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November 4, 2005

Cathy Wolff-White
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Subject: Biological Assessment of the PE-1 Pipeline and In Situ Floodplain Study
Pacific Gas and Electric Company - Topock Project

Dear Ms. Wolff-White:

This letter transmits the *Biological Assessment for the Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Actions*. This document was prepared to support the consultation process between the Bureau of Land Management (BLM) and the United States Fish and Wildlife Service (USFWS), pursuant to Section 7 of the Endangered Species Act.

The biological assessment (BA) addresses two proposed actions: installation and operation of the PE-1 pipeline, and implementation of an *in-situ* study on the floodplain of the Colorado River. The contents of the BA are in accordance with recent direction provided by Ted Cordery in the Arizona State Office of BLM.

Please do not hesitate to call if you have any questions. I can be reached at (805) 546-5243.

Sincerely,

cc: Ted Cordery, BLM
Rob Knutson, PG&E

Biological Assessment for the Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Actions

Prepared for
Pacific Gas and Electric Company

November 2005

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Contents

Acronyms and Abbreviations	iii
1.0 Introduction.....	1-1
1.1 Background, Purpose, and Need for Proposed Action.....	1-1
1.2 Proposed, Threatened, and Endangered Species within the Range of the Proposed Action	1-2
1.3 Baseline Conditions.....	1-3
2.0 Proposed Action and Alternatives	2-1
2.1 PE-1 Pipeline	2-1
2.2 <i>In-situ</i> Pilot Study	2-1
2.3 Mitigation Measures for Protection of Listed Species.....	2-1
2.4 Alternatives to the Proposed Action.....	2-4
2.5 No Action Alternative.....	2-4
3.0 Affected Environment	3-1
4.0 Effects of the Proposed Action and Alternatives.....	4-1
4.1 Southwestern Willow Flycatcher (<i>Empidonax traillii extimus</i>)	4-1
4.1.1 Distribution and Abundance	4-1
4.1.2 Direct Effects	4-2
4.1.3 Indirect Effects	4-3
4.1.4 Cumulative Effects	4-4
4.1.5 Critical Habitat Effects.....	4-5
4.1.6 Effects Determination	4-5
4.2 Desert Tortoise (<i>Gopherus agassizii</i>)	4-5
4.2.1 Distribution and Abundance	4-5
4.2.2 Direct Effects	4-6
4.2.3 Indirect Effects	4-6
4.2.4 Cumulative Effects	4-6
4.2.5 Critical Habitat Effects.....	4-6
4.2.6 Effects Determination	4-6
4.3 Yuma Clapper Rail (<i>Rallus longirostris yumanensis</i>)	4-6
4.3.1 Distribution and Abundance	4-6
4.3.2 Direct Effects	4-6
4.3.3 Indirect Effects	4-6
4.3.4 Cumulative Effects	4-7
4.3.5 Critical Habitat Effects.....	4-7
4.3.6 Effects Determination	4-7
4.4 Colorado Pikeminnow (<i>Ptychocheilus lucius</i>)	4-7
4.4.1 Distribution and Abundance	4-7
4.4.2 Effects Determination	4-7

4.5	Razorback Sucker (<i>Xyrauchen texanus</i>)	4-7
4.5.1	Distribution and Abundance	4-7
4.5.2	Direct Effects	4-8
4.5.3	Indirect Effects	4-8
4.5.4	Cumulative Effects	4-8
4.5.5	Critical Habitat Effects.....	4-8
4.5.6	Effects Determination	4-8
4.6	Bonytail Chub (<i>Gila elegans</i>).....	4-8
4.6.1	Distribution and Abundance	4-8
4.6.2	Direct Effects	4-8
4.6.3	Indirect Effects	4-8
4.6.4	Cumulative Effects	4-9
4.6.5	Critical Habitat Effects.....	4-9
4.6.6	Effects Determination	4-9
4.7	No Action Alternative.....	4-9
5.0	Effect Determination Summary.....	5-1
5.1	Southwestern Willow Flycatcher	5-1
5.2	Desert Tortoise.....	5-1
5.3	Yuma Clapper Rail	5-1
5.4	Colorado pikeminnow.....	5-1
5.5	Razorback Sucker	5-1
5.6	Bonytail Chub	5-1
6.0	Works Cited.....	6-1

Figures

- 1 Site Location Map
- 2 Proposed Projects

Appendices

- A Interim Measures No. 3 USFWS Consultation
- B PE-1 Pipeline Work Plan
- C *In-situ* Pilot Study Work Plan
- D Southwestern Willow Flycatcher Survey Report

Acronyms and Abbreviations

BLM	United States Bureau of Land Management
BNSF	Burlington Northern-Santa Fe Railroad
BOR	United States Bureau of Reclamation
CFR	Code of Federal Regulations
DTSC	Department of Toxic Substances Control
ESA	Endangered Species Act
FCR	field contact representative
HNWR	Havasu National Wildlife Refuge
IM	Interim Measure
PG&E	Pacific Gas and Electric Company
SWCA	Steven W. Carothers and Associates
USC	United States Code
USFWS	United States Fish and Wildlife Service

1.0 Introduction

Pacific Gas and Electric Company (PG&E) is addressing chromium in groundwater at the Topock Compressor Station under the oversight of the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). This biological assessment has been prepared to analyze the effects of implementing investigative and interim remedial activities, as directed by the DTSC. The Topock Compressor Station is located in eastern San Bernardino County, California about 15 miles southeast of Needles (Figure 1).

Section 7 of the Endangered Species Act (ESA) (16 United States Code [USC] 1531 et seq.), as amended (1978, 1979, 1982, 1996) directs federal agencies to ensure that actions authorized, funded, or carried out by these agencies are not likely to jeopardize the continued existence of any species listed or proposed for listing as threatened or endangered or cause destruction or adverse modification of designated critical habitats (16 USC 1536[a]2). Federal agencies must consult with the appropriate Secretary whenever an action is likely to affect a listed species and/or its designated or proposed designated critical habitat. The contents of this biological assessment conform with the legal requirements as set forth under Section 7 of the Endangered Species Act (16 USC 1536(c), 50 Code of Federal Regulations [CFR] 402.14) and the direction established in United States Bureau of Land Management (BLM) 6840.06(A)(2)(b). The contents of this document conform to requirements as set forth in 50 CFR 402.12.

1.1 Background, Purpose, and Need for Proposed Action

The DTSC is the state lead agency charged with directing remedial and investigative activities at the site in accordance with the Resource Conservation and Recovery Act. Members of the Topock Consultative Workgroup advise DTSC and PG&E with the planning and review of site investigation and remediation activities. The Topock Consultative Workgroup includes representatives of DTSC, BLM, United States Fish and Wildlife (USFWS) Havasu National Wildlife Refuge (HNWR), the Colorado River Basin Regional Water Quality Control Board, Metropolitan Water District of Southern California, and other regional, state, and federal agencies. In July 2005, PG&E and the Department of the Interior, including Department of the Interior agencies BLM and USFWS, entered into a Consent Agreement that outlined the process by which PG&E would comply with CERCLA requirements during the investigation and remediation of the Topock site.

