DRAFT BIOLOGICAL ASSESSMENT

STARWOOD POWER – MIDWAY, LLC PEAKING POWER PROJECT

Prepared for

US Fish and Wildlife Service, Sacramento

URS Project No. 27656131.00401

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AFC	Application for Certification
APN	Assessor's Parcel Number
BA	Biological Assessment
BOP	Balance of Plant
CEC	California Energy Commission
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	Carbon Monoxide
CPUC	California Public Utilities Commission
CTG	Combustion Turbine Generator
DI	Demineralized water
ESA	Endangered Species Act
F	Fahrenheit
GPM	Gallons Per Minute
HHV	High Heating Value
I-5	Interstate 5
ISO	International Organization for Standardization
kV	kilovolt
LORS	Laws, Ordinances, Regulations, Standards
MMBtu	Million British Thermal Units
mph	miles per hour
MW	Megawatt
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOx	Nitrous oxide
OWS	Oil Water Separator
PEC	Panoche Energy Center
PG&E	Pacific Gas & Electric
ppmvd	Parts per million volumetric dry
RFO	Request for Offers
RO	Reverse Osmosis
SCR	Selective Catalytic Reduction
sf	Square feet
SJKF	San Joaquin kit fox
SPM	Starwood Power-Midway, LLC
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

SECTION 1 INTRODUCTION

This Biological Assessment (BA) has been prepared for the Starwood Power - Midway, LLC (SPM) Peaking Power Project (Midway) pursuant to Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S. Code 1531 *et seq.*). The BA evaluates the potential direct, indirect, and cumulative effects of the proposed action on the San Joaquin kit fox (SJKF, *Vulpes macrotis mutica*), a Federally endangered species that has potential to occur within the project area.

Section 7 of the ESA directs all Federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the Secretary (i.e., U.S. Fish and Wildlife Service [USFWS] and/or National Marine Fisheries Service [NMFS]) to ensure that any action authorized, funded, or carried out by such agency does not jeopardize listed species or destroy or adversely modify critical habitat. Section 7 applies to management of Federal lands as well as other Federal actions that may affect listed species such as Federal approval of private activities through the issuance of Federal permits, licenses, or other actions. This document identifies the potential environmental biological effects that may result from implementation of the construction and operation of the proposed project and a range of other reasonable alternatives.

1.1 PROJECT DESCRIPTION

1.1.1 Facility Location

The project site, located in the unincorporated area of western Fresno County, is described as the Southwest Quarter of Section 5, Township 15 South, Range 13 East, on the United States Geological Survey (USGS) Quadrangle map. The assessor's parcel number (APN) is 027-060-78S. West Panoche Road lies just north of the site. The nearest intersections are West Panoche Road and South Fairfax Avenue approximately one mile to the northeast, and West Panoche Road and Interstate 5 (I-5) approximately 2 miles to the southwest. The surrounding area is predominantly used for agriculture with two existing power generation facilities nearby as well as the Pacific Gas & Electric (PG&E) Substation (Figures 1 and 2).

The proposed plant will be located on a 5.6-acre site within a 128-acre parcel. The plant site is leased by SPM from the property owners and has been used since 2001 as a storage yard for CalPeak Power. Portions of the 128-acre parcel, not used for electric generation facilities or storage, are currently in agricultural production with pomegranate trees.

Off-site improvements associated with the project include approximately 300 feet of electric transmission line to tie into the PG&E Substation, a 1,200-foot underground, 3-inch water pipeline connecting the project to the existing CalPeak Panoche plant well, 200 feet of new gas transmission line and a gas metering set that will tap into the existing PG&E gas trunkline.

On-site project components include a 20-foot by 1,400-foot graded gravel and asphalt roadway to access the plant equipment, a 25,000 square-foot evaporation pond that would be utilized for on-site stormwater retention as well as Reverse Osmosis (RO) wastewater discharge, approximately 600 feet of on-site gas line after the PG&E metering set, and the construction area, including laydown and parking.

The Midway project includes the plant site and all of the described on-site and off-site improvements.

1.1.2 Facility Description

The Midway project is a proposed simple-cycle electric generation project consisting of two (2) FT8-3 SwiftPac Gas Turbine Generator (CTG) units. The total net generating capacity is 120 megawatts (MW) with each CTG unit capable of generating 60 MW. The proposed plant will be owned and operated by Starwood Power – Midway, LLC. The electricity generated by this project would meet the requirements of a contract with PG&E.

The two (2) FT8-3 SwiftPac CTG units to be installed in a simple cycle power plant arrangement are equipped with water injection into the combustors to reduce production of nitrous oxides (NOx), a selective catalytic reduction (SCR) system with 19% aqueous ammonia to further reduce NOx emissions, and an oxidation catalyst to reduce carbon monoxide (CO) emissions. The nominal plant power rating will be 120 MW. Auxiliary equipment will include one step up transformer, a water treatment system and water storage tanks, an air compressor dryer skid, and control enclosures.

Typical operating hours for the Midway project will be comparable to the existing CalPeak Panoche plant. Midway will have the same heat rate as the CalPeak Panoche plant, and therefore would be dispatched for system operation in a similar manner. Currently the CalPeak Panoche plant which averages 4.5 hours per start, runs substantially less than 400 hours per year.

