Tracy Peaker Project

Draft Biological Resources Mitigation Implementation and Monitoring Plan

August 2001

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1.0 PURPOSE

The purpose of the GWF Tracy Power Project (TPP) Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP) is to identify means by which TPP intends to minimize impacts, protect and conserve biological resources, and comply with federal and state requirements for the project. The following agencies have regulatory authority with regards to biological issues and the TPP:

- U.S. Fish and Wildlife Service (USFWS)
- California Energy Commission (CEC)
- California Department of Fish and Game (CDFG)

This BRMIMP describes measures that will be implemented to ensure and document compliance with all regulatory requirements of the TPP during both the construction and operational phases. The BRMIMP is being implemented to ensure that the project is accomplished in a manner that minimizes impacts to the natural environment by appropriate compliance with terms and conditions of various permits and approvals.

The BRMIMP establishes protocols that will accomplish the following goals:

- Identify biological resources at or near work zones
- Avoid biological resource impacts when ever possible
- Establish procedures to remedy conflicts when impacts are unavoidable
- Document, for the public record, compliance with the entire impact mitigation package

The components of the TPP BRMIMP include:

- Project description; construction schedules
- Responsibilities of project participants
- Qualifications of the project Designated Biologist
- Pre-activity surveys and reporting

- Construction monitoring
- Post-construction reclamation measures
- Compensation
- Power generation operational phase mitigation measures

2.0 BACKGROUND

2.1 Background Documents

Documents prepared by regulatory agencies that will be issuing permits, rights-of-way, and licenses for the TPP will contain mitigation requirements that avoid or minimize impacts to biological resources that are expected during construction and operation. Those documents include: conditions of certification issued by CEC and conditions contained in the San Joaquin County Master Habitat Conservation Plan.

2.2 Project Description

GWF Energy LLC proposes to build and operate the Tracy Peaker Project (TPP), a nominal 169-megawatt (MW) simple-cycle power plant, on a nine-acre, fenced site within a 40-acre parcel in an unincorporated portion of San Joaquin County. The site is located immediately southwest of Tracy, California, and approximately 20 miles southwest of Stockton, California. The TPP would consist of the power plant, an onsite 230-kilovolt (kV) switchyard, an approximately five-mile, 230-kV electric transmission line, an approximately 1,470-foot water supply pipeline (as measured from the fence line), an onsite natural gas supply interconnection, and improvements to an existing dirt access road approximately one mile in length. An approximately 5.2-acre area west of the plant fence line and within the 40-acre parcel would be used for construction laydown and parking. Figure 2-1 shows the regional location of the GWF site. Figure 2-2 shows the immediate site location of the GWF project, including the location of the proposed generating facility and the proposed transmission, water supply, and access routes.

2.3 Construction Schedule

Project Element	Construction Period (Start - End)
Plant Construction	
Natural Gas Pipeline	
Transmission Line	

3.0 RESPONSIBILITIES, QUALIFICATIONS, AND LINES OF COMMUNICATIONS

This section describes responsibilities of participating agencies; the project's Designated Biologist, TPP, and its contractors during construction of the TPP Project. The qualifications of the Designated Biologist and lines of communication are also detailed.

3.1 Responsibilities of Participants

Responsibilities of all participants in the TPP are connected through the permitting/licensing process. Each participant, through legally binding instruments, agree to abide by requirements designed to minimize impacts and document compliance to federal and state laws that protect or conserve biological resources.

3.1.1 Agency Responsibilities

The agencies mentioned in Section 1.0 are responsible for implementing federal and state laws concerning protection of biological resources. In issuing Conditions of Certification, rights-of-way, and permits, the CEC, BLM, and CDFG will include conditions that will ensure that TPP also complies with these laws or risk revocation of their license, right-of way, and/or permit. The agencies will aid TPP by being responsive to requests for guidance should the need arise. Agency representatives will monitor the success of the project's compliance with federal and state laws by monitoring reports prepared by the Designated Biologist. Table 1 lists the regulating agencies and the various instruments that they will grant or agreements they will enter into with the TPP.

3.1.2 Qualifications/Responsibilities of Designated Biologist

The TPP will designate a qualified biologist and CEC will approve their qualifications to supervise pre-activity surveys and to supervise or advise how to best implement the other elements of this plan. The Designated Biologist will meet the following minimum requirements:

- Bachelor's degree in biological science, zoology, botany, ecology or other closely related field
- At least three years of experience as a professional biologist or a current certification from a nationally recognized professional society, such as the Ecological Society of America, or the Wildlife Society
- At least one full year of field experience with biological resources found in or near the project area
- An ability to demonstrate to the satisfaction of the CEC Compliance Project Manager (CPM) the appropriate education and experience for the biological resources tasks that must be addressed during project construction and operation

Responsibilities of the Designated Biologist include the following:

- Conduct pre-activity biological surveys and report results
- Mark, define and post exclusion zones for sensitive biological resources
- Excavate unavoidable dens and burrows
- Monitor construction activities in areas where sensitive biological resources exist
- Advise construction personnel in accordance with permit conditions
- Report noncompliance to TPP and responsible government agencies concurrently
- Maintain log and prepare incident reports
- Prepare weekly and final compliance reports;
- Monitor the TPP operational phase
- Prepare annual compliance report

3.1.3 Responsibilities of TPP and Contractors

The Project Manager retains final responsibility for compliance with environmental mitigation measures. TPP will insure compliance with mitigation measures by making the agency-mandated conditions part of contracts issued to the contractors. It will then be

the responsibility of TPP to revoke or suspend their contract to remedy situations of noncompliance.

