

APPENDIX D

USFWS Technical Assistance Direction for SMUD Operations and
Maintenance Activities (2007)



United States Department of the Interior

FISH AND WILDLIFE Service
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



In Reply Refer To:
1-1-07-TA-1041

JUN 19 2007

Mr. Ron Scott
Sacramento Municipal Utility District
PO Box 1583
Sacramento, CA 95852

Subject: Request for Technical Assistance for Sacramento Municipal Utility District's Routine Operation and Maintenance Project, Sacramento and Placer Counties, California

Dear Mr. Scott:

This is in response to your May 14, 2007, letter requesting that the U.S. Fish and Wildlife Service (Service) review the Sacramento Municipal Utility District's (SMUD) Routine Operation and Maintenance (O&M) Project, Sacramento County, California (proposed project) for potential effects to the federally-listed species. We received your request on May 16, 2007. Our primary concern and mandate is the protection of federally-listed species pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

At issue are the potential effects of the proposed project on the federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*), the endangered vernal pool tadpole shrimp (*Lepidurus packardii*); the threatened succulent owl's clover (*Castilleja campestris* ssp. *succulenta*); the endangered Sacramento Orcutt grass (*Orcuttia viscida*); the threatened slender Orcutt grass (*Orcuttia tenuis*); the threatened giant garter snake (*Thamnophis gigas*); the threatened California tiger salamander (*Ambystoma californiense*); and the threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). The proposed project has the potential to impact critical habitat for the following species: Sacramento Orcutt grass; Slender Orcutt grass; vernal pool fairy shrimp; vernal pool tadpole shrimp; California tiger salamander; and valley elderberry longhorn beetle.

The following are Federal endangered and threatened species that are reported on the Service's Species list as those that may be affected by projects in SMUD's Service Area (defined below); however, the Service concurs with SMUD's determination that these species are unlikely to occur within their Service Area: the threatened Delta green ground beetle (*Elaphrus viridis*); the endangered Antioch Dunes evening-primrose (*Oenothera deltoids* ssp. *howellii*); the threatened

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California red-legged frog (*Rana aurora draytonii*); and the endangered Conservancy fairy shrimp (*Branchinecta conservatio*) and would therefore not be affected by the proposed project. The Service also concurs with SMUD's determination that the the proposed project would not result in take of the threatened bald eagle (*Haliaeetus leucocephalus*) or the threatened delta smelt (*Hypomesus transpacificus*) or result in adverse modification of delta smelt critical habitat or succulent owl's clover critical habitat.

Bald eagle breeding records maintained by the California Department of Fish and Game (CDFG) from 1959 through 1997 show no eagle nesting territories in Sacramento County (CDFG 2007a). A search of published and unpublished literature did not uncover more recent breeding survey data for Sacramento County. Based on CDFG's records, the nesting territories near Sacramento County are in Alameda, El Dorado, and Yuba counties (CDFG 2007a). The bald eagle is primarily a seasonal resident to Sacramento County, and the potential for SMUD's activities, covered under this technical assistance letter, to result in take of this species is negligible because of the species' seasonality and lack of breeding territories in the county and the nature of the proposed project.

No take of Delta smelt or adverse modification of its critical habitat will occur from the proposed project as SMUD's Service Area does not extend into the riparian zone of the Sacramento River or across the Sacramento River.

No adverse modification of succulent owl's clover critical habitat will occur as a result of the proposed project because the critical habitat delineation ends at the northern boundary of San Joaquin County on the south bank of Dry Creek which is outside of SMUD's Service Area.

The findings and recommendations of this technical assistance are based upon: 1) meetings between Service staff, SMUD, and SMUD's consultant team (CH2M HILL and Area West Environmental) on August 30, 2006; December 12, 2006; February 14, 2007 and May 24, 2007; 2) various electronic mail (email) messages between the Service, SMUD, and SMUD's consultant team between August 2006 and June 2007; 3) SMUD's May 14, 2007, letter and accompanying materials referenced in the subject line as "*Request for Concurrence on [SMUD's] Approach for Take Avoidance*" (Biological Assessment); and 4) other information available to the Service.

Action Area

The Action Area for the proposed project is the SMUD Service Area and incorporates the majority of Sacramento County; except the area south of highway 160 and Walnut Grove. It also includes a small portion of Placer County that is generally defined as the area north of the Sacramento County line between Watt Avenue to the west, the city of Roseville to the east, and Vineyard Road to the North. This boundary is specifically depicted in the Biological Assessment and other maps in the administrative record. Sacramento and Placer Counties, which comprise SMUD's Service Area, supports a diversity of wildlife sustained by a variety of habitats, including vernal pools, freshwater emergent wetlands, riparian areas, watercourses, and

agricultural areas. A general description of these habitats is provided in the Biological Assessment.

Species Present within the Action Area

In SMUD's Service Area, the vernal pool fairy shrimp and vernal pool tadpole shrimp (vernal pool crustaceans) have been found in seasonally inundated basins including, but not limited to vernal pools, swales, and seasonal wetlands throughout Sacramento and Placer Counties. However, within SMUD's Service Area, the vernal pool tadpole shrimp is more commonly found south of U.S. Highway 50.

The nearest documented occurrence of succulent owl's clover to SMUD's Service Area is in San Joaquin County on the south bank of Dry Creek (CNDDDB 2007). Dry Creek serves as the boundary line between Sacramento County to the north and San Joaquin County to the south. The species has been included because of its potential for occurrence within SMUD's Service Area.

Sacramento Orcutt grass is restricted to a region of approximately 135 square miles in eastern Sacramento County, within SMUD's Service Area. No historical locations are known outside this area.

Within SMUD's Service Area, Slender Orcutt grass occurs southeast of Mather Airport and from the Sacramento Regional Park to the Consumes River (CNDDDB 2007).