The process of determining a final remediation strategy is currently underway and is expected to be complete in 2008. At the direction of the DTSC, various measures have been implemented to address immediate site characterization and interim remedial concerns. These measures include the Interim Measure Number 3 (IM No. 3) project, consisting of groundwater extraction and management of extracted groundwater. Components of the IM No. 3 project include continued groundwater extraction, piping, and conveyance of extracted groundwater to a treatment system; treatment of extracted groundwater; and disposal of treated groundwater water by injection wells. Portions of the IM No. 3 facilities are located on BLM-managed lands.

Because of this federal nexus and the discretionary federal approval required to implement activities at the site, potential effects to federally-listed species are subject to consultation with the USFWS pursuant to Section 7 of the ESA. In September 2004, the BLM Lake Havasu Office initiated informal consultation with the USFWS Ventura Office on behalf of PG&E regarding potential impacts resulting from implementation of IM No. 3 on species listed under the ESA. The species addressed include the southwestern willow flycatcher (*Empidonax traillii extimus*) and desert tortoise (*Gopherus agassizii*). At that time, a no affect determination was provided for the IM No. 3 project (see Appendix A).

IM No. 3 construction activities occurred over a 10-month period between October 2004 and July 2005. The total area of land use resulting from construction of the IM No. 3 facilities was approximately 8 acres. Of these 8 acres, approximately 4 acres were previously disturbed. To date, the IM No. 3 project has been working under this determination with no take of these or any other listed species.

DTSC has recently directed PG&E to construct additional components of the IM No. 3 project; specifically, a pipeline to connect an existing groundwater extraction well (PE-1) on the Colorado River floodplain to the IM No. 3 groundwater conveyance system. The conceptual arrangement of the PE-1 pipeline was reviewed previously during the September 2004 consultation between BLM and USFWS, which resulted in a no affect determination. The current proposed pipeline design is substantially similar to the original concept but reflects changes requested by BLM to minimize removal of vegetation on the river floodplain (see Figure 2).

DTSC has also requested that PG&E conduct a study of *in-situ* remediation technology on the Colorado River floodplain. The results of this study will support the evaluation and selection of the final remedy at the site. As shown on Figure 2, the location of the proposed *in-situ* pilot study overlaps with the proposed PE-1 pipeline alignment. Further, the timing of the *in-situ* pilot study is expected to follow soon after construction of the PE-1 pipeline. Therefore, this biological assessment addresses both the PE-1 pipeline project and *in-situ* pilot study. The area potentially affected by these two proposed actions is hereafter referred to as the “project site.”

1.2 Proposed, Threatened, and Endangered Species within the Range of the Proposed Action

The following wildlife species are listed as threatened or endangered under the federal ESA and potentially occur within the range of the proposed action:

- Birds
 - Southwestern willow flycatcher (*Empidonax traillii extimus*)
 - Yuma clapper rail (*Rallus longirostris yumanensis*)
- Fish
 - Razorback sucker (*Xyrauchen texanus*)
 - Bonytail Chub (*Gila elegans*)
- Reptiles

- Desert Tortoise (*Gopherus agassizii*)

No designated critical habitat for these species occurs within the proposed project area. No federally-listed plants occur within the proposed project area. No wildlife or plant species proposed for federal listing occur within the proposed project area.

1.3 Baseline Conditions

Several past activities have occurred within or adjacent to the project site. Approximately 0.25 mile southwest of the project site, PG&E owns and operates a gas compressor station and gas transmission line. A biological opinion from USFWS was obtained to cover the operations and maintenance of this facility. As noted above, construction of the IM No. 3 groundwater treatment facility was recently completed approximately 0.25 mile west of the proposed project site. The IM No. 3 project included various groundwater wells in the upland and the PE-1 well in the floodplain. Near the IM No. 3 treatment facility is evidence of an old abandoned quarry pit and World War II-era military training exercises. This upland area includes several alignments of Historic Route 66, which attracts tourists. Park Moabi Road is a two-lane County roadway located directly west of the project site.

Located between the compressor station and treatment facility is a major gas utility and travel corridor. The corridor includes Interstate 40, Burlington Northern-Santa Fe Railroad (BNSF) railroad, and four natural gas transmission lines. A substantial amount of train and vehicular traffic and associated noise and air emissions are generated along this corridor. Moabi Regional Park, managed by San Bernardino County, is located approximately 1 mile northwest of the project site. The regional park contains facilities for mobile homes, campers, and boaters. A marina leads into the park from the Colorado River. The small town of Topock – with several mobile homes, a restaurant, and marina – is located directly across the Colorado River in Arizona, approximately one-quarter mile from the project site.

2.0 Proposed Action and Alternatives

2.1 PE-1 Pipeline

Future operation of the existing PE-1 extraction well requires construction of a double-walled conveyance pipeline to connect the extraction well with an existing conveyance pipeline at the MW-20 bench. The pipeline alignment will be installed sub-surface and extend a linear distance of approximately 500 feet between the PE-1 well and MW-20 bench (Figure 2). The pipeline trench will be up to 20 feet wide and would use approximately 0.25 acre on the floodplain. The total land used for pipeline construction is approximately 0.6 acre based on a 50-foot work zone around the alignment. Of this amount, about 0.2 acre will overlap with the area used for the *in-situ* pilot study. The PE-1 pipeline construction is scheduled for a fall 2005 start date and is expected to last approximately 4 weeks.

The proposed staging area for these activities is the north end of the MW-20 bench. Construction materials will be stockpiled at the IM No. 3 treatment plant and/or the MW-20 bench and moved to the staging area as needed. Access to the floodplain would be from Park Moabi Road at the MW-35 cluster, similar to prior drilling and groundwater monitoring program access to the floodplain. The access route and MW-20 bench staging area are shown on Figure 2.

Required equipment will include a track hoe for grubbing, excavation, and transport of construction materials; a front-end loader; a track-mounted fusion bonding machine; a water buffalo (trailer with water tank and pump for compaction of trench backfill); and four-wheel-drive Gators. Small gas-driven generators will be needed to install the vault components. Construction will be overseen by a construction superintendent. Construction staff will include equipment operators, pipe installers, electricians, and general laborers (10 to 15 workers total).

Operation of the PE-1 pipeline involves very limited activity on the river floodplain. This activity includes periodic visual inspections conducted on-foot, and occasional repairs. Such repairs may require a small utility vehicle to carry needed equipment, and would occur over a limited period of time. Any required floodplain access for vehicles or equipment would follow the construction access route, approved previously by BLM. Additional details of the PE-1 pipeline project are described in the work plan provided in Appendix B.

