Pacific Gas and Electric Company

Curt Russell
Topock Project Manager
Environmental Remediation

Mailing Address
PO Box 337
Needles, CA 92363

(760) 791-5884
E-mail: GCR4@pge.com

November 30, 2017

Mr. Jason West
U.S. Department of the Interior
Assistant Field Manager
Bureau of Land Management
1785 Kiowa Avenue
Lake Havasu City, Arizona 86403-2847

Subject: Request for Reinitiation of Informal Consultation under Section 7 of the Endangered Species Act regarding Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Actions, 2007 (consultation number 22410-2006-I-0333)

Dear Mr. West:

Pacific Gas and Electric (PG&E) would like to request that the Bureau of Land Management (BLM) reinitiate informal consultation with US Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act (ESA) for investigative and remedial actions associated with the PG&E Topock Compressor Station. These activities would occur on private land as well as on BLM and USFWS administered lands, including the Havasu National Wildlife Refuge. These investigative and remedial actions are covered under the Comprehensive Environmental Response, Cleanup and Liability Act (CERCLA).

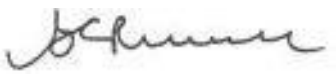
In its February 8, 2007 letter, the Service concurred with the *Programmatic Biological Assessment for PG&E Topock Compressor Station Remedial and Investigative Actions* (2007 PBA) (CH2M HILL 2007) finding that the proposed activities at the Topock site were not likely to adversely affect the southwestern willow flycatcher (*Empidonax traillii extimus*), Yuma clapper rail (*Rallus longirostris yumanensis*), Mohave desert tortoise (*Gopherus agassizii*), razorback sucker (*Xyrauchen texanus*), and bonytail chub (*Gila elegans*) and its critical habitat in the Colorado River.

The request in the attached addendum includes a proposed 10-year extension of the 2007 PBA to accommodate future proposed activities, a revised Action Area, as well as an update of the allowable habitat disturbance acreages. It also includes, an assessment of potential effects on the federally threatened western yellow-billed cuckoo (Coccyzus americanus occidentalis) and its proposed critical habitat with a request to add this species to the 2007 PBA, with a not likely to adversely affect finding. In addition it includes an assessment for northern Mexican gartersnake (*Thamnophis eques megalops*) with a no effect determination, an update on protocol survey frequency for Southwestern willow flycatcher and an update on the federal listing status for Morafkai's (Sonoran) desert tortoise (*Gopherus morafkai*), which currently has no federal listing status and which PG&E requests be removed from the informal consultation. The proposed future activities

will be conducted in a manner consistent with the 2007 PBA, and therefore, in compliance with the ESA requirements.

PG&E appreciates your consideration of the attached information. If you have any questions, please do not hesitate to contact me at (760) 791-5884 or Virginia Strohl at (559) 263-7417.

Sincerely,



Curt Russell
Topock Remediation Project Manager

Enclosures (1)

cc:
Shari Ketcham/ BLM
Pam Innis/DOI
Carrie Marr/USFWS
Jessica Gwinn/USFWS
Kevin Russell/USFWS

Addendum to the 2007 Programmatic Biological Assessment for Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Actions

The following sections provide information for the request to reinitiate informal consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act for investigative and remedial actions associated with Pacific Gas and Electric's Topock Compressor Station.

Consultation History

On February 8, 2007, the USFWS concurred with the *Programmatic Biological Assessment for Pacific Gas and Electric's Topock Compressor Station Remedial and Investigative Actions* (2007 PBA) (CH2M HILL 2007) finding that the proposed investigative and remedial activities at the Topock site were not likely to adversely affect the southwestern willow flycatcher (*Empidonax traillii extimus*), Yuma clapper rail (*Rallus longirostris yumanensis*), Mohave desert tortoise (*Gopherus agassizii*), razorback sucker (*Xyrauchen texanus*), and bonytail chub (*Gila elegans*) and its critical habitat in the Colorado River. On November 16, 2010, the USFWS concurred that the potential effects of 15 new well clusters in the upland portions of the site were not likely to adversely affect listed species. On December 12, 2011, Bureau of Land Management (BLM) designated PG&E as the non-federal representative for consultation for the purposes of informal consultation. The 2007 PBA, as amended in 2010, expired on December 31, 2012.

On December 27, 2012, the USFWS concurred with BLM's reinitiation request (December 12, 2012) for a 5-year extension of the 2007 PBA, a not likely to adversely affect for the candidate Morafkai's Sonoran desert tortoise (*Gopherus morafkai*), a revised Action Area, additional wells, and an increase of 6.4 acres of upland habitat for additional impacts. That extension of the 2007 PBA, as amended, will expire on December 31, 2017.