In SMUD's Service Area, the giant garter snake is primarily found in the northern end of Sacramento County, comprising the area known as the Natomas Basin (CNDDDB 2007). It is also present along the eastern fringes of the Sacramento-San Joaquin River Delta from the Laguna Creek-Elk Grove region of central Sacramento County southward to the Stockton area of San Joaquin County.

In SMUD's Service Area, the California tiger salamander is restricted to the vernal pool grasslands in the southeastern portion of Sacramento County.

In SMUD's Service Area, the beetle is concentrated in the riparian corridor associated with the American River, but the species can potentially occur throughout Sacramento and Placer Counties.

Critical Habitat Present within the Action Area

The Biological Assessment contains maps derived using Geographic Information System (GIS) overlays and metadata illustrating the critical habitat boundary of each species in relation to SMUD's existing transmission infrastructure in Sacramento County. The critical habitat data layers and metadata for each species were obtained from the Service in February 2007. The transmission infrastructure data layers and metadata were obtained from SMUD in February 2007. For each species, the acreage of critical habitat within SMUD's Service Area that falls within 30 feet of existing transmission corridors was calculated to assess the percent of that species' critical habitat within the corridors.

All three of the Sacramento Orcutt grass critical habitat units occur in SMUD's Service Area; Unit 1 (Phoenix Field and Phoenix Park) is located in the City of Fair Oaks; Unit 2 (Southeast Sacramento Valley) is located south and east of Mather Airport and Regional Park bounded by the Cosumnes River on the south; and Unit 3 (Rancho Seco) is located south of Laguna Creek and north of the Sacramento–San Joaquin County boundary. Approximately 168 acres (equaling 0.5 percent) of the species' critical habitat within SMUD's Service Area is located within 30 feet of existing transmission lines.

One critical habitat unit (Unit 6: Southeast Sacramento Valley Unit) for Slender orcutt grass occurs in SMUD's Service Area. This Unit extends southeast of Mather Airport and Regional Park to the Cosumnes River. Approximately 19 acres (equaling 1.6 percent) of the species' critical habitat within SMUD's Service Area is located within 30 feet of SMUD's existing transmission lines.

Two critical habitat units (Units 13 and 14) for vernal pool fairy shrimp occur in SMUD's Service Area. Unit 13 (Mather Unit) is located southeast of the City of Sacramento and is generally bounded by Bradshaw Road, Grant Line Road, Scott Road, and Mather Field, and Unit 14 (Cosumnes Unit) occurs south of the Cosumnes River to the Sacramento–San Joaquin County line. Approximately 238 acres (equaling 0.6 percent) of the species' critical habitat within SMUD's Service Area is located within 30 feet of SMUD's existing transmission lines.

Two critical habitat units (Units 8 and 9) for the vernal pool tadpole shrimp occur in SMUD's Service Area. Unit 8 (Mather Unit) is the same as Unit 13 for the vernal pool fairy shrimp. Unit 9 (Cosumnes Unit) is the same as Unit 14 for the vernal pool fairy shrimp. Approximately 237 acres (equaling 0.6 percent) of the species critical habitat within SMUD's Service Area is located within 30 feet of SMUD's existing transmission lines. This critical habitat acreage overlaps that of the vernal pool fairy shrimp.

One critical habitat unit, Unit 3 (Southeastern Sacramento), for the California tiger salamander occurs within SMUD's Service Area. Unit 3 is composed of 9,966 acres of privately held land, bordered on the south by the Sacramento–San Joaquin County line, on the north by Laguna Creek, on the east by the Sacramento and Amador county border, and on the west by Alta Mesa Road. Approximately 110 acres (equaling 1.1 percent) of the species' critical habitat within SMUD's Service Area is located within 30 feet of SMUD's existing transmission lines.

Two critical habitat zones for the valley elderberry longhorn beetle occur in SMUD's Service Area: (1) Sacramento Zone, in the city of Sacramento enclosed on the north by Route 160, on the west and southwest by the Western Pacific railroad, and on the east by Commerce Circle and its extension southward to the railroad tracks; and (2) American River Parkway Zone, in the American River Parkway on the south bank of the American River, bounded on the north by latitude 38°37'30" N, and on the south and east by Ambassador Drive and its extension north to latitude 38°37'30" N, Goethe Park, and the portion of the American River Parkway northeast of Goethe Park, west of the Jedediah Smith Memorial Bicycle Trail, and north to a line extended eastward from Palm Drive. Approximately 2 acres (equaling 0.4 percent) of the species' critical

habitat within SMUD's Service Area is located within 30 feet of SMUD's existing transmission lines.

Project Description

Activities conducted by SMUD within its Service Area are associated with either O&M or new construction. SMUD constructs new utility infrastructure to maintain uniform, adequate, safe, and reliable electric service. SMUD also conducts O&M activities on existing facilities. Most of SMUD's new substation facilities are graded and have already undergone environmental review and permitting as part of a larger project. This is less often the case with new overhead power lines.

A list of general activities SMUD conducts within its Service Area is included as Attachment 1. Activities are characterized as thoroughly as possible given the variation in scope and site-specific issues present within the Service Area. Information on each type of activity includes: (1) duration; (2) frequency; (3) disturbance area per event (permanent and temporary); (4) total disturbance annually (permanent and temporary); (5) description of equipment used; and (6) explanation of the basis from which the impacts were derived.

The following activities conducted by SMUD within its Service Area are described in Attachment 1:

- Installation of new distribution and subtransmission poles
- Installation of new transmission steel poles
- Removal of existing poles
- Pole replacement
- Powerline stringing
- Maintenance of towers
- Substation insulator washing
- Utility pole insulator washing
- Elderberry trimming
- Gas pipeline operation and maintenance activities
- Gas pipeline emergency repair
- Gas pipeline realignment activities

Avoidance and Conservation Measures

"Take" is defined by section 9 of the Act as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harass" is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. "Harm" is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering (50 CFR § 17.3).