2.2 *In-situ* Pilot Study

The *in-situ* pilot study will evaluate the efficacy of reducing hexavalent chromium to the relatively insoluble trivalent state via injection of food-grade liquid (e.g., lactate, fructose, or emulsified vegetable oil) into the groundwater. The study will include the installation of one injection well cluster and six monitoring well nests. The estimated footprint of the *in-situ* pilot study is approximately 0.5 acre. Of this amount, about 0.2 acre will overlap with the

area used for temporary construction activities associated with the PE-1 pipeline installation. The area in which the proposed pilot study wells would be installed is shown on Figure 2. Well installation is scheduled to begin in fall/winter 2005 and is expected to last less than two months.

The wells will be drilled using an all-terrain roto-sonic drilling rig equipped with a 10-inch-outside-diameter drill casing. The injection well cluster will be constructed within two separate borings, and each of the six monitoring well nests will be constructed with three wells nested within a single boring. An all-terrain forklift will be used for equipment and material transfer to the site. Short-term material storage in the drill site area will be necessary to accommodate the drilling operations. Materials to be temporarily stored at the well sites include drilling equipment and well construction materials (casing, sand, bentonite, cement grout, etc.).

Following well construction, each well will be developed using a surge block, bailer, and submersible pump. Development of the injection well will include extracting water; equipment will be staged at the MW-20 bench. Well development will occur over an approximately 2 to 3 week time period.

Access to the floodplain for this work will be from Park Moabi Road at the MW-35 cluster. This is the same access route that was approved by BLM for previous drilling and monitoring on the floodplain (CH2M HILL 2005g). The access route is shown on Figure 2. Roll-off bins for drill cuttings and water will be temporarily staged at either the MW-20 bench or MW-35. These sites have been previously approved by the BLM for past drilling activities on the floodplain.

During the pilot test, reductant solution followed by treated groundwater, will be injected into well PTI-1. Portable tanks containing the solutions will be temporarily staged on the MW-20 bench for the test; the liquid will be conveyed via hoses to the injection wells. The tanks and hoses will be removed from the test areas following the injection. Injection activities will occur over approximately 1 week. Groundwater monitoring and sampling will be conducted immediately following injection, and then at regular intervals for approximately 6 months. The monitoring/sampling activities will follow the procedures, plans, and methods approved by BLM for the Topock groundwater monitoring program (CH2M HILL 2005g).

Further details of the *in-situ* pilot study are described in the work plan provided in Appendix C.

2.3 Mitigation Measures for Protection of Listed Species

Although the proposed projects are unlikely to result in any adverse temporary or permanent impacts to the southwestern willow flycatcher, the following minimization measures are proposed. The objective of the measures is to avoid, reduce, or mitigate potential effects to this species as a result of implementing these proposed projects.

1. All project activities will be conducted in a manner that avoids take of the southwestern willow flycatcher. "Take" is defined to include any harm or harassment, including significant habitat modification or degradation that could potentially kill or injure listed

wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Impacts to habitat will be minimized to the extent possible.

2. Encounters with the southwestern willow flycatcher will be reported to the USFWS and BLM. The project biologists will maintain records of any southwestern willow flycatchers encountered during project activities.
3. All PG&E employees and its contractors involved with the proposed projects will be required to attend PG&E's threatened and endangered species education program prior to initiation of activities. New employees will receive formal, approved training prior to working onsite.
4. Existing approved routes of travel to and from the proposed project site will be used. Cross-country use of vehicles and equipment will be prohibited.
5. Trash and food items will be contained in closed containers and removed daily to reduce attractiveness to opportunistic predators.
6. Pets and firearms will be prohibited from the project site.
7. Upon project completion, all unused material and equipment will be removed from the sites.
8. A biologist will be assigned to the projects and will be responsible for awareness training, pre-activity surveys, compliance monitoring, and reporting. Pre-activity surveys by a biologist will be implemented prior to initiation of ground-disturbing activities. The inspection will provide 100 percent coverage of the area within the project limits.
9. Native honey mesquite trees are located near the project areas and are considered sensitive by the BLM. Potential impacts to this species will be avoided.
10. PG&E will designate a field contact representative (FCR) who will be responsible for overseeing compliance with the minimization measures. The FCR must be onsite during all construction activities. The FCR will have authority to halt all activities that are in violation of the minimization measures and/or pose a danger to listed species. The FCR will have a copy of all minimization measures when work is being conducted on the site. The FCR may be a project manager, PG&E representative, or a biologist.
11. The area of disturbance will be confined to the smallest practical area, considering topography, placement of facilities, public health and safety, and other limiting factors. As needed, work area boundaries will be delineated with flagging or other marking to minimize surface disturbance associated with vehicle straying.
12. All activities will be restricted to a pre-determined corridor. If unforeseen circumstances require project expansion, the potential expanded work areas will be surveyed prior to use of the area. All appropriate minimization measures will be implemented within the expanded work areas based on the judgment of the USFWS and BLM. Work outside of the original right-of-way will proceed only after receiving written approval from the USFWS and BLM describing the exact location of the expansion.

13. All open holes and trenches will be inspected for trapped wildlife throughout the work day. During excavation of trenches or holes, ramps will be provided to facilitate the escape of any wildlife species that may inadvertently become entrapped. A final inspection of the open trench segment will also be made immediately before backfilling.
14. Project personnel will adhere to the PG&E spill prevention and emergency contact plans. All construction vehicles and equipment will be periodically checked to ensure proper working condition and to ensure that there is no potential for fugitive emissions of oil, hydraulic fluid, or other hazardous products. The BLM will be informed of any hazardous spills.
15. Workers will exercise caution when traveling to and from the project area. To minimize the likelihood for vehicle strikes of wildlife species, speed limits on the floodplain while commuting to the project areas will not exceed 20 miles per hour.
16. Intentional killing or collection of either plant or wildlife at construction sites and surrounding areas will be prohibited.
17. PG&E will produce a restoration plan that will assist in the re-establishment of biological values. Methods of restoration may include erosion control, re-contouring, and revegetation, depending upon the appropriateness or effectiveness in the area. Revegetation will only be performed when vegetation has been removed from the proposed site. Pruning of vegetation is not considered removal; therefore, revegetation will not be performed in this instance. Should revegetation be needed, it will be at a 2:1 ratio for native vegetation and 1:1 ratio for non-native vegetation. The revegetation type and location will be determined in consultation with the appropriate agencies.
18. Within 30 days of completion of construction activities, the FCR and biologist will prepare a brief report for USFWS and BLM documenting the effectiveness and practicality of the minimization measures and making recommendations for modifying the measures to enhance species protection. The report will also provide information on awareness training, pre-activity surveys, compliance monitoring, observed plant and wildlife species, project land use (including the amount and type of vegetation removed), and photo documentation of pre- and post-construction conditions.