3.2 Authority and Lines of Communications

The Designated Biologist will communicate regularly with the TPP Project Manager, TPP Supervisor of Compliance, field personnel, construction supervisors, and agency representatives to insure all parties are kept informed as to the status of compliance with elements of this plan. During construction, a weekly compliance report will document compliance with this BRMIMP and incidents of a biological nature such as wildlife sightings, etc. During the operation phase of the project, TPP will submit an annual compliance report verifying compliance with the BRMIMP.

3.2.1 Regulatory Agencies

The TPP Designated Biologist will summarize weekly monitoring activities in the Monthly Compliance Report. The Monthly Compliance Report will be provided to the CEC, CDFG, and USFWS representatives within 10 working days after each reporting month during construction of the project. Agency representatives will be welcome to make site visits to assess the success of mitigation compliance first hand. Any questions regarding weekly reports or other issues can be answered during site visits or by telephone or electronic mail. If there are problems with compliance during any phase of the project, agency representatives will discuss the issue with TPP and its contractors. If violations are persistent, then work can be stopped or the whole project or portions of it by the revocation of permits.

3.2.2 Role and Authority of Designated Biologist

The Designated Biologist, although contracted by TPP, will act independently and responsibly in verifying that all elements of this BRMIMP or other approved mitigation are carried out in totality and in a timely manner. As the Designated Biologist, he/she in communication with TPP, has authority to:

- Hire other qualified biologists to complete pre-activity surveys

- Hire other qualified biologists to assist in construction monitoring
- Hire species specialists to carry out capturing and holding mitigation
- Communicate directly to construction crews and supervisors about compliance issues
- Communicate with agency personnel and TPP on matters of noncompliance
- Suspend any activity if deemed essential for the protection of biological resources
- Coordinate implementation of remedial measures for non-compliance issues

3.2.3 Roles and Authority of TPP and Project Contractors

The TPP, by signing agreements attached to the various regulatory instruments, is committed to implementing measures to ensure compliance with all elements of this BRMIMP. Contractors hired by TPP will also commit to compliance by signing contracts with language that makes adherence to mitigation measures mandatory by all personnel. TPP will have authority to suspend contracts of crews for noncompliance and contractors can remove individual workers who refuse to comply.

4.0 PRE-ACTIVITY SURVEYS AND REPORTING

No less than 5 days and no more than 30 days prior to commencement of construction activities, the Designated Biologist shall conduct pre-activity surveys of proposed work zones and a maximum1000 foot buffer area. During pre-activity surveys, the status of resources identified by previous surveys shall be reviewed and updated as necessary. Results of pre-activity surveys will be included in the Post-Construction Compliance Report

4.1 Mapping

All sensitive resources found during pre-activity surveys will be mapped on alignment sheets and drawings prepared prior to the construction phase of the project. Sensitive biological resources will be referenced to known points in the field that will be located by survey crews using Geographic Positioning System (GPS) technology. Biologists will record direction and distance from these known points and accurately map all sensitive biological resources in the project vicinity.

4.2 Sensitive Wildlife Surveys

Pre-activity wildlife surveys will include 100% coverage of the work area and a 150-foot buffer zone for surveys conducted during June-January. During the San Joaquin kit fox natal/pupping season (February-May) the buffer zone survey area will be expanded to 1000 feet. The buffer zone for active raptor nest surveys will be 1,320 feet. All pre-activity surveys will follow CDFG and USFWS approved methodologies. Target species are contained in Table 2. All new occurrences identified will be reported to the California Natural Diversity Data Base (CNDDB) on field survey forms. Copies of CNDDB approved field survey forms will be included in the Monthly Compliance Reports.

San Joaquin kit fox dens, and potential California tiger salamander burrows will be mapped and flagged for avoidance or other special treatment described later in this section. All raptor nests, and burrowing owl burrow locations will be handled in the same manner. Findings of other sensitive wildlife resources will be noted, mapped, and avoided.

4.3 Staking and Flagging of Avoidance Areas

The perimeter of the avoidance areas adjacent to work areas will be marked by wooden or metal stakes, at least 3 feet high, and no more than 10 feet apart. Each stake will be flagged with red and white candy-striped flagging and the resource being protected will be identified on one of the stakes. When a resource avoidance zone begins more than 10 feet from the work area, the resource will be marked with a single flagged stake. All project-related flagging shall be collected and removed following the construction phase of the project.

Avoidance criteria for sensitive wildlife and botanical resources:

- 1,000 feet from occupied San Joaquin kit fox natal or pupping dens
- 150 feet from known San Joaquin kit fox natal or pupping dens
- 100 feet from known San Joaquin kit fox dens
- 50 feet from potential San Joaquin kit fox dens
- 100 feet from active burrowing owl burrows, 200 from active nest burrows
- 1,320 feet from nesting raptors
- 50 feet from potential California tiger salamander and spadefoot toad burrows

Ground-disturbing activities will be restricted during the following time periods to protect the indicated species:

- Kit foxes: if occupied natal dens are found, surface-disturbing activities within a quarter mile of natal dens shall not occur between December and May

4.4 Specific Take Avoidance for San Joaquin Kit Fox

The TPP and it's contractors will make every reasonable effort to prevent the collapse of dens and burrows by relocating temporary access roads and lay down areas to avoid dens or other means as determined to be appropriate. Implementing the following procedures shall protect all known and potential San Joaquin kit foxes dens. Such protection will help prevent incidental take of dens in excess of the take limits allowed by the resource agencies.