For SMUD's take avoidance approach, a suite of species-specific measures have been developed that, when implemented, will avoid take of listed species and their habitats (Attachment 2). This

approach also provides a mechanism to facilitate communication among SMUD environmental staff and departments involved in new facility planning, construction, and O&M activities. Measures were developed in collaboration with Service staff and include such categories as worker environmental awareness training, oversight of activities by a biological monitor, seasonal work restrictions, standardized operational protocols, and best management practices.

Service and SMUD had extensive discussions regarding the development of measures to adequately protect vernal pool crustaceans and reviewed the Hathaway et al. 1996 study reporting the weight at which crustacean cysts are crushed. Service and SMUD agreed that equipment operation through a vernal pool in the wet season would constitute take and is, therefore, not covered under the take avoidance approach. It was discussed that operation during the dry season may be allowable if the weight of the equipment used to perform SMUD activities is within the crush weight tolerance of cysts. SMUD obtained specifications on the equipment used for activities listed in Attachment 1, (e.g., bucket and line trucks, utility trailer, crane, backhoe, etc.), and conducted an analysis to assess whether they met the crush weight tolerance of crustacean cysts. A technical memorandum describing the approach, methodology, and results of this analysis is included in the Biological Assessment. The analysis concluded that all of the equipment used to perform the activities listed in Attachment 1 does not exceed the crush weight tolerance for cysts of vernal pool crustaceans. Based on this analysis, dry-season operation of equipment in and around vernal pools is allowable under the no take approach, with implementation of the vernal pool crustacean avoidance measures described in Attachment 2.

Reporting Requirements

SMUD will update the species list and critical habitat designations annually and submit a summary letter of projects covered under this technical assistance letter to determine if additional avoidance measures are needed to ensure that there will be no take of listed species or modifications to critical habitat. The summary letter will include an attachment with checklist for each project that documents: (1) location; (2) type of project; (3) date occurred; (4) species encountered; (5) post-project assessment of SMUD's success in adhering to avoidance measures; (6) an explanation of failure to meet these measures, if any; (7) documentation that areas of disturbance were restored to pre-project conditions; and (8) any other pertinent information. SMUD will verbally report any unauthorized deviation from the description of proposed avoidance measures to the Deputy Assistant Field Supervisor or Sacramento Valley Branch Chief of the Sacramento Fish and Wildlife Office within 1 working day of the incident. Written notification must be made within 3 calendar days and include the date, time, and precise location of the event indicated on a U.S. Geological Survey 7.5 minute topographic map, and any other pertinent information. Additionally, color photographs should be taken of the specific site and provided with the notification. SMUD will also report any special status species sightings during pre-construction surveys to the California Natural Diversity Database (CNDDB).

The Service has determined that due to the avoidance and conservation measures in Attachment 2 that the specific activities listed in Attachment 1 will not result in the take of the vernal pool fairy shrimp, vernal pool tadpole shrimp, succulent owl's clover, Sacramento Orcutt grass, slender Orcutt grass, giant garter snake, California tiger salamander, or valley elderberry longhorn beetle. The Service also determined that due to the avoidance and conservation

measures in Attachment 2 that the specific activities listed in Attachment 1 will not adversely modify or destroy critical habitat for the Sacramento Orcutt grass; Slender Orcutt grass; vernal pool fairy shrimp; vernal pool tadpole shrimp; California tiger salamander; or valley elderberry longhorn beetle.

Other than the annual reports SMUD will submit as described above, no further action pursuant to the Act is necessary unless new information reveals effects of the proposed action that may affect a listed species in a manner or to an extent not considered; the action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in this determination; or a new species or critical habitat is designated that may be affected by the proposed action. Projects or activities not able to meet all of the applicable take avoidance criteria do not qualify for coverage under SMUD's no take approach and must obtain incidental take authorization through another permitting mechanism (e.g., Section 7 or Section 10 of the Act).

Please contact the acting Sacramento Valley Branch Chief, at (916) 414-6600 if you have any questions regarding the proposed Sacramento Municipal Utility District's Routine Operation and Maintenance Project, Sacramento and Placer Counties, California.

Sincerely,

A handwritten signature in black ink that reads "Peter A. Cross". The signature is written in a cursive style with a large, prominent "P" and "C".

Peter A. Cross
Deputy Assistant Field Supervisor

cc:
Meri Miles

References Cited

CDFG and U.S. Fish and Wildlife Service (Service). 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander. October. Obtained from:
http://www.dfg.ca.gov/hcpb/species/stds_gdl/amp_sg_CTSFinalGuide10.03.pdf.

Santa Rosa Plain Conservation Strategy Team (SRPCST). 2005. Santa Rosa Plain Conservation Strategy. 1 December. Obtained from:
http://www.fws.gov/sacramento/es/santa_rosa_conservation.html.

U.S. Fish and Wildlife Service (Service). 1996. Programmatic formal Endangered Species Act consultation on issuance of 404 permits for projects with relatively small effects listed vernal pool crustaceans within the jurisdiction of the Sacramento Field Office, California. 28 February. Obtained from: http://www.fws.gov/sacramento/es/documents/vp_prog_text.htm.

Service. 1997. Programmatic formal consultation for the U.S. Army Corps of Engineers 404 permitted projects with relatively small effects on the giant garter snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, and Yolo counties, California. November. Obtained from:
http://www.fws.gov/sacramento/es/documents/garter_snake_prog_text.htm.

Service. 1999. Conservation Guidelines for the Valley Elderberry Longhorn Beetle. Revised 9 July. Obtained from: http://www.fws.gov/sacramento/es/documents/vclb_conservation.htm

Service. 2007. Guidelines for Information Needed to Request Concurrence from the United States Fish and Wildlife Service with a Finding that a Federal Action is 'Not Likely To Adversely Affect' the Threatened Giant Garter Snake (*Thamnophis gigas*). February 12, 2007.

ATTACHMENT 1

Characterization of SMUD Activities in the SMUD Service Area.