1.2 PURPOSE AND NEED

Midway is a proposed simple-cycle electric generation project that has been designed and developed to conform to the requirements of the PG&E Company. The goal and objective of this project is simple; to meet the contractual requirements of PG&E. The following discussion gives the background pertinent to the contract with PG&E for the sale of power from the Midway project.

The California Public Utilities Commission (CPUC) approved the PG&E long-term resource plan on December 20, 2004. In response to the PG&E Request for Offers (RFO), Starwood-Midway Power, LLC (the Applicant) investigated potential sites at or near the Vaca Dixon, Midway, Lodi and Panoche substations. Investigation included exploration of existing transmission path loads, flows, constraints, and growth potential. Starwood–Midway Power, LLC chose the Panoche site for a variety of reasons. A parcel of land of sufficient size is available and had been leased by CalPeak Power for equipment storage since 2001. The site is ideal as it is located directly adjacent to the existing CalPeak Panoche plant, which allows for contiguous, compatible land uses and common ownership and could be developed with minimal impacts because, as a storage-yard, the site has been previously disturbed and graded. There is no existing vegetation on-site. The adjacent gas pipeline and electrical substation minimizes the need for and potential impacts from the linear facilities required for the project. Project development on any other site in the vicinity of the existing PG&E substation would require the destruction of existing agricultural and/or potential biological resources habitat. Thus, use of the proposed site allows for fewer impacts to biological and agricultural resources.

1.3 HISTORY OF CONSULTATION TO DATE

To be provided by USFWS staff.

SECTION 2 PROPOSED ACTION

2.1 FACILITIES DESCRIPTION

2.1.1 Overview

The Midway project will consist of two (2) FT8-3 SwiftPac CTG units installed in a simple cycle power plant arrangement. Nominal plant power rating will be 120 MW. The two (2) FT8-3 CTG units will be part of a power plant that will also include the following Balance of Plant (BOP) equipment/systems:

- One (1) CTG Main Step-up transformer (13.8/115 kV).
- An SCR/CO catalyst system that will be implemented on both CTG units to provide post-combustion emissions control. The facility will include an aqueous ammonia storage and delivery system in support of the SCR catalyst system.
- A Water Treatment system starting with a RO unit will feed a demineralizer to provide high-purity water to the gas turbines for water injection / inlet fogging. Water injection will be utilized for control of NOx emissions during combustion. Inlet fogging will be utilized to provide cooling of inlet air. The water treatment system will include one (1) 75,000 gallon Raw Water Storage Tank, an RO unit, a Mobile Water Treatment system (i.e., Demineralizer Trailers on a pad), two (2) 75,000 gallon Demineralized (DI) Water Storage Tanks, and a forwarding system to deliver the demineralized water to the gas turbines.
- A Natural Gas Fuel system that will supply natural gas to the gas turbines in a manner that meets the required engine specifications (i.e., pressure, flow, quality). The project will tie into the existing 6” diameter fuel natural gas supply pipeline for the CalPeak Panoche plant, which in turn ties into the PG&E main gas truckline running along West Panoche Road. A separate meter and 6” line will supply Midway with natural gas.
- A Compressed Air system that will provide clean, dry air to the gas turbines, BOP instrumentation, and BOP servicing areas. This system will include two (2) air compressor skids and one (1) dryer skid.
- A Plant Drain System that will include a 3,000 gallon Oil Water Separator (OWS) to collect oily waste from equipment/containment areas (transformer containment areas, air compressor/dryer skid and CEMS enclosures) and the GT Drain Tank, an Above-Ground Storage Tank (AST), that will collect waste from the CTG units. Water from the OWS will be discharged to the evaporation pond. Oils collected in the OWS will be sent off-site for disposal. CTG waste will first be collected in a sump and then pumped to the AST. Waste in the AST will be sent off-site for disposal.
- A Site Stormwater Drainage system that will handle drainage of rainwater from non-equipment locations.
- A lined evaporation pond that will collect discharge wastewater from the RO Unit and the OWS.

2.1.2 Fuel Gas Supply

At full load, each FT8-3 SwiftPac CTG unit requires an approximately 625 MMBtu (Million British Thermal Units)/hr HHV (High Heating Value) of natural gas for a plant total demand of 1,250 MMBtu/hr. The project will connect to an existing PG&E high-pressure gas trunk line, which currently serves the CalPeak Panoche plant site, located north of the Midway site. To tap into the existing PG&E gas trunkline, Midway will install approximately 800 feet of 6-inch diameter gas transmission line and a new gas metering set along the length of the western perimeter of the site.

2.1.3 Water Supply and Discharge

The Midway site has three equally viable sources for supply water: 1) water from the well at the adjacent CalPeak Panoche plant; 2) irrigation return flow water from the local farming operation's agricultural backwash pond (Baker Farming Company, LLC); or 3) water from a new deep well. Water needs include NOx control (98 gallons per minute [GPM]), inlet fogging (40 GPM) and intermittent service water (5GPM). Water will be treated using a RO system, followed by a demineralizer.

Safety water requirements include eye wash stations in hazardous chemical areas. The safety water will be supplied by self-contained water units. Potable drinking water will be supplied by a bottled water purveyor.