2.4 Alternatives to the Proposed Action

Several alternatives to the proposed action were considered but eliminated from analysis because they were not practical, caused greater environmental effects, or did not meet the purpose and need of the proposed activities. Screened alternatives for the *in-situ* pilot study are described further in Appendix C. Only the No Action Alternative and the proposed actions described above were identified for this project.

2.5 No Action Alternative

Under the No Action Alternative, the PE-1 pipeline would not be constructed and the *in-situ* pilot study would not be implemented. The No Action Alternative would not meet project objectives. For the PE-1 pipeline project, the No Action Alternative would not provide for

enhanced interim remedial actions, as directed by DTSC. For the *in-situ* pilot study, the No Action Alternative would not provide information required to support the evaluation and selection of the final remedy for the project site.

3.0 Affected Environment

The project site is located within land managed by the BLM. The HNWR is managed by the USFWS and includes lands located south and east of the project site. Flows within the Colorado River, located north and east of the project site, are managed by the United States Bureau of Reclamation (BOR). Land to the northwest and west are managed by the BLM. The project site is located within the Colorado River floodplain where the substrate consists of actively-shifting sand dunes. Topography in the area is abrupt, rising from around 450 feet above mean sea level at the Colorado River to over 1,200 feet above mean sea level within 1 mile to the south and southwest of the project site. Slopes encountered west of the river reflect a series of ancient river terraces.

The Lower Colorado River is the primary aquatic habitat located east of the project area. The river is approximately 700 to 900 feet wide and 8 to 15 feet deep at this location. The river supports several game fish species including striped bass (*Morone saxatilis*), largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), white crappie (*Pomoxis annularis*), flathead catfish (*Pylodictis olivaris*), and channel catfish (*Ictalurus punctatus*). Little to no submergent vegetation exists within the river. Small patches of emergent vegetation along the banks consist of common reed (*Phragmites communis*), cattails (*Typha* sp.), sedges (*Carex* sp.), and bulrush (*Scirpus* sp.). The Topock Marsh, located approximately 1.3 miles northeast of the project area within the HNWR, provides important aquatic marsh and riparian habitat for various wildlife species including federally-listed species such as the Yuma clapper rail (*Rallus longirostris yumanensis*) and southwestern willow flycatcher (*Empidonax traillii extimus*). The Topock Marsh has recently been designated as critical habitat for the southwestern willow flycatcher, and is the nearest critical habitat to the project site.

The PE-1 pipeline alignment and the *in-situ* pilot study are located within the Colorado River floodplain. Tamarisk (*Tamarix ramosissima*) thicket is the dominant plant community along this portion of the floodplain. This plant community consists of sparse to dense monotypic stands of tamarisk with an understory of arrowweed (*Pluchea sericea*). Tamarisk is an invasive, exotic plant species that has displaced several native plant species along the Colorado River. A small stand of a few honey mesquite (*Prosopis glandulosa*) trees are also near the project area.

Upland habitat to the west of the project site consists of creosote bush scrub. This area is sparsely vegetated with widely distributed creosote bushes (*Larrea tridentata*). Other plant species associated with this plant community include burrobush (*Ambrosia dumosa*), allscale (*Atriplex polycarpa*), split grass (*Schismus* sp.), spineflower (*Chorizanthe* sp.), desert trumpet (*Eriogonum inflatum*), beavertail cactus (*Opuntia basilaris*), golden cholla (*Opuntia echinocarpa*), brittlebush (*Encelia farinosa*), cheesebush (*Hymenoclea salsola*), dalea (*Dalea mollisma*), red barrel cactus (*Ferocactus pilosus*), sweetbush (*Bebbia juncea*), and ratany (*Krameria erecta*).

Avian species commonly associated with the river include American coot (*Fulica americana*), mallard (*Anas platyrhynchos*), pied-billed grebe (*Podilymbus podiceps*), great egret (*Casmerodius albus*), great blue heron (*Ardea herodias*), northern rough-winged swallow (*Stelgidopteryx serripennis*), great-tailed grackle (*Quiscalus mexicanus*), and belted kingfisher

(*Ceryle alcyon*). Other avian species found in the upland areas include red-tailed hawk (*Buteo jamencensis*), Gambel's quail (*Callipepla gambelii*), mourning dove (*Zenaida macroura*), common raven (*Corvus corax*), song sparrow (*Melospiza melodia*), Canyon wren (*Catherpes mexicanus*), brewer's blackbird (*Euphagus cyanocephalus*), turkey vulture (*Cathartes aura*), greater roadrunner (*Geococcyx californianus*), lesser nighthawk (*Chordeiles acutipennis*), and rock dove (*Columba livia*).

Mammals that may occur in the project vicinity include deer mouse (*Peromyscus maniculatus*), Merriam kangaroo rat (*Dipodomys merriami*), whitetail antelope squirrel (*Ammospermophilus leucurus*), desert woodrat (*Neotoma lepida*), desert cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), desert kit fox (*Vulpes macrotis*), striped skunk (*Mephitis mephitis*), beaver (*Castor canadensis*), and raccoon (*Procyon lotor*).

Reptiles that may occur in the project vicinity include side-blotched lizard (*Uta stansburiana*), western whiptail lizard (*Cnemidophorus tigris*), desert iguana (*Dipsosaurus dorsalis*), coachwhip (*Masticophis flagellum*), gopher snake (*Pituophis melanoleucus*), and western diamondback rattlesnake (*Crotalus atrox*).

4.0 Effects of the Proposed Action and Alternatives

This section provides the federally-listed species accounts within or near the project site and describes the potential effects to each species and its critical habitat resulting from proposed project activities. The information in this section was obtained from several sources listed in Section 6.0.

In March 2005, a work plan was produced and submitted to USFWS, BLM, and the California Department of Fish and Game representatives describing proposed surveys for the southwestern willow flycatcher, desert tortoise, and Yuma clapper rail within the project area (CH2M HILL 2005a). This work plan described surveys to be conducted according to USFWS-approved protocols. Flycatcher and tortoise surveys were subsequently conducted in accordance with the protocols; a brief summary of the survey results are included in this section. The results of the protocol surveys were compiled in the *Biological Resources Survey Report for the Area of Potential Effect (APE) Topock Compressor Station Expanded Groundwater Extraction and Treatment System Needles, California* (CH2M HILL 2005b).

Based on prior discussions, PG&E received a letter from USFWS HNWR staff in January 2005 requesting that protocol surveys for clapper rail not be performed; PG&E did not perform any surveys for this species (CH2M HILL 2005a). HNWR staff was interested in avoiding duplication of prior survey efforts and concerned with potential added stress to the clapper rail. The USFWS stated that they would share data collected from the 2004 surveys with PG&E. The USFWS data results are briefly summarized in this section.

4.1 Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

4.1.1 Distribution and Abundance

The current estimate of the range-wide southwestern willow flycatcher population is between 1,100 and 1,200 pairs/territories. Intensive monitoring and survey efforts since the species was listed have significantly increased the known number of pairs/territories. Although numbers have increased in some areas, much of this increase may be an artifact of more survey effort. From 1997 to 2004, breeding populations of southwestern willow flycatchers were documented at seven study areas along the Virgin and Lower Colorado Rivers and tributaries.