If, after following all procedures in the standardized recommendations, the Designated Biologist is unable to successfully ensure protection of individual kit foxes, he/she will contact CEC, CDFG, and USFWS for further guidance.

4.4.1 Den Excavation

All known or potential kit fox dens that do not meet the avoidance criteria above will be monitored for three consecutive nights, and if kit foxes are not using the dens they may be temporarily plugged with paper and a layer of soil so they will not be used during construction (Appendix D). The same procedure may be followed for dens in the temporary construction areas if workers can work around them. If damage or destruction to a known or potential San Joaquin kit fox den(s) in the work area cannot be avoided during construction, the den shall be monitored for three consecutive days (or thoroughly inspected with a *VanTrac 2000 Burrow Cam)* and excavated according to agency approved guidelines to preclude later use by foxes during the construction period (Appendix D). Any kit foxes found inside the den during excavation will be allowed to escape unharmed. All den excavations shall be performed or supervised by a qualified biologist. Destruction of all kit fox dens shall be reported in the post-activity compliance report. The USFWS and CDFG will be notified of active pupping dens in the vicinity of construction. No active pupping dens will be excavated.

4.4.2 Den Replacement

All known excavated dens will be replaced with artificial dens at a ratio of 2:1, potential den replacement will be at a ratio of 1:1. Artificial dens will be placed near the excavated den and will have the same aspect, depth, and number of openings as the den that is replaced. The dens will be constructed of 8-inch polyethylene drainpipe connected to commercially available polyethylene valve boxes, which will act as den chambers (Appendix D). In consultation with the oversight agencies, artificial kit fox dens in the vicinity of the plant site will be protected for the life of the project.

4.5 Measures to Protect Burrowing Owls, Nesting Raptors, California Tiger Salamanders, and Spadefoot Toads

Active Burrowing owl burrows will be avoided by 100 feet; active nest burrows will be avoided by 200 feet. If nesting raptors along the proposed transmission line cannot be avoided by 1,320 feet, construction in these areas will be delayed until the young have fledged or the nest is voluntarily abandoned. Construction will also be delayed until fledging. To protect potential tiger salamander and spadefoot toad aestivation burrows, soil excavation near California ground squirrel burrows within 3,000 feet of the stock pond along the transmission line will be avoided by 50 feet.

The avoidance areas, as described above, will be staked where burrowing owl burrows are located outside the impact area. Where the avoidance areas cannot be fully implemented, the following measures (Toyon, 1999) will be implemented:

- Occupied burrows will not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist verifies through non-invasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from occupied burrows are foraging independently and are capable of independent survival.
- When destruction of occupied burrows is unavoidable, existing unsuitable burrows will be enhanced (enlarged or cleared of debris) or new burrows created (by installing artificial burrows, Appendix D) at a ratio of 2:1 on lands nearby.
- If owls must be moved away from the disturbance area, passive relocation techniques will be used, rather than trapping. At least one week will be necessary to accomplish this and allow the owls to acclimate to alternate burrows.
  - **Passive relocation with one-way doors:** Owls are excluded from burrows in the immediate impact zone and within a 160-foot buffer zone by installing one-way doors in burrow entrances. One-way doors (e.g. modified dryer vents) will be left in place 48 hours to insure owls have left the burrows before excavation. Two natural or artificial burrows will be provided for each burrow in the project area that will be rendered unsuitable for use. The project area will be monitored daily for one week to confirm that owls are using the new burrows, before excavating burrows in the impact zone. Whenever possible, each burrow will be

excavated using hand tools and refilled to prevent reoccupation. Section of flexible plastic pipe will be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow.

– **Passive relocation without one-way doors:** Two natural or artificial burrows will be provided for each burrow in the project area that will be rendered unsuitable for use. The project area will be monitored daily until the owls have relocated to the new burrows. The formerly occupied burrows may then be excavated. Whenever possible, each burrow will be excavated using hand tools and refilled to prevent reoccupation. Section of flexible plastic pipe will be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow.

4.6 General Impact Minimization Measures

- Pets shall not be permitted on the project site during construction activities.
- All food-related trash such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers only and regularly removed from the project site.
- All spills of hazardous materials within endangered species habitats shall be cleaned up immediately.
- No firearms will be allowed in the project area.
- All construction activities conducted during the project shall be confined to daylight hours unless circumstances warrant night work and CDFG and USFWS approve.
- All project-related vehicles shall observe a speed limit of 20 mph or less on all routes that traverse endangered species habitat, except on State and County highways and road.
- Project related vehicles shall be confined to existing primary or secondary roads or to specifically delineated corridors or project areas (i.e., areas that have been surveyed and described in existing documentation). Otherwise, no off-road vehicle travel shall be permitted.
- All open trenches and footing holes shall be covered each night or ramped in such a way as to allow wildlife that may enter to escape unharmed. Ramps will be no more than 1,000 feet apart and no more than 45°. Biological monitors will inspect open trenches before construction begins each morning and during the day, to rescue animals that might have been entrapped.

- All uncapped pipes, left at the site over night, will be inspected for animals before they are moved. If animals are found inside the pipe(s) they will be allowed to escape unharmed.

- All open ends of pipelines under construction will be capped at the end of each work day to prevent animals from being entrapped.

4.7 Reporting of Pre-activity Survey Results

Pre-activity survey results will be included in Monthly Biological Monitoring Reports that will be sent to the CEC, CDFG, and USFWS representatives. A summary of these reports will also included in the post-compliance report discussed below.