Wastewater from Midway will consist of RO reject water and OWS discharge that is non-hazardous. Process wastewater will be conveyed to the evaporation pond on the east side of the Midway site. The OWS will collect oily waste from the main and auxiliary transformer containment areas, the air compressor/dryer skid, the CEMS enclosures, and the generator floor drains via gravity drain. The OWS will remove the oily waste from the collected stormwater. The non-hazardous, cleansed water from the OWS would then be discharged to the evaporation pond. Oils and chemicals collected in the OWS will be stored on-site until it is transported off-site to a hazardous waste disposal facility for treatment and disposal.

Rainwater from the Midway site that does not contact the power-generation equipment will be predominantly drained by sheet flow and directed to the on-site evaporation pond.

2.1.4 Transmission Facilities

A new 300-foot, 115kV short line will be constructed from the dead-end structure on the Midway site and will tie into the CalPeak Panoche/PG&E interconnection line which leads to the 115kV switchyard and dead end structure at the PG&E Substation. Line design will take into account a 90 degree orientation differential between the Midway dead-end structure and the CalPeak Panoche/PG&E tie-line. Intermediate structures will be installed as required. Line clearances over roads and under existing lines will conform to all applicable standards and requirements. The dead end structure and, if deemed necessary, any intermediate line supports will have foundations designed to meet seismic criteria applicable to the site.

2.1.5 Site Access

Site access from West Panoche Road would be provided via a 20-foot wide access roadway easement adjacent (east of) the PG&E Substation. From a proposed entrance gate, which would be located just south of West Panoche Road, the proposed access roadway would be graded gravel and run for approximately 250 feet south and east to the site. At the project site the proposed roadway would become asphalt, with a vehicle turnaround area providing access to the project equipment. The asphalt portion of the proposed roadway would be approximately 1,150 feet.

2.1.6 Site Layout

The plant facilities have been arranged for optimum use of the property as well as to ensure ease of maintenance and operation. Off-site improvements associated with the project include an approximate 300-foot electric transmission line to tie into the PG&E Substation, a 1,200-foot underground water pipeline connecting the project to the existing CalPeak Panoche plant well adjacent to the project site, 200 feet of new gas transmission line and a gas metering set which will tap into the existing PG&E gas trunkline.

2.2 PROJECT CONSTRUCTION

Construction of the Midway project includes site preparation, foundation construction, erection of major equipment and structures, installation of piping, electrical systems, control systems, and start-up/testing. These construction activities are expected to require approximately 10 months. The schedule commences when the Owner issues a notice to proceed and is completed when the project is commercially operational. Table 1 presents the major construction milestones.

Table 1
Construction Milestones

Activity	Dates
Engineering, Design, Procurement	February to June 2008
Construction	June 2008 to April 2009
Performance Testing	April to June 2009

The general sequence of work will proceed as follows:

- Receipt of the Final Decision from the California Energy Commission (CEC) and BO from the USFWS
- Issuance of a notice to proceed by the Owner
- Development of the project schedule incorporating items required by the CEC and USFWS
- Commencement of engineering and procurement activities
- Site preparation and construction mobilization

- Installation of underground piping and electrical systems
- Construction of concrete foundations
- Installation of power-generating equipment
- Installation, interconnection, and testing of aboveground piping and electrical systems
- Installation, interconnection, and testing of instrumentation and control devices and distributed control system

Construction will conclude with start-up and testing activities, which will continue until the entire facility is capable of reliable operation within permit requirements and good operating practice. All of the systems and subsystems in each unit will be tested and adjusted, first individually and then combined with others, before the project is deemed ready for startup.

Mobile trailers or similar suitable facilities (e.g., modular offices) will be used as construction offices for owner, contractor, and subcontractor personnel. Construction parking will be within existing site boundaries. Construction access will be from West Panoche Road. There will be adequate parking space for construction personnel and visitors during construction on site.

As part of the site access road construction previously described, an adjacent gravel laydown area will also be constructed. In addition to the laydown area, other areas within the site boundary may also be used as off-load and staging during construction. All laydown and storage areas are wholly within the site perimeter and once construction is complete will be within site security perimeter fencing. Post-construction, the gravel laydown area will be used for parking as needed.

Materials and supplies will be delivered to the site by truck. Truck deliveries of construction materials and equipment will generally occur on weekdays between 6:00 a.m. and 6:00 p.m., however, some larger heavy load deliveries may be delivered outside those hours. Site access will be controlled for personnel and vehicles.

SECTION 3 ENVIRONMENTAL BASELINE

3.1 METHODS FOR EVALUATION

The proposed Midway site is adjacent to (specifically 0.2 miles northeast) the proposed Panoche Energy Center (PEC) for which an Application for Certification (AFC) was filed with the CEC in August 2006. After conferring with CEC staff, it was determined that information gained from the PEC biological survey would be sufficient data to use for the Midway AFC. Therefore, the existing biological resources surrounding the proposed PEC site and encompassing the Midway site were used for this assessment.

Biological field surveys were conducted by a URS biologist on April 21, 2006 for the proposed PEC and surrounding area that included the proposed Midway site. Surveys were conducted according to CEC regulations (CEC 2000). The "project area" is defined as the area that could potentially be directly disturbed during project construction, and includes the PEC site, construction laydown and parking areas, electric transmission line, and access road. The "project survey area" includes the PEC project area and a buffer of a 1-mile radius surrounding the PEC where field surveys were conducted for botanical and wildlife resources. The proposed Midway project site falls within the 1-mile radius survey area for the proposed PEC project.