Activity	Duration	Frequency	Disturbance per Event			Total Disturbance Annually			Equipment Needed	Basis of Estimate
			Permanent	Temporary	Other Temporary *	Permanent	Temporary	Other Temporary *		
Installation of New Distribution and Subtransmission Poles	Installation of a new pole can be completed in about 4 hours; two poles can be installed in an average working day.	About 300 (±60) new poles are installed annually.	0.00016 acre (About 7 square feet is required)	0.0023 acre (equipment setup)	0.0043 acre (laydown area for poles)	About 0.5 (±0.1) acre	About 0.85 (±0.17) acre	About 1.3 (±0.26) acres	Bucket truck with mounted auger and utility trailer, hydraulic pole jack, cable dolly, and flatbed material delivery vehicle or pole dolly.	Distribution and subtransmission are considered 12kV and 69kV voltage, respectively. Each pole requires an approximately 8-foot deep by 36-inch diameter hole. Area of disturbance assumes a permanent loss of a 7.07 square feet for each hole. Temporary loss assumes vegetation removal approximately 100 square feet per pole. Assumes truck remains on existing paved or dirt roads, or previously disturbed areas. Other disturbance assumes disturbance area of 25 feet by 75 feet where access is off of existing roads or previously disturbed areas.
Installation of New Transmission Steel Poles	Installation of a new steel pole can be completed in about 5 to 6 hours.	About 3 new steel poles are installed annually.	0.00036 acre (About 16 square feet is required)	0.0092 to 0.0115 acre (equipment setup)	Up to 0.6 acre for temporary access roads, and up to 0.5 acre for a temporary material yard	About 0.001 (±0.0002) acre	About 0.0345 (±0.0069) acre	About 3.3 (±0.66) acres	Line trucks with utility trailers, pickup trucks, crane, cable (reel) dolly, flatbed material delivery vehicle, water truck, drill rig (a 10-wheel / 3-axle), 8-yard concrete truck, and small backhoe.	Transmission poles assumes 115kV or 230kV voltage. Each new steel transmission pole will require a 3 to 6-foot diameter round concrete footing that is installed approximately 15 to 25 feet deep. Temporary disturbed area assumes 20' X 20' area for steel poles. Material lay down yard is usually fenced with temporary fencing, confining disturbed area to a set boundary. Access roads are sometimes permanent, existing access roads are used where available. Line construction equipment requirements can vary considerably, depending on the job.

Removal of Existing Poles	Removal of an existing pole can be completed in 2 hours. Five poles can be removed in one and one-half days.	See "Pole replacement" below. Typically, poles are removed with new replacements.	None. Hole is filled with surrounding native soil and area disturbed is reseeded as needed.	0.0023 acre (equipment setup)	0.0043 acre (laydown area for poles)	None	Included in "Pole replacement"	Included in "Pole replacement"	Service truck with boom, hydraulic pole jack, rubber-tired backhoe.	Two holes no larger than 4 feet by 3 feet and 6 feet deep are dug on opposite sides of the pole. Assumes truck remains on existing paved or dirt road. Other disturbance assumes disturbance area of 25 feet by 75 feet where access is off of existing roads.
Pole Replacement (assumes similar effort as removal of existing and installation of new poles)	Removal of an existing pole and replacing it with a new pole can be completed in about 4 hours	About 450 (± 90) poles are replaced annually.	None. Pole replacement generally uses the same hole.	0.0023 acre (equipment setup)	0.0043 acre (laydown area for poles)	None	About 1.04 (± 0.20) acres	About 1.9 (± 0.38) acres	Bucket truck with mounted auger and utility trailer, hydraulic pole jack, rubber-tired backhoe, and flatbed material delivery vehicle or pole dolly.	Two holes no larger than 4 feet by 3 feet and 6 feet deep are dug on opposite sides of the pole. Assumes truck remains on existing paved or dirt road. Other disturbance assumes disturbance area of 25 feet by 75 feet where access is off of existing roads.
Powerline Stringing	About 8,000 feet of cable can be installed each day in rural areas with new construction. About 4,000 feet can be installed each day in urban areas.	This activity occurs about 3 days per week (150 days per year).	None. Powerline stringing requires no permanent disturbance.	None, except for truck access to area and use of outriggers.	0.0143 acre (about 25 square feet) are used for laydown for reels	None	None	Not significant	A line truck, bucket truck, three-gang puller truck and three-gang tensioner truck are used for powerline stringing.	The three-gang puller truck and three-gang tensioner truck are positioned on each end of the poles to be strung across. Outriggers are used to stabilize the trucks.
Maintenance of Towers (linear and corner)	About 2,000 hours per year are spent inspecting lines within the service area.	A two-man crew inspects lines 3 days per week.	None. Established roads are used.	None. Established roads are used.	None	None	None	None	Service truck and ATV	Two line inspectors work 3 days per week year round inspecting poles and lines within the service area. Established roads are accessed for the inspections, which are generally granted by the landowner. Truck and sometimes ATVs are used.

