanced Wastewater System (proposed changes) is necessary to provide for reliable disposal of PEC wastewater. This Petition seeks a solution to the inadequate performance of the four onsite wastewater injection wells. PEC is a 400 MW simple-cycle power plant that became fully commercial on July 1, 2009. Originally, only two injection wells were believed to be necessary to accommodate all of PEC's wastewater. As the original two injection wells were placed into service, they were deemed to be under-performing on a flow-rate basis. Two additional injection wells were subsequently constructed and also placed into service. The latter two injection wells also failed to meet design injection capacity. While the CEC Final Decision allows for up to six injection wells, it is clearly evident that the underlying geology will not accommodate the required wastewater flow rates. Therefore, alternatives to additional injection wells were evaluated, both within this Petition as well as in the pending September 2009 Petition, and the proposed Enhanced Wastewater System is currently the most efficient alternative for providing a reliable option for wastewater disposal during the 2015 peak season should the performance of the injection wells continue to decline and the September 2009 Petition changes are not approved and/or implemented within a timely fashion.

The proposed Enhanced Wastewater System would be located on the same 22-acre parcel as the PEC facility. The PEC facility currently occupies approximately 12.82 acres of the 22-acre site, and the Enhanced Wastewater System would be constructed and operated in an area that was previously used during the PEC construction for equipment staging and laydown. The proposed changes would increase the project facility's existing 12.82-acre permanent footprint to add a 3.5-acre portion of the former laydown area. The proposed changes will accommodate 100% of the hourly, daily, and annual wastewater discharges, while promoting an element of redundancy and maintenance capability. This will ensure full capacity and reliability of PEC's 400 MW rating. The existing, degraded injection wells will be retained as the primary wastewater disposal method to the extent they remain functional.

3.2 ENHANCED WASTEWATER SYSTEM LOCATION

The proposed changes will be located on the same parcel (Assessor Parcel Number 027-060-815) as the existing PEC facility, and will be adjacent to the south of the existing facility. The parcel is located in a rural area of Fresno County, California, generally southeast of the intersection of West Panoche Road and Davidson Avenue (Site). The nearest city is Mendota, approximately 16 miles to the northeast. Interstate 5 (I-5) is approximately 1.5 miles west and the California Aqueduct is approximately three miles to the east. Agricultural uses are prevalent throughout the vicinity of the site, including the cultivation of pomegranates, almonds, grapes, and field crops. Industrial uses in the vicinity include the existing PG&E Substation, the Starwood Power Generation Station, the Calpeak Plan Check Power Generation Facility, and the Wellhead Power Generation Facility. Specifically, the Site is located in Township 15 South, Range 13 East (Mount Diablo Baseline Meridian).

3.3 SITE DESCRIPTION

The Site is located in an agricultural area surrounded by grape vines and almond trees. Power line easements are located along the northern and western boundary (refer to Figure 3.2-1 *General Project Vicinity*). The surface is composed of sands, silts, and clays common to alluvial fan deposits in the area with generally loose and dry soils.

3.3.1 Topography

The Site is essentially flat with a slight slope downward toward the northeast. The elevation of the Site vicinity is approximately 420-feet above mean sea level and slopes gently down to the northeast at approximately one percent grade. The existing grade does not differ from that described in the September 2009 Petition.

3.3.2 Geologic Setting and Seismology

The Site is located in the western San Joaquin Valley within the Central Valley, also known as the Great Valley geomorphic province. More specifically, the Site is located southeast of Panoche Creek on the Panoche Creek alluvial fan. The fan is one of a belt of coalescing alluvial fans 12 to 19 miles wide, and located in the east flank of the Coast Ranges between the flood plains of the San Joaquin River and Fresno Slough in the trough of the valley to the northeast and the foothills of the Coast Range to the southwest. The geologic setting and seismology would not differ from that of the adjacent approved PEC. Section 5.3 *Geologic Hazards and Resources* of this Petition discusses geology and seismology in greater detail.

3.3.3 Hydrological Setting

The western San Joaquin Valley can be characterized as semi-arid. The valley experiences long, hot, dry summers and relatively mild winters. The average annual temperature is 63.2 degrees Fahrenheit and average annual precipitation is 11.23 inches. The hydrological setting is the same as the approved PEC site.

3.4 DESCRIPTION OF PROPOSED CHANGES

The proposed changes consist of enhanced design measures to accommodate and secure the operational capacity of the existing PEC wastewater injection process. PECL proposes to install three (3) storage tanks, ranging from 250,000 gallons to 500,000 gallons, which would reduce the wastewater injection rate into the deep well reservoir (refer to Figure 3.4-1). The storage tanks would be able to temporarily store wastewater during operational periods where the net wastewater production exceeds the injection well capacity (approximately 250 gallons per minute [gpm]), where the excess wastewater would be stored for later injection wastewater production levels decline. Additionally, the proposed changes include construction and operation of a permanent stand-by treatment system, which would be used to recover water from the PEC facility wastewater stream to be reused in the PEC process water flow. Use of this equipment would require installation of a new electrical supply, modification of existing site piping, conveyance pipelines, pumping capacity to fill new tank storage, and modifications to the site monitoring and control system.

The dimensions of the Enhanced Wastewater System structures are as follows:

- 500,000-gallon Blowdown Collection Tank: 60 feet diameter by 24 feet high;
- 500,000-gallon Wastewater (RO Reject) Collection Tank: 60 feet diameter by 24 feet high;
- 25,000-gallon Permeate Collection Tank: 48 feet diameter by 20 feet high; and
- Enhanced Wastewater System Building: Approximately 120 feet long by 70 feet wide and approximately 20 feet high.

3.4.1 Overview

PEC is proposing the installation of an Enhanced Wastewater System consisting of up to three storage tanks, a permanent stand-by treatment system, and associated ancillary equipment. The proposed changes will be situated on a portion of the same 22-acre parcel as the existing PEC facility, and would be located adjacent to and south of the existing plant footprint on the former laydown area, as previously discussed. During construction of the PEC the laydown area was previously disturbed and cleared of vegetation. This Petition involves expanding the permanent PEC site to include a 3.5-acre portion of the former laydown area for the proposed changes, i.e. adding three storage tanks, permanent stand-by wastewater treatment system, and associated ancillary equipment, as presented on Figure 3.4-1, *Project Site Plan*.

Wastewater will be transferred from PEC cooling towers to the new permanent storage tanks and then to the new permanent wastewater treatment facility when necessary. The pipelines from the cooling towers to the new permanent storage tanks and wastewater treatment facility will either be above grade or below grade. If the pipelines are located below grade, minor trenching will be required. The new permanent storage tanks range in size from 250,000 to 500,000 gallons. Maximum diameter of the storage tanks will be approximately 60 feet, and maximum height will be approximately 24 feet. The enhanced wastewater system will be housed within a building and be sized approximately 120 feet long by 70 feet wide and approximately 20 feet high. The Enhanced Wastewater System would be constructed on a concrete foundation and only minor site leveling would be required for the system construction.

The Enhanced Wastewater System will have security fencing that will be consistent with and integrated into the existing PEC site security fence.

The proposed changes will increase the operational reliability of the PEC facility, and would increase the facility water efficiency, while decreasing source water consumption.

3.4.2 Site Access

Access to the Enhanced Wastewater System would remain the same as access to PEC. The main corridor of travel to access the site would continue to be along I-5 and West Panoche Road, with the existing site entrance gate located on Davidson Road.

3.4.3 Site Layout

The site layout showing the proposed changes is presented on Figure 3.4-1, *Project Site Plan*. Implementation of the changes discussed in this Petition will be situated on 3.5 acres of the former laydown area within the PEC parcel, and would be located adjacent to and directly south of the PEC project. The 12.82-acre previously approved PEC project site will be modified to add a 3.5-acre portion of the former laydown area.

3.4.4 Power Plant Cycle

The changes discussed in this Petition would not affect the previously approved PEC power plant cycle.

3.4.5 Major Electrical Equipment and Systems

The Enhanced Wastewater System would not affect major electrical equipment and systems of the previously approved PEC.

3.4.6 Fuel Gas System

The Enhanced Wastewater System would not affect fuel gas systems as compared with the previously approved PEC project.

3.4.7 Water Supply and Treatment

The Enhanced Wastewater System would not affect the PEC water supply and treatment processes previously analyzed and approved in the Commission Decision.

3.4.8 Wastewater Management

The principal wastewater management change sought in this Petition involves routing the wastewater, either in part or in total, to the new permanent storage tanks prior to treatment and injection. The new water treatment system returns treated water back to the cooling tower for additional cooling cycles thus reducing the demand for pumped groundwater and reducing the volume of reject water sent to the injection wells.

Operationally, the Enhanced Wastewater System would not result in changes to the PEC Final Decision assumptions and COCs.

3.4.9 Solid Waste Management

Building the new permanent wastewater storage tanks and new permanent wastewater treatment facility would result in construction waste including packing materials; excess construction materials including paper, wood, metal, wires, or other basic building materials; temporary weather covers; consumable abrasives; cutting tools; broken tools; parts and electrical and electronic components; construction equipment maintenance materials; empty containers; and other solid waste and typical refuse generated by construction crews.

Solid waste will be segregated and recycled where practical. Non-recyclable waste will be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill. Some hazardous wastes, such as welding materials

and dried paint, may be generated during construction. Hazardous materials would be handled and disposed of in accordance with applicable LORS. Hazardous wastes will be recycled or disposed of in a licensed Class I disposal facility, as appropriate.

3.4.10 Management and Disposal of Hazardous Material and Hazardous Waste

The Enhanced Wastewater System would not result in any affective changes on the generation, management and disposal of hazardous materials and hazardous wastes as compared to the previously approved PEC project.

3.4.11 Emissions Control and Monitoring Equipment

In the operations phase, the Enhanced Wastewater System would not affect PEC emissions generation or control, nor would it require additional monitoring equipment.

3.4.12 Fire Protection System

The Enhanced Wastewater System would not affect PEC fire protection systems.

3.4.13 Plant Auxiliaries

The Enhanced Wastewater System would not affect PEC plant auxiliaries.

3.4.14 Heating, Ventilation, and Air Conditioning

The Enhanced Wastewater System would not affect heating, ventilation, or air conditioning as addressed for the previously approved PEC project.

3.4.15 Plumbing

The Enhanced Wastewater System would not affect plumbing as addressed for the previously approved PEC project.

3.5 CIVIL/STRUCTURAL FEATURES

The following section describes the buildings, structures, and other civil/structural features that will be constructed as part of the Enhanced Wastewater System.

3.5.1 Overview

Construction would begin with minor grading of the 3.5-acre portion of the former laydown area which comprises the Enhanced Wastewater System project Site area. A Drainage, Erosion and Sediment Control Plan would be implemented to establish proper drainage and sediment control of the project Site area. Minor grading activities associated with construction of foundations would result in minor volumes of cut, which would be balanced onsite. Underground piping would require excavation of trenches approximately 3 feet deep and 2 feet wide. Once the underground piping is installed, the trenches would be backfilled and compacted with native soils. Any excess soil will be spread onsite and compacted. The temporary laydown area for this work will be located both within the southern portion of the existing PEC site footprint and within the 3.5-acre additional project area. No additional land offsite will be required.

3.5.2 Stacks

The Enhanced Wastewater System would not result in the construction of additional stacks.

3.5.3 Buildings

The Enhanced Wastewater System would result in the construction of a wastewater treatment facility that will be approximately 120 feet long by 70 feet wide and 20 feet high and will be housed within a building.

3.5.4 Transformer Foundations and Fire Walls

The Enhanced Wastewater System would not result in the construction or installation of additional transformer foundations or fire walls.

3.5.5 Yard Tanks

The new permanent storage tanks range in size from 250,000 to 500,000 gallons in storage capacity. Maximum diameter of the storage tanks will be approximately 60 feet. Materials for the wastewater tanks will be delivered to the PEC site partially assembled. Completion of assembly will occur within the proposed project site.

3.5.6 Roads

The Enhanced Wastewater System would not result in the construction of additional roads or result in the improvement of any existing roads from those identified and previously approved for PEC.

3.5.7 Site Security Fencing

During construction and following initial excavation, a security fence would be erected around the perimeter of the Enhanced Wastewater System area. The security fencing will be integrated into the existing PEC fence to form one continuous fence line and secured area.

3.5.8 Site Grading and Drainage

Site grading and drainage will be in accordance with the modified Site Drainage, Erosion and Sediment Control Plan (per existing condition SOIL&WATER-2).

3.5.9 Site Flood Issues

The Site is located in the Westside Sub-Basin of the San Joaquin Valley Groundwater Basin. Aquifers underlying the site include a lower confined zone and an upper semi-confined zone that is separated by the Corcoran Clay of the Tulare Formation. Due to this low groundwater table and nature of the alluvial deposits, the potential for liquefaction to occur is considered remote. A shallow unlined ditch north of the site is included within the special flood hazard area inundated by the 100-year flood with no base flood elevation determined by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map. Furthermore, the Site is generally located within areas determined to be outside the 500-year floodplain.

3.5.10 Sanitary System

The Enhanced Wastewater System would not result in the construction or installation of a new sanitary system or modification of the PEC septic system.

3.5.11 Earthwork

The Site consists of a 3.5-acre portion of the former laydown area of land that is entirely within the previously approved PEC laydown area. No excavation will be required for the Enhanced Wastewater System. Only minor grading will be required for the installation of the concrete foundation and to establish proper drainage. A new or modified Stormwater Pollution Prevention Plan (SWPPP) would be used during construction of the new Enhanced Wastewater System (per existing condition SOIL&WATER-1). No offsite soil removal or disposal will be required for the Enhanced Wastewater System.

3.6 ELECTRICAL INTERCONNECTION

No changes to the PEC interconnection with PG&E's Panoche Substation are sought via this Petition.

3.7 PIPELINE

The Enhanced Wastewater System would result in the installation of pipelines to incorporate the wastewater storage tanks and stand-by wastewater treatment system into the PEC wastewater system. The proposed changes include the following pipeline conveyances:

- Cooling Tower to Blowdown Storage Tank;
- Blowdown Storage Tank to Treatment System;
- Treatment System to Wastewater Storage Tank;
- Wastewater Storage Tank to Injection Wells;
- Treatment System to Permeate Storage Tank; and
- Permeate Storage Tank to Cooling Tower.

The underground pipelines would be constructed within a 2-foot wide and 3-foot deep trench during construction.

3.7.1 Natural Gas Supply Line

The Enhanced Wastewater System would not result in the construction of or installation of natural gas supply lines.

3.8 CONSTRUCTION

The Enhanced Wastewater System would not affect construction of the previously approved PEC. Construction of PEC was completed in July 2009. Construction of the Enhanced

Wastewater System is projected to begin in early 2015 and last for approximately 14 weeks. The workforce will vary depending on the month of construction and weather conditions. Major construction activities would include site preparation and minor grading, trenching for underground pipelines, installation of equipment, erection of above grade storage tanks and a structure to house treatment equipment.

3.8.1 Power Plant Facility

The Enhanced Wastewater System would not affect the previously approved PEC power plant facility.

3.9 OPERATIONS AND MAINTENANCE

3.9.1 Introduction

This section discusses the operation and maintenance procedures that will be followed to ensure safe, reliable, and environmentally acceptable operation of the Enhanced Wastewater System.

3.9.2 Power Plant Facility

The Enhanced Wastewater System would not affect the previously approved PEC facility operations or maintenance activities.