5.0 BIOLOGICAL RESOURCE MONITORING AND REPORTING

5.1 Scope of Compliance Monitoring

Biological monitors will accompany initial grading crews throughout the project area at all times that activities with the potential to affect listed species are being conducted. Biological monitors may conduct pre-activity surveys as described above; shall aid project crews in satisfying avoidance criteria and implementing project mitigation as described in this plan; shall aid in relocating access roads and lay down areas as necessary; shall inspect open trenches and footing holes for stranded wildlife and remove as necessary; shall observe and note all pertinent information concerning project effects on listed species; and in general shall assist project personnel in conducting the proposed project in such a manner as to minimize adverse effects on endangered and threatened species.

5.2 Follow-up to Problems

The Designated Biologist will attend regular weekly construction meetings that are routinely conducted during construction projects like TPP. These meetings will be the ideal forum for supervisors, construction crew members, and the biologist to interact and discuss problems they have had or may be having with biological resource compliance issues. The advantage of regular meetings is that small problems can be solved before they become large ones in the future.

5.3 Monthly Monitoring Reports, and Post-activity Compliance Report

Monthly monitoring reports will be provided to the CEC, CDFG, and USFWS, contractors, and TPP management every on or before the tenth day of the following month during construction. These reports will include the following information:

- Areas and activities monitored during the prior month
- Incident reports and outcome of remediation
- An account of all rescued/released animals
- a detailed account of any takes, harassments, or injuries to listed species

- Results of pre-activity surveys conducted

5.4 Reporting Procedures for Injured Wildlife

Project personnel that injure or kill or find any of the following species injured or killed: San Joaquin kit fox, Tipton kangaroo rat, and any hawk or owl will report the incident to their supervisor who will in turn inform the TPP Supervisor of Compliance and the Designated Biologist immediately. Dead animals will be frozen as soon as possible so that CDFG approved biologists may later determine the cause of death. Injured animals will be transported, by the Designated Biologist, to an agency approved veterinary hospital. All deaths or injuries involving listed species will be reported to USFWS and/or CDFG within 24 hours of the incident. All notifications will include species, time, date, the name(s) of person(s) involved, exact location of the finding or incident, and any other pertinent circumstances.

Contact information:

The USFWS contact for San Joaquin County is Chief, Endangered Species Division at (916) 414-6600. The address is Sacramento Fish and Wildlife Office, 2800 Cottage Way, W-2605, Sacramento, California 95825.

The CDFG contact for immediate assistance for the Sacramento Valley/Central Sierra Regional Office is State Dispatch at (916) 445-0045 (24 hours).

6.0 POST-CONSTRUCTION CLEANUP AND RECLAMATION

All construction areas, permanent and temporary, will be completely cleaned-up of all debris upon completion of activities at each site. Construction areas that will be temporarily disturbed, transmission line pole sites, staging areas and pulling sites will be completely recontoured to original grade.

6.1 Cleanup

Smaller construction debris and other trash will be cleaned up on a daily basis during the construction phase; larger items such as wire spools, etc., and perimeter stakes and flagging will be removed within 15 days of completion. Construction crews will be responsible for their own cleanup and the Construction Supervisor will be responsible for site inspections.

7.0 COMPENSATION

7.1 Acreage and Habitat Types Impacted

The TPP will provide monetary compensation or acquire agency approved lands containing habitat similar to the habitat being disturbed during construction and operation of the proposed facilities (that will be preserved and managed for sensitive wildlife and plant species into perpetuity) or purchase credits in an established preserve using the following ratios:

- 1 acre for each acre of agricultural habitat permanently disturbed
- 0.2 acres for each acre of agricultural habitat temporarily disturbed
- 3 acres for each acre of rangeland habitat permanently disturbed
- 1.1 acres for each acre of rangeland habitat temporarily disturbed

Table 4 summarizes the length and amount of disturbance associated with the TPP and amounts of compensation to be made.

The TPP is eligible to be covered under the San Joaquin County Master Incidental Take Permit to mitigate permanent and temporary disturbance to intensive agricultural and range lands. No CDFG 2081 permit will be necessary because there is little or no chance for "take" of individual listed animals.

7.2 Description of Conservation Efforts

The TPP will purchase habitat credits in accordance with the San Joaquin County Habitat Conservation Plan to mitigate for disturbances to marginal listed species habitats.

Habitat compensation credits may be required for 16.4 acres. The TPP site will be evaluated to assess the actual loss of habitat acreage in accordance with the requirements of the San Joaquin Habitat Conservation Plan. Compensation credits for identified losses of acreage will be determined by the San Joaquin County Council of Governments.

8.0 MEASURES REQUIRED DURING ON-GOING PROJECT OPERATION

The TPP is situated in a highly disturbed agricultural and industrial area, accordingly operation of the plant will not add significant impacts to listed wildlife in the area, however, TPP intends to implement the same applicable procedures designed for construction during the operation phase to minimize impacts.

8.1 Measures Required During the Operational Phase

Measures contained in the following sections of this document will apply to the operational phase:

- Section 4.0
- Section 5.0
- Section 6.0

8.2 Measures Required During Maintenance

TPP does not expect maintenance of the facilities to result in any new disturbance, however, should the need arise measures contained in Sections 6.0 and 7.0 of this document will be implemented.

8.3 Record Keeping

All employee training records, pre-activity survey reports, incident reports, and compliance reports will be kept on file and will be made available to regulatory agencies at any time by contacting the TPP Supervisor of Compliance.