The project site is located between two southwestern willow flycatcher study areas – Topock Marsh and Topock Gorge. The Topock Marsh is located approximately 1.3 miles upstream of the project site, and the Topock Gorge is located approximately 4 miles downstream of the project site. The Topock Marsh provides important breeding and recovery habitat, and the Colorado River provides a riparian corridor for this species. In 2004, BOR contracted Steven W. Carothers and Associates (SWCA) to perform surveys for southwestern willow

flycatcher at these study areas. During this survey, SWCA recorded 65 and three southwestern willow flycatchers within Topock Marsh and Topock Gorge, respectively.

To obtain data at and near the project sites located between the Topock Marsh and Gorge, PG&E contracted Garcia and Associates (GANDA) in 2005 to perform USFWS protocol presence/absence surveys for the southwestern willow flycatcher. One possible flycatcher was detected along the California side of the survey area near Moabi Regional Park. This sighting was approximately 0.5 mile north of the project area. Although the bird was visually identified as a southwestern willow flycatcher, the distinctive “fitz-bew” call required for positive identification was not heard. This bird was possibly a transient since there were no subsequent detections of this species. Other than this single observation, no other flycatchers were seen or heard during the protocol survey. Further details of the southwestern willow flycatcher survey are described in the report provided in Appendix D.

4.1.2 Direct Effects

The estimated temporary impacts from the PE-1 pipeline construction are limited to an approximately 0.6 acre area, based on a 50-foot-wide work zone around the 500-foot-long alignment. PE-1 pipeline construction is scheduled for a fall 2005 start date and is expected to last approximately 4 weeks. Following construction, the PE-1 pipeline would not result in any permanent surface expression, with the exception of two small vaults along the alignment.

The estimated temporary impacts from the *in-situ* pilot study construction are limited to an approximately 0.5 acre area. Of this amount, about 0.2 acre will overlap with the area used for the *in-situ* pilot study. Therefore, the net temporary impact from pilot study and pipeline construction will occur over approximately 0.9 acre. Well installation is scheduled for a fall/winter 2005 start date, following PE-1 construction, and is expected to occur over an approximately one-month period of time. Permanent impacts (from the well monuments and pads at the surface) would occur on less than 0.1 acre.

The existing BLM approved route from MW35 will be used to access/egress the sites during construction activities. This route is devoid of vegetation. Therefore, no vegetation will be removed or otherwise affected along this route. The estimated temporary impact to floodplain sands along the access route is approximately 0.6 acre, based on an alignment 15 feet wide and 1,600 feet long.

These projects will involve the use of heavy equipment such as a drill rig, excavator, and support equipment leading to ground disturbance and noise during vegetation removal, excavation, backfilling of the pipeline, and drilling of the wells. Implementation of these two projects would result in approximately 1.5 acres of temporary impacts during construction activities and 0.1 acre permanent impact. Most of this area is devoid of vegetation; less than 0.3 acre of non-native tamarisk would be affected.

Operation of the sub-surface PE-1 pipeline does not require any substantial activity on the floodplain (e.g., periodic visual inspections or occasional repairs), and does not have the potential to adversely affect the southwestern willow flycatcher or critical habitat. Operation of the *in-situ* pilot study involves injection of a food-grade solution into the injection well cluster and subsequent monitoring to measure the results. Injection activities will be limited to an approximately 1-week period. Equipment associated with injection activities will be

staged at the MW-20 bench above the floodplain, with the exception of a temporary hose connected to the injection well cluster. This will limit the potential to affect southwestern willow flycatcher. Subsequent monitoring will occur daily for the first week, weekly for the first month, and monthly thereafter through completion of the study (estimated to be concluded after approximately 6 months). As noted previously, monitoring/sampling activities will follow the procedures, plans, and methods approved by BLM for the Topock groundwater monitoring program (CH2M HILL 2005g).

The southwestern willow flycatcher may potentially roost and forage within or near the project area but is not expected to nest based on past BOR annual surveys that indicate flycatchers are selecting the higher quality habitat at the Topock Marsh and Gorge. Based on the lack of positive identification of presence and the marginally suitable habitat conditions, there is a low probability for this species to occur within or directly adjacent to the project site. This species is known to migrate to Mexico and South America in the winter, departing breeding grounds from late July through September. Construction activities will be conducted within marginally suitable habitat and during the season when the species is absent from the area. Therefore, impacts to foraging and breeding behavior leading to nest abandonment or destruction are not expected.

Construction activities may affect potential southwestern willow flycatcher habitat. However, this effect is uncertain because of the species' transitory use of adjacent higher quality suitable habitats and the constant transportation activity and resultant noise generated from nearby Interstate 40, BNSF railroad, and watercraft recreational activity on the Colorado River that may deter use of the project area. Construction activities will have no affect on the Colorado River's overall balance of remaining cottonwood-willow stands that are preferred habitat for this species. Because tamarisk acreage has significantly increased along the Colorado River, the larger thickets are known to serve as southwestern willow flycatcher breeding, foraging, and sheltering habitat. Several small stands of tamarisk are expected to be affected as a result of these proposed actions. The degradation of this habitat type in this region is considered an insignificant and discountable effect on the species because of the small amount (less than 0.3 acre) of tamarisk that would be affected, the higher quality suitable habitat in the vicinity, and subsequent revegetation mitigation at a 1:1 ratio for replacement of non-native tamarisk with native vegetation. As noted previously, a no affect determination was provided in fall 2004 by USFWS for IM-3 project activities, which included the PE-1 pipeline (see Appendix A).

4.1.3 Indirect Effects

The PE-1 pipeline is related to the larger IM-3 project, which was previously provided a no affect determination. Subsequent construction of the IM-3 project resulted in no take of listed species. Additional interim remedial measures may be undertaken in the project vicinity, but are currently unspecified. However, such actions are not anticipated to result in the take of listed species, including the southwestern willow flycatcher. This is due to the lack of suitable habitat in the project area, the availability of higher quality habitat in surrounding areas (e.g., the Topock Marsh), and the absence of this species at the project site as recorded by recent protocol surveys.

Implementation of the *in-situ* pilot study will likely be followed by similar related studies, each of which will support the evaluation and selection of a final cleanup remedy for the

site. Future studies, and particularly the final remedy, are not currently specified. However, such activities are expected to occur in areas containing marginal habitat where limited or no presence of this species occurs. Therefore, no indirect adverse impact to this species is anticipated.