3.9.3 Transmission System Operation and Maintenance

The Enhanced Wastewater System would not affect the previously approved PEC transmission system operations or maintenance activities.

3.9.4 Pipelines

The Enhanced Wastewater System would result in the installation of pipelines that will route wastewater from PEC cooling towers to the new permanent storage tanks and new permanent wastewater treatment facility. Pipelines will be primarily below grade with above grade connections. If the pipelines are located below grade, minor trenching will be required.

3.10 FACILITY CLOSURE

The Enhanced Wastewater System would not be adversely affected by the temporary or permanent closure of the previously approved PEC facility.

3.10.1 Temporary Closure

The Enhanced Wastewater System would not be adversely affected by the temporary closure of the previously approved PEC facility.

3.10.2 Permanent Closure

The Enhanced Wastewater System would not be adversely affected by the permanent closure of the previously approved PEC facility.

3.10.3 Closure Mitigation

The Enhanced Wastewater System would not affect closure mitigation of the previously approved PEC.

3.11 SAFETY, AVAILABILITY, AND RELIABILITY

The Enhanced Wastewater System would not negatively affect the safety or availability of the previously approved PEC project. Rather, construction and use of the Enhanced Wastewater System would increase electrical reliability and capacity by ensuring proper disposal of project wastewater.

3.11.1 Safety Precautions and Emergency Systems

The Enhanced Wastewater System would not affect the safety precautions or emergency systems being implemented as part of the design and construction of the previously approved PEC.

3.11.2 Aviation Safety

The Enhanced Wastewater System would not affect aviation safety of the previously approved PEC.

3.11.3 Transmission Line Safety and Nuisance

The Enhanced Wastewater System would not adversely affect transmission line safety or create nuisance beyond those currently experienced in the area.

3.11.4 Facility Availability

The Enhanced Wastewater System would not negatively affect the availability, operating life, or service factor of the previously approved PEC facility.

3.11.5 Equipment Reliability and Redundancy

The Enhanced Wastewater System would have a positive effect on power generation reliability and availability by ensuring wastewater disposal capacity.

3.11.6 Power Plant Performance Efficiency

The Enhanced Wastewater System would not affect the performance or efficiency of the previously approved PEC.

3.11.7 Fuel/Water Availability

The Enhanced Wastewater System would not change the fuel or water use for the previously approved PEC.

3.11.8 Quality and Control

The general contractor, the design-engineer contractor, and all significant vendors, suppliers, and subcontractors for the Enhanced Wastewater System would be required to develop a specific quality program prior to beginning work. Each program would define quality goals, processes to

measure events, and incentive programs. Quality standards would include safety and environmental compliance objectives.

3.12 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

The applicable LORS are included for each technical discipline in their respective sections within this Petition.

4.0 SECTION ALTERNATIVES

Title 20 California Code of Regulations requires an applicant to discuss "the range of reasonable alternatives to the project, including the no project alternative…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, and an evaluation of the comparative merits of the alternatives."

The proposed Enhanced Wastewater System consists of the development and use of new permanent wastewater storage tanks and new permanent wastewater treatment facility, designed to accommodate PEC's process wastewater. The new permanent wastewater storage tanks and wastewater treatment facility would be built in the former PEC laydown area. Alternative (or additional) water sources were evaluated as part of the overall wastewater alternative screening process, but none of the wastewater options that involved changes to the water supply were deemed "reasonable." As proposed herein, the proposed changes will not cause PEC to increase its maximum annual source water use. Given this, each of the "reasonable" alternatives discussed herein assumes a baseline condition that PEC will continue to rely on its onsite production wells as its source of water.

Before describing individual Alternatives, below is a list of the basic conditions and notions from which PECL based their consideration of whether an alternative is "reasonable":

1. Annual withdrawal volume from PEC's production wells will not increase beyond that of the original AFC.

2. Use of land that includes the former laydown area is preferred, as this will minimize environmental impacts compared to using non-adjacent land resources, including agricultural land.

3. Any load-consuming increases should not be beyond those specified in the Power Purchase Agreement. This supports the overall relatively high energy efficiency and availability the facility affords, and ensures that power plant efficiency is not adversely affected.

4. Minimize new linear components such as pipelines that entangle need for easements, land use rights, and that would increase the disturbance of agricultural land and environmental effects.

5. Continue use of PEC's current water source (onsite wells).

6. Support implementation before the next load demand season begins in May of 2015.

4.1 NO PROJECT ALTERNATIVE

If these changes are not made, the goals and objectives expressed and authorized under the Final Decision would not be met. Without a wastewater alternative to provide onsite storage capacity

to facilitate continued use of the injection wells, PEC would not be able to reliably produce electricity according to its Power Purchase Agreement with PG&E. Moreover, the project could cease to provide much-needed power and other benefits, both locally and regionally.

4.2 ALTERNATIVE SITE LOCATIONS

PECL considered the environmental impacts of various site locations associated with the reasonable wastewater disposal alternatives set forth herein. Aside from the "no project alternative" all of the reasonable wastewater disposal alternatives would require additional land to that originally permitted for the operation of PEC. Generally, adjacent or nearby sites offer clear advantages over remote sites. The 7.18-acre existing PEC laydown area offers the best, or baseline, site due to its proximity to the wastewater source and because this area has already been disturbed and mitigated for environmental impacts.

4.3 ALTERNATE PROJECT CONFIGURATIONS

PEC consists of four General Electric LMS100 combustion turbines that supply power to meet the requirements of a power purchase agreement between PEC and PG&E. This agreement binds PECL to certain energy conversion standards of efficiency, reliability and availability. Configurations to the wastewater process cannot conflict with this contractual obligation.

4.4 ALTERNATE LINEAR ROUTES

Linears introduce the potential for additional environmental impacts, costs and energy consumption. In solving its wastewater disposal issues, PECL was hopeful to not introduce any new linears. The changes, as proposed, included slightly expanded wastewater pipelines all within the existing PEC site.

4.5 ALTERNATE TECHNOLOGIES

PECL considered all available and practical water treatment and wastewater technologies, ranging from energy-intensive zero liquid discharge (ZLD) to low energy evaporation ponds and onsite wastewater storage tanks to provide onsite storage capacity to facilitate continued use of the injection wells.

4.6 WASTEWATER DISPOSAL ALTERNATIVES

4.6.1 Unreasonable or Unavailable Alternatives

PEC has investigated numerous wastewater disposal alternatives. The alternatives listed below were dismissed as being unreasonable or unavailable, as specifically discussed in the following subsections.

- Pumping or trucking wastewater to a wastewater treatment plant (WWTP)
- Discharging wastewater to a brine line to Pacific Ocean
- Adding injection wells
- Changing the production water source (i.e., WWTP effluent, aqueduct water, agricultural irrigation tail water)

- Discharging to a nearby water body
- Regenerating deionizer systems offsite
- Zero liquid discharge (ZLD)

4.6.2 Pumping or Trucking Wastewater to a WWTP

Sending PEC's wastewater to a local WWTP is unreasonable mainly because of prohibitive water quality issues. WWTP discharge permits do not allow for increases in electrical conductivity (eC) of the facility's discharge that is greater than 500 micromhos per centimeter (µΩ/cm) above incoming WWTP water quality. Incoming water to Westside Central Valley WWTPs is typically near their regulatory eC limit, so taking large volumes of higher eC PEC wastewater would put these plants over their permitted discharge limit.

4.6.3 Discharging Wastewater to a Brine Line to Pacific Ocean

There is no existing or planned brine line (to the Pacific Ocean) in close proximity to the PEC facility. Since the Pacific Ocean is over 68 miles from the site, building and using such a dedicated brine line is economically prohibitive, and would take several years to permit and construct.

4.6.4 Adding Injection Wells

PEC originally thought that two injection wells would be sufficient to handle the maximum permitted wastewater volumes. The construction and commissioning of an additional two wells has provided PEC with further evidence that this technology is not suited for its wastewater disposal needs due to unfavorable geological conditions.

4.6.5 Changing the Production Water Source

As noted above, reliance on water cooling is essential in maximizing the project's electrical output and efficiency. To meet energy requirements of its power sales agreement, PEC must continue to rely on water for cooling the gas turbines. Alternative water sources were considered in an effort to improve the wastewater quality beyond what is presently permitted and produced. Beyond the groundwater currently used, there are two types of water sources near PEC: (1) WWTP effluent, and (2) state and federal aqueduct water. State Water Policy 75-58 effectively prohibits the use of aqueduct water for power plant cooling, so this water option was dismissed. Several WWTPs within a 45-mile radius of PEC were evaluated. Aside from the prohibitive costs associated with constructing and operating a long water pipeline, the limiting factor for dismissing this water source was the relatively high total dissolved solids (TDS), silica, and other constituents found in the WWTP effluent. These high concentrations did not provide significant improvements to projected wastewater quality when compared to the existing onsite wells. As a result of this lack of suitable water source alternatives, none of the "reasonable" wastewater alternatives (as described below in Section 4.7) involved changes to the existing water source.

4.6.6 Discharging to a Nearby Water Body

When considering the potential to discharge to a water body, i.e., "waters of the U.S.," regulations effectively require that the receiving stream is sufficiently voluminous and the wastewater is sufficiently low in solids to ensure that there are no significant "loading" impacts to the receiving water body. In PEC's case, there are no receiving water bodies in close

proximity to the facility that would promote this opportunity. In addition, discharging to a nearby water body would require the approval of the local Regional Water Quality Control Board and the Board's adoption of an NPDES permit with discharge limitations prior to commencement of such discharge, which also would not be possible to receive within the timeframe required for a wastewater discharge alternative being in place prior to the 2015 peak demand.

4.6.7 Regenerating Deionizer Systems Offsite

This is a technically available option, but it is too costly, being both economically infeasible and environmentally unsound. At full load, the project would require up to ten demineralizer trailer rigs be moved in and out of service per day. In addition, an offsite regeneration process of PEC's scale would impose environmental impacts associated with truck fuel use, air quality, greenhouse gas emissions, and traffic impacts, just to name a few. Further, the injection wells cannot be relied on in the long-term so this alternative does not meet reliability standards.

4.6.8 Zero Liquid Discharge

A ZLD system would require a parasitic electrical load that would consume roughly about 8% of the plant's gross power production due to the nature of forcing wastewater through membranes and then evaporating the membrane reject stream. ZLD processes require continuous, steady-state operation to prevent equipment fouling and to minimize power consumption. Thus, ZLD processes will not work reliably in a batch mode, as would be presented by PEC's "peaking" operations. If a ZLD system was used, PEC would not be able to reliably and efficiently produce electricity according to its power purchase agreement with PG&E. Further, a ZLD system would result in extremely high capital and O&M costs. In addition to reliability and costs prohibitions, and as a direct result of lowered energy conversion efficiency, more greenhouse gases (GHG or CO_2) would be generated on an electrical output basis. Under its current configuration, PEC produces about 1,100 pounds of CO_2 for each megawatt-hour of electricity. A ZLD system would increase CO_2 production for each megawatt-hour to 1,190 pounds, which at maximum operation would result in an additional 90,000 tons of CO_2 per year. Therefore, a ZLD system is considered an environmentally undesirable and economically unsound option for treating PEC's wastewater.

4.7 REASONABLE ALTERNATIVES

PEC considers the following Project Alternatives to be "reasonable":

- Double-lined evaporation pond(s)
- Onsite unlined wastewater surface impoundment(s)
- Onsite permanent wastewater storage tanks and permanent wastewater treatment facility

4.7.1 Double-Lined Evaporation Pond(s)

Discharge to a double-lined evaporation pond in accordance with Title 27 of the California Code of Regulations would require a total pond area of approximately 80 to 100 acres for the amount of wastewater PEC generates. The pond(s) would require periodic sediment cleaning and offsite disposal (likely as Class I or II waste). This would increase environmental impacts due to dust, traffic, greenhouse gas emissions, and use of landfill space. In addition, evaporation increases

the concentration of selenium in the pond water, which could create a potential threat to waterfowl. Lastly, preventing leakage over the 20-year projected lifespan of PEC would be extremely difficult for a double-lined pond of this size. At the end of the project life, the pond would need to be closed in accordance with Title 27 of the California Code of Regulations. A double-lined pond of this size would also have an extremely high capital cost (estimated to be $40 million). All of these factors make an 80 to 100-acre double-lined evaporation pond a highly impractical discharge alternative that is both environmentally undesirable and economically unsound.

4.7.2 Onsite Unlined Wastewater Surface Impoundment(s)

As described in the September 2009 Petition, there are no nearby surface receiving waters suitable for wastewater disposal, so discharge to an Unlined Wastewater Surface Impoundment(s) (UWSI) is the only practical surface discharge option. Reliance on UWSI would require fewer resources while promoting higher energy production efficiencies than any of the other alternatives. PECL has proposed to use two smaller ponds rather than a single large pond to afford good maintenance practices. The ponds will allow wastewater to percolate into the unusable upper semi-confined aquifer, which is of low water quality and is generally worse quality than the PEC wastewater. As evaluated in Section 5.5 *Water Resources* of the September 2009 Petition, this discharge will be compliant with LORS and not produce any significant adverse environmental impacts.

4.7.3 Onsite Permanent Wastewater Storage Tanks and Wastewater Treatment Facility

To provide an alternative to USWI described in the September 2009 Petition, PECL proposes to construct and operate three new permanent wastewater storage tanks and a new permanent wastewater treatment facility to provide onsite wastewater storage capacity to promote the continued use of the wastewater injection wells as the primary method of wastewater disposal for the PEC project. As evaluated in Section 5.0 of this Petition, the proposed Enhanced Wastewater System will be compliant with LORS and not produce any significant adverse environmental impacts.

In summary, and as set forth in the 2009 Petition, PECL has chosen the onsite unlined wastewater surface impoundments alternative as their primary alternative because it affords the best balance between minimizing environmental impacts and optimizing energy efficiency, reliability, and availability. However, as an alternative to constructing and operating the UWSI, PECL proposes to have the CEC approve the proposed Enhanced Wastewater System presented in this Petition as a viable wastewater discharge alternative to allow the continued use of the PEC injection wells until wastewater injection is no longer a viable means of wastewater disposal for the PEC project.

5.0 SECTION ENVIRONMENTAL INFORMATION

5.1 INTRODUCTION

This section presents a description of the affected environment, potential environmental consequences and potential cumulative impacts that are associated with the Enhanced Wastewater System, along with measures to mitigate or avoid adverse impacts as appropriate. Supporting information to determine compliance with applicable LORS is included within the discussion in each applicable section. A discussion of any changes or additions to the approved COCs is also included within each environmental resource section.

The environmental assessments presented in this section are meant to comply with CEC requirements, including those of the California Environmental Quality Act (CEQA). In general, each section follows the same format of presenting the affected environment and existing Site conditions, followed by the environmental consequences of the changes with measures to mitigate significant adverse impacts.

Information regarding the Enhanced Wastewater System location, site description, and a description of their changes are discussed in Sections 3.2 *Enhanced Wastewater System Location*, 3.3 *Site Description*, and 3.4 *Description of Proposed Changes* of this Petition.

5.2 AIR QUALITY

This Petition evaluates the effects on air quality due to the Enhanced Wastewater System construction.

5.2.1 Affected Environment

Please see the Air Quality section of the previously approved PEC AFC for a discussion of existing conditions in the vicinity of the PEC project site, which are identical for the Enhanced Wastewater System, except that construction of the PEC is now complete.