9.0 MEASURES REQUIRED FOR CLOSURE

Both temporary and permanent closure scenarios are addressed in this section. Permanent closure will occur at the end of the facility's operational phase, temporary closures may be necessary in the event of disastrous events or unfavorable economic conditions.

In the case of temporary closure, measures to protect biological resources would be needed only if there were surface disturbances or releases of harmful materials during a disaster. In such an event occurs, TPP will consult with responsible agencies to plan cleanup and mitigation of impacts to biological resources.

A permanent closure plan will be prepared six months prior to closure activities. It will include take avoidance and mitigation requirements applicable to the sensitive biological resources in the area at that time. The plan will also include reclamation of areas where facilities would be removed. Measures similar to those contained in Section 7.3 along with other appropriate measures will be included in the closure plan.

Compliance reporting for closure activities will be similar to those contained in Section 6.3.

10.0 REPORTING, MONITORING, PERFORMANCE STANDARDS, AND REMEDIAL ACTIONS

The following discussion first describes the array of reporting and record keeping requirements. To satisfy some of the mitigation measures, the CEC, CDFG, and USFWS evaluated the design and siting characteristics of the TPP Project during the permit process. Other measures, especially some of those implemented during and after construction, will be monitored and evaluated for success. Table 5 identifies how mitigation measures will be monitored, describes performance standards, and proposes remedial actions if performance standards are not satisfied.

Before the start of any ground disturbance activities, TPP will submit to the CEC CPM copies of the San Joaquin County Habitat Conservation Plan Permit Certificate.

During construction activities, reporting requirements may include the following, depending on the nature of the activity and where it is located:

- Pre-activity survey report (The Designated Biologist will prepare a report describing the pre-activity surveys that will be submitted with the Monthly Compliance report to the CPM.)
- Incident report forms

Records maintained by the Designated Biologist at the project site will include:

- Pre-activity survey data forms
- Project maps with sensitive species occurrence locations
- Copies of incident reports
- Copies of all reports prepared for environmental compliance activities
- Copies of permits and approvals with conditions monitored by the Designated Biologist
- Background biological information: the Biological Assessment, the BRMIMP and its revisions

- Current names and ways to contact the CPM and representatives for TPP projects and the contractors

TABLES

Table 1

Regulating Agencies and Instruments They will Grant or Agreements They will Enter Into with TPP

Agency	Instrument/Agreement
CEC	Certification
County of San Joaquin	Listed species take permit, Building Permit, Encroachment Permits

Table 2

Special Status Wildlife Species with Potential to Occur in the TPP Area

Species	Status Federal/State	Habitat
Scaphiopus Hammondii Western Spadefoot	- /CSC	Intermittent wetlands, vernal pools
Phrynosoma coronatum frontale California horned lizard	- /CSC	Valley grasslands and open saltbush scrub
Rana aurora draytonii California red-legged frog	-/T	Permanent and long-term Intermittent wetlands, streams and ponds
Ambystoma californiense California tiger salamander	-/CSC	Intermittent wetlands, vernal pools
Eremophila alpestris actia California horned lark	-/CSC	Valley grasslands and open saltbush scrub
Athene cunicularia Burrowing owl	- / CSC	Valley grasslands and open saltbush scrub
Lanius ludovicianus loggerhead shrike	- / CSC	Valley grasslands and saltbush scrub
Toxostoma lecontei LeConte's thrasher	- / CSC	Prefers mature saltbush scrub for nesting
Agelaius tricolor Tricolored blackbird	-/CSC	Permanent and long-term Intermittent wetlands, streams and ponds
Perognathus inornatus San Joaquin pocket mouse	- / CSC	Valley grasslands and saltbush scrub
Taxidae taxus American badger	- / CSC	Grassland and scrub habitats of the San Joaquin Valley and surrounding foothills
Vulpes macrotis mutica San Joaquin kit fox	E/T	Grassland and scrub habitats of the San Joaquin Valley and surrounding foothills

E = *Endangered*
T = *Threatened*
CSC = *California Species of Concern*

Table 3

Special Status Plant Species with Potential to Occur in the TPP Area.

Species	Status Federal/State/CNPS	Habitat
Large-flowered fiddleneck *Amsinckia grandiflora*	FE/CE/1B	Lower portions of steep, protected north- and east-facing slopes in oak woodlands and grasslands
Alkali milk-vetch *Astragalus tener* var. *tener*	FSC/--/1B	Playas, grasslands on adobe clay soils, alkaline vernal pools
Heartscale *Atriplex cordulata*	FSC/--/1B	Chenopod scrub and sandy, alkaline grasslands
Brittlescale *Atriplex depressa*	FSC/--/1B	Alkaline or clay grasslands, chenopod scrub, and playas
San Joaquin spearscale *Atriplex joaquiniana*	FSC/--/1B	Alkaline scrub, meadows, and grasslands
Big-scale balsamroot *Balsamorhiza macrolepis* var. *macrolepis*	FSC/--/1B	Woodland and grassland, sometimes on serpentine soils
Big tarplant *Blepharizonia plumosa* ssp. *plumosa*	FSC/--/1B	Grasslands on clay soils, with low cover
Pappose spikeweed (Congdon's tarplant) *Centromadia parryi* ssp. c*ongdonii (=Hemizonia p.* ssp. *c.)*	FC/--/1B	Grasslands with alkaline soils
Slough thistle *Cirsium crassicaule*	FSC/--/1B	Slow-moving water with saturated soils in various plant communities along canals, and rivers
Hispid bird's-beak *Cordylanthus mollis* ssp. *hispidus*	FSC/--/1B	Seasonal wetlands in alkali sinks with valley sink scrub, alkali meadows, and alkali marsh communities
Palmate-bracted bird's-beak *Cordylanthus palmatus*	FE/CE/1B	Seasonal wetlands in alkali sinks with valley sink scrub, alkali meadows, and alkali marsh communities.
Interior California larkspur *Delphinium californicum* ssp. *interius*	FSC/--/1B	Mesic woodland
Recurved larkspur *Delphinium recurvatum*	FSC/--/1B	Grasslands, woodlands, scrub, vernal pools with alkaline soils