Prior to conducting field surveys a review of literature was performed including a search of the California Native Plant Society (CNPS) Inventory of Rare Plants Database and California Natural Diversity Database (CNDDB) in order to determine special-status species known to occur or that could potentially occur within the project survey area. The following USGS 7.5- minute quadrangles were searched for records of special-status species: Hammonds Ranch, Broadview Farms, Firebaugh, Chounet Ranch, Chaney Ranch, Coit Ranch, Tumey Hills, Monocline Ridge, and Levis quadrangle. The project survey area is within the Chaney Ranch, and all of the surrounding quadrangles were searched (see Figure 2).

The field survey included walking transects through the proposed plant site and construction laydown and parking areas and visually scanning areas within the 1-mile buffer (see Figure 2). All botanical and wildlife species observed were documented, and all plant communities and habitat that could support potentially occurring special-status species were described.

3.2 GENERAL ENVIRONMENTAL SETTING

The Midway project vicinity was historically a sagebrush and native grass covered arid landscape. Dense riparian vegetation grew only along the banks of the area's few creeks (JRP Historical Consulting 2006). As a result of past heavy agricultural and industrial use in the area, no native vegetation is present within the project study area or vicinity. The Midway site and adjacent areas provide limited habitat for few wildlife species due to high agricultural use in the area. The existing PG&E Substation is adjacent to the northern corner of the Midway project site. West Panoche Road and an existing 5-plex are located to the north, the CalPeak Panoche plant lies to the southwest, the Wellhead Peaker plant is located to the southeast, and the remainder of the site is surrounded by agriculture primarily consisting of apricot and pomegranate trees.

3.3 GENERAL VEGETATION COMMUNITIES

No native plant communities are present within the project site.

3.4 SPECIAL STATUS PLANT SPECIES

No special-status plant species were observed during the field survey and there are no records in the CNDDB within the project survey area. The CNDDB lists the following 11 special-status plant species as having a low potential for occurrence within the project vicinity: Lost Hills crownscale (*Atriplex vallicola*), hispid bird's-beak (*Cordylanthus mollis* ssp. *hispidus*), Hall's tarplant (*Deinandra halliana*), recurved larkspur (*Delphinium recurvatum*), Temblor buckwheat (*Eriogonum temblorense*), round-leaved filaree (*Erodium macrophyllum*), Munz's tidy-tips (*Layia munzii*), Panoche pepper-grass (*Lepidium jaredii* ssp. *album*), showy madia (*Madia radiate*), San Joaquin woollythreads (*Monolopia congdonii*), and Sanford's arrowhead (*Sagittaria sanfordii*). In addition, CNPS lists paleyellow layia (*Layia heterotricha*). These species are likely to have been extirpated from the project survey area due to the conversion of native vegetation to intensive agriculture. Few native plant species were observed within the project area and these species are not expected to occur in the project study area.

3.5 GENERAL WILDLIFE COMMUNITIES SURVEY RESULTS

The Midway site and adjacent areas provide limited habitat for few wildlife species due to high agricultural use in the area. Sixteen species of birds were observed during the field survey. Typical species observed include western kingbird (*Tyrannus verticalis*), red-tailed hawk (*Buteo jamaicensis*), American goldfinch (*Carduelis tristis*), and American pipit (*Anthus rubescens*), but none of the birds detected are sensitive at a state or federal level. Raptors are protected by CDFG. Most of the species detected, such as house finch (*Carpodacus mexicanus*), brown-headed cowbird (*Molothrus ater*), killdeer (*Charadrius vociferus*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), American crow (*Corvus brachyrhynchos*), morning dove (*Zenaida macroura*), cliff swallow (*Petrochelidon fulva*), Brewer's blackbird (*Euphagus cyanocephalus*), and Northern mockingbird (*Mimus polyglottus*), are typically found in disturbed/developed areas.

3.6 SPECIAL STATUS WILDLIFE SPECIES

No special-status wildlife species were observed during the field survey and there are no records in the CNDDB within the project survey area. The CNDDB lists the following 22 special status wildlife species as having a low potential for occurrence in the project vicinity: Ciervo aegilian scarab beetle (*Aegialia concinna*), tricolored blackbird (*Agelaius tricolor*), San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), silvery legless lizard (*Anniella pulchra pulchra*), short-eared owl (*Asio flammeus*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), San Joaquin dune beetle (*Coelus gracilis*), giant kangaroo rat (*Dipodomys ingens*), western pond turtle (*Emys* (=*Clemmys*) *marmorata*), *californicus*), blunt-nosed leopard lizard (*Gambelia sila*), Morrison's blister beetle (*Lytta morrisoni*), Tulare grasshopper mouse (*Onychomys torridus tularensis*), San Joaquin pocket mouse (*Perognathus inornatus inornatus*), California horned lizard (*Phrynosoma coronatum frontale*), bank swallow (*Riparia riparia*), American badger (*Taxidea taxus*), giant garter snake (*Thamnophis gigas*), and San Joaquin kit fox (*Vulpes macrotis mutica*).