5.2.2 Environmental Consequences

In general, impacts associated with air quality due to the construction of the Enhanced Wastewater System are anticipated to be minor and short-term in nature. Emissions of PM_{10} and $PM_{2.5}$ would likely occur as a result of soil disturbance associated with construction activities, and movement of construction equipment. However, the use of water as a dust suppressant during construction activities and the subsequent application of acceptable soil stabilizing techniques would ensure that potential emissions are less than significant.

A small short-term increase in emissions of equipment and vehicle fuel combustion pollutants, including oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), volatile organic compounds (VOC) and particulate matter, both PM_{10} and $PM_{2.5}$, would occur during construction. Implementing reduced idling times for construction equipment and using ultra-low sulfur diesel fuel and properly tuned and maintained equipment will reduce fuel combustion

emission from these sources. Total construction emissions will be significantly less than the emissions from the construction associated with the currently operating PEC facility.

Once construction of the Enhanced Wastewater System is complete and the permanent wastewater treatment facility and wastewater storage tanks go into service, there would be minimal increases in emissions and air quality impacts compared to current operations. These incidental increases will result from a small number of vehicles and other mobile equipment that may be used for the operation and from periodic maintenance of the permanent wastewater facility and wastewater storage tanks. The operational phase will coincide with the plant operational phase. There will not be any significant increases in emissions during construction or over the life of the project.

The Enhanced Wastewater System construction would not change the existing air quality, meteorology, or topography beyond what was identified for the previously approved PEC. Hence, re-analyzing the existing plant's air quality and health risks as a result of construction and use of these changes is not necessary.

Projected emissions from the construction of the Enhanced Wastewater System were based on the following approximate 14-week construction schedule:

Table 5.2.1 Approximate Construction Schedule

Week Nos.	Phase	Activity
1-2	Civil	Site Preparation
2-6	Civil	Concrete Foundation Construction
6-12	Civil	Tank Erection
6-12	Civil, Mechanical, Electrical	Treatment System Installation
12-14	Start-up & Testing	Start-Up and Commissioning

Typical construction equipment for the level of effort needed to construct the Enhanced Wastewater System is summarized in Table 5.2-2.

Table 5.2-2 Equipment Required For Construction

Equipment	Use
Loader	Site grading
Compactor	Backfill of soils
Water truck	Dust and fire control
Dump trucks	Haul cut soils
Pickup trucks	Transport laborers
Backhoe	Trench construction
Concrete truck and pump	Concrete foundation construction

Air emissions associated with construction activities are temporary and will be mitigated according to the existing COCs.

It is expected that the maximum emission rates for construction of the Enhanced Wastewater System will be well below the corresponding maximum values for all pollutants that were approved for the substantially larger PEC construction effort. Thus, it is justifiable to assume that the worst-case construction scenario (the phase that creates the most pollutant emissions) remains the site grading activities associated with the approved PEC. Dispersion modeling to evaluate the Enhanced Wastewater System impacts would result in significantly lower predicted impacts than those already found to be acceptable in the previously approved PEC AFC.

5.2.3 Cumulative Impacts

There are no additional cumulative impacts caused by construction or operation of the Enhanced Wastewater System because of the short duration of construction and the operational permanent wastewater treatment facility and wastewater storage tanks will have negligibly small emissions of air pollutants.

5.2.4 Mitigation Measures – Emissions Offsets

The same construction mitigation measures described in the AFC Section 5.2 *Air Quality* of the previously approved PEC would apply to construction of the Enhanced Wastewater System. Emission Reduction Credits are not required by the San Joaquin Valley Air Pollution Control District (SJVAPCD) to mitigate the construction phase emissions. No air quality mitigation measures are required for the operational phase of the Enhanced Wastewater System, as there will be no stationary sources of emissions associated with their operation.

5.2.5 LORS Compliance

There are no additional LORS applicable to the Enhanced Wastewater System construction and operations beyond the LORS identified for the previously approved PEC AFC. The Enhanced Wastewater System will comply with all applicable LORS.

5.2.6 Involved Agencies and Agency Contacts

The contacts at air quality regulatory agencies for the Enhanced Wastewater System would be the same as those listed in the previously approved PEC AFC and amendments.

5.2.7 Permits and Permitting Schedule

The operational phase of the Enhanced Wastewater System will not require additional permits from SJVAPCD because there will be no associated stationary sources of air pollutants. However, the air quality construction mitigation plan and SJVAPCD dust control plan submitted for the previously approved PEC construction effort will be expanded to include the Enhanced Wastewater System or new plans specific to the Enhanced Wastewater System will be prepared.

5.2.8 References

There are no additional references.

5.2.9 Conditions of Certification

The COCs issued by the CEC as part of the previously approved PEC are applicable and sufficient to ensure that emissions from the Enhanced Wastewater System will remain below relevant significance levels. No new COCs pertaining to air quality are required for the Enhanced Wastewater System.

5.3 GEOLOGIC HAZARDS AND RESOURCES

5.3.1 Affected Environment

As discussed in Sections 3.2 *Enhanced Wastewater System Location* and 3.3 *Site Description*, the Enhanced Wastewater System is located within the existing PEC project laydown area and geologic hazards and resources are the same as those described in the PEC AFC. The Enhanced Wastewater System is located southeast of Panoche Creek on the Panoche Creek alluvial fan. The fan is one of a belt of coalescing alluvial fans 12 to 19 miles wide and located on the east flank of the Coast Ranges between the flood plains of the San Joaquin River and Fresno Slough. The Site is located near the head of the largest fans in the region, near its intersection with the smaller Tumey Gulch alluvial fan to the south. Elevations of the alluvial fans range from approximately 130 feet above mean sea level at the base to 900 feet above mean sea level at the apexes. The Site elevation is approximately 407 feet above mean sea level and the site is composed of older alluvium underlain by tertiary sediments, cretaceous marine deposits, and pre-tertiary basement rocks.

5.3.2 Environmental Consequences

No adverse effect on geological resources is expected from the Enhanced Wastewater System.

5.3.3 LORS Compliance

This section addresses LORS applicable to the Enhanced Wastewater System geologic hazards and resources. All applicable elements of the California Building Code, Chapters 16 and 33, are addressed in the approved PEC AFC. The Enhanced Wastewater System will comply with applicable geological hazards and resources LORS described in the previously approved PEC AFC.

5.3.4 References

There are no additional references.

5.3.5 Cumulative Impacts

No cumulative impacts on geologic hazards and resources are expected as a result of the Enhanced Wastewater System.

5.3.6 Conditions of Certification

No changes or additions to the COCs pertaining to geologic hazards and resources are required for the Enhanced Wastewater System.

5.4 AGRICULTURE AND SOILS

This section describes the affected environment and the environmental effects of the Enhanced Wastewater System on agriculture and soils in accordance with CEC requirements. As appropriate, agriculture and soils-related mitigation measures are also included in this section. The Enhanced Wastewater System will comply with applicable agriculture and soils LORS described in the AFC for the previously approved PEC.

5.4.1 Affected Environment

As discussed in Sections 3.2 *Enhanced Wastewater System Location* and 3.3 *Site Description*, the Enhanced Wastewater System will be located in a rural area of Fresno County, California, generally southeast of the intersection of West Panoche Road and Davidson Avenue. Agricultural uses are prevalent throughout the vicinity including the cultivation of pomegranates, almonds, grapes, and field crops. Few rural residences are also located in the vicinity. Industrial uses in the vicinity include the PG&E Panoche Substation, Starwood Power Generation Facility, the Calpeak Plan Check Power Generation Facility, and the Wellhead Power Generation Facility.

The Site is located entirely within the existing PEC laydown area in an agricultural area surrounded by grape vines and almond trees. The Site is essentially flat with a slight slope downward towards the northeast. The elevation of the vicinity is approximately 420-feet above mean sea level and slopes gently down to the southeast at approximately one percent grade. The surface is composed of sands, silts, and clays common to alluvial fan deposits in the area with generally loose and dry soils.

Soil Resources

The soil resources of the Enhanced Wastewater System are the same as those described in the previously approved AFC.

Soils are mapped and described as "soil series." The locations and properties of the soil series were identified from data and maps prepared by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (WSS). The Site has been disturbed through use as the PEC laydown area. Refer to 5.3 *Geological Hazards and Resources* for the characteristics of the subsurface soils.

Table 5.4-1 Soil Types in the Western Part of Fresno County (in Proximity to Project Site)

Map Unit Symbol	Map Unit Name
406	Guijarral Sandy Loam, 2 to 5 Percent Slopes
442	Panoche Clay Loam, 0 to 2 Percent Slopes
445	Excelsior Sandy Loam, 0 to 2 Percent Slopes
447	Excelsior Sandy Loam, Sandy Substratum, 0 to 2 Percent Slopes
477	Westhaven Clay Loam, 0 to 2 Percent Slopes
478	Cerini Sandy Loam, 0 to 2 Percent Slopes

Map Unit Symbol	Map Unit Name
479	Cerini Clay Loam, 0 to 2 Percent Slopes
491	Cerini Clay Loam, Subsided, 0 to 5 Percent Slopes
492	Panoche Loam, Subsided, 0 to 5 Percent Slopes
493	Panoche Clay Loam, Subsided, 0 to 5 Percent Slopes
590	Cerini-Anela-Fluvaquents, Saline-Sodic, Association, 0 to 2 Percent Slopes
960	Excelsior, Sandy Substratum-Westhaven Association, Flooded, 0 to 2 Percent Slopes
982	Water

The Site is located close to or within areas adjacent to the Diablo Range susceptible to near-surface subsidence due to hydrocompaction of soils. Near-surface subsidence produced by initial wetting of these soils has destroyed or damaged ditches, canals, roads, wells, pipelines, electric transmission towers, and buildings and has made the irrigation of crops difficult. The Site has been irrigated for agricultural use for many years and then was graded for use as the PEC laydown area, which lessens the likelihood of near-surface subsidence following the installation of the Enhanced Wastewater System.

Settlement can occur in poorly consolidated soils during ground shaking. Earthquake induced settlement can cause distress to structures supported on shallow foundations, damage to utilities that serve pile-supported structures, and damage to lifelines that are commonly buried at shallow depths. The presence of loose, unsaturated granular soil layers at the Site could result in some seismic-induced settlement that was taken into account during design.

The native soils present at the site consist of the Panoche Series. The Panoche Series soils typically slope at zero (0) to two (2) percent, with medium runoff. The Panoche Series soil in the Site is the Panoche clay loam, 0 to 2 percent slopes.

Panoche clay loam soils are categorized as Capability Unit Classification I, with Capability Subclass VIIc. There are no major limitations and few minor limitations for this soil. Permeability of this Panoche soil is moderate, with an available water capacity that is high or very high. Effective rooting depth is 60 inches or more. As stated, runoff is medium, and the hazard of water erosion is slight.

The surface layer is light brownish gray clay loam about seven inches thick. The upper nine inches of the subsoil is light brownish gray loam. The next 27 inches is light gray loam over 14 inches of light brownish gray loam. The lower part to a depth of 72 inches is light brownish gray sandy loam. The soil is calcareous throughout. In some areas the surface layer is clay, sandy clay loam, or loam. The Panoche Series soil identified and discussed above represents the soil conditions in the former laydown area.

The former laydown area is relatively flat, unpaved, and does not have existing unnatural runoff drainage.

Transmission Lines. No transmission lines will be associated with the Enhanced Wastewater System.

Offsite Pipelines. No offsite pipelines are associated with the Enhanced Wastewater System.

Worker Parking and Equipment Staging Sites. There will not be any offsite locations for worker parking and equipment staging. Worker parking and equipment staging will be located within the existing PEC and Enhanced Wastewater System footprint. The soil series for the parking and equipment staging are identical to the construction area.

Agriculture and Prime Farmland

The agricultural resources and presence of prime farmland for the Enhanced Wastewater System are the same as those described in the previously approved AFC.

The proposed location of the Enhanced Wastewater System is designated by the California Department of Conservation (CDC) as prime farmland. Prime farmland, as defined by the USDA and CDC, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses. The impact on prime agricultural lands related to the Enhanced Wastewater System is described in Section 5.9 *Land Use*.

Williamson Act

The 7.18-acre former laydown area was subject to the Williamson Act, as was the 12.82-acre PEC project parcel. By resolution of the Fresno County Board of Supervisors on April 24, 2007, the 12.82-acre parcel that comprises the previously approved PEC project site was no longer subject to the Williamson Act. By resolution of the Fresno County Board of Supervisors on October 6, 2009, the 9.18-acre parcel that comprises the laydown area and site of the proposed Enhanced Wastewater System was no longer subject to the Williamson Act. Copies of the Certificates of Cancellation are included in Appendix A.

5.4.2 Environmental Consequences

Significance criteria have been selected based on the CEQA Guidelines as well as performance standards adopted by responsible agencies. An impact may be considered significant from an agriculture and soil standpoint if the Enhanced Wastewater System results in:

- Substantial soil erosion or loss of topsoil;
- Degradation or loss of available agricultural land, agricultural activities, or agricultural land productivity in the project area;
- Alteration of agricultural land characteristics due to air emissions; or
- Conversion of Prime or Unique Farmland, or Farmland of Statewide Importance, to non-agricultural use.

Construction impacts on soil resources can include increased soil erosion and soil compaction. Soil erosion causes the loss of topsoil and can increase the sediment load in the surface receiving waters downstream of the construction Site. The magnitude, extent, and duration of this construction-related impact depends on the erodibility of the soil (slight, as discussed above), the

proximity of the construction activity to a receiving water body, the degree of contamination of the excavated soil stockpiles, and the construction methodologies, duration, and the season.

Enhanced Wastewater System Site

Construction activities for the proposed project Site will include minor grading, installation of a concrete foundation, construction of the new permanent wastewater storage tanks and new permanent wastewater treatment facility, installation of either above ground or underground pipe and tie-in to existing plant (mechanical component), and clean-up and final site grading. A construction staging area will be located within the existing PEC and Enhanced Wastewater System footprint.

Minor grading will be necessary for installation of the concrete foundation for the new permanent wastewater storage tanks and new permanent wastewater treatment facility. No excess soil from minor grading activities is anticipated and no offsite disposal of soil will be necessary. During the construction phase, temporary erosion and sediment control measures, such as mulching, jute netting, culverts, sediment detention basins, etc., will be installed.

Short-term increases in soil erosion are expected to occur during the construction phase. The erosion characteristics of the Panoche Series mapped at the location of the Site are slight.

Project-related soil erosion will be minimized through implementation of erosion control measures described in Section 5.4.3 *Mitigation Measures*. Therefore, impacts from soil erosion are expected to be insignificant.

The Enhanced Wastewater System will result in only soil compaction due to site grading. Compaction increases soil density by reducing pore space and impeding water and gas movement through this medium. This can result in an overall decrease in sedimentation. The incorporation of erosion control measures described in Section 5.4.3 *Mitigation Measures* during construction of the Enhanced Wastewater System will result in less than significant impacts from soil compaction.

Following construction, wind and water erosion on developed portions of the Site will be reduced because the Site will be compacted, and drainage will be controlled. Implementation of the erosion control measures discussed in Section 5.4.3 *Mitigation Measures* is expected to limit impacts to the soils resource at the Site to acceptable levels.