E = *Endangered*
FSC = *Federal Species of Concern*
CSC = California Species of Concern
CNPS= California Native Plant Society
1B = *Rare or endangered in California and elsewhere*

Table 4

Duration of Impact, Impacted Acres, Applicable Ratio, and Amount of Compensation in Acres

Duration of Impact/ Habitat Type	Impact Acres	Applicable Ratio	Amount of Compensation (acres)
Plant Site			
Permanent	9.4	1:1	9.4
Temporary	5.2	0.2:1	1.0
Transmission Line			
Permanent	0.3	1:1	0
Temporary	30	0.2:1	0.1
TOTAL	**45.4**		**16.4**

Table 5

Mitigation Measures, Performance Standards, Monitoring and Reporting

Action	Responsible Party	Timing	Reporting Mechanism	Performance Standard	Remedial Actions
Install, monitor, and maintain flagging/ fencing at avoidance areas	Designated Biologist	Install no more than 14 days before construction; inspect weekly; remove after construction	Logs to record all monitoring; incident reports for violations	No entry into avoidance areas	Repair or replace flagging and fencing; retrain workers in the area
Delineate construction areas at transmission line structure sites and pulling areas by stakes and flagging	Survey Crew/Designated Biologist/All project personnel	Install before construction/ inspect periodically; remove after construction	Logs to record all monitoring; incident reports for violations	Stay within construction areas	Repair or replace flagging and fencing;
Restrict project traffic to established roads and designated project work areas	Construction Manager	On-going	Not applicable	Stay within construction areas	Improve signage; retrain workers in the area
Monitor activities that may result in incidental take of listed species or their habitat	Designated Biologist will establish monitoring frequency and assign monitors as needed	Daily monitoring in sensitive areas; weekly monitoring in less sensitive areas	Logs to record all monitoring; incident reports for	Comply with take avoidance measures	Increase frequency of monitoring; enforce permit conditions

Table 5

Mitigation Measures, Performance Standards, Monitoring and Reporting

Action	Responsible Party	Timing	Reporting Mechanism	Performance Standard	Remedial Actions
			violations		
Limit construction activities on transmission line to daylight hours unless approved by oversight agencies	Scheduled by contractors; monitored by Designated Biologist	On-going	Logs to record all monitoring; incident reports for violations	No road kill of nocturnal species	Add night-time monitoring; enforce permit conditions
Do not use rodenticides and herbicides during construction unless approved by oversight agencies	TPP; contractors	On-going	Monthly reports	rodenticide or herbicide use during construction shall be approved by agencies	Retrain contractors and workers
Notify CEC,USFWS, and CDFG as required by permit conditions	TPP; Designated Biologist	Immediately	Phone calls; incident reports	Prompt resolution of problem	Increase frequency of monitoring; enforce contract conditions; retrain workers

Appendix A

Additional Mitigation Measures

California Energy Commission, Biological Conditions of Certification
San Joaquin County Habitat Conservation Plan Endangered Species Permit Certificate

Appendix B

Aerial Photographs of Project Area

Appendix C

Resume of Designated Biologist

RESUME

William J. Vanherweg

Certified Wildlife Biologist

332 North Stine Rd.
Bakersfield, California 93309
Email- bvan@ncinternet.net

- Biological Surveys - Impact Analysis - Regulatory Agency Consultation - Mitigation Design - Habitat Management & Conservation Planning

(805) 839-0375, FAX - (661) 324-7308

PROFESSIONAL HISTORY

1993-Present
Senior Biological Consultant
Self-employed

1991-1993
Senior Biologist/Regional Manager BioSystems Analysis, Inc.

1990-1991
Wildlife Biologist/Botanist
QUAD Consultants

1977-1990
Agronomist
Self-employed

1971-1977
Range/Biological Technician
Bureau of Land Management

1974-1974
Biological Technician
California Department of Fish and Game

EDUCATION

Bachelor's Degree Range Wildlife Ecology, 1975 California State University, Chico & Humboldt State University

Graduate Studies Environmental Biology
California State University, Bakersfield

As a Certified Biologist, Mr. Vanherweg is responsible for wildlife and botanical surveys, environmental project coordination, including study design and implementation, impact analysis, mitigation design, technical report preparation, and daily project coordination for a variety of projects. Those projects include but are not limited to pipelines, geophysical exploration, various urban development proposals, public works projects and petroleum cogeneration facilities.

William is experienced with the Endangered Species Act, NEPA, CEQA and many special techniques used for sensitive species surveys. He has supervised the excavation of numerous kit fox dens and burrowing owl burrow systems. Some of these excavations included transporting owl chicks and eggs to a rehabilitation center under special permit issued by the United States Fish and Wildlife Service. He has supervised furbearer surveys using the latest tracking and remote camera placement techniques and has supervised California spotted owl surveys for the Sequoia National Forest. He has prepared numerous Biological Assessments, Biological Evaluations and Environmental Assessments for review by California Department of Fish and Game, United States Fish and Wildlife Service, the Bureau of Land Management, the United States Forest Service and other public agencies.