In a separate consultation, the USFWS concurred on July 7, 2014, with findings from the *Programmatic Biological Assessment for Pacific Gas and Electric Topock Compressor Station Final Groundwater Remedy* (2014 PBA) (CH2M HILL 2014a) which was prepared by PG&E for BLM. While the 2014 PBA is a separate consultation encompassing implementation of the final groundwater remedy, the allowable habitat disturbance amounts and impacts are accounted together for both consultations and therefore noted here.

Extension of Term

A 10-year extension of the 2007 PBA is requested for all previously approved activities described in the 2007 PBA and in the subsequent reinitiations, including all conservation and management measures included therein.

Revised Action Area

To maintain consistency between the Action Area in the 2007 PBA and the Action Area in 2014 PBA, a modification to the Action Area is requested. The Action Area in the 2014 PBA was increased in certain areas from the 2007 PBA to accommodate the design of the Groundwater Remedy project. Areas known to not be required for the Groundwater Remedy project were removed to limit the Action Area where possible. Figure 1 depicts the Updated Action Area and Figure 2 shows the progression of updates to the PBA Action Areas since the 2007 PBA. Figure 3 provides an updated vegetation communities map for the updated Action Area.

Potential Future Activities

Potential future activities for the extension are consistent with those described in the 2007 PBA (see page 3-14 and 3-15) except for Category 3 (Facility Maintenance and Operation)

which was withdrawn as this activity is now covered in the 2014 PBA for the Groundwater Remedy project. Category 1 whose activities are also mostly addressed now in the 2014 PBA was not removed because PG&E anticipates needing this Category to cover proposed historic well decommissioning that is not covered in the 2014 PBA. The remaining categories include:

Category 1: Well installation, maintenance, operation, and decommissioning.

Category 2: Pipeline installation, maintenance, and operation.

Category 4: Colorado River and soil sampling.

Category 5: Road maintenance.

Category 6. Restoration and mitigation activities.

Category 7. Emergency activities.

Summaries of proposed activities falling under the above-listed categories are provided below.

Category 1: Well installation, maintenance, operation, and decommissioning. Potential future activities will include the abandonment of up to five historical Topock Compressor Station wells. The precise location of these wells has not yet been determined. Installation of new wells and associated field appurtenances for pilot testing of soil remedial options may also be required under this category. Access to existing or new well locations would use existing access roads and/or pre-defined travel corridors wherever possible.

Category 2: Pipeline installation, maintenance, and operation. Potential future pilot tests activities could include the installation of conveyance piping to connect wells or piping as part of an infiltration gallery treatment delivery system to deliver water or solution.

Category 4: Colorado River and soil sampling. Potential future activities will include any additional soil sampling activities deemed necessary by the agencies to complete investigations. Also included in this category would be any soil-related pilot studies to support the future Soil Corrective Measures Study/Feasibility Study (CMS/FS). Specifically, pilot studies may be implemented to evaluate potential soil remedy options if remedial actions are deemed necessary based on the results of soil sampling and the soil risk assessment. Soil sampling activities may also be done using collection methods including, but not limited to: boring, augers, trenching, and such sampling methods would be conducted using track- and/or truck-mounted equipment. Other sampling activities may include seismic studies and/or bedrock sampling using drilling equipment or using non-intrusive test methods (i.e., geophysical methods) if useful data can be collected by such means.

In addition, this category would also include geotechnical evaluations, if determined necessary, to occur after soil sampling activities and soil risk assessment. Geotechnical borings may be drilled in areas within or near Area of Concerns (AOC) where remediation is determined necessary (e.g., SWMU 1/AOC 1, AOC 4, AOC 9, AOC 10, AOC 11, AOC 14, AOC 27, and AOC 31). Up to eight geotechnical evaluations could be

undertaken. Geotechnical borings would be drilled using hollow-stem auger drill. Soil samples would be collected using the standard penetration test and modified California ring samplers for index properties, strength, and compaction characteristics.

Access to soil sampling, pilot testing, or geotechnical evaluation locations would use existing access roads and/or pre-defined travel corridors wherever possible.

Category 5: Road maintenance. This includes maintenance of roads and/or paths to soil sampling, pilot testing, or geotechnical evaluation locations within the Action Area on public and private land. Examples include regrading and/or re-paving of existing access routes, and the installation of stormwater culverts to limit roadway erosion during storm events.

Category 6. Restoration and mitigation activities. Includes activities to restore spiritual, cultural, ecological, aesthetic, or other values to areas where project activities/facilities are no longer necessary or have been removed. Also includes revegetation and removal of debris located within the Action Area (e.g., scrap metal, wood, brick, plastic, or similar materials). Some restoration sites will require removal or addition of soil and rocks to recontour the landscape and drainage ditches that may require barriers and irrigation facilities.