Williamson Act Compliance

As described above, a resolution from the County Board of Supervisors was issued on October 6, 2009 that relinquished all Williamson Act obligations for the area where the Enhanced Wastewater System will be located.

Transmission Lines

No transmission lines will be associated with the Enhanced Wastewater System.

Offsite Pipelines

The Enhanced Wastewater System will not include alteration of existing offsite pipelines.

Worker Parking and Equipment Staging Site

The worker parking and equipment staging sites will not be paved. Exposed soils in parking areas will be covered with gravel to minimize dust and erosion. Additional erosion control measures (more fully described in Section 5.4.3 *Mitigation Measures*) will be implemented during grading to help maintain water quality and to prevent accelerated soil erosion or dust generation. No significant impacts to native soils, receiving waters, or area agricultural lands are anticipated at or near the Site.

5.4.3 Mitigation Measures

Anticipated impacts to the surrounding area from the construction of the Enhanced Wastewater System will be minimized by the implementation of erosion control plans and storm water pollution prevention plans. No mitigation is required because impacts to soils during construction and operation are minimal.

Temporary Erosion Control Measures

Typically, temporary erosion control measures include revegetation, slope stabilizers, dust suppression, construction of berms and ditches, and sediment barriers. During construction of the Enhanced Wastewater System, employment of control measures will minimize wind-blown erosion. Spraying clean water on the soil in construction areas will help to suppress dust.

Sediment barriers, such as straw bales or silt fences, slow runoff, and trap sediment. Generally, placement of barriers will occur at the base of exposed slopes below disturbed areas. Placing barriers around the Site and the property boundary serves as prevention against sediment leaving the Site. Because the Site is relatively level, standard surface erosion control techniques should be effective. Soil stockpiles generated during construction will be covered and protected from rainfall if left onsite for extended periods of time.

Permanent Erosion Control Measures

Due to the Site's flatness, runoff collection, and drainage system, additional long-term measures are neither warranted nor necessary.

5.4.4 LORS Compliance

The Enhanced Wastewater System will comply with applicable agriculture and soils LORS evaluated for the previously approved PEC AFC.

5.4.5 References

There are no additional references.

5.4.6 Cumulative Impacts

Soil erosion and sedimentation impacts associated with the Enhanced Wastewater System will not be significant and will not be cumulatively considerable in combination with negligible impacts from the previously approved PEC. The Enhanced Wastewater System will be constructed on previously disturbed land, the PEC laydown area. Therefore, the location is not expected to have an effect on revegetation potential. Agricultural impacts are described in

Section 5.9 *Land Use*. Impacts related to the potential excavation of contaminated soils will not be significant because all excavated materials will be handled in accordance with the procedures described in Section 5.14 *Waste Management*.

5.4.7 Conditions of Certification

The Enhanced Wastewater System generally poses the same effect to agriculture and soils as the previously approved PEC. Any incremental effect caused by the changes does not raise the impact of PEC as a whole above the present level of significance. No modifications or additions to existing agriculture and soils COCs are necessary.

5.5 WATER RESOURCES

This section describes the affected environment and the environmental effects of the Enhanced Wastewater System on water resources. PECL proposes to construct and operate new permanent wastewater storage tanks and new permanent wastewater treatment facility. These changes will not affect the use of water resources and will resolve a critical and urgent issue the project faces regarding wastewater disposal. For these reasons these proposed changes will comply with applicable water resources LORS while ensuring that PEC is able to reliably and efficiently provide electricity.

5.5.1 Existing Site Conditions

The issues with the performance of the injection wells and the temporary measures taken to ensure power plant operation and reliability are fully described in Section 3.0 *Overview of Changes*. Because of these issues, PECL has studied alternatives and proposes to construct new permanent wastewater storage tanks and new permanent wastewater treatment facility. The existing site conditions do not differ from what was presented in the September 2009 Petition to Amend.

5.5.2 Project Water and Wastewater Needs

5.5.2.1 Water Supply

There will be no increased use of water caused by the Enhanced Wastewater System. Water will continue to be supplied by onsite wells completed in the confined aquifer.

Wastewater Disposal Alternatives

Following is a list of the wastewater disposal alternatives that are analyzed in Section 4.0 *Alternatives* of this document:

- Pumping or trucking wastewater to a WWTP
- Discharging wastewater to a brine line to Pacific Ocean
- Adding injection wells
- Changing the production water source (i.e., WWTP effluent, aqueduct water, agricultural irrigation tail water)
- Discharging to a nearby water body
- Regenerating deionizer systems offsite
- Zero liquid discharge (ZLD)

- Double-lined evaporation pond(s)
- Onsite unlined wastewater surface impoundment(s) (USWI)
- Onsite permanent wastewater storage tanks and wastewater treatment facility

Of these alternatives, the use of onsite unlined wastewater surface impoundments (USWI) was found to be feasible and the environmentally superior choice. In the event that the unlined wastewater surface impoundment(s) are not approved or constructed, the onsite permanent wastewater storage tanks and wastewater treatment facility will facilitate the continued use of the injection wells for as long as the wells are a viable means for wastewater disposal for the PEC project.

5.5.3 Water Resources and Wastewater Management

5.5.3.1 Project Water Resources Plan

5.5.3.1.1 Source of Project Water Supply. Water will continue to be supplied from the confined aquifer.

5.5.3.1.2 Process Water Uses. Uses of the process well water will not be changed by the Enhanced Wastewater System.

5.5.3.1.3 Project Water Supply Facilities. Process and other onsite-use water will continue to be supplied via two onsite production wells connected to the confined aquifer.

5.5.3.1.4 Project Water Treatment. A new water treatment system will be installed to provide a treated recycle water line back to the cooling tower increasing the number of cycles in the cooling tower with the effect of reducing the demand for pumped groundwater and reducing the volume wastewater sent to the injection wells.

5.5.3.2 Project Wastewater Management Plan

5.5.3.2.1 Selected Wastewater Disposal Alternative. Based on the evaluation described in Section 4.0 *Alternatives* and Section 5.5.2.1 *Water Supply*, use of the new permanent wastewater storage tanks and new permanent wastewater treatment facility was identified as the superior alternative for disposal of plant wastewater should the UWSI(s) not be built. The new permanent wastewater storage tanks and new permanent wastewater treatment facility are superior in terms of providing the best balance between minimizing environmental impacts and optimizing energy efficiency, reliability and availability. This alternative will serve to allow for the continued use of the existing injection wells for as long as they remain a viable means of wastewater disposal for the PEC project. Under this alternative, excess wastewater can be collected and stored in the plant's new permanent wastewater storage tanks until it can be injected into the existing injection wells.

5.5.3.2.2 Project Wastewater Streams. Wastewater from the cooling tower will enter a treatment system and the treated water will be returned to the cooling tower. The reject water from the cooling tower will be sent to the injection wells. Recycling cooling tower water and increasing the number of cycles in the cooling tower will reduce the demand for pumped groundwater and will reduce the volume of wastewater sent to the injection wells. Refer to Figure 5.5-3 *Water Balance Flow Diagram*.

Below are the estimates for reduction in pumped groundwater and reduction in wastewater through the implementation of the proposed Enhanced Wastewater System. The below estimates are for peak conditions. The Enhanced Wastewater System may not be used every time the plant runs.

Estimates for current peak conditions:

- Existing Source Water Use: 1,600 gallons per minute (gpm)
- Existing Wastewater to Injection Wells: 515 gpm

Estimates for peak conditions with the Enhanced Wastewater System:

- Source Water Use: 1,200 gpm
- Wastewater to Injection Wells: 120 gpm

5.5.3.2.3 Storm Water Runoff. According to the Federal Emergency Management Agency (FEMA), the site is outside the 500-year flood plain. The Enhanced Wastewater System will be designed, operated, and maintained in conformance with Fresno County ordinance Title 15, Flood Hazard Areas to ensure that in the event of a 100-year storm, the Enhanced Wastewater System are not subjected to any flood damage, inundation, or washout.

A Storm Water Pollution Prevention Plan (SWPPP) will be prepared prior to construction of the surface impoundments. This plan will be implemented to control and minimize contamination of storm water during the construction of the surface impoundments. The plan will employ best management practices such as stabilized construction entrances, silt fencing, berms, hay bales, and detention basins to control runoff from all construction areas.

5.5.4 Effect of Proposed Project on Water Resources

5.5.4.1 Effect on Sub-Basin Water Balance

The Enhanced Wastewater System will have no effect on the Sub-Basin water balance.

5.5.4.2 Water Level Effects

The Enhanced Wastewater System will have no effect on groundwater levels. Water Quality Effects

5.5.4.3 Cumulative Effects

As the various projects in the cumulative impact evaluation will be responsible for complying individually with applicable water resources LORS, no cumulative impacts on water resources are expected as a result of the Enhanced Wastewater System.

5.5.5 Available Documents and Information

Section 5.5.5 of the previously approved PEC AFC summarizes the available water resources documents and information. No additional information is needed.

5.5.6 Stipulated Conditions

The Enhanced Wastewater System will comply with the COCs identified in the PEC Final Decision. No changes or additions to COCs are required.

5.5.7 Mitigation Measures

No new water resources mitigation is required for the Enhanced Wastewater System.

5.5.8 LORS Compliance

The construction and operation of the Enhanced Wastewater System will be in accordance with all federal, state, county and local LORS applicable to water resources. Applicable LORS were presented in the AFC.

5.5.9 Involved Agencies and Agency Contacts

No additional agency involvement is required due to the Enhanced Wastewater System.

5.5.10 References

No additional references were required.

5.6 BIOLOGICAL RESOURCES

For the purposes of this Petition, the "biological survey area" or "survey area" was defined as being within the 7.18 acre former laydown area, plus an approximate one (1) mile buffer (see Figure 5.6-1 *Biological Survey Area* from the September 2009 Petition). This section evaluates the existing habitat conditions with the survey area and determines the potential for occurrence of biological resources[1], common and special-status species[2], their habitats[3], and other special aquatic resource areas[4] within the physical ground disturbance footprint.

[1] For the purposes of this Petition, biological resources include plants, wildlife, and habitats that occur, or have the potential to occur, within the Project's survey area.

[2] For the purposes of this analysis, "special-status species" include any species that has been afforded special recognition by federal, state, or local resources agencies [e.g., U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW)) and/or resource conservation organizations (e.g., California Native Plant Society (CNPS)]. The term "special-status species" excludes those avian species solely identified under Section 10 of the Migratory Bird Treaty Act (MBTA) for federal protection. Nonetheless, MBTA Section 10 protected species are afforded avoidance and minimization measures per state and federal requirements.

[3] A "habitat" is defined as the place, or type of locale where a plant or animal naturally or normally lives and grows.

[4] For the purposes of this analysis, special aquatic resource areas are being defined as the **potential** limits of: U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act (CWA); the Regional Water Quality Control Board (RWQCB) legal authority in accordance with Section 401 of the CWA and Porter-Cologne; and CDFW's jurisdiction pursuant to Section 1600 (et seq.) of the California Fish and Game Code (CFGC).

5.6.1 Affected Environment

The location of the Site, as a result of heavy agricultural and industrial uses, does not include native vegetation (JRP Historical Consulting, 2006). The Enhanced Wastewater System will be located within a 3.5-acre portion of the 7.18-acre PEC construction laydown area. The former PEC construction laydown area has been graveled and is currently used for the temporary Frac Tanks and some equipment storage (e.g., spare transformer and switchyard parts and piping). The adjacent lands include Panoche Road and agricultural uses, primarily grape vines and almond trees.

Survey Methods

Biological field surveys have been conducted at the Site multiple times beginning in April 2006. Biological field surveys were conducted within the survey area by URS biologists Ken McDonald and Dennis Miller in July 2008 according to the CEC regulations (CEC, 2000) for the PTA for the Wastewater Disposal Changes utilizing two UWSIs. The 2008 survey results are described below. The proposed Enhanced Wastewater System site is within the same area as the Wastewater Disposal Changes site.

The pedestrian-based July 2008 field evaluation of the survey area was performed to assess general and dominant vegetation types, community[5] sizes, habitat types and species present within communities.

Additionally, USGS topographic maps were examined to determine the locations of potential special aquatic resource areas within the survey area. Those portions of the physical ground disturbance footprint suspected of containing special aquatic resource areas (e.g., Waters of the United States, wetlands, Waters of the State) were also assessed by visual observation in the field. Potential special aquatic resource areas were evaluated by determining the presence of definable channels and/or hydrophytic vegetation, riparian habitat, and hydrologic regime within and adjacent to the physical ground disturbance footprint.

Results from 2008 Survey and 2009 Biological Monitoring

Plant Communities

The physical ground disturbance footprint is collocated within the existing PEC construction laydown area and provides limited habitat for plant species due to its developed/disturbed habitat. No native vegetation is present within the physical ground disturbance footprint. Table 5.6.2 of the CEC approved PEC AFC includes a plant species list.

Wetlands

Section 5.6.1.3 of the CEC approved PEC AFC adequately summarizes the limits of Clean Water Act and California Fish and Game Code (CFGC) Section 1600 (et. seq.) jurisdiction within the physical ground disturbance footprint. No special aquatic resource areas (e.g., Waters of the

[5] A community is an assemblage of populations of plants, animals, bacteria, and fungi that live in an environment and interact with one another, forming a distinctive living system with its own composition, structure, environmental relationships, development, and functions (Whittaker 1975).

United States, wetlands, Waters of the State, sensitive riparian or riverine habitats) were detected within these lands.

Wildlife

The physical ground disturbance footprint is collocated within the existing PEC construction laydown area and provides limited habitat for wildlife species due to its developed/disturbed habitat. Table 5.6.2 of the CEC approved PEC AFC includes a wildlife species list.

Special-Status Species

Plants. No special-status plant species were observed during the 2008 field survey and the 2009 biological monitoring. There are also no records of special status species within the physical ground disturbance footprint.

Wildlife. No special-status wildlife species were observed during the 2008 field survey and the 2009 biological monitoring. There are also no records of special status species within the physical ground disturbance footprint.

Please refer to Figure 5.6-2 *Biological Resources within 1 Mile of the Project Site* in this Petition (the figure is from the September 2009 Petition for the Wastewater Disposal Changes utilizing two UWSIs) for a map of the survey area and vicinity with identification of any biological resources within a 1-mile radius of the physical ground disturbance footprint.

Special Environmental Areas in the Project Vicinity

Section 5.6.1.6 of the CEC approved PEC AFC summarizes the Special Environmental Areas (SEA) within the survey area. There are no records of SEA's located within the physical ground disturbance footprint.

5.6.2 Environmental Consequences

Expected direct and indirect impacts to biological resources within the physical ground disturbance footprint are discussed below.

Potential Impacts of the Enhanced Wastewater System

The physical ground disturbance footprint would not result in significant impacts to biological resources because it would not:

- Cause a fish or wildlife population to drop below self-sustaining levels;
- Threaten to eliminate a plant or animal community;
- Substantially affect, reduce the number, or restrict the range of the unique, rare, or endangered species of animal or plant, or the habitat of the species;
- Substantially diminish or reduce habitat for fish, wildlife, or plants;
- Interfere substantially with the movement of resident or migratory fish or wildlife species;
- Change the diversity of species, or number of any species of plants (including trees, shrubs, grass crops, and aquatic plants) or animals (bird, land animals including reptiles, fish and shellfish, benthic organisms, or insects);

- Introduce new species of plants or animals into an area, or act as a barrier to the normal replenishment of existing species;
- Deteriorate existing fish or wildlife habitat; or
- Conflict with any regional HCPs.