4.1.4 Cumulative Effects

The BOR anticipates that native riparian vegetation, especially the cottonwood-willow association historically used by the southwestern willow flycatcher, will continue to decline in the future. Although total acres of cottonwood-willow have fallen precipitously since 1976, the majority of loss has occurred in the young age classes. These young stands are more susceptible to loss from desiccation, fire, or tamarisk competition. More mature stands may be lost to fire activity, but these numbers are difficult to quantify. The BOR has stated that their operations do inhibit regeneration of new cottonwood-willow stands by limiting flood events.

Riparian areas in the southwest have been drastically affected by human activity since the mid-1800s. Conversion of riparian lands to agriculture began around the turn of the century, expanding rapidly after the passage of the Reclamation Act of 1902. Most agricultural conversion along the Lower Colorado River had occurred by 1976. The loss of 300,000 acres of riparian habitat to agriculture along the Lower Colorado River is one of the key reasons why the southwestern willow flycatcher is listed as an endangered species. There are approximately 100,000 acres of riparian vegetation south of Davis Dam; however, much of it is occupied by non-native tamarisk. Other than agriculture and invasive plant species, riparian ecosystems throughout the southwest have been altered due to impoundments, overgrazing, and mining. These activities are expected to continue into the future.

It is reasonably certain that growth and development in nearby areas such as Laughlin, Nevada; Bullhead City, Arizona; and Lake Havasu, Arizona are going to continue. This would result in additional people using the river for recreational activities such as boating, hunting, and fishing and subsequent disturbance to riparian dwelling species such as the southwestern willow flycatcher. These recreational activities, combined with the increased presence of tamarisk in the ecosystem, have greatly increased the occurrence of wildfire. Fire has a much greater detrimental effect on native plant species than on tamarisk. The end result of most fires along the Lower Colorado River is the loss of native plant species.

Other portions of the southwestern willow flycatcher range have been or are being affected by many of the same problems, as well as other problems not associated with the Lower Colorado River ecosystem. One of the major concerns is overgrazing. Overgrazing has affected species composition and stand structure in riparian areas used by southwestern willow flycatcher for breeding. Cowbird parasitism has increased due to habitat fragmentation and increased foraging habitat created by livestock. These activities are expected to continue into the future.

Implementation of the future BOR Multi-species Conservation Plan covers federal and non-federal actions that may result in the loss of nearly 2,000 acres of southwestern willow flycatcher habitat. Continued implementation of ongoing covered actions may continue to have adverse effects to existing habitats. The Multi-species Conservation Plan does provide for the creation of several thousand acres of suitable riparian habitat for the flycatcher. This

habitat will be maintained as needed to ensure suitability and replaced if destroyed by fire, drought, or flood. The Multi-species Conservation Plan program will also fund an extensive augmentation program into the Lower Colorado River and is a primary conservation action for this species.

4.1.5 Critical Habitat Effects

The nearest critical habitat for the southwestern willow flycatcher is located at the Topock Marsh outside the project area. Critical habitat for this species will not be destroyed or adversely modified by the proposed activities.

4.1.6 Effects Determination

A bird visually identified as a southwestern willow flycatcher was documented approximately a 0.5 mile north of the project area. However, the “fitz-bew” call was not heard to positively identify the species per USFWS protocol. Potential suitable habitat for the southwestern willow flycatcher exists at the project area. Project-related construction activities leading to degradation of this habitat type in this region is considered an insignificant and discountable effect on the species because of the small amount (less than 0.3 acre) of non-native tamarisk that would be affected, higher quality suitable habitat in the vicinity, and the revegetation mitigation requiring a 1:1 replacement of non-native tamarisk with native vegetation. Therefore, the proposed action may affect, but is unlikely to adversely affect, this species. No critical habitat for this species will be affected.

4.2 Desert Tortoise (*Gopherus agassizii*)

4.2.1 Distribution and Abundance

In 2004 and 2005, PG&E contracted CH2M HILL and GANDA to perform USFWS protocol presence/absence surveys for the desert tortoise within the upland to the west of the project site. No live desert tortoises were detected within the expanded project area. However, three disarticulated desert tortoise carcasses were observed. Two carcasses were associated with ephemeral drainages. The third carcass was observed on a mesa top. The carcasses observed in the drainages may have washed in from outside the survey area during a rainstorm. This interpretation is based on the location of the finds, surrounding topography, and the lack of any other apparent desert tortoise sign within the survey area. The desert tortoise carcasses may indicate historical use of the area; however, no live desert tortoises, scats, tracks, or other evidence of recent use was observed. Burrows with entrances large enough to accommodate a desert tortoise were also observed during the surveys. The possible desert tortoise burrows had no scat, tracks, or other signs within or surrounding the burrows and likely were created by a black-tailed jackrabbit or one of the other small burrowing mammal species that were observed during the survey.

The typical lack of annual vegetation and burrows, combined with the presence of steep rocky slopes of the Chemehuevi Mountains and associated deep drainages, make desert tortoise occupation of the survey area unlikely. Additionally, the overall habitat within the survey area was relatively poor due to past disturbance and fragmentation by pipeline corridors, roads, Interstate 40, the BNSF railroad, Topock Compressor Station, evaporation

ponds, and other manmade facilities. Therefore, it was concluded that this species does not occur within or directly adjacent to the project area.

4.2.2 Direct Effects

Direct effects upon this species resulting from the proposed project activities are not expected because:

- The proposed actions will take place within unsuitable habitat for this species.
- The species does not occur within or directly adjacent to the project site.

4.2.3 Indirect Effects

Indirect effects are similar to those identified for the southwestern willow flycatcher.

4.2.4 Cumulative Effects

Cumulative effects are similar to those identified for the southwestern willow flycatcher.

4.2.5 Critical Habitat Effects

The Chemehuevi Valley Critical Habitat Unit is the closest unit, located approximately 9 miles west of the project site. PG&E's proposed activities are located outside designated critical habitat for the desert tortoise; therefore, it is concluded that these activities will not destroy or adversely modify designated critical habitat for the desert tortoise.

4.2.6 Effects Determination

Recent evidence of desert tortoise presence was not detected during recent protocol surveys of the project area. The floodplain is considered unsuitable habitat for this species. Therefore, the proposed action will have no effect upon this species. Critical habitat for this species will not be affected.

4.3 Yuma Clapper Rail (*Rallus longirostris yumanensis*)

4.3.1 Distribution and Abundance

The project site is located west and across the Colorado River from the USFWS study site near the Topock Marina. Several call stations have been surveyed annually for Yuma clapper rail by the USFWS. In past years, including 2004, this species has been detected south of the new south dike and north of the Topock Marina. This is well outside the project area and is the closest suitable habitat with known clapper rail presence. This species does not occur within or directly adjacent to the project area.

4.3.2 Direct Effects

Direct effects analysis is identical to that described for the desert tortoise.

4.3.3 Indirect Effects

Indirect effects are similar to those identified for the southwestern willow flycatcher.

4.3.4 Cumulative Effects

Cumulative effects are similar to those identified for the southwestern willow flycatcher.

4.3.5 Critical Habitat Effects

Critical habitat has not been designated for the Yuma clapper rail.