Category 7. Emergency activities. Includes any activity that cannot be reasonably foreseen but, due to public health/safety concerns, requires immediate response and/or corrective action. Examples of such activity include, but are not limited to, response of police, fire, ambulance or other personnel to the site, and subsequent work, in the event of explosion, fire, vehicle accident, spill, natural disaster, equipment failure, chemical reaction, heat illness, heart attack, or other medical emergencies.

Update of Allowable Habitat Disturbance Acreage

Since the 2007 PBA extension was accorded in December 2012, the following work has been completed: Utility Potholing in Arizona and California; Freshwater Implementation Plan in Arizona; and RFI/RI Soil Investigations in California.

Utility Potholing occurred at 17 separate locations in California and Arizona on June 11 and 12, 2014. As documented in the Biological Completion Report (WSA 2014a) there was no take of the PBA listed species nor any habitat losses.

The Freshwater Implementation Plan in Arizona included well construction, development, and aquifer/well testing activities at the HNWR-1 Site (including HNWR-1 and HWNR-1A) and Site B between October 2, 2013 and July 18, 2014. As documented in the Biological Completion Report (WSA 2014b) there was no take of the PBA listed species nor any habitat losses.

PG&E conducted a RCRA Facility Investigation/Remedial Investigation (RFI/RI) for soils at the Topock Compressor Station and in the surrounding areas in California between November 2, 2015 and April 27, 2017. As documented in the Biological Resources Completion Report (BRS 2017), there was no take of the PBA listed species. However, the soil investigation activities resulted in the following minor habitat losses in the upland habitat areas as follows: entrance to mouth of Bat Cave Wash (0.022 acre); Bat Cave Wash (0.018 acre), AOC 10 East Ravine (0.008 acre); AOC 11 (0.059 acre), and AOC 14 (0.048 acre) for a total habitat impact of 0.155 acre. There was no disturbance within the floodplain habitat.

As previously mentioned, the 2007 PBA and 2014 PBA are under separate consultations but their allowable habitat disturbance amounts and impacts are accounted together for both consultations. As shown on Table 1, a summary of all habitat impacts related to the 2007 PBA and the 2014 PBA to date indicates that disturbance of the current floodplain, historical floodplain or upland habitats does not require any change to the current allowable habitat disturbance acreages.

Table 1
Summary of 2007 PBA (2017 Reinitiation) and 2014 PBA (2017 Reinitiation) Impacts in the Project Action Area

Final Remedy Item	Current Floodplain Acreage [a]	Historical Floodplain Acreage [a]	Upland Acreage
Activities Covered Under 2007 PBA (including the 2012 Re-initiation)			
CA Slant Wells	0.082	None	None
Upland In Situ Pilot Test (ISPT)	None	None	None
AZ Drill Program	None	None	None
East Ravine GW Investigations (1)	None	None	None
East Ravine GW Investigations (2)	None	None	None
AOC 4 removal Action	None	None	1.6
Freshwater Implementation Program (FWIP)	None	None	None
Soil Investigation	None	None	0.155
Total Disturbance Covered under 2007 PBA (2012 Reinitiation)	0.082	None	1.755
2014 PBA (2017 Reinitiation) Final Groundwater Remedy Construction	1.29	2.33	7.08
Including 25% Design Change Contingency	1.613	2.913	8.85
Total 2014 PBA (2017 Reinitiation) Final Groundwater Remedy (Value A)	1.613	2.913	8.85
Allowable Acreage Disturbance from 2007 PBA (2012 Reinitiation) (Value B)	2.5		8.0
Total Disturbance Covered under 2007 PBA (2012 Reinitiation) (Value C)	0.082		1.755
Balance Remaining from 2007 PBA (2012 Reinitiation) (Value D) (Value D = Value B – Value C)	2.418		6.245
Amount Added for the 2014 PBA Final Groundwater Remedy (Value E)	1.222	8.8	4.2
Total from Balance Remaining from 2007 PBA (2012 Reinitiation) plus 2014 PBA Final Groundwater Remedy (Value F) (Value F = Value D + Value E)	3.64	8.8	10.445
Balance minus 2014 PBA (2017 Reinitiation) Final Groundwater Remedy (Value F – Value A)	2.027	5.887	1.595
Total Requested for this 2007 PBA (2017 Reinitiation)	0	0	0

Notes:

[a] The current floodplain of the Colorado River includes those areas within the 100-year floodplain while the historical floodplain is composed of the land in California that is outside of the 100-year floodplain and extends to the MW-20 Bench and National Trails Highway or adjacent upland area.

Assessments for Listed Species Not Previously Included in the 2007 PBA

Assessments are provided below for two new species that were not previously included in the 2007 PBA or the 2012 PBA extension: Yellow-billed cuckoo and northern Mexican gartersnake.