Less-than-significant impacts associated with construction and operations of the physical ground disturbance footprint are discussed further below.

Construction, Operation and Maintenance Impacts

The physical ground disturbance footprint involves the construction of the new permanent wastewater storage tanks and new permanent wastewater treatment facility located directly south of the PEC site in the former PEC construction laydown area.

Accordingly, the physical ground disturbance footprint impacts are not anticipated to extend beyond the anthropogenically-disturbed area. To that end, any biological resource present in the physical ground disturbance footprint are assumed to have acclimated and developed tolerance to substantial noise, light, and other influences resulting from the presence of the PEC project and an active orchard (e.g., vehicular traffic, noise, light, dust, vehicle emissions, maintenance, and harvesting activities).

The Enhanced Wastewater System's construction, operation, and maintenance activities may temporarily deter wildlife from foraging in the vicinity and in surrounding lands. However, impacts would occur only during active construction, i.e. approximately 14 weeks duration. Short-term adverse impacts of the physical ground disturbance footprint may change foraging in the surrounding lands adjacent to the activity as well, but are considered to be insignificant, because animals that currently forage within these lands are assumed to be acclimated to this human-influenced environment. Thus, common species occur throughout the region in large numbers. It is not anticipated that the actions will change activities within the area, which would result in a trend toward state or federal listing, additional protection, apparent changes in habitat availability, or loss of viability for any of these species. Furthermore, the actions will not likely adversely affect any special-status plant or animal species, adversely affect annual production, or substantially change migration or foraging patterns.

Air Emissions and Noise

Increases in air emissions (Section 5.2 *Air Quality*) and noise (Section 5.12 *Noise*) as a result of the construction, operation, and maintenance of the Enhanced Wastewater System are not expected to cause significant impacts to wildlife. The project area provides limited habitat for wildlife due to existing industrial use and high agricultural use. Most of the wildlife species observed within the area are species that are often found in disturbed or developed areas and are expected to adapt to the new noise levels and air emissions.

Impacts on Special-Status Species

No federally-listed or state-listed threatened or endangered species are expected to occur in the physical ground disturbance footprint due to lack of suitable habitat. No adverse impacts are expected to result as a result of the proposed Enhanced Wastewater System.

Impacts to Wildlife Corridors

The survey area does not include recognized wildlife linkages or movement corridors. The survey area has not been identified as an important landscape linkage as it doesn't connect two large blocks of natural open space essential for the long-term wildlife viability. No significant impacts to wildlife movement are expected.

Parking, Laydown, and Access Road

Parking, laydown and access road are all within the physical ground disturbance footprint. No impacts associated with construction and operations of the Enhanced Wastewater System are expected.

5.6.3 Avoidance and Minimization Measures

Refer to the previously approved PEC AFC section for stipulations that must be implemented to avoid and minimize impacts to common wildlife and any potential wildlife species.

5.6.4 Mitigation Measures

The original PEC project required PECL to purchase mitigation credits at the Krayenhagen Hills Conservation Bank to offset potential impacts to the San Joaquin Kit Fox (SJKF). The purchase of such credits was addressed by the USFWS in the August 21, 2007 Biological Opinion issued for PEC and specifies actions that are required to avoid, minimize, or compensate for any potentially significant impacts to the SJKF and their habitat. In accordance with the August 2007 Biological Opinion (1-1-07-F-0255), PECL mitigated for 16.8 acres for the energy center footprint and PG&E substation expansion (permanent impacts) and 9 acres for temporary impacts associated with construction. Permanent impacts were mitigated for at a 1.1:1 ratio and temporary impacts were mitigated for at a 0.3:1 ratio. The footprint of the proposed Enhanced Wastewater System project is 3.5 acres, which may require additional habitat compensation. PEC existing condition of certification BIO-10 covers habitat compensation requirements, and therefore no changes are proposed to existing condition of certification BIO-10. No additional mitigation measures are necessary for the Enhanced Wastewater System.

5.6.5 LORS Compliance

The Enhanced Wastewater System will comply with all LORS applicable to biological resources described in the AFC for the approved PEC.

5.6.6 References

California Energy Commission. 2000. Rules of Practice and Procedure and Plant Site Certification Regulations.

JRP Historical Consulting. 2006. Historical Resources Inventory and Evaluation Report for the Panoche Energy Center.

URS. 2009. Petition to Amend Final Commission Decision, Panoche Energy Center 06-AFC-5C.

5.6.7 Cumulative Impacts

Section 5.6.2.3 of the previously approved PEC AFC summarizes the projects within a five-mile radius of PEC (including the existing Enhanced Wastewater System area) that could potentially contribute to cumulative impacts. No additional cumulative impacts of significance are anticipated.

5.6.8 Conditions of Certification

This Petition does not require changes or additions to any of the conditions identified in the Biological Resources section of the PEC Final Decision.

5.7 CULTURAL RESOURCES

This section discusses the cultural resources environment and potential effects of the modifications to the approved PEC.

5.7.1 Affected Environment

The affected environment for the Enhanced Wastewater System is the same as that described and evaluated for the approved PEC. As with the approved PEC, the modifications are located in a region characterized primarily by agricultural development situated near reclaimed land upon what was once marshland connected to the Tulare Lake. Agricultural development characterizes the vicinity immediately surrounding the modifications. Natural habitats for the most part have been displaced by development associated with the various agricultural activities, primarily orchards. Prior to development, Tulare Lake and the marsh setting of the general area would have supported diverse fauna and flora.

5.7.2 Environment Consequences

The Enhanced Wastewater System will require minor grading of the 3.5-acre area that was most recently used as the construction laydown area for the PEC project. Prior to the construction of the PEC, the Site was an active pomegranate orchard. A record search for the approved PEC project area including a ½-mile buffer was conducted on September 4, 2008. No previously recorded resources were identified; four previous surveys were conducted within ¼-mile of the modifications (refer to Figure 5.7-2 *Area of Potential Effects & Previous Cultural Surveys* contained in September 2009 PTA for the UWSI). The Native American Heritage Commission (NAHC) was contacted on August 25, 2008. Informational letters were sent to eight contacts identified by the NAHC on September 2, 2008. Follow-up telephone calls were made to all individuals who did not respond to the letter. None of the contacts expressed concerns regarding the project area. The entire existing 12.82-acre permanent footprint and the 7.18-acre former laydown area were subject to pedestrian survey on July 24, 2008. No archaeological resources were identified. A survey for built environment resources within ½ mile of the project area was conducted by JRP Historical in 2006. All built environment resources were evaluated and none were found to be eligible for listing on federal, state, or local registers. Throughout 2008 and 2009, the PEC plant site and appurtenant facilities were subject to full-time cultural resources monitoring for all excavation. This long-term monitoring program, carried out in the same geomorphic setting immediately adjacent to the modifications, was completely negative for cultural resources. The Cultural Resources Technical Report that was included as Appendix C to

the September 2009 Petition, provided details regarding cultural resources activities for the PEC project area, including the PEC construction laydown area that encompasses the Site for the proposed Enhanced Wastewater System.

5.7.3 Mitigation

No known cultural resources will be impacted by the changes; however, ground-disturbing activity may result in impacts to unknown cultural resources. Existing mitigation measures set forth in the Cultural Resources Mitigation and Monitoring Plan (CRMMP) will be implemented for the Enhanced Wastewater System.

5.7.4 LORS Compliance

The Enhanced Wastewater System will comply with applicable cultural resources LORS described in the AFC for the approved PEC.

5.7.5 References

No additional references were required.

5.7.6 Cumulative Impacts

The Enhanced Wastewater System poses the same effect to cultural resources as the previously approved PEC.

5.7.7 Conditions of Certification

No modifications or additions to the Cultural Resources COCs or mitigation measures are required.

5.8 PALEONTOLOGICAL RESOURCES

This section of the Petition summarizes the potential environmental impacts on paleontological resources that may result from the construction of the Enhanced Wastewater System.

5.8.1 Affected Environment

The affected environment is the same as that evaluated for the previously approved PEC. The proposed Enhanced Wastewater System Site is comprised of a 3.5-acre portion of the former PEC construction laydown area that was evaluated and surveyed for the approved PEC.

5.8.2 Environmental Consequences

Only minor grading will be required for the Enhanced Wastewater System. Grading depth will not exceed that which was previously graded for the PEC project in the construction laydown area. Therefore, no there are no potential impacts to paleontological resources resulting from the Enhanced Wastewater System.

5.8.3 Cumulative Impacts

There is no potential for cumulative impacts to paleontological resources resulting from the Enhanced Wastewater System.

5.8.4 Mitigation Measures

No additional mitigation measures are necessary for the Enhanced Wastewater System.

5.8.5 Involved Agencies and Agency Contacts

There is no state or local agencies having specific jurisdiction over paleontological resources.

5.8.6 LORS Compliance

The Enhanced Wastewater System will comply with applicable paleontological resource LORS evaluated for the approved PEC AFC.

5.8.7 References

No additional references were required.

5.8.8 Conditions of Certification

The Enhanced Wastewater System will result in the same type and level of impacts to paleontological resources as the previously approved PEC, and therefore no modifications or additions to existing COCs are necessary.

5.9 LAND USE

This section describes potential affects that the Enhanced Wastewater System may have on land use, and evaluates their potential impacts from environmental consequences, mitigation measures and LORS perspectives.

5.9.1 Affected Environment

As described in Section 3.0 *Overview of Changes* of this Petition, the Enhanced Wastewater System utilizes a 3.5-acre portion of the former laydown area adjacent and south of the previously approved PEC facility. The affected environment of the Enhanced Wastewater System is effectively that of the approved PEC project with a 3.5-acre portion of the former laydown area (see Figure 3.2-1 *General Project Vicinity*). The Site is within the same assessor's parcel number as the approved PEC (027-060-81S).

General Plan and Zoning Designations

The general plan and zoning designations for the previously approved PEC project and the Enhanced Wastewater System are the same as that described in the approved PEC AFC. As with the approved PEC, the Enhanced Wastewater System area is consistent with the Fresno County General Plan and zoning designation. The Site area is designated as Agriculture by the Land Use Element of the Fresno County General Plan. It has a zoning designation of AE-20, Exclusive Agriculture District (refer to Figure 5.9-2 *Zoning Designations Surrounding Project Site* and Figure 5.9-3 *Existing Land Use Surrounding Project Site from the AFC*). As with the approved PEC, this land use has an unclassified conditional use for energy production in the AE Zone district.

Subdivision Map Act and Williamson Act

Per the Subdivision Map Act, newly created parcels, as would result from the sale of the Site, shall be no smaller than 20 acres. As such, the sale depended on at least a 20-acre parcel. Firebaugh RE Holdings, LLC purchased the entire 22 acres associated with the PEC facility and laydown area. Firebaugh RE Holdings is the Energy Investors Funds (EIF) limited liability corporation that purchased the land from PAO Investments. PECL is a separate company from Firebaugh RE Holdings but both are in the EIF portfolio.

The additional 3.5-acre portion of the former laydown area that will contain the proposed Enhanced Wastewater System was subject to the Williamson Act, as was the 12.82-arce PEC project parcel. As previously discussed in Section 5.4.1, by resolution of the Fresno County Board of Supervisors on April 24, 2007, the 12.82-acre parcel that comprises the previously approved PEC project site was no longer subject to the Williamson Act. By resolution of the Fresno County Board of Supervisors on October 6, 2009, the 9.18-acre parcel that includes the laydown area and site of the proposed Enhanced Wastewater System was no longer subject to the Williamson Act. Copies of the Certificates of Cancellation are included in Appendix A.

5.9.2 Environmental Consequences

General Plan and Zoning

As stated in the Final Decision for the approved PEC, Fresno County's Department of Public Works and Planning determined that the approved PEC power generating facility is consistent with the County General Plan and zoning ordinance. General Plan policy LU-A.3 allows certain non-agricultural uses in areas designated Agriculture. Energy production is an unclassified conditional use in the AE Zone district. The County of Fresno provided a notice of determination of General Plan Conformity of the approved PEC on August 8, 2007. The Enhanced Wastewater System is consistent with this determination. In addition, the Enhanced Wastewater System would not preclude or unduly restrict existing or planned land uses.

Also, akin to the approved PEC, the Enhanced Wastewater System would not disrupt or divide the physical arrangement of an established community.

Subdivision Map Act and Williamson Act Compliance

As described above, a resolution from the Fresno County Board of Supervisors was issued on October 6, 2009 that relinquished all Williamson Act obligations associated with the 9.18 acres at issue herein. Therefore, under the Williamson Act, the contract on the 9.18-acre Site will be deemed null and void and no findings need be made under Government Code section 51292 regarding the location of the Enhanced Wastewater System within an agricultural preserve. [*See also* Gov't Code § 51292(c).]

Loss of Agricultural Lands

PECL mitigated for loss of 15.3 acres (12.82 acres for the plant site and 2.5 acres for the substation expansion) during the original proceeding. Construction of the Enhanced Wastewater System will permanently convert a 3.5-acre portion of the former temporary laydown area to non-agricultural use. To mitigate for the loss of additional prime farmland associated with the Enhanced Wastewater System, the project owner will pay an additional fee based on the acreage

associated with the Enhanced Wastewater System to a land trust in compliance with the CEC's existing Condition of Certification LAND-1. With this mitigation, the potential impact is reduced to an insignificant level.

There are no other potential environmental impacts to land use identified for the Enhanced Wastewater System.

5.9.3 Mitigation Measures

The Enhanced Wastewater System will not cause significant adverse land use impacts and will not conflict with existing land use activities in the area. In December 2007 in accordance with Condition of Certification LAND-1, PECL mitigated for the loss of 15.3 acres of prime farmland by entering into a Farmland Mitigation Agreement with the San Joaquin River Parkway & Conservation Trust, Inc. However, since the Enhanced Wastewater System will permanently convert a 3.5-acre portion of the former temporary laydown area to a non-agricultural use, the project owner will contribute funds to a land trust for the preservation of agricultural lands to mitigate for the loss of the additional agricultural land based on the acreage associated with the Enhanced Wastewater System.

5.9.4 LORS Compliance

The Enhanced Wastewater System will comply with all applicable Land Use LORS described for the approved PEC AFC.

5.9.5 References

County of Fresno. 2007. Agricultural Land Conservation Contract Certificate of Cancellation. December 21, 2007.

County of Fresno. 2010. Agricultural Land Conservation Contract Certificate of Cancellation. April 12, 2010.

5.9.6 Cumulative Impacts

The Enhanced Wastewater System will not result in any significant cumulative impacts to land use beyond those addressed for the approved PEC. The only incremental impacts related to land use that could occur would be the loss of additional agricultural lands. However, through continued compliance with the CEC's existing Land Use COCs and the payment of an additional fee to a land trust for the conversion of agricultural land to a non-agricultural use, any potential impact would be reduced to an insignificant level.

5.9.7 Conditions of Certification

This Petition does not require the addition of new Conditions of Certification nor changes to any of the conditions identified in the Land Use section of the PEC Conditions of Certification. However, in accordance with LAND-1, the project owner shall mitigate for the loss of additional prime farmland based on the acreage associated with the Enhanced Wastewater System at a one-to-one ratio to reduce the impact to agricultural lands from the Enhanced Wastewater System to an insignificant level.