Mr. Vanherweg has reported "new location" sightings of the following sensitive species to the California Natural Diversity Data Base, San Joaquin kit fox, Oval-leaved snapdragon, Wilkinson's campanula, Shasta arnica, Pacific fisher, Blunt-nosed leopard lizard, Ferruginous hawk, Sierra Nevada red fox, and California spotted owl.

PERMITS AND MEMORANDA OF UNDERSTANDING

State of California **Scientific Collectors Permit**

Federal Permit to live-trap endangered:
Tipton kangaroo rats
Stephen's kangaroo rats
Pacific pocket mice
San Bernardino kangaroo rats

State **Memorandum of Understanding** to live-trap:
Tipton kangaroo rats
Stephen's kangaroo rats
Pacific pocket mice
San Bernardino kangaroo rats
Mojave ground squirrels

Authorized to handle **desert tortoise** (threatened species) and **San Joaquin kit fox** (endangered species).

SPECIALIZED TRAINING

Endangered Species Workshop, 1990; Taft, California
Mojave Ground Squirrel Human Impact Habitat Evaluation Seminar, 1991; Barstow, California
Hazardous Waste Operations and Emergency Response Training, 1992, 1995, 1996, 1997, 1998; San Jose, California
Emergency **First Aid/CPR**, 1994, Paso Robles, California
Habitat Conservation Planning Seminar, 1994; Sacramento, California
Fairy Shrimp Identification, 1995; Bakersfield, California
Great Basin Wildlife Habitats Seminar 1995;
North Lake Tahoe,Nevada
San Joaquin Kit Fox Handling and Radio Collaring Training, Enterprise Advisory Services, Inc. 1997.

PROFESSIONAL AFFILIATIONS

San Joaquin Chapter of **The Wildlife Society**

Kern Chapter of the **California Native Plants Society**

American Society of Mammalogists

San Joaquin Valley Wildlife Species

Chevron Belridge 3-D Seismic Survey - **Biological Evaluation*** & Lead Monitor
San Emigdio Seismic Survey - **Biological Assessment*** & Lead Monitor
Enron, Kern County Seismic Survey **Biological Assessment** & Lead Monitor
Quatal Canyon Seismic Survey **Biological Assessment**
Santa Barbara Canyon Seismic Survey **Biological Assessment**
Bakersfield 3-D Arch Seismic Survey- **Biological Assessment** & Monitor
Cymric 3-D Seismic Survey - **Pre-activity Surveys**
South Coles Levee Natural Gas Pipeline Repair - **Pre-activity Surveys**
Coastal Aqueduct, Reaches 2,3 & 4 - **Water, Air, Traffic, and Fire Prevention Plans***
Delano State Prison Site - **Blunt-nosed Leopard Lizard Survey**
D.L. Griffiths Ski Park Project - **Construction Monitoring**
California State University, Bakersfield - **Ground Squirrel Eradication Program**
Bakersfield Air Park **Biological Assessment** - City of Bakersfield
Chandler Ranch **Environmental Impact Report** - City of Paso Robles*
P.S.E. - **Artificial Den Installation***
Paso Robles Airport - **Environmental Impact Report***
SemiTropic Ridge Water District - **Biological Assessment**
Tejon Oil field - **Natural Environment Study***
McFarland/Delano Landfill - **Natural Environment Study***
Mojave Pipeline - San Joaquin Valley **Preconstruction Surveys***
Midway Sunset Cogeneration Facility - **Artificial Kit Fox Den Installation***
Dexel Natural Gas Pipeline - **Biological Assessment***
Frito Lay/Highway 58 Expansion **Biological Assessment***
Shafter/Wasco Landfill **Tipton Kangaroo Rat Salvage Program***
Kern Fan Element Water Bank, Stages 1 & 2 - **Biological Assessment**
RioRock Gravel Company - **Biological Assessment***
Taft Landfill - **Biological Assessment***
Lost Hills Landfill - **Biological Assessment***
Lost Hills Waterline Rehabilitation Project - **Biological Assessment***
Bena Landfill - **Biological Assessment***
Arvin Landfill - **Biological Assessment***
McFarland/Delano Landfill - **Biological Assessment***
Kern Water Bank **Sensitive Species Monitoring Program***
Bear Mountain Road Properties, **Small Mammal Trapping Survey***
Golden Valley Produce Highway **Highway 58 Expansion Biological Assessment***
Urban Kit Fox **Home Range and Movement Study**
Torch - Cymric/Belridge 3-D Seismic Survey **Preactivity Survey and Nonitoring**
Mobil South Belridge Seismic Survey **Preactivity Survey***
35R to 17Z Natural Gas Pipeline Replacement **Preactivity Survey and Nonitoring***
Sunrise Cogeneration Facility **Biological Assessment***
Oakland Petroleum Maricopa Natural Gas Pipeline **Biological Evaluation***

Appendix D

Protocols for Temporary Closure of Kit Fox Dens and Construction of Artificial Dens and Burrows

This appendix describes procedures for temporary closure of kit fox dens and construction of artificial dens burrows for San Joaquin kit foxes, Tipton kangaroo rats, and burrowing owls.

D1.0 SAN JOAQUIN KIT FOX DENS

Our objective is to avoid kit fox dens whenever possible, however, some dens may be unavoidable. Dens are a significant resource to San Joaquin kit foxes and the loss of individual dens may adversely affect the kit fox habitat in the project area.