Most of these sensitive species records are located within the following Special Environmental Areas (the nearest of which is approximately 4.4 miles away): Tumey Hills, Panoche Hills, Ciervo Hills, and Monocline Ridge. These species are not expected to occur in the project survey area due to lack of suitable habitat. Only a few sensitive wildlife records are located within agricultural areas in the project vicinity and thus have a low potential to occur in the project area. These species include the Swainson's hawk, San Joaquin kit fox, California horned lark, Tulare grasshopper mouse, short-eared owl, and blunt-nosed leopard lizard. Due to the site conditions within and adjacent to the project site, the San Joaquin kit fox is the only species addressed in detail in this biological assessment.

3.7 ENDANGERED SPECIES DESCRIPTION

3.7.1 San Joaquin Kit Fox (Vulpes macrotis mutica)

Status: SJKF was listed as Federally Endangered on March 11, 1967 (32 CFR 4001) and listed as State Threatened on June 27, 1971. Critical habitat has not been designated. A Recovery Plan was developed in 1983 (UFSWS 1983). This species is also addressed in the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998).

Description: SJKF is a subspecies of the kit fox which is the smallest member of the canid family in North America. They have an average body length of 20 inches and a weight of about 5 pounds. Kit foxes are generally small with a slim body, are long-legged, and have relatively large ears set close together. The long, bushy tail tapers slightly toward the tip and is black-tipped. The tail is typically carried low and straight. Their coat ranges from tan to gray in the summer to silvery gray in the winter.

Distribution: SJKF historically ranged throughout the San Joaquin Valley, from Tracy to Bakersfield. The largest extant populations are located in western Kern County around the Elk Hills and Buena Vista Valleys and in the Carrizo Plain Natural Area in Sal Luis Obispo County. Smaller populations are also known from other parts of the San Joaquin Valley, including Madera County and eastern Stanislaus County (USFWS 1998).

The nearest CNDDB record of San Joaquin kit fox to the project area is 2.4 miles north of the project area along Panoche Creek in the Tumey Hills west-southwest of the intersection of Interstate 5 and Panoche Road. It was also detected 7.3 miles southeast of the project area along a drainage ditch in a recently cultivated field along the western embankment of the California Aqueduct in 1997. SJKF was last recorded in the general project vicinity in 1999. However, due to suitable migration habitat along Panoche Creek, SJKF has moderate potential for occurrence in the project vicinity.

Habitat: SKJF are found on every soil type, although they prefer loose-textured soils. Dens are scarce in areas with shallow soils because of proximity to bedrock, high water tables, or impenetrable hardpan layers. Historically, they occurred in native plant communities of the San Joaquin Valley, but these communities are only represented by small, degraded remnants today due to intensive land use. SKJF are currently found on lands that have been modified by humans, including grasslands and scrublands with oil fields, wind turbines, and moderate agricultural use. They are associated with valley sink scrub, valley saltbush scrub, upper sonoran subshrub scrub, and annual grassland in the southernmost portion of their range and with valley oak woodland and annual grassland in the northernmost portion of their range.

They will utilize agricultural lands where uncultivated land is maintained, which provides suitable denning and a suitable prey base.

Natural History: The diet varies geographically, seasonally, and annually, based on abundance of prey. The kit fox diet consists of kangaroo rats (*Dipodomys* sp.), pocket mice (*Perognathus* sp.), white-footed mice (*Peromyscus* sp.), and other nocturnal rodents in the southern range and California ground squirrels (*Spermophilus beecheyi*) in the northern range. Other common prey species include black-tailed hares (*Lepus californicus*), San Joaquin antelope squirrels (*Ammosphermophilus nelsoni*), desert cottontails (*Sylvilagus audubonii*), ground-nesting birds, and insects.

Kit foxes are active year-round and are primarily nocturnal. Kit foxes use dens for temperature regulation, shelter, and protection from predators. Kit foxes may construct their own den, use those constructed by other animals (i.e., badgers, coyotes, ground squirrels), or use human-made structures (i.e., culverts, abandoned pipes, banks in roadbeds). They often change dens and will use many dens throughout the year. Most dens, especially pupping dens, have at least two entrances. No SJKF dens have been detected in the vicinity of the Midway project site.

Kit foxes are able to reproduce at 1 year, but may not breed that first year. Females begin preparing the pupping den in September and October. Mating usually takes place between late December and March, with an average gestation period of 48 to 52 days. Litters are typically born in February or March and consist of two to six pups. The male will provide most of the food for the female and pups while she is lactating. The pups generally disperse at four to five months old, in August or September. The reproductive success of kit foxes is related to the prey abundance. SJKF have been known to live for as long as 10 years in captivity, but typical life span in the wild is 7 years.

Reason for Decline/Vulnerability: Predation or competitive exclusion of kit foxes may occur in the presence of coyotes, introduced red foxes, domestic dogs, bobcats, and large raptors. Natural factors such as drought, flooding, and rabies also affect kit fox mortality. Human threats to kit fox include destruction of habitat, habitat degradation, predator and pest control programs, and accidents caused by proximity to humans such as electrocution, roadkills, and suffocation from accidental burial in dens. Loss of habitat contributes to the decline of the kit fox through displacement, direct and indirect mortalities, barriers to movement, and reduction of prey populations.