<p>Substation Insulator Washing</p>	<p>The duration of substation insulator washing is dependent on the size and condition of the insulators, and the scope of work.</p>	<p>Substation insulators are washed every 2 to 5 years on an as needed basis.</p>	<p>None. Work is conducted in existing substations, and established roads are used.</p>	<p>None. Work is conducted in existing substations, and established roads are used.</p>	<p>None</p>	<p>None</p>	<p>None</p>	<p>None</p>	<p>Service truck and a 600-gallon truck-mounted pressure washer</p>	<p>When substations are energized ground pumice or corn cobs are sprayed onto the insulators by SMUD contractors. When substations are deenergized, deionized water (DI) is used to clean the insulators. The DI water is sprayed at approximately 600 pounds per square inch (psi), no soap or solvents are used during the cleaning process, the volume of DI water is dependent on the condition of the insulators, and the wash water runoff is not captured, contained, recycled or treated after use.</p>
<p>Utility Pole Insulator Washing</p>	<p>A two-man crew can cover two miles of line per day.</p>	<p>Utility pole-mounted insulators are washed on an as needed basis.</p>	<p>None. Established roads are used.</p>	<p>None. Established roads are used.</p>	<p>None</p>	<p>None</p>	<p>None</p>	<p>None</p>	<p>Bucket truck and truck-mounted pressure washer</p>	<p>Typically dirty insulators are wiped down with a cloth rag or changed out with a new insulator on an as needed basis. Utility pole-mounted insulators are washed with a pressure washer every 5 years or more on an as needed basis. Water usage was described above for substation insulator washing.</p>
<p>Elderberry Trimming</p>	<p>The duration of elderberry trimming is dependent on the size of the shrub and the scope of work.</p>	<p>Elderberry shrubs in proximity to conductors are trimmed on a 18 month or 3 year trim-cycle.</p>	<p>Elderberry shrubs are pruned back to the same point as the previous cycle. This results in the removal of only new growth on limbs 1-inch or less in diameter.</p>	<p>None</p>	<p>None</p>	<p>Approximately 24 shrubs are trimmed on a 18-month trim-cycle, and approximately 25 shrubs are trimmed on a 3-year trim-cycle; therefore, approximately 24 shrubs are trimmed annually.</p>	<p>None</p>	<p>None</p>	<p>Service Truck with bucket and hand saw</p>	<p>The frequency of the pruning for any vegetation is driven by the voltage of the conductors, its proximity to the conductors and growing conditions as much as, if not more than species characteristics. There are 49 elderberry shrubs trimmed in the service area. These shrubs are spread throughout 23 locations.</p>

<p>Gas Pipeline Operation and Maintenance</p>	<p>The duration of gas pipeline maintenance is dependent on the scope of work.</p>	<p>Maintenance work in valve stations may occur daily. Inspection patrols in the gas pipeline easements occur quarterly.</p>	<p>None</p>	<p>Most maintenance work is confined to the valve and metering stations, or inspecting the easements, resulting in no environmental disturbance.</p>	<p>None</p>	<p>None</p>	<p>None</p>	<p>None</p>	<p>The equipment needed for gas pipeline operation and maintenance is dependent on the scope of work. Typically involves hand tools and a work truck.</p>	<p>Gas pipeline maintenance may include the following activities: pigging, painting above ground signs and/or block valves, cathodic protection surveys, potholing, and emergency operation and maintenance activities. Gas pipeline operation and maintenance activities primarily take place in existing facilities, existing right-of-ways, and/or near roadways for convenient pipeline operations and maintenance.</p>
<p>Gas Pipeline Emergency Repair</p>	<p>The duration of gas pipeline emergency repair activity is dependent upon the scope of work, perhaps hours or several days.</p>	<p>This activity is avoided by a proactive pipeline safety and maintenance program. In the past 12 years, no emergency repair activities have occurred.</p>	<p>None</p>	<p>An emergency repair, such as digging up and replacing a section of pipe would be confined to a short section and typically within the varying 15 to 40 foot permanent easement.</p>	<p>Temporary locations for laydown and storage vary by project. Emergency declaration would be made and appropriate rules followed.</p>	<p>None</p>	<p>None</p>	<p>None</p>	<p>The equipment needed for gas pipeline emergency repair activities would depend on the scope of work. May require bucket excavator, work trucks, dump truck, pipe transport truck and trailer, plus miscellaneous hand tools.</p>	<p>Gas pipeline emergency repairs may include removal or replacement of a valve or section within a graveled metering station. It may also include replacement or repair of buried pipe, which would require more equipment.</p>

<p>Gas Pipeline Realignment</p>	<p>The duration of gas pipeline realignment activities is dependent on the scope of work. A typical relocation may take several weeks to a few months.</p>	<p>One gas pipeline realignment activity has occurred in the past 12 years. In the Spring of 2001, approximately 4,900 feet of gas pipeline was realigned between the Campbell Soup cogeneration facility and Fruitridge Road. In addition a realignment request was recently received from the City of Sacramento, this realignment is currently being reviewed by the California Energy Commission (CEC) and is expected to be about 5,000 feet.</p>	<p>None. Most realignment activity related disturbances are temporary and vegetative or concrete/asphalt cover is restored to original.</p>	<p>During the 2001 realignment project, approximately 2 acres was temporary disturbed.</p>	<p>During the 2001 realignment project, a 0.25 acre area was used as a temporary material yard. Temporary locations for laydown and storage vary by project, and are reviewed in the license amendment document reviewed by the CEC and other consulting agencies.</p>	<p>None</p>	<p>In the past 12 years, temporary disturbances have only occurred once as result of pipeline realignment. During the 2001 realignment project, approximately 2 acres was temporary disturbed (or 0.166 acre per year over the past 12 years).</p>	<p>In the past 12 years, other temporary disturbances have only occurred once as result of pipeline realignment. During the 2001 realignment project, a 0.25 acre area was used as a temporary material yard (or 0.0208 acre per year over the past 12 years).</p>	<p>The equipment needed for gas pipeline realignment activities is dependent of the scope of work. Usually requires bucket excavators, work trucks, weld trucks, dump trucks, pipe transport trucks and trailers, horizontal directional drilling equipment or jack and bore rigs, plus miscellaneous hand tools.</p>	<p>Request for pipeline realignment has occurred twice in 12 years of operation. Gas pipeline realignments typically come at the request of another public agency installing a conflicting linear facility. Once a realignment request is received, SMUD prepares a detailed license amendment document for review by the California Energy Commission (CEC). If other agency consultations are required, then these are undertaken during the amendment preparation and review phases. The CEC issues a determination and lists the mitigation, if any, that is required. Typical mitigation requires the presence of environmental monitors during excavation, work hour restrictions, traffic and transportation requirements, and noise restrictions.</p>
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ATTACHMENT 2

Avoidance Measures by Species for O&M and New Construction Activities in the SMUD Service Area.