4.3.6 Effects Determination

Suitable habitat and known presence of the Yuma clapper rail occurs on the Arizona side of the Colorado River. This location is outside the project area. Therefore, the proposed action will have no effect upon this species. Due to the lack of designation, critical habitat for this species will not be affected.

4.4 Colorado Pikeminnow (*Ptychocheilus lucius*)

4.4.1 Distribution and Abundance

The Colorado pikeminnow was, historically, the top predator fish in the Colorado River. This species was once widespread, but native populations are now restricted to the Upper Colorado River Basin in Wyoming, Utah, Colorado, and New Mexico, where it was once extremely abundant. The last known wild adults from the Lower Colorado River were captured in the 1960s. Therefore, this species does not occur within or directly adjacent to the project area.

4.4.2 Effects Determination

The Colorado pikeminnow is considered extirpated from the Lower Colorado River; therefore, it is concluded that PG&E's activities will not affect the Colorado pikeminnow. This species is given no further consideration in this biological assessment.

4.5 Razorback Sucker (*Xyrauchen texanus*)

4.5.1 Distribution and Abundance

The razorback sucker was formerly the most widespread and abundant of the big-river fishes in the Colorado River. It ranged from Wyoming to northwestern Mexico and occurred in most of the major tributaries. In central Arizona, the fish was abundant enough to be commercially harvested for human and animal food and for fertilizer in the late 1800s. Today the species occupies only a small portion of its historical range, and most occupied areas have very low numbers of fish. Between Davis Dam and Lake Havasu, observations of razorback suckers are extremely rare.

Extinction of the species in the wild throughout the historic range is being forestalled by stocking of sub-adult fish into the remaining wild populations. Where natural recruitment (i.e., survival of young to adulthood) is occurring, it is not known if the current level of recruitment will sustain the existing population levels. Where natural recruitment is not occurring, loss of the remaining wild populations is expected. This species does not occur within or directly adjacent to the project area.

4.5.2 Direct Effects

Direct effects analysis is identical to that described for the desert tortoise.

4.5.3 Indirect Effects

Indirect effects are similar to those identified for the southwestern willow flycatcher.

4.5.4 Cumulative Effects

Cumulative effects are similar to those identified for the southwestern willow flycatcher.

4.5.5 Critical Habitat Effects

Critical habitat for the razorback sucker includes Lake Mead to its full pool elevation, the Colorado River and its 100-year floodplain between Hoover Dam and Davis Dam including Lake Mohave to its full pool elevation, and the Colorado River and its 100-year floodplain from Parker Dam to Imperial Dam. The project activities are located outside designated critical habitat for the razorback sucker. Therefore, it is concluded that the proposed activities will not destroy or adversely modify critical habitat for this species.

4.5.6 Effects Determination

The razorback sucker is on the verge of being extirpated from the Lower Colorado River. The proposed project activities will not take place within the Colorado River. Therefore, the proposed action will have no effect upon this species. Critical habitat for this species will not be affected.

4.6 Bonytail Chub (*Gila elegans*)

4.6.1 Distribution and Abundance

The bonytail once ranged throughout the mainstream Colorado River and principal tributaries. They were still abundant in Lake Mead after the completion of Hoover Dam; however, by 1950 they were considered rare. By the time concern was raised for this fish, it had disappeared from much of its range. Loss of the extant wild populations is expected.

Extinction of this fish in the wild throughout its historic range is being forestalled by the stocking of sub-adult fish into the Upper Colorado River Basin and Lakes Mohave and Havasu in the Lower Colorado River. While it is expected that these young adults will reproduce, the successful recruitment of wild born young fish to the population may not occur without additional management of habitat and biological factors. Management and research on these populations will be critical to provide for the survival and recovery of the species. This species does not occur within or directly adjacent to the project area.

4.6.2 Direct Effects

Direct effects analysis is identical to that described for the desert tortoise.

4.6.3 Indirect Effects

Indirect effects are similar to those identified for the southwestern willow flycatcher.

4.6.4 Cumulative Effects

Cumulative effects are similar to those identified for the southwestern willow flycatcher.

4.6.5 Critical Habitat Effects

Critical habitat in the action area is the mainstem Colorado River from Hoover Dam to Davis Dam, including Lake Mohave to its full pool elevation and the river and 100-year floodplain between the northern boundary of the HNWR and Parker Dam, including Lake Havasu to its full pool elevation. The project activities are located outside designated critical habitat for the bonytail chub. Therefore, it is concluded that these activities will not destroy or adversely modify critical habitat for this species.

4.6.6 Effects Determination

The bonytail chub is on the verge of being extirpated from the Lower Colorado River. The proposed project activities will not take place within the Colorado River. Therefore, the proposed action will have no effect upon this species. Critical habitat for this species will not be affected.

4.7 No Action Alternative

Implementing the No Action Alternative would have no direct or indirect effects on the federally-listed species or critical habitats, as no construction or operational activity would occur.

5.0 Effects Determination Summary

5.1 Southwestern Willow Flycatcher

The proposed action may affect, but is not likely to adversely affect, the southwestern willow flycatcher. Critical habitat for this species will not be affected.

5.2 Desert Tortoise

No effect to this species or critical habitat would result from the proposed action.

5.3 Yuma Clapper Rail

No effect to this species or critical habitat would result from the proposed action.

5.4 Colorado Pikeminnow

No effect to this species or critical habitat would result from the proposed action.

5.5 Razorback Sucker

No effect to this species or critical habitat would result from the proposed action.

5.6 Bonytail Chub

No effect to this species or critical habitat would result from the proposed action.