5.10 SOCIOECONOMICS

This section describes the potential impact to the social and economic structure within the Enhanced Wastewater System vicinity and region. This discussion considers potential impacts to population, housing, public services and utilities, fiscal resources, and indirect and induced economic impacts. Additionally, this section considers environmental justice analysis, applicable LORS, cumulative impact analysis, and conditions of certification.

5.10.1 Affected Environment

The Enhanced Wastewater System would be located directly south and adjacent to the PEC site. As with the previously approved PEC, the Enhanced Wastewater System area is located in a rural unincorporated area of Fresno County, California. The Project area is generally south of the southwest-northeast trending West Panoche Road, and approximately two miles east of Interstate-5. The nearest city is Mendota, which is roughly 16 miles northeast of the PEC and Enhanced Wastewater System Site, and the California Aqueduct is approximately three miles to the east.

The Enhanced Wastewater System would be located on a 3.5-acre portion of the former laydown area immediately south of the PEC. This area consists entirely of the PEC construction laydown area. The existing PEC construction laydown area has been graveled and is currently used for the temporary Frac Tanks and some equipment storage (e.g., spare transformer and switchyard parts and piping). The PEC laydown area was previously identified and addressed in the PEC AFC. As with the PEC site, the Enhanced Wastewater System would not be immediately adjacent to residences or businesses. The Project does not involve displacement of residences, communities, or businesses.

This socioeconomic analysis addresses economic and demographic conditions at the following resolutions. The socioeconomic study area pertaining to population and housing (as consistent with the PEC AFC) includes the unincorporated area of Fresno County within the Site vicinity and Fresno County as a whole. The Enhanced Wastewater System area pertaining to the regional workforce and indirect and induced economic impacts consists of Fresno County. The environmental justice analysis evaluates the demographics and poverty for the population located within a six-mile radius of the Site.

5.10.2 Environmental Consequences

Population and Housing

Population, Housing, and Workforce during Construction Phase

Construction of the Enhanced Wastewater System is expected to require a total of 12 workers, and construction activities would occur over an estimated 14 week period. The schedule for the activities occurs in the first quarter of 2015. The Socioeconomics section of the PEC Final Commission Decision determines that the construction workforce employed during the construction of PEC would be expected to commute to the area from areas within a two-hour commuting distance, or stay in nearby hotels for the duration of the PEC project rather than to relocate permanently to the PEC vicinity. Construction of the Enhanced Wastewater System would be anticipated to draw from the local workforce or temporary workers from the regional

workforce. Similar to the PEC, temporary workers would be expected to commute, rather than relocate, to the project area. As a result, construction of the Enhanced Wastewater System would be expected to result in negligible, if any, impact to population during construction.

Since workers would be expected to be either local or would commute to the Site, the Enhanced Wastewater System is anticipated to result in negligible impacts to housing. Based on the availability of lodging previously assessed in the PEC AFC, construction of the Enhanced Wastewater System is expected to result in less than significant impacts to lodging and temporary housing. Additionally, due to the relatively small workforce and short duration needed for construction activities, the Enhanced Wastewater System would result in a negligible impact to the regional workforce.

Population, Housing, and Workforce during Operation

Operation of the new permanent wastewater storage tanks and new permanent wastewater treatment facility would not involve employment of additional employees and thus would not result in additional impacts to the population, housing, and regional workforce.

Environmental Justice

Environmental Justice Screening Analysis

The environmental justice screening process is used to assess the potential for high and adverse environmental effects or health effect falling disproportionately upon a low income or minority population (Executive Order 12898). Typical environmental justice concerns pertaining to environmental or health effects include a project's impacts to housing, traffic, noise, water quality, public health, and public services.

As presented in the PEC Final Commission Decision (Section C.2 Environmental Justice), the area does not contain a low-income population within the environmental justice screening area. The area does contain Hispanic or Latino minority populations (97.84 percent). However, based on the analysis presented in this Petition in Section 5.10.2 (Population and Housing), 5.10.2 (Public Services and Utilities), 5.5 (Water Resources), 5.11 (Traffic and Transportation), 5.12 (Noise), and 5.16 (Public Health and Safety), the construction and use of the Enhanced Wastewater System would not expected to result in significant impacts to the environmental justice concerns pertaining to environmental or health effects.

Public Services and Utilities

Public Services

The Enhanced Wastewater System supporting the PEC would not significantly increase the number of construction workers and would not result in an increase in operation workers. As a result, the Enhanced Wastewater System would result in a negligible, if any, temporary increase to the population, and would not create the need for new or expanded schools, libraries, and park facilities. The Enhanced Wastewater System area is served by fire protection, medical, and law enforcement services identified in the previously approved PEC AFC. Construction and operation of the Enhanced Wastewater System involves a negligible change in workers and would not require new or expanded police, fire, or medical facilities.

Utility Systems

As discussed in Section 3.0 *Overview of Changes*, the Enhanced Wastewater System would not involve changes to public electrical service, natural gas systems, water supply and treatment systems, or sanitary systems.

Fiscal Resources

Property Tax

Following completion of the installation of the Enhanced Wastewater System, the property will be reassessed for property value and tax rate. The estimated capital cost for the Enhanced Wastewater System is $7,000,000. The additional property tax assessed for the Project during the first year of operation of the Enhanced Wastewater System (2015) will be determined during the final design phase when a more accurate capital cost is established.

Sales Tax

The Enhanced Wastewater System area is subject to a Fresno County sales tax rate of 8.225 percent, based on the California State Board of Equalization (2014). Construction of the Enhanced Wastewater System is estimated to result in very minimal expenditures in locally-purchased materials and supplies. Thus sales tax revenues are expected to be negligible.

Indirect and Induced Economic Effects

Construction of the new permanent wastewater storage tanks and new permanent wastewater treatment facility is expected to require 12 construction workers. The Enhanced Wastewater System would require an estimated $300,000 to $400,000 in expenditures for locally-purchased materials and supplies, which would result in secondary (indirect and induced) impacts. Operation of the Enhanced Wastewater System is not expected to result in indirect and induced economic and employment effects in addition to impacts previously determined for the approved PEC.

5.10.3 Cumulative Impacts

The Enhanced Wastewater System is expected to require a small increase of construction workers (i.e., 12 workers) over a 14-week timeframe, and no substantial increase in operation workers with respect to the population and workforce previously identified for the PEC project. As discussed previously in Section 5.10.2, *Environmental Consequences*, construction of the facilities is neither expected to cause increases in housing, nor significant adverse effects to temporary lodging. As a result, the Enhanced Wastewater System is not expected to result in cumulatively significant adverse socioeconomic impacts.

5.10.4 LORS Compliance

The Enhanced Wastewater System for PEC is subject to the socioeconomic-related LORS identified for the approved PEC AFC. No additional LORS have been identified that are considered to be applicable to socioeconomic issues for the Enhanced Wastewater System.

5.10.5 References

California State Board of Equalization (BOE). California City and County Sales and Use Tax Rates. Effective October 1, 2014 at: http://www.boe.ca.gov. Date of last update: September 2, 2014.

Panoche Energy Center, LLC. Panoche Energy Center Application for Certification (Docket No. 06-AFC-5). August 2006.

5.10.6 Conditions of Certification

The Enhanced Wastewater System does not require changes or additions to the socioeconomic-related COCs identified for the approved PEC.

5.11 TRAFFIC AND TRANSPORTATION

This section presents a discussion of the potential impacts of the Enhanced Wastewater System. The discussion below includes the environmental consequences associated with the Enhanced Wastewater System during construction and operation; cumulative impacts; mitigation measures; applicable LORS; and COCs.

5.11.1 Affected Environment

The Enhanced Wastewater System area remains consistent with the affected environment presented for the approved PEC.

5.11.2 Environmental Consequences

Enhanced Wastewater System Construction Worker Trips

Based on the construction activities at the Site, it is anticipated that there will be minimal manpower needs during the construction of the Enhanced Wastewater System. The key tasks involve minor grading, delivery and assembly of new permanent wastewater storage tanks and new permanent wastewater treatment facility. The manpower needs onsite will be limited to equipment operators and ground crew to support to the new Enhanced Wastewater System assembly and overall site engineering construction activities.

As previously described, the construction period is estimated to be 14 weeks, and require up to twelve (12) construction workers. Thus, there is only a minimal increase in workers during the construction of the Enhanced Wastewater System. The existing roadway circulation system has sufficient capacity to handle construction worker traffic. Thus, the Enhanced Wastewater System will have no significant additional effect or impact on traffic and transportation.

Traffic Impact Summary

Due to the low trip generation potential of construction of the Enhanced Wastewater System, no further quantitative traffic analysis was conducted beyond those presented in the previously approved PEC documentation.

The qualitative traffic assessment finds that the construction of the Enhanced Wastewater System will not result in significant traffic impacts.

The qualitative traffic assessment finds that the operation of the Enhanced Wastewater System will not result in significant traffic impacts.

5.11.3 Mitigation Measures

The same traffic mitigation measures for the previously approved PEC would apply to the construction of the Enhanced Wastewater System. No additional traffic mitigation measures are needed.

5.11.4 LORS Compliance

All relevant and applicable traffic and transportation LORS presented in the PEC AFC will be complied with and followed for the Enhanced Wastewater System.

5.11.5 References

No additional references were required.

5.11.6 Cumulative Impacts

Findings of no significant cumulative impacts as described in Section 5.11 of the previously approved PEC AFC remain the same for the Enhanced Wastewater System.

5.11.7 Conditions of Certification

The Enhanced Wastewater System does not require changes or additions to the Traffic and Transportation COCs identified in the Traffic and Transportation section of the PEC Final Decision.

5.12 NOISE

This section addresses the noise exposure from the Enhanced Wastewater System. Changes in noise levels from the noise levels presented in the approved PEC AFC, Section 5.12, are anticipated to be minimal as existing well charge pumps will be used to pump the wastewater from the wastewater storage tank to the Enhanced Wastewater System.

5.12.1 Affected Environment

The affected noise environment for the Enhanced Wastewater System is the same as that described in Section 5.12 of the previously approved PEC AFC, and in Sections 3.2 *Enhanced Wastewater System Location* and 3.3 *Site Description* of this Petition.

5.12.2 Environmental Consequences

The proposed Enhanced Wastewater System will be located on a 3.5-acre portion of the former laydown area, located directly south of PEC. The Enhanced Wastewater System will not introduce any new noise-generating equipment. During construction, standard construction equipment such as cranes, loaders, backhoes, dump trucks, and compactors will be used.

Section 5.12 of the previously approved AFC identified three noise sensitive receivers potentially impacted by construction or operation of PEC. Two of these receivers have since been relocated. The nearest noise sensitive receiver is now 3,300 feet from PEC. Given the

location of the changes in relation to the original and relocated noise sensitive receivers and the limited equipment involved, project-related construction noise levels at the noise sensitive receivers will be less than the noise levels associated with the previous PEC construction.

Construction traffic activity will consist of semi-truck deliveries, dump trucks and construction workers commuting to and from the site on a daily basis.

Construction duration will be approximately 14 weeks. It will occur between the hours of 6:00 a.m. and 9:00 p.m. during weekdays and 7:00 a.m. and 5:00 p.m. on weekends and will comply with COC NOISE-7 of the PEC Final Decision. Noise associated with construction activities at the Site will be temporary in nature and mitigated to the extent feasible; therefore, construction of the Enhanced Wastewater System will not result in a significant impact to the surrounding community.

The Enhanced Wastewater System will have no effect on the overall sound levels of the approved PEC. Thus, the PEC Final Decision COCs do not need to be modified.

5.12.3 Mitigation Measures

No additional noise mitigation measures are required due to the Enhanced Wastewater System.

5.12.4 LORS Compliance

All relevant and applicable noise LORS presented in the PEC AFC will be complied with and followed for the Enhanced Wastewater System.

5.12.5 Involved Agencies and Agency Contacts

No additional agency involvement is required due to the Enhanced Wastewater System.

5.12.6 References

No additional references were required.

5.12.7 Cumulative Impacts

No additional cumulative impacts result from the Enhanced Wastewater System.

5.12.8 Conditions of Certification

No modifications or additions to noise COCs for the approved PEC are required for the Enhanced Wastewater System.

5.13 VISUAL RESOURCES

The Enhanced Wastewater System would not involve substantial changes to the findings and conclusions in Section 5.13, Visual Resources of the previously approved PEC AFC.

5.13.1 Affected Environment

Section 5.13.1 of the previously approved PEC AFC describes the inventory of visual resources within the vicinity of the previously approved PEC project site, including a description of the

regional landscape setting, the visual sphere of influence (VSOI) of the approved PEC, and inventory methods and results. The Enhanced Wastewater System is located within the VSOI identified for the approved PEC. Since PEC was approved, the facility has initiated and completed construction. Therefore, the previously approved PEC project and associated facilities (gas turbines, roads, administrative building, substation, etc.) constructed thus far would now be included as the existing setting.

The Site would be located entirely within the former PEC construction laydown area. The Enhanced Wastewater System structures would not exceed approximately 24 feet in height and would be visually consistent with the existing PEC facility structures. The dimensions of the structures associated with the Enhanced Wastewater System are described below.

Dimensions of Enhance Wastewater System Structures:

- 500,000-gallon Blowdown Collection Tank: 60 feet diameter by 24 feet high;
- 500,000-gallon Wastewater (RO Reject) Collection Tank: 60 feet diameter by 24 feet high;
- 250,000-gallon Permeate Collection Tank: 48 feet diameter by 20 feet high; and
- Enhanced Wastewater System Building: Approximately 120 feet long by 70 feet wide and approximately 20 feet high.

The previously approved PEC AFC identified three Key Observation Points (KOPs) for the approved PEC project. KOP No. 1 was identified as a group of three residences located across West Panoche Road north of the PEC site, KOP No. 2 as a group of five residences adjacent to the existing PG&E Substation along West Panoche Road, and KOP No. 3 as the elevated intersection of West Panoche Road and Interstate (I-5). Both groups of residences, identified as KOPs No. 1 and 2, have since been relocated and are no longer be used for residential purposes, and therefore are no longer considered sensitive visual receptors.

5.13.2 Environmental Consequences

As described in detail in Section 3.0 *Overview of Changes*, once constructed, the Enhanced Wastewater System would include new permanent wastewater storage tanks and new permanent wastewater treatment facility located directly south of the PEC site within the existing PEC construction laydown area. The total footprint is the existing 12.82-acre permanent footprint and a 3.5-acre portion of the former laydown area. The new permanent wastewater storage tanks would be approximately 20 to 24 feet high and up to 60 feet in diameter. The new permanent wastewater treatment facility would be housed in a building approximately 120 feet long by 70 feet wide and approximately 20 feet high.

The Enhanced Wastewater System would be visible from the KOPs established in the AFC; however, the proposed Enhanced Wastewater System would be visually consistent with the existing PEC facility. Existing structures, agriculture development and/or other vegetative screening, and the presence of three other power plant sites in the immediate vicinity would minimize or eliminate views of the Enhanced Wastewater System. Therefore, the simulations

presented as Figures 5.13-13 through 5.13-15 in the PEC AFC remain unchanged. Because it was concluded that no new visual sensitive receptors or KOPs are identified in the immediate area and the simulations created for each of the three KOPs presented in the previously approved PEC AFC will not be revised, no additional simulations were prepared for this analysis.