SECTION 4 EFFECTS DETERMINATION

4.1 FACTORS CONSIDERED

This section includes the analysis of the direct, indirect, and cumulative effects of the proposed action on SJKF. The analysis identifies the project features and/or activities that are anticipated to adversely impact the species, and when feasible, quantifies such impacts. Direct effects are defined as actions that may cause an immediate effect on the species or its habitat, including the effects of interrelated actions and interdependent actions. Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the proposed project. Permanent impacts were calculated as the physical ground disturbance area covered by new fill or cut sections that result from project implementation and construction.

The current land use on the 5.6-acre project site is a developed site completely fenced and maintained as an equipment storage yard for an adjacent power facility. The project site is completely surrounded by agricultural lands (orchard and row crops), which are considered marginal habitat for kit fox. No dens are known to be present and food resources in the immediate project vicinity is very limited. Overall the site is considered to be marginal habitat. No natural habitats (e.g., grasslands) occur within 2 miles of the site. The nearest kit fox sighting location is over 2.5 miles north of the site associated with Panoche Creek and this sighting was recorded in 1986 (CNDDB database). Therefore, the potential impacts as a result of the proposed project are expected to be minimal, if any in fact occur.

Construction of the new facilities, including the generator units, transmission line, evaporation pond, and other associated equipment would potentially result in temporary impacts to SJKF. Although no kit foxes were detected during the field surveys, potential effects of the construction activities should kit foxes occupy the project area during construction include displacement (temporary or permanent) from suitable habitat within the project area; direct mortality; crushing of sheltered sites; disturbance from noise, vibration, air emissions, and light; modification movement and foraging opportunities. Moreover, construction is expected to result in the short-term and long-term losses of potential SJKF habitat.

Since SJKF are rarely encountered, it is not possible to determine if any SJKF would be affected, and if so, quantify the exact number of individuals that would be temporarily affected during ongoing construction activities. The likelihood of direct mortality from vehicles utilizing the site is low, since construction will not occur at night when the foxes are most active. In addition, impacts from increased noise, vibration, light, and air emissions are expected to be minimal because of the lack of night construction. Furthermore, SJKF are often found in disturbed areas, they are expected to be somewhat habituated to noise levels and air emissions associated with human activity. Implementing the conservation measures discussed in Section 4.3 will minimize impacts from construction activities on SJKF.

Since SJKF are rarely encountered, it is not possible to determine if any SJKF would be affected, and if so, quantify the number of individual animals that could be taken via harassment as a result of the removal of 5.6 acres of potential habitat. Implementation of the conservation measures discussed in Section 4.3 will minimize and compensate for potential impacts to SJKF.

4.1.1 Cumulative Impacts

Federal regulations implementing the National Environmental Policy Act (NEPA) (40 CFR 1508.7) define a cumulative impact as "the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." However, unlike NEPA, under Section 7 of the ESA, cumulative effects analyses are limited to future State and private actions that are reasonably certain to occur within the action area prior to the completion of the Federal project. For Section 7 consultations, the cumulative impacts should not include future Federal actions (e.g., undertakings that require federal authorization or federal funding) because they are actions that themselves would be subject to the restraints of Section 7 at some later date. Indicators of "reasonably certain" projects must show more than the possibility that the non-federal project would occur. They must demonstrate with reasonable certainty that it would occur. Accordingly, only those State or private projects that satisfy all major land use requirements and that appear to be economically viable are considered. Cumulative effects involve only future non-Federal actions: past and present impacts of non-Federal actions are part of the environmental baseline. The following subsections identify and describe potential cumulative effects that could result from the Midway project in combination with other reasonably foreseeable future non-Federal actions or natural events in or near the project area.

Projects that will potentially contribute to cumulative impacts are those located in the same general geographic area of influence of the Midway project. For this cumulative assessment, the area of influence is defined as the area within a 5-mile radius of the power plant. Projects or proposed projects of potential regional significance are also considered in the cumulative analysis. Information was gathered on projects that either: 1) are greater than 30,000 square feet (sf); 2) have submitted a defined project application for required approvals or permits; or 3) have been previously approved and may be implemented in the near future.

Three projects with permit or permit applications were identified in the project area. There are no other known permits for seemingly large-scale projects within a 5-mile radius of the proposed project site. The following describes the three projects:

CalPeak Panoche Power: This existing power plant, which has been in operation since 2001, is directly adjacent to the proposed Midway site.

Convenience Store Building: From the project description provided by the County of Fresno, this seems to be an addition to an already existing convenience store. Detailed information on this specific project was unavailable. However, it is highly unlikely that this building permit was for a structure that was equal to or over 30,000 sf. Thus, this project can be dismissed from the cumulative impact analysis because no cumulative impacts would occur.

Proposed PEC: The PEC is proposed as a nominal 400 MW peaking facility consisting of four (4) General Electric LMS100 natural gas-fired combustion turbine generators, emissions control equipment, one cooling tower, and process water treatment equipment and other associated equipment. The proposed project consists of constructing the power generation facility, including a gas line extension, and expanding the existing adjacent PG&E Substation. The project is proposed on approximately 12-acres in

Fresno County, California. The proposed project is owned by Panoche Energy Center, LLC. The site is southeast of the intersection of Davidson Avenue and West Panoche Road, approximately 2.2 miles east of I-5. The site is currently in agricultural production. Potential mitigation of noise impacts could result in the relocation of three adjacent residential structures.

Potential cumulative impacts to SJKF caused by the construction/operation of several power plants and substation in the area may include loss of foraging/sheltering habitat; mortality from cumulative traffic; disturbance from noise and air emissions; and disruption of movement or foraging opportunities.