Species/Assemblage	Avoidance Measures	Reference Document(s)
<p>Federally Listed Vernal Pool Crustaceans</p> <ul style="list-style-type: none"> • Vernal pool tadpole shrimp • Vernal pool fairy shrimp 	<p>Seasonally ponded areas, including, but not restricted to, vernal pools and swales provide potential habitat for federal listed vernal pool crustaceans. Where reconnaissance surveys determine that seasonally ponded areas with potential to support vernal pool crustaceans are present, either surveys will be performed according to Service sampling protocol, or presence of vernal pool tadpole shrimp and vernal pool fairy shrimp will be assumed.</p> <p>If protocol surveys conclude that vernal pool crustaceans are present, or presence is assumed, and a direct impact will occur (i.e., a pole will be placed within the habitat), the project will not qualify under a ‘No Take’ determination and the Service will be consulted. Insulator washing, pipeline construction, and vegetation removal within 250-feet of a vernal pool is not authorized under the ‘No Take’ determination, and requires consultation with the Service.</p> <p>If protocol surveys conclude that vernal pool crustaceans are present, or presence is assumed, and a beneficial impact will occur (i.e., a pole will be removed from within the habitat or will be removed from within 250 feet of the habitat), SMUD will implement the avoidance measures listed below to avoid impacts to these species and habitat. No take will occur, and therefore no consultation with the Service will be required.</p> <p>If protocol surveys conclude that vernal pool crustaceans are present, or presence is assumed, and potential for an indirect impact exists (i.e., a pole will be installed within 250 feet of the habitat, but not within the habitat), SMUD will implement the avoidance measures listed below to avoid impacts to these species and habitat. No take will occur, and therefore no consultation with the Service will be required.</p> <p>SMUD’s Avoidance Measures for Activities in and/or within 250 feet of Habitat for Vernal Pool Crustaceans include:</p>	<p>U.S. Fish and Wildlife Service (Service). 1996. Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects to Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office, California. 28 February.</p>



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	<ol style="list-style-type: none">1. Where present, existing paved and unpaved roads will be used to access the work area.2. All work will be performed in the dry season (approximately April 15 through October 15). Should soil moisture be encountered, rubber matting, or similar equivalent, will be used to minimize disturbance.3. A qualified biologist (biological monitor) will be present onsite and will inspect any construction-related activities to ensure that no unnecessary ground disturbance or take of species occurs. The biologist will have the authority to stop all activities that may result in such take or destruction until appropriate corrective measures have been completed. The biologist also will be required to report immediately any unauthorized take to the Service.4. A work zone will be identified on construction drawings and/or will be adequately flagged or fenced in the field to limit construction equipment and personnel to the minimum area necessary to perform the proposed work.5. All on-site construction personnel will receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat.6. In areas that have not been previously disturbed, heavy equipment use will be minimized.7. For pole installations, the area between the pole and the pole hole will be backfilled with cement. The upper portion will be backfilled with native soil commensurate with the topography and stratigraphy of the surrounding soil. Areas of disturbed soil will be reseeded with a native seed mix.8. For pole removal, clay (native or bentonite) will be used to fill the pole hole.9. No pesticides or herbicides will be applied within 250 feet of vernal pools.	

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<p>Federally Listed Vernal Pool Plants</p> <ul style="list-style-type: none"> • Sacramento Orcutt grass • Slender Orcutt grass • Succulent owl's clover 	<p>Seasonally ponded areas, including, but not restricted to, vernal pools and swales provide potential habitat for federal listed vernal pool associated plants. Where reconnaissance surveys determine that seasonally ponded areas with potential to support vernal pool plants are present, either surveys will be performed according to Service sampling protocol, or presence of vernal pool plants will be assumed.</p> <p>If surveys conclude that vernal pool plants are present, or presence is assumed, and a direct impact will occur during the emergence and/or bloom period, the Service will be consulted. Insulator washing, pipeline construction, and vegetation removal within 250-feet of a vernal pool is not authorized under the 'No Take' determination, and requires consultation with the Service.</p> <p>If protocol surveys conclude that vernal pool plants are present, or presence is assumed, and construction is within 250 feet of the habitat, but not within the emergence/bloom period, SMUD will implement the avoidance measures listed below to avoid impacts to these species and habitat. Consultation with the Service will be required.</p> <p>SMUD Avoidance Measures for Activities in and/or within 250 feet of habitat for vernal pool plants include:</p> <ol style="list-style-type: none"> 1. Where present, existing paved and unpaved roads will be used to access the area. 2. All work will be performed after the special-status plants or potential special-status plants have gone to seed. Should soil moisture be encountered in the seasonally ponded habitat, rubber matting, or similar equivalent, will be used to minimize disturbance. 3. A work zone will be identified on construction drawings and/or will be adequately flagged or fenced in the field to limit construction equipment and personnel to the minimum area necessary to perform the proposed work. 	<p>Service. 1996. Programmatic Formal Endangered Species Act Consultation on Issuance of 404 permits for Projects with Relatively Small Effects to Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office, California. 28 February.</p>

Species/Assemblage	Avoidance Measures	Reference Document(s)
	<ol style="list-style-type: none"> 4. All on-site construction personnel will receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat. 5. In areas that have not been previously disturbed, heavy equipment use will be minimized. 6. For pole installations within seasonally inundated areas, the area between the pole and the pole hole will be backfilled with cement. The upper portion will be backfilled with native soil commensurate with the topography and stratigraphy of the surrounding soil. 7. For pole removal, clay (native or bentonite) will be used to fill the pole hole. 8. No pesticides or herbicides will be used within 250 feet of vernal pools. 	
<p>Valley Elderberry Longhorn Beetle</p>	<p>Elderberry shrubs provide potential habitat for the Valley Elderberry Longhorn Beetle (beetle). Where reconnaissance surveys determine that elderberry shrubs are present, surveys shall be performed according to Service guidelines (1999), or SMUD will assume species presence. For trimming and pruning activities, if elderberry shrub branches greater than 1-inch in diameter must be trimmed, the activity will not qualify under a 'No Take' determination and the Service will be consulted. For construction activities, if construction must occur within 20 feet of an elderberry shrub, the activity will not qualify under a 'No Take' determination and the Service must be consulted. SMUD's avoidance for allowable trimming and construction activities include:</p> <p><u>Periodic Trimming/Pruning</u></p> <p>SMUD's vegetation management program trims elderberry shrubs that grow in close proximity to existing distribution, subtransmission, and transmission lines to protect the shrubs and the existing electrical circuits. These bushes are trimmed on an 18 or 36- month trim cycle; therefore only new growth is cut,</p>	<p>Service. 1999. Conservation Guidelines for the Valley Elderberry Longhorn Beetle. Revised 9 July.</p>