The Enhanced Wastewater System is located adjacent to Davidson Avenue and would be visible to travelers along that road. However, traveler counts on Davidson Avenue are low and, because of the high level of cultural modification in the VSOI and immediate area (as discussed above in the Affected Environment and in the PEC AFC) travelers would not have expectations of pristine aesthetics. Additionally, travelers along the road would have short viewing durations and lower viewer sensitivity due to the nature of viewer activity and small scale of the development. Therefore, the potential for impacts along Davidson Avenue would be less than significant.

Because the operation of the Enhanced Wastewater System would have a negligible effect on visual resources within the VSOI and would not significantly impact views from Davidson Avenue, it is anticipated that, once constructed, visual impacts from the operation of the Enhanced Wastewater System would be less than significant.

Environmental consequences during the construction phase would occur primarily on the 3.5-acre portion of the former laydown area and last the extent of construction period. Construction activities will include minor grading activities, building material deliveries and assembly. The construction equipment and activities may be a negative visual intrusion to the viewshed. However, the existing PEC facility and agricultural production in the area would obstruct some views to the construction area.

Indirect effects associated with the installation of the Enhanced Wastewater System may include effects associated with fugitive dust, night lighting, and the presence of construction and operation equipment. Construction activities will be conducted in a manner that minimizes (visible) dust emissions and light pollution. Such construction activities will not contrast significantly with the existing character of the visual environment which often contains large scale agricultural equipment. Construction activities associated with the Enhanced Wastewater System would not have an effect on the viewshed. Therefore, potential visual impacts from the construction of the Enhanced Wastewater System would be temporary and not significant.

Other than the discussion provided in this Petition, the assessment of environmental consequences presented in the previously approved PEC AFC is adequate to represent impacts to visual resources from the Enhanced Wastewater System. Therefore, once constructed, the Enhanced Wastewater System would not significantly change the visual analysis prepared and approved for the PEC AFC and would not create increased visual resource impacts.

5.13.3 Mitigation Measures

The Enhanced Wastewater System would not change the findings and conclusions discussed in Section 5.13 *Visual Resources*, of the previously approved PEC AFC. No increased visual impacts would occur. Therefore, no mitigation measures are recommended; consistent with the Final Decision for the previously approved PEC.

5.13.4 LORS Compliance

Construction and operation of the Enhanced Wastewater System will comply with all applicable LORS related to visual resources identified for the previously approved PEC AFC. The LORS presented in Section 5.13.5 of the AFC are applicable to the project modifications and no additional LORS are recommended. Similarly, the agency contact information presented in Section 5.13.11 of the AFC is unchanged and the project modifications do not affect the required permits or schedule presented in Section 5.13.5 of the AFC.

5.13.5 References

There are no additional references.

5.13.6 Cumulative Impacts

No additional cumulative impacts to visual resources have been identified as part of this analysis. Cumulative impacts discussed in Section 5.13.3 of the previously approved PEC AFC are applicable to the Enhanced Wastewater System.

5.13.7 Conditions of Certification

The Enhanced Wastewater System does not require changes or additions to the visual resources COCs identified in the PEC Final Decision.

5.14 WASTE MANAGEMENT

This section presents a discussion of potential impacts from the generation, storage, and disposal of hazardous and non-hazardous wastes from the Enhanced Wastewater System. Included in the discussion below are descriptions of the potential waste streams to be generated during construction and operation of the new permanent wastewater storage tanks and new permanent wastewater treatment facility and descriptions of applicable waste disposal sites to be used by the Enhanced Wastewater System, waste mitigation methods to minimize impacts to the environment, applicable LORS, potential cumulative impacts, and whether any changes to COCs would be necessary.

5.14.1 Affected Environment

The affected environment of the Enhanced Wastewater System is described in detail in Sections 3.2 *Enhanced Wastewater System Location* and 3.3 *Site Description* of this Petition. As described in more detail below in Section 5.14.2 *Environmental Consequences*, the Enhanced Wastewater System may generate small quantities of hazardous and non-hazardous wastes during the construction and operational phases.

5.14.2 Environmental Consequences

The analysis of impacts related to waste management is based on significance criteria described in Section 5.14.2 of the previously approved AFC.

The Enhanced Wastewater System would result in small amounts of construction waste and typical refuse generated by construction crews. No excess soil will result from minor grading activities or construction of the Enhanced Wastewater System.

Solid waste will be segregated and recycled where practical. Non-recyclable waste will be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill. Some hazardous wastes, such as waste lubricating oils may be generated during construction. Hazardous wastes would be handled and disposed of in accordance with applicable LORS. Hazardous wastes will be recycled or disposed of in a licensed Class I disposal facility, as appropriate.

Wastewater generated during construction will include sanitary wastes, and storm water runoff. Construction-related wastewater will be managed according the applicable LORS and the approved PEC AFC.

Operation of the Enhanced Wastewater System will involve daily operator attendance with periodic cleanings, filter element replacement, regular maintenance and occasional repairs. All liquid wastes will be sent to the injection wells, and solids wastes will be collected as loaded filter elements or dewatered sludge will be hauled to the appropriate local permitted landfill for disposal.

Non-hazardous and hazardous waste landfills to be used during construction and operation of the project are identified in Table 5.14-1 *Waste Recycling/Disposal Facilities* of the previously approved PEC AFC. Hazardous and non-hazardous waste generated during construction and operation of the Enhanced Wastewater System is not expected to significantly impact available landfill capacity.

5.14.3 Mitigation Measures

Implementation of existing COCs WM-1 through WM-7, as described in the previously approved PEC AFC, provide waste management procedures for handling non-hazardous and hazardous wastes. No additional mitigation measures are necessary for the Enhanced Wastewater System.

5.14.4 LORS Compliance

Construction and operation of the Enhanced Wastewater System will comply with all applicable LORS related to waste management summarized for the previously approved PEC AFC. Section 5.14.4 of the approved PEC AFC summarizes the applicable LORS that govern the handling of non-hazardous and hazardous wastes, as well as the applicable permits that will be required for the Enhanced Wastewater System.

5.14.5 References

There are no additional references.

5.14.6 Cumulative Impacts

The Class I and Class III landfills and recycling facilities in the vicinity of the Site have adequate recycling and disposal capacities for the Enhanced Wastewater System. Therefore, cumulative impacts from the Enhanced Wastewater System and other projects in the region are not expected to be significant.

5.14.7 Conditions of Certification

The Enhanced Wastewater System does not require changes or additions to the waste management COCs identified in the PEC Final Decision.

5.15 HAZARDOUS MATERIALS HANDLING

This section presents a discussion of the potential impacts from storage and use of hazardous materials during construction and operation of the Enhanced Wastewater System.

5.15.1 Affected Environment

The affected environment of the Enhanced Wastewater System is described in detail in Sections 3.2 *Enhanced Wastewater System Location* and 3.3 *Site Description* of this Petition. As described in more detail below in Section 5.15.2 *Environmental Consequences*, the implementation of Enhanced Wastewater System will use and store small quantities of hazardous materials during the construction and operational phases of the Enhanced Wastewater System.

5.15.2 Environmental Consequences

The analysis of impacts related to handling of hazardous materials from the Enhanced Wastewater System is based on significance criteria described in Section 5.15.2 of the previously approved PEC AFC.

The Enhanced Wastewater System would result in small amounts of construction-related hazardous materials to be used during construction, operation, and maintenance of the Enhanced Wastewater System. These materials include fuels, oils, lubricants and cleaning chemical required to operate installation, construction and maintenance equipment, and were included in the previously approved PEC AFC.

As described in the previously approved PEC AFC, a Hazardous Materials Business Plan (HMBP) which outlines hazardous materials handling, storage, spill and release response, and reporting procedures was to be prepared prior to construction activities. The HMBP prepared for the previously approved PEC will be applicable for the Enhanced Wastewater System. Impacts associated with the use of hazardous materials during construction are anticipated to be less than significant as a result of the implementation of procedures and mitigation measures as discussed in the previously approved PEC AFC.

5.15.3 Mitigation Measures

Implementation of existing COCs HAZMAT-1 through HAZMAT-9, as described in the previously approved PEC AFC, provides management procedures for the handling of hazardous materials during construction and operation of the Enhanced Wastewater System. These procedures and programs will minimize potential construction-related and operations-related impacts to a less than significant level. No further mitigation is required.

5.15.4 LORS Compliance

Construction and operation of the Enhanced Wastewater System will comply with all applicable LORS related to hazardous materials handling. Section 5.15.4 of the previously approved PEC

AFC summarizes the applicable LORS that govern the use and storage of hazardous materials, as well as the applicable permits that will be required for the Enhanced Wastewater System.

5.15.5 References

There are no additional references.

5.15.6 Cumulative Impacts

Based on land uses in the surrounding area and the limited amount and type of hazardous materials to be used as part of the Enhanced Wastewater System, no significant cumulative impacts due to hazardous material handling are expected from the Enhanced Wastewater System in combination with future projects.

5.15.7 Conditions of Certification

The Enhanced Wastewater System does not require changes or additions to the COCs identified in the Hazardous Materials Handling section of the PEC Final Decision.

5.16 PUBLIC HEALTH AND SAFETY

5.16.1 Affected Environment

This Petition evaluates the effects on public health due to the Enhanced Wastewater System construction and does not readdress or reanalyze the previously approved PEC AFC, First Amendment (for the Substation Expansion), or Second Amendment (for the UWSI).

5.16.2 Affected Environment

The Public Health section of the previously approved PEC AFC provides a discussion of existing conditions in the vicinity of the PEC project site, which are identical for the Enhanced Wastewater System, except that construction of the PEC is now complete.

5.16.3 Environmental Consequences

Temporary exhaust emissions from construction equipment will occur as a result of the construction of the Enhanced Wastewater System. An analysis of the potential environmental impacts due to criteria pollutant emissions during construction of the Enhanced Wastewater System is discussed in Section 5.2 *Air Quality* of this Petition. The only toxic air contaminant emitted as a result of the construction would be diesel particulate matter. Diesel particulate matter has carcinogenic and chronic health impacts, these occur after extended exposure. As the construction of the new permanent wastewater storage tanks and new permanent wastewater treatment facility will take up to 14-weeks, no carcinogenic or chronic health impacts are anticipated due to the short exposure to diesel particulate matter.

The operation of the Enhanced Wastewater System will have no stationary sources of toxic air contaminants. However, there may be very small intermittent emissions associated with mobile sources used for maintenance and repair to the Enhanced Wastewater System.

5.16.4 Cumulative Impacts

There are no additional cumulative impacts to those addressed for the approved PEC due to operation of the Enhanced Wastewater System, because the operational Enhanced Wastewater System will have negligibly small emissions of toxic air contaminants.

5.16.5 Mitigation Measures

The same construction mitigation measures described in the Public Health and Safety section of the previously approved PEC AFC are applicable to the Enhanced Wastewater System. The operations of the Enhanced Wastewater System will not cause emissions of toxic air contaminants, except very small amounts associated with vehicle and equipment activities for maintenance and repair tasks. Accordingly, no additional mitigation measures during operation are necessary.

5.16.6 LORS Compliance

The Enhanced Wastewater System will comply with all applicable LORS related to public health and safety summarized for the previously approved PEC AFC.

5.16.7 Involved Agencies and Agency Contacts

Regulatory agencies and agency contacts for public health issues related to the Enhanced Wastewater System are the same as those described in the previously approved PEC AFC.

5.16.8 References

There are no additional references.

5.16.9 Conditions of Certification

No new COCs pertaining to public health and safety are required for the Enhanced Wastewater System. The COCs for protection of public health that were included in the PEC Final Decision are applicable and sufficient to ensure that impacts to health from the Enhanced Wastewater System will remain below a level of significance.

5.17 WORKER SAFETY

This section addresses safety and health issues and describes or outlines systems and procedures that will be implemented to provide occupational safety and health protection for the Enhanced Wastewater System workers, worker safety mitigation methods to minimize impacts to the Enhanced Wastewater System workers, applicable LORS, potential cumulative impacts, and whether changes to the COCs would be necessary. All applicable elements of the Title 8 California Code of Regulations (CCR), General Industry Safety Orders (GISO), Construction Safety Orders (CSO), and Electrical Safety Orders (ESO), are addressed in the previously approved PEC AFC.

5.17.1 Affected Environment

The affected environment of the Enhanced Wastewater System is described in detail in Sections 3.2 *Enhanced Wastewater System Location* and 3.3 *Site Description* of this Petition.

5.17.2 Environmental Consequences

Construction, operation, and maintenance activities may expose workers to the hazards identified in Table 5.17-1 of the previously approved PEC AFC. Exposure to these hazards can be minimized through adherence to appropriate engineering design criteria and administrative controls, use of applicable personal protective equipment (PPE), and compliance with all applicable health and safety LORS. The programs, regulations, and preventive measures intended to control potential worker health and safety impacts associated with these hazards are described in the previously approved PEC AFC and encompass a comprehensive health, safety, and fire prevention program and an accident/injury prevention program intended to ensure healthful and safe operations at the Site.

5.17.3 Mitigation Measures

No significant unavoidable adverse impacts to worker safety are anticipated from the Enhanced Wastewater System. Therefore, no mitigation measures are recommended; consistent with the previously approved PEC AFC.

5.17.4 LORS Compliance

The Enhanced Wastewater System will comply with all applicable LORS related to worker safety. Section 5.17.4 of the previously approved PEC AFC summarizes the applicable LORS that govern worker safety, as well as the applicable permits that will be required for the Enhanced Wastewater System.

5.17.5 References

There are no additional references.

5.17.6 Cumulative Impacts

As the various projects within the vicinity will be responsible for complying individually with applicable worker safety requirements, no cumulative impacts on worker safety are expected as a result of the Enhanced Wastewater System.

5.17.7 Conditions of Certification

The Enhanced Wastewater System does not require changes or additions to the COCs identified in the Worker Safety section of the PEC Final Decision.

5.18 CUMULATIVE IMPACTS

Discussion of potential cumulative impacts to environmental resources are included within each environmental analysis section. The Enhanced Wastewater System does not present significant, unmitigated cumulative impacts on the environment or human health.