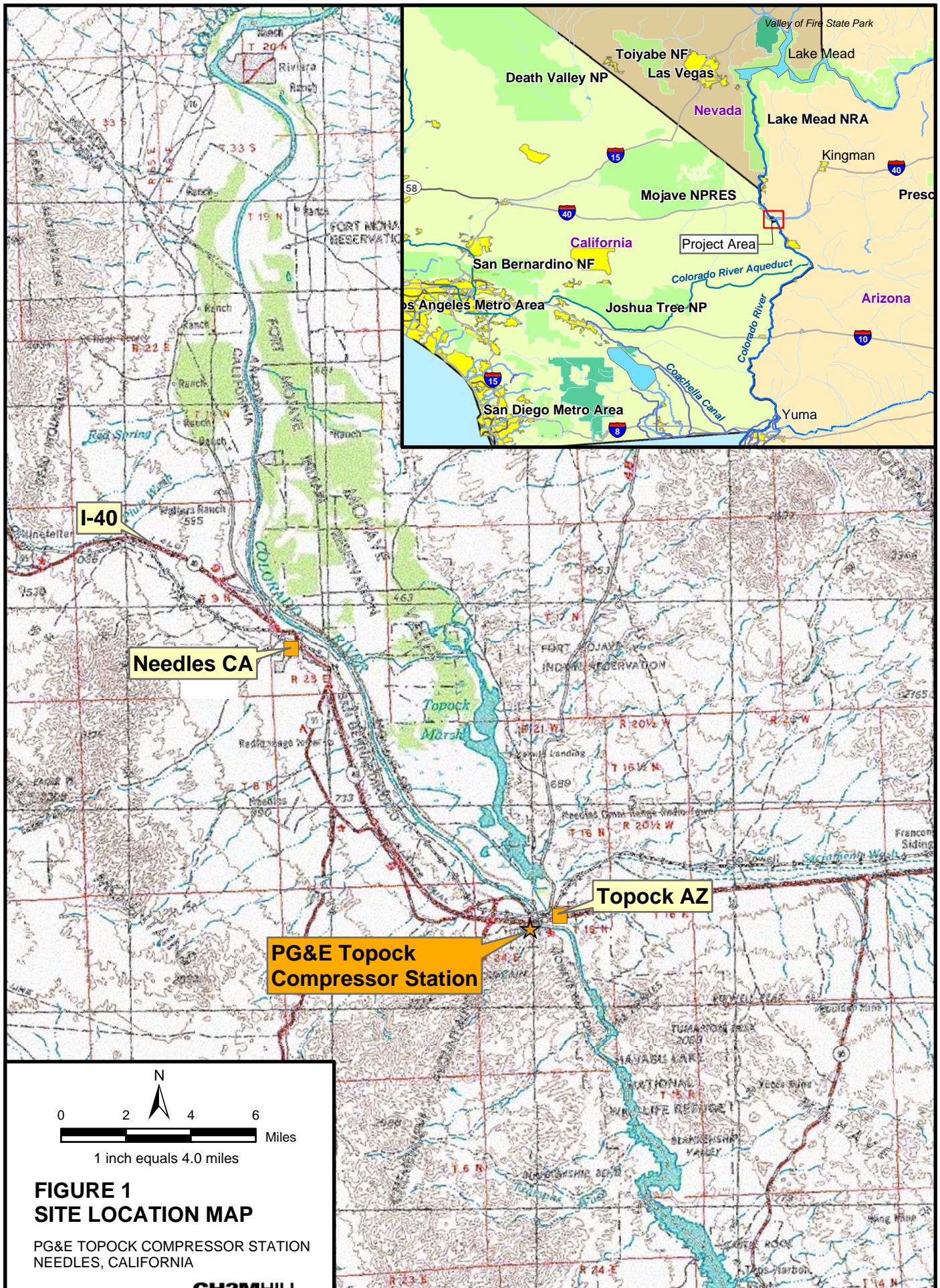
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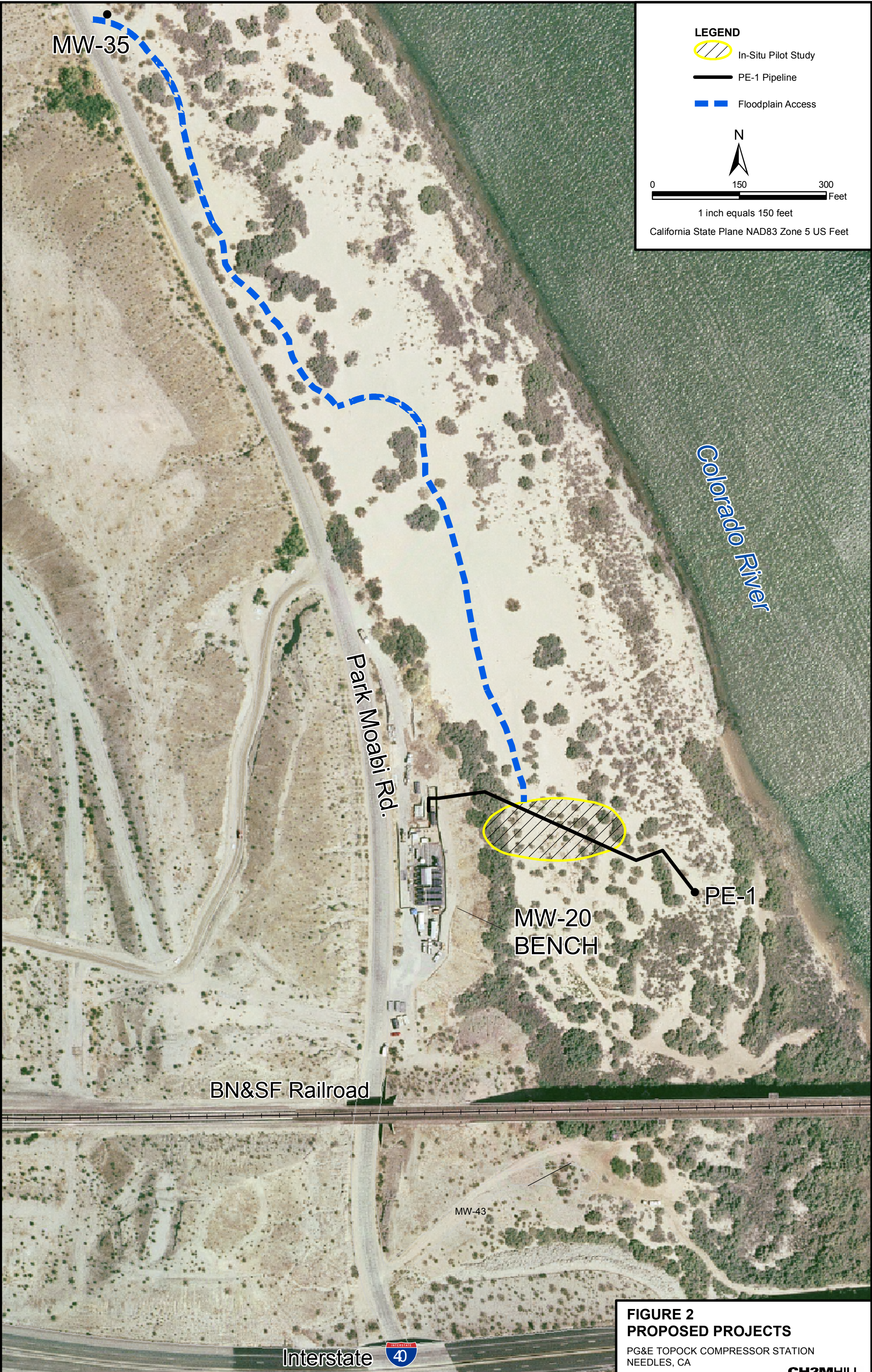
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Figures





**FIGURE 2
PROPOSED PROJECTS**

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CA

CH2MHILL

Appendix A
Interim Measures No. 3 USFWS Consultation

Appendix B
PE-1 Pipeline Work Plan

Appendix C
***In-situ* Pilot Study Work Plan**

Appendix D
Southwestern Willow Flycatcher Survey Report