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	<p>and shrubs are pruned back to the same point as the previous cycle. Monitoring will occur for elderberry shrubs, not already in a trim cycle, that will need >50% growth removed during the first year. SMUD will assess survival and characterize plant condition in the summer when the shrub is most subject to weather stress. If no adverse conditions are noted, then subsequent monitoring would not be necessary. If adverse conditions are noted, then the FWS must be consulted regarding the potential need for incidental take authorization and development of minimization measures. Avoidance measures include:</p> <ol style="list-style-type: none"> 1. SMUD vegetation management personnel and contractors will receive instruction on the identification of elderberry shrubs and beetle, the importance of avoiding impacts to beetle and its habitat, and the possible penalties for not complying with these requirements. Personnel will be trained in proper arboriculture methods, including those necessary to avoid collateral damage to nearby braches and foliage. 2. Elderberry shrubs in need of pruning will be documented on work orders and the SMUD Planner Supervisor will be informed. SMUD and outside agency contacts will be made through the Planner Supervisor. 3. Elderberry shrubs located in the work zone shall be flagged. 4. A biological monitor will be required to supervise trimming of elderberry shrubs and stop work if personnel are out of compliance with the avoidance measures, or if there is a risk that incidental take of beetle may occur. 5. If use of a bucket truck is necessary to trim an elderberry bush, the tires of the vehicle must stay outside the dripline of the tree to avoid root damage. 6. No herbicides or pesticides will be used on elderberry shrubs. Herbicides/pesticides used on nearby vegetation will be topically applied to avoid mist or overspray on elderberry shrubs. 	

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	<p data-bbox="532 267 819 300"><u>Construction Activity</u></p> <p data-bbox="532 332 1564 592">If beetle habitat is found at the project site and a 100 foot buffer zone is established and maintained around the habitat, then no additional avoidance measures are necessary. Firebreaks may not be constructed within 100 feet of an elderberry bush. Construction activities within 20-feet of an elderberry shrub are not authorized under the 'No Take' determination. Construction activities falling between 20-feet and 100-feet of an elderberry bush will adhere to the following Avoidance Measures:</p> <ol data-bbox="532 609 1564 1356" style="list-style-type: none"><li data-bbox="532 609 1564 755">1. The presence of elderberry shrubs in the construction area will be documented on work orders and the SMUD Planner Supervisor will be informed. SMUD and outside agency contacts will be made through the Planner Supervisor.<li data-bbox="532 771 1564 917">2. All on-site construction personnel will receive instruction regarding the presence of elderberry shrubs, beetle, the importance of avoiding impacts to beetle and its habitat, and the possible penalties for not complying with these requirements.<li data-bbox="532 933 1564 1193">3. Flag the 20-foot exclusion boundary around the elderberry shrub and post a sign with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable and must be maintained for the duration of construction.<li data-bbox="532 1209 1564 1356">4. A biological monitor will be required to supervise construction activities falling between 20-feet and 100-feet of elderberry shrubs and stop work should personnel be out of compliance with the beetle avoidance measures, or if there is a risk that incidental take may occur.	

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California Tiger Salamander	<p data-bbox="529 261 1491 329">5. Disturbance shall be minimized, and the site will be restored following construction.</p> <p data-bbox="529 347 1555 678">The Santa Rosa Plain Conservation Strategy Team determined that impacts to California tiger salamander (salamander) are not likely on lands beyond 1.3 miles from breeding sites, or on lands within 1.3 miles from breeding sites that are surrounded by significant barriers or are otherwise unsuitable salamander habitat, and that neither surveys nor mitigation would be required for projects on these properties (SRPCST, 2005). The team also concluded that no salamander mitigation or surveys will be required for projects outside of the potential salamander range. SMUD's assessment and determination of potential salamander habitat will be based on this guidance.</p> <p data-bbox="529 696 1544 803">Where reconnaissance surveys determine that salamander could be present, protocol surveys shall be performed using methodology detailed by CDFG and Service (2003), or SMUD will assume species presence.</p> <p data-bbox="529 821 1566 969">If the proposed SMUD activity has the potential to take salamander or adversely affect its habitat, the project will not qualify under a 'No Take' determination and the Service will be consulted. For projects in which no take will occur, the following avoidance measures will be implemented:</p> <ol data-bbox="529 987 1566 1391" style="list-style-type: none"> <li data-bbox="529 987 1566 1208">1. SMUD will develop a map illustrating salamander occurrences in Sacramento County using California Natural Diversity Data Base (CNDDB) records, and other publicly accessible information sources. This range map will be updated annually to assure that SMUD is using current information when assessing the potential presence of the species on a proposed project site. <li data-bbox="529 1226 1481 1300">2. All work will be performed in the dry season (approximately April 15 through October 15). <li data-bbox="529 1318 1523 1391">3. 24-hours prior to construction activities, the project area will be surveyed for salamander by a qualified biologist. Survey of the project area will be 	<p data-bbox="1587 347 2017 643">CA Department of Fish and Game (CDFG) and Service. 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander. October.</p> <p data-bbox="1587 660 2017 813">Santa Rosa Plain Conservation Strategy Team (SRPCST). 2005. Santa Rosa Plain Conservation Strategy. 1 December.</p>