6.0 SECTION
LIST OF FIGURES

The following figures are attached to this Petition:

3.2-1 General Project Vicinity
3.4-1 Project Site Plan
5.5-3 Water Balance Flow Diagram
5.6-1 Biological Survey Area (from September 2009 Petition)
5.6-2 Biological Resources within 1 Mile of the Project Site (from September 2009 Petition)

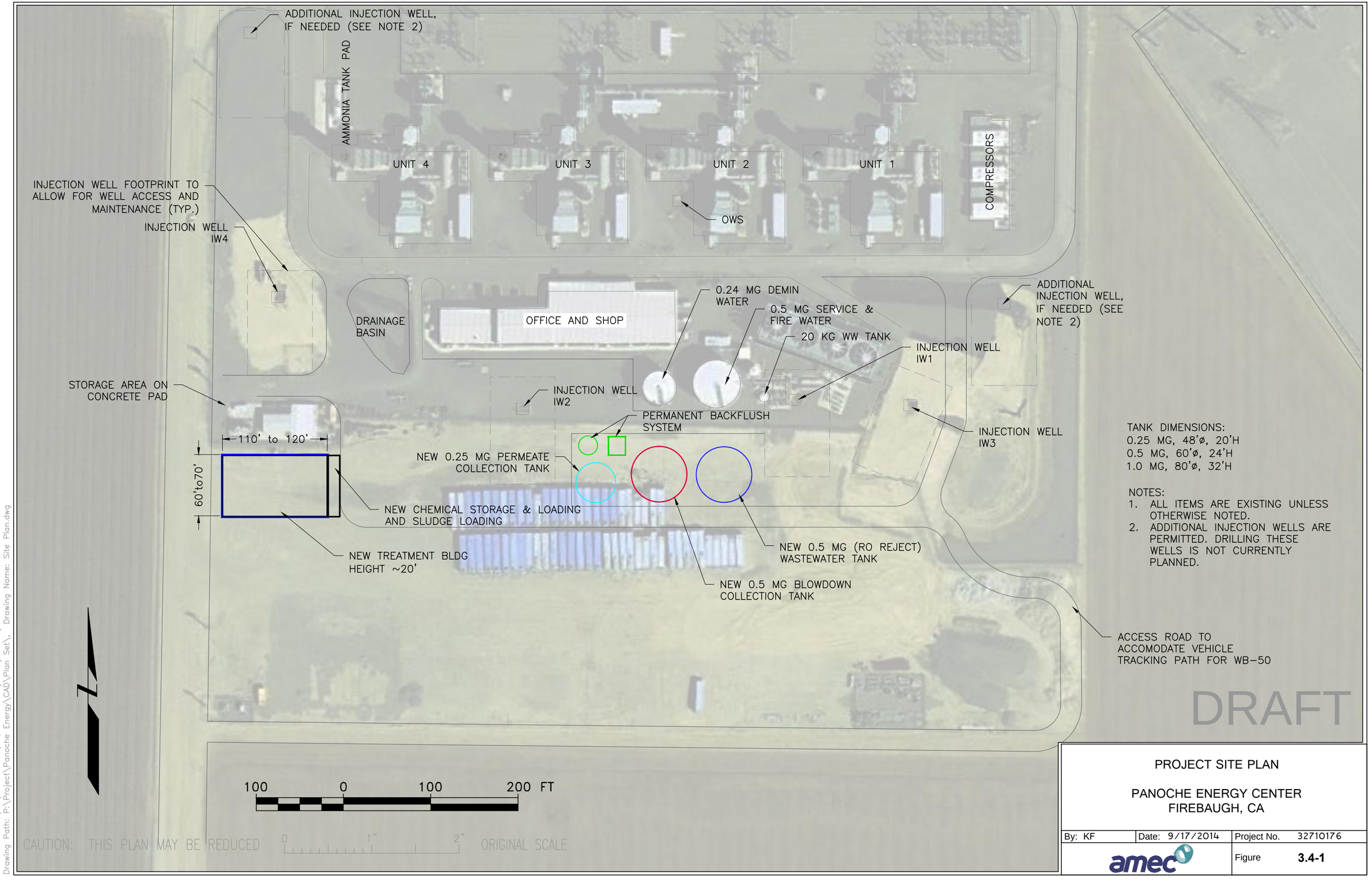
GENERAL PROJECT VICINITY

PANOCHE ENERGY CENTER
FIREBAUGH, CA

By: KF	Date: 9/17/2014	Project No. 32710176
amec		Figure **3.2-1**

CAUTION: THIS PLAN MAY BE REDUCED 0 1" 2" ORIGINAL SCALE

Plot Date: 09/22/14 - 1:56pm, Plotted by: kelly.fearney
Drawing Path: P:\Project\Panoche Energy\CAD\Plan Set\, Drawing Name: Vicinity Map.dwg



TANK DIMENSIONS:
0.25 MG, 48'ø, 20'H
0.5 MG, 60'ø, 24'H
1.0 MG, 80'ø, 32'H

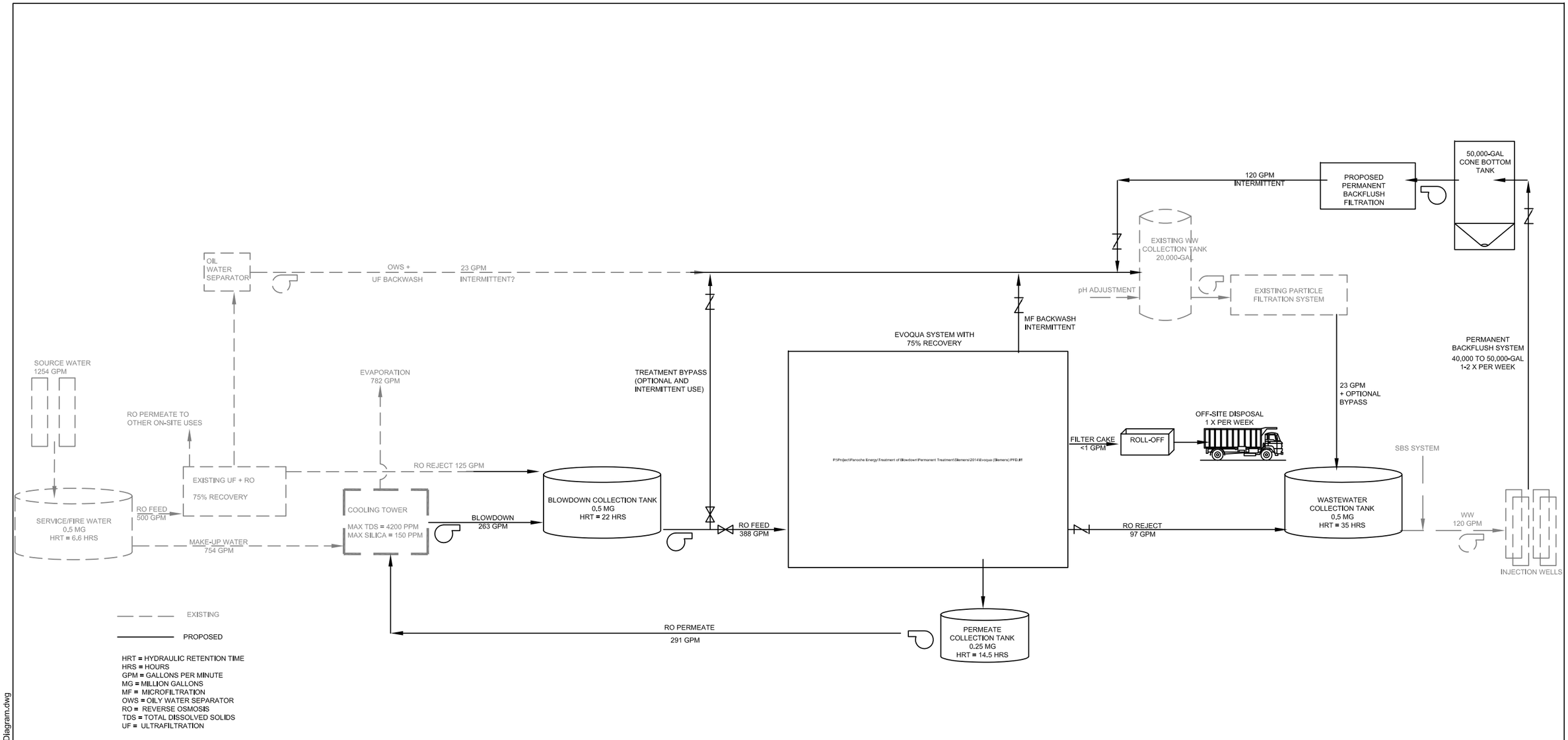
NOTES:
1. ALL ITEMS ARE EXISTING UNLESS OTHERWISE NOTED.
2. ADDITIONAL INJECTION WELLS ARE PERMITTED. DRILLING THESE WELLS IS NOT CURRENTLY PLANNED.

DRAFT

PROJECT SITE PLAN

PANOCHE ENERGY CENTER
FIREBAUGH, CA

By: KF	Date: 9/17/2014	Project No. 32710176
amec		Figure **3.4-1**



HRT = HYDRAULIC RETENTION TIME
HRS = HOURS
GPM = GALLONS PER MINUTE
MG = MILLION GALLONS
MF = MICROFILTRATION
OWS = OILY WATER SEPARATOR
RO = REVERSE OSMOSIS
TDS = TOTAL DISSOLVED SOLIDS
UF = ULTRAFILTRATION

WATER BALANCE FLOW DIAGRAM

PANOCHE ENERGY CENTER
FIREBAUGH, CA

By: KF	Date: 9/17/2014	Project No. 32710176
amec		Figure **5.5-3**

Plot Date: 09/22/14 - 1:57pm, Plotted by: kelly.fearney
Drawing Path: P:\Project\Panoche Energy\CAD\, Drawing Name: Flow Diagram.dwg

FROM SEPTEMBER 2009 PETITION

G:\Panoche Rd\MXD\MXD August09\Figure 5.6-1 Biological Survey Area.mxd

PANOCHE ENERGY CENTER, LLC	Figure 5.6-1 BIOLOGICAL SURVEY AREA	2009

FROM SEPTEMBER 2009 PETITION

G:\Panoche Rd\MXD\MXD August09\Figure 5.6-2 Biological Resources within 1 Mile of Wastewater Surface Impoundment Area.mxd

PANOCHE ENERGY CENTER, LLC	Figure 5.6-2 BIOLOGICAL RESOURCE WITHIN 1 MILE OF THE PROJECT SITE	2009

APPENDIX A
LAND USE

AFTER RECORDING

RETURN TO STOP 214

RLCC No. 838

12/21/2007,20070225299

BEFORE THE BOARD OF SUPERVISORS

OF THE COUNTY OF FRESNO

STATE OF CALIFORNIA

CERTIFICATE OF CANCELLATION
(less than the total of the land subject to contract)

ALCC No. 367

NOTICE IS HEREBY GIVEN:

By resolution dated April 24, 2007, the Board of Supervisors of the County of Fresno granted approval of the petition by PAO Investments, LLC for partial cancellation of Agricultural Land Conservation Contract (ALCC) No. 367, which applies to the real property situated in the County of Fresno, State of California, and is more particularly described on the attached legal description attached as Exhibit "A", and made a part hereof.

The contingencies and conditions specified in the "Certificate of Tentative Cancellation," recorded as Instrument No. 2007-0090290 in the Official Records of the Office of the Recorder, County of Fresno, have been satisfied.

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IN WITNESS WHEREOF, I have set my hand and seal this 21st day of December, 2007.

CHAIR, Board of Supervisors

ATTEST:

By: _____
Bernice E. Seidel
Clerk to the Board of Supervisors

G:\4360Devs&PIn\PLANNING\AG\RLCC - Apps\Active Cancellation\Approved, but COC not issued yet\RLCC 838 PAO Investments PtCNX\RLCC 838 COC.doc

Legal Description
Area Covered by Petition for Partial
Cancellation of Williamson Act Contract

Being a portion of real property in the Southwest Quarter of Section 5 Township 15 South, Range 13 East, Mount Diablo Base and Meridian, according to the official plat thereof lying Southerly of Panoche Road, being a portion of that certain real property described in a document dated June 13, 1978 to Robert Hansen, Trustee under the Sharla M. Baker Trust as Instrument No. 89-106620 Official Records, County of Fresno, vicinity of Firebaugh, California more particularly described as follows:

COMMENCING at the Southwest Corner of said Section 5 at a found 2" iron pipe thence along the West line of said Section 5 being the Southwest Quarter thereof North 01°34'29" East 902.88 feet; thence leaving the West line of said Section 5 through the interior of said Southwest Quarter of Section 5 the following seven (7) courses: South 89°10'03" East 39.95 feet to the POINT OF BEGINNING of the herein described real property; North 00°49'57" East 522.11 feet; South 89°10'03" East 1,001.11 feet; South 00°49'57" West 690.97 feet; North 89°10'03" West 212.94 feet; North 00°49'57" East 168.86 feet; North 89°10'03" West 788.17 feet to the POINT OF BEGINNING.

Containing 558,646 square feet of land (12.82 acres) more or less.

This description is based on record information. The Basis of Bearings are NAD 1983, Epoch 2004.50, California Coordinate System, Zone 4 and are based upon a GPS Survey constrained to NGS monuments: AC6117 (HPGN D CA 06 NC) survey disk in bridge abutment and GU4142 (Z 1444) stainless steel rod.

AFTER RECORDING

RETURN TO STOP 214

RLCC No. 884

FRESNO County Recorder
Robert C. Werner
DOC- 2010-0046931
Monday, APR 12, 2010 15:10:36
Ttl Pd $0.00 Nbr-0003194378
APR/R1/1-3

BEFORE THE BOARD OF SUPERVISORS

OF THE COUNTY OF FRESNO

STATE OF CALIFORNIA

CERTIFICATE OF CANCELLATION
(less than the total of the land subject to contract)

ALCC No. 367

NOTICE IS HEREBY GIVEN:

By resolution dated October 6, 2009, the Board of Supervisors of the County of Fresno granted approval of the petition by PAO Investments, LLC., for partial cancellation of Agricultural Land Conservation Contract (ALCC) No. 367, which applies to the real property situated in the County of Fresno, State of California, and is more particularly described on the attached legal description attached as Exhibit "A", and made a part hereof.

The contingencies and conditions specified in the "Certificate of Tentative Cancellation," recorded as Instrument No. 2009-0140416 in the Official Records of the Office of the Recorder, County of Fresno, have been satisfied.

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IN WITNESS WHEREOF, I have set my hand and seal this 13th day of April, 2010.

CHAIR, Board of Supervisors

ATTEST:

By: _____
Bernice E. Seidel
Clerk to the Board of Supervisors

G:\4360Devs&Pln\PLANNING\AG\RLCC - Apps\Active Cancellation\Approved, but COC not issued yet\RLCC 884 PAO Investments\COC.doc

EXHIBIT "A"

Being a portion of real property in the Southwest Quarter of Section 5 Township 15 South1 Range 13 East, Mount Diablo Base and Meridian, according to the official plat thereof lying Southerly of Panache Road, as shown on that certain Record of Survey, filed September 17, 1987, recorded in Book 34 Page 99 of Record of Surveys, Fresno County Records, and being a portion of that certain real property described in a document dated August 15, 1989 to Robert Hansen, Trustee under the Sharla M. Baker Trust as Instrument No, 89-106620 Official Records, County of Fresno, vicinity of Firebaugh, California more particularly described as follows:

COMMENCING at the Southwest Corner of said Section 5 (marked by a 2" iron pipe); Thence, along the West line of said Section 5, North 010 34' 29" East1 902.88 feet; Thence, leaving the West line of said Section 5 through the interior of said Southwest Quarter of Section 5; South 89° 10' 03" East, 39.95 feet to the POINT OF BEGINNING;

Thence, continuing South 89° 10' 03" East, 788.17 feet;
Thence, South 00° 49' 57" West, 168.86 feet
Thence, South 89° 10' 03" East, 212.94 feet;
Thence, South 00° 49' 57" West, 266.28 feet;
Thence, North 89° 10' 03" West, 1001.11 feet;

Thence, North 00° 49' 57" East, 435.14 feet; to the POINT OF BEGINNING.

Containing 399,663 square feet of land (9.18 acres), more or less.

This description is based on record information. The Basis of Bearings are NAD 1983, Epoch 2004.50, California Coordinate System, Zone 4 and are based upon a GPS Survey constrained to NOS monuments: AC6117 (HPGN D CA 06 NC) survey disk in bridge abutment and GU4142 (Z 1444) stainless steel rod. This description is not intended to subdivide the above referenced parcel, but to describe a parcel for future lease of the above referenced parcel.

This real property description has been prepared by me, or under my direction in conformance with the Professional Land Surveyors Act.