4.1.2 Determination of Effect

In summary, construction, and long-term operations may possibly interfere with the potential movement or foraging opportunities for SJKF within the project vicinity. In addition, 5.6 acres of potential, marginal SJKF habitat would be permanently lost. In consideration of the aforementioned analysis, USFWS has determined the proposed project may affect, but is not likely to adversely affect, the San Joaquin Kit Fox.

4.2 MITIGATION/CONSERVATION MEASURES

To compensate for the potential impacts to SJKF inhabiting the 5.6 acres of affected habitat, SPM will buy six (6) conservation credits, where one credit equals one acre, at a Service-approved compensation bank that includes the Starwood Power – Midway Peaker Power Plant in its service area.

Standard Construction Best Management Practices would include:

1. Project-related vehicles should observe a 20-miles per hour (mph) speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction should be minimized. Off-road traffic outside of designated project areas should be prohibited.

2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 12 of this section must be followed.

3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.

4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from a construction or project site.

5. No firearms shall be allowed on the project site.

6. To prevent harassment, no pets should be permitted on project site.

7. Use of rodenticides and herbicides in project area should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphide should be used because of proven lower risk to kit fox.

8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the Service.

9. An employee education program should be conducted for any project that has expected impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program should include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the ESA; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

10. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for advice.

11. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the USFWS immediately in the case of a dead, injured or entrapped kit fox. They will contact the local warden or biologist.

12. The Sacramento Fish and Wildlife Office will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The Service contact is the Assistant Field Supervisor of the Division of Endangered Species.

SECTION 5 PREPARERS AND REVIEWERS

URS prepared this BA for, and under direction of the USFWS. A list of the professional members on the BA team is provided below.

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SECTION 6 REFERENCES

Bjurlin, C.D, B. L. Cypher, C. M. Wingert, and C. L. Van Horn Job. 2005. Urban Roads and the Endangered San Joaquin Kit Fox. Report to California Department of Transportation Sacramento, CA 95819 Contract No. 65A0136.

California Department of Fish and Game (CDFG). 2007. California Natural Diversity Data Base. Internet website: http://www.dfg.ca.gov/bdb/html/cnddb.html.

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

California Native Plant Society (CNPS). 2006. CNPS On-line Inventory of Rare and Endangered Plants. Internet website: http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi.

Cypher, B.L. and J.H. Scrivner. 1992. Coyote control to protect endangered San Joaquin kit foxes at the Naval Petroleum Reserves, California. In: J.E. Borrecco and R.E. Marsh, editors. Proceedings of the 15th Vertebrate Pest Conference, Newport Beach, California. University of California, Davis, CA.

Cypher, B.L., G.D. Warrick, M.R.M. Otten, T.P. O'Farrell, W.H. Berry, C.E. Harris, T.T. Kato, P.M. McCue, J.H. Scrivner, and B.W. Zoellick. 2000. Population dynamics of San Joaquin kit foxes at the Naval Petroleum Reserves in California. Wildlife Monographs 145:1-43.

Cypher, B.L., P.A. Kelly, D. F. Williams, H. O. Clark, Jr., A. D. Brown, and S. E. Phillips. 2005a. Foxes in Farmland: Recovery of the Endangered San Joaquin Kit Fox on Private Lands in California. Prepared for: National Fish and Wildlife Foundation, Contract No. 2000-0129-012. June.

Cypher, B.L., C.D. Bjurlin, and J. L. Nelson. 2005b. Effects of Two-Lane Roads on Endangered San Joaquin Kit Foxes. Report to California Department of Transportation Sacramento, CA 95819. December.

Haight, R.G., Brian Cypher , P.A. Kelly, S. Phillips, K. Ralls, H.P. Possingham. 2004. Optimizing reserve expansion for disjunct populations of San Joaquin kit fox. Biological Conservation 117: 61–72.

Hickman, J.C. (editor). 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley, California. 1400 p.

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

Koopman, M.E., J.H. Scrivner, and T.T. Kato. 1998. Patterns of den use by San Joaquin kit foxes. Journal of Wildlife Management 62:373-379.

Koopman, M.E., B.L. Cypher, and J.H. Scrivner. 2000. Dispersal patterns of San Joaquin kit foxes (Vulpes macrotis mutica). Journal of Mammalogy 81:213-222.

Logan, C.G., W.H. Berry, W.G. Standley, and T.T. Kato. 1992. Prey abundance and food habits of SJ kit fox at Camp Roberts Army National Guard Training Site, California (Topical Report No. EGG 10617-2158). U.S. Department of Energy, Washington, D.C.

Ralls, K., White, P.J., 1995. Predation on San Joaquin kit foxes by larger canids. Journal of Mammalogy 76:723-729.

Scrivner, J.H., T.P. O'Farrell, and T.T. Kato. 1987. Dispersal of San Joaquin kit foxes, Vulpes macrotis mutica, on Naval Petroleum Reserve #1, Kern County, California (Topical Report EGG 10282-2190). U.S. Department of Energy, Washington, D.C.

Spiegel, L.K., editor. 1996. Studies of San Joaquin kit fox in undeveloped and oil-developed areas. California Energy Commission, Sacramento, CA.