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	<p>repeated if a lapse in construction activity of two weeks or greater has occurred. If a salamander is encountered during construction, activities shall cease until incidental take authorization is received and appropriate corrective measures have been completed, or it has been determined that the salamander will not be harmed. Handling of the animal is not permitted without prior Service authorization. Sightings will be reported to the Service immediately by telephone at (916) 414-6600.</p> <ol style="list-style-type: none"> <li data-bbox="538 542 1549 721">4. A qualified biologist will be present during construction and will have authority to stop project activities if any of the avoidance measures are not being fulfilled. If the biologist has requested a stop work due to take of any of the listed species, the Service and the CDFG will be notified within (1) working day via email or telephone. <li data-bbox="538 743 1513 850">5. All on-site construction personnel will receive instruction regarding the presence of listed species and the importance of avoiding impacts to this species and its habitat. <li data-bbox="538 873 1534 943">6. Cross country access routes will be identified on construction drawings or clearly marked in the field with appropriate flagging and signs. <li data-bbox="538 966 1555 1105">7. All vehicle parking will be restricted to previously determined areas or existing roads. Necessary vehicles belonging to the biological monitors and construction supervisors will be parked at the nearest point on existing access roads. <li data-bbox="538 1128 1321 1159">8. All vehicles will be brought in cleaned and free of weeds. <li data-bbox="538 1182 1555 1321">9. Because dusk and dawn are often the times when salamander are most actively foraging and dispersing, all construction activities should cease one half hour before sunset and should not begin prior to one half hour before sunrise. <li data-bbox="538 1344 1491 1382">10. A litter control program shall be instituted at the entire project site. All 	

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	<p>workers ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash from the project area are deposited in covered or closed trash containers. The trash containers shall be removed from the project area at the end of each working day.</p>	
Giant Garter Snake	<p>Prior to construction activities, the project area will be surveyed by a qualified biologist to determine if potential giant garter snake habitat exists within 200 feet of the project. Habitat suitability will be assessed using the habitat assessment guidelines described in the Service ' "Guidelines for Information Needed to Request Concurrence from the United States Fish and Wildlife Service with a Finding that a Federal Action is 'Not Likely To Adversely Affect' the Threatened Giant Garter Snake (<i>Thamnophis gigas</i>)."</p> <p>Projects scheduled between October 2 and April 30 within 200 feet of potential giant garter snake aquatic habitat will undergo consultation with the Service and do not qualify under a 'No Take' determination. For projects scheduled between May 1 and October 1 within 200 feet of aquatic habitat that are not anticipated to result in the loss or degradation of potential giant garter snake habitat (such as pole removal or replacement, line stringing, and tower maintenance), no take will occur, therefore no consultation with the Service will be required. For these projects, SMUD will implement the following avoidance measures:</p> <ol style="list-style-type: none"> 1. 24-hours prior to construction activities, the project area will be surveyed for giant garter snakes by a qualified biologist. Survey of the project area will be repeated if a lapse in construction activity of two weeks or greater has occurred. If a snake is encountered during construction, activities shall cease until incidental take authorization is received and appropriate corrective measures have been completed, or it has been determined that the snake will not be harmed. Sightings will be reported immediately to the Service immediately by telephone at (916) 414-6600. 	<p>Service. 1997. Programmatic Formal Consultation for the U.S. Army Corps of Engineers 404 Permitted Projects With Relatively Small Effects on the Giant Garter Snake Within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, and Yolo Counties, California. November.</p> <p>Service. 2007. Guidelines for Information Needed to Request Concurrence from the United States Fish and Wildlife Service with a Finding that a Federal Action is "Not Likely To Adversely Affect" the Threatened Giant Garter Snake (<i>Thamnophis gigas</i>). February.</p>

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	<ol style="list-style-type: none"> <li data-bbox="534 245 1555 516">2. Survey of the project area will be repeated if a lapse in construction activity of two weeks or greater has occurred. If a snake is encountered during construction, activities shall cease until incidental take authorization is received and appropriate corrective measures have been completed, or it has been determined that the snake will not be harmed. Sightings will be reported immediately to the Service immediately by telephone at (916) 414-6600. <li data-bbox="534 521 1555 602">3. When possible, avoid construction activities within 200 feet from the banks of giant garter snake aquatic habitat. <li data-bbox="534 607 1555 764">4. Construction activity within 200 feet of giant garter snake habitat will be conducted between May 1 and October 1. This is the active period for giant garter snakes and direct mortality is not anticipated because snakes are expected to actively move and avoid danger. <li data-bbox="534 769 1555 1149">5. Confine clearing to the minimal area necessary to facilitate construction activities. Flag and designate avoided giant garter snake habitat within or adjacent to the project area as Environmentally Sensitive Areas. This area will be avoided by all construction personnel. For work in or around canals, hand clearing of canals is preferred for removal of excessive vegetation or debris. Any equipment should be operated from the bank top. Excavate from only one side of the canal during a given year. Avoid excavating the banks above the high water level. Preferably, one side of the canal should be left undisturbed indefinitely, (the preferred side would be the west or north side), so that emergent vegetation and bank side cover is left in place. <li data-bbox="534 1154 1555 1372">6. SMUD construction personnel will receive USFWS-approved worker environmental awareness training. This training instructs workers to recognize giant garter snakes and their habitat(s), and the importance of avoiding impacts to giant garter snakes and their habitat(s). 	

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	<ol style="list-style-type: none">7. Any dewatered habitat will remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat8. After completion of construction activities, SMUD will remove any temporary fill and construction debris and, wherever feasible, restore disturbed areas to pre-project conditions.9. Movement of heavy equipment to and from the project site shall be restricted to established roadways to minimize habitat disturbance.	
	<p>Projects that occur within 200 feet of aquatic habitat that are anticipated to result in the loss or degradation of potential giant garter snake habitat (such as new utility pole, subtransmission line, and transmission line placement) will not qualify under a 'No Take' determination and the Service will be consulted.</p>	

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