D1.1 Temporary Closure

All unoccupied kit fox dens in the temporary work area or within avoidance zone limits contained in Section 4.3, will be monitored for three days or explored thoroughly with a *VanCam burrow rover*. When dens are determined to be inactive, they will be plugged with wadded paper or other suitable material. The plug will be placed 8-12 inches inside the burrow opening and the remaining opening will be covered with soil. After construction is complete all dens will be unplugged.

D1.2 Artificial Den Construction

Prior to the destruction of a known or potential den in areas to be permanently disturbed, dens will be monitored as above, after dens are determined to be unoccupied, dens will be fully excavated, diagrammed, and backfilled. The TPP will install replacement dens within 30 days after construction is completed as close to the original den site as possible. The artificial dens will be placed at similar depth, aspect, position on slope, and have similar configuration as the original den. Siting of dens will take into account the presence of other sensitive resources; dens will not be sited closer than 100 feet from active burrows of sensitive rodents.

Den passages will be constructed of 8 inch corrugated polyethylene drain pipe connected to 24 inch x 12 inch x 18 inch (approximate dimensions) plastic valve boxes that will serve as den chambers.

D2.0 SMALL MAMMAL BURROWS

In suitable habitat of Tipton and giant kangaroo rats all small mammal burrows in work areas will be fully excavated prior to ground disturbance. If suitable natural burrows do not exist outside the work area for animals to to be placed in, artificial burrows will be constructed at a ratio of 2:1prior to excavation. The burrows will be placed no closer than 50 feet to the work area.

Previous artificial burrows constructed for Tipton kangaroo rats and giant kangaroo rats have had high rates of occupancy (Uptain 1995; Williams *et al.* 1993). The artificial burrow systems used in those studies were of a relatively simple design, with single or double entrances and, in one case, a nest chamber. The design presented below is based upon these two effective configurations.

Supplies needed for burrow construction include 24-inch long sections of 1.5 to 2 inch diameter cardboard tubing, lightweight cardboard boxes 4 x 4 inches on a side and 2 inches high, and duct tape. The tubing will be used to fashion the entrance culverts, the boxes will be used as nest chambers, and the duct tape will be used to assemble the pieces. Two holes 2-inches in diameter will be cut in opposite sides of the cardboard box. One section of the tubing will be taped into each hole. At 12 inches from the end of the tubing, it will be cut and bent at a 45-degree angle. The bend will be taped with duct tape. The entire structure will be placed into a hole and the box, which acts as a nest chamber, will be buried 6 inches deep, with the ends of the tubing exposed above ground. Soil is mounded over the portions of the tubing near the den entrances. Paper towels will be placed in each nest chamber to provide nesting material and seed will be supplied.

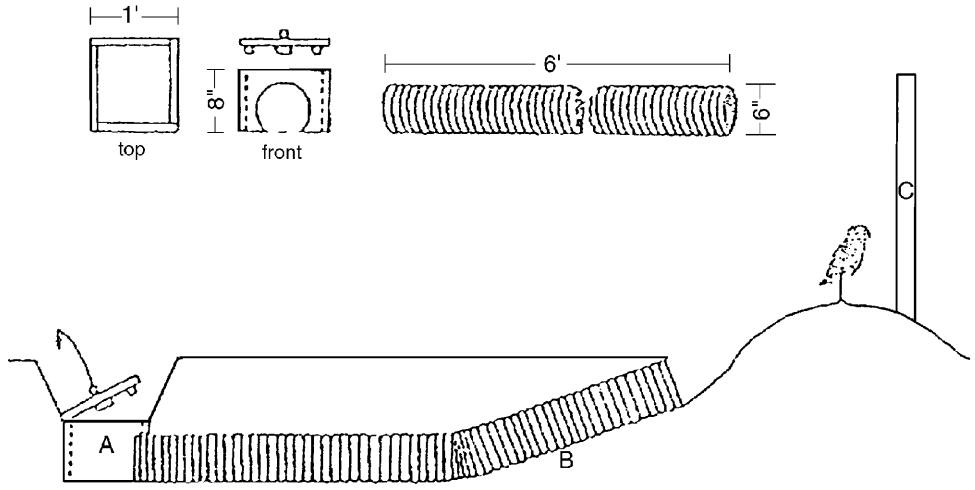
D3.0 BURROWING OWL BURROWS (Toyon 1999)

Active burrowing owl burrows will be avoided by construction activities to the extent possible, but some burrows may be unavoidable because of construction activities. Two artificial burrows will be provided for each burrow that is destroyed.

Artificial nest burrows were constructed according to the following specifications, as described by Bruce Olenick (1987) Nest burrows like these have been used successfully.

These nest burrows consist of a 12-inch by 12-inch by 8-inch wood nesting chamber with a removable top and a 6-foot corrugated and perforated plastic drainage pipe 6 inches in diameter (Figure D-1). The entire unit, including the nest chamber, is buried 12 to 18 inches below ground to provide thermal stability in the nest chamber. A perch is provided near the burrow entrance.

Figure D-1. Artificial burrowing owl burrow design (Olenick 1987).



D4.0 REFERENCES

Olenick, Bruce, 1987. Reproductive success of burrowing owls using artificial nest burrows in southeastern Idaho. Eyas 19 (1): 38 Spring 1987.

Toyon, 1999. Biological Resources Mitigation Implementation and Monitoring Plan, La Paloma Generating Project.