Standley, W.G., W.H. Berry, T.P. O'Farrell, and T.T. Kato. 1992. Mortality of San Joaquin kit fox at Camp Roberts Army National Guard Training Site, California (Topical Report EGG 10627-2157). U.S. Department of Energy, Washington, D.C.

U.S. Fish and Wildlife Service (USFWS). 1983. San Joaquin kit fox recovery plan. U.S. Fish and Wildlife Service, Region 1, Portland, OR.

USFWS. 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California.

USFWS. 1999. Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance. U.S. Fish and Wildlife Service, Sacramento, California. June.

U. S. Geological Survey, 7.5 Minute Topographic Maps for Hammonds Ranch, Broadview Farms, Firebaugh, Chounet Ranch, Chaney Ranch, Coit Ranch, Tumey Hills, Monocline Ridge, and Levis, California Quadrangles.

Warrick, G.D. and B.L. Cypher. 1998. Factors affecting the spatial distribution of a kit fox population. Journal of Wildlife Management 62:707-717.

Zoellick, B.W., C.E. Harris, B.T. Kelly, T.P. O'Farrell, T.T. Kato, and M.E. Koopman. 2002. Movements and home ranges of San Joaquin kit foxes relative to oil-field development. Western North American Naturalist 62:151-159.

Figure 1
Regional Distribution of San Joaquin Kit Fox

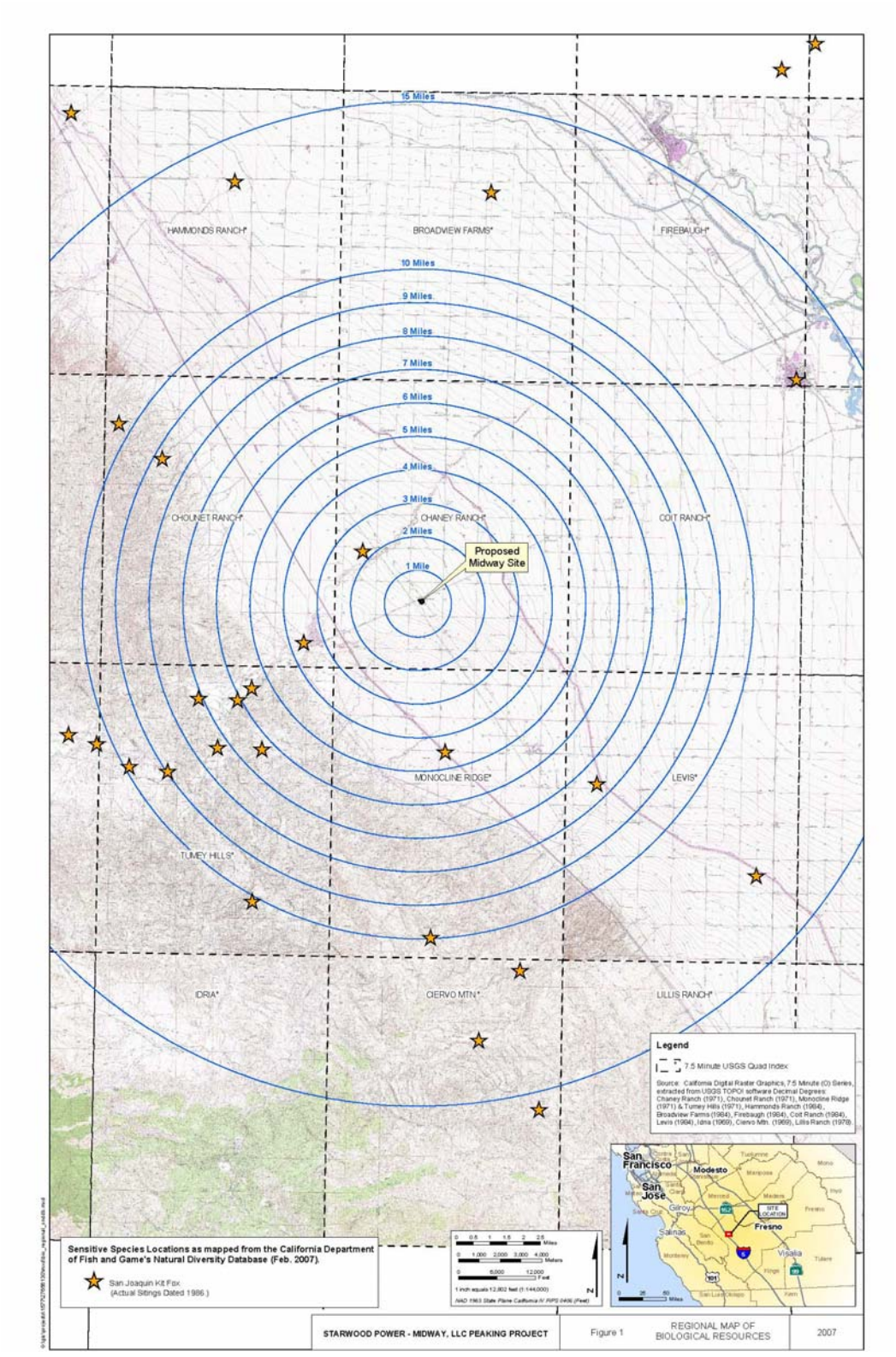

Figure 2
Aerial Photo of Midway Project Vicinity