Western yellow-billed cuckoo (Coccyzus americanus occidentalis) and its Proposed Critical Habitat along the Colorado River.

Status

The western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) was proposed for federal listing as threatened on October 3, 2013 [78 Fed. Reg. 61622], is a California State Endangered species, and is considered threatened on the list of Wildlife of Special Concern in Arizona. It is associated with large blocks of riparian woodland primarily composed of cottonwood and willow. The federal listing status for the western yellow-billed cuckoo changed from proposed for listing to Federal Threatened on October 3, 2014 (79 FR pages 59991-600380). Critical habitat for western yellow-billed cuckoo was proposed on December 2, 2014 (79 FR pages 71373-71375). Proposed critical habitat includes Topock Marsh in the Arizona portion of the Action Area. It also includes the Colorado River to the north of Interstate 40.

Although yellow-billed cuckoos are common in the east, the western population represents a distinct population segment (DPS) that has different habitat requirements than the eastern population. Major declines in the western populations are due to habitat loss and habitat fragmentation, local extinctions, and low colonization rates (Hughes, 1999).

Natural History, Distribution, Abundance and Habitat

The yellow-billed cuckoo is a medium-sized bird, about 30 centimeters (12 inches) long, with wings that are grayish-brown on top and white below and with reddish primary flight feathers. Tail feathers are grayish-brown above and black tipped with white below. The distinctive tail pattern is visible in flight and while perched. This species has a somewhat elongated body and a moderate to heavy bill that is moderately long and curved down with a hook at the tip. The upper mandible is black and the lower is yellow to orange yellow at the base with a dark tip. This species has a zygodactyl foot with two toes pointing forward and two toes pointing backwards (Hughes, 1999).

Two subspecies (western and eastern with the Pecos River, Texas, as the boundary between the two subspecies) have been recognized since the late 1880s; however, scientific studies to date have not conclusively determined whether western and eastern subspecies exist (Hughes, 1999). USFWS evaluated the available scientific evidence and determined that the recognition of the subspecies is not justified at this time (USFWS, 2013). Instead, USFWS determined that the population segment of yellow-billed cuckoo nesting west of the Continental Divide is a DPS under the ESA.

The yellow-billed cuckoo is a neotropical migrant bird that breeds in North America and winters in South America. The breeding range historically included most of North America, from southeastern and western Canada to the Greater Antilles and northern Mexico. Western yellow-billed cuckoo was once widespread and locally common in California and Arizona, locally common in a few river reaches of New Mexico and in portions of Oregon and Washington, and local and uncommon in western Colorado, western Wyoming, Idaho, Nevada, Utah, and southern British Columbia, Canada (Hughes, 1999). Over the last 90 years, the range has been reduced such that the northern

limit of breeding is Sacramento Valley, California (though a small, potentially breeding population has been observed in northern California) and southeastern Idaho in the western interior states (USFWS, 2013).

These birds were once considered widespread and locally common nesters in Arizona river bottoms, but the state population has declined sharply from an estimated 180 pairs present on the Arizona side of the lower Colorado River in 1976/1978 to 8 to 18 pairs estimated from surveys in 2010 (USFWS, 2013). California once supported an estimated 15,000 pairs in the late 1800s, but massive declines have been documented into the 1980s due to loss of riparian gallery forest (less than 1 percent of original forest remaining) and egg-shell thinning from pesticide exposures (Hughes, 1999). The California population of western yellow-billed cuckoo today is less than one percent of its estimated historical population size and only three areas of the state have been identified as supporting more than a few breeding pairs on a regular basis. These include the Sacramento River (between Colusa and Red Bluff), South Fork of the Kern River upstream of Lake Isabella, and the lower Colorado River. In 2006, only one individual was detected on the California side of the lower Colorado River; however, 10 to 19 pairs were found in 2011 at a restored habitat area (USFWS, 2013).

As an insectivore, yellow-billed cuckoo forages in open areas, woodland, orchards, and adjacent streams, gleaning grasshoppers, cicadas, caterpillars and other larger insects from the foliage. Occasionally it also forages on frogs or lizards and rarely on fruit during the breeding season (CDFW, 2013; Hughes, 1999).

The onset of breeding is apparently correlated with an abundant local food supply or periods of greatest rainfall. Cuckoos may not breed if local food supply is inadequate on breeding grounds following spring migration. The breeding cycle is extremely rapid and requires only 17 days from egg-laying to fledging of young. Nesting activities take place between late June and late July, but may begin as early as late May and continue into September. Nest building typically takes 2 to 4 days. One brood of two to three young is raised per season. Cuckoos will occasionally double-brood in western populations if abundant food resources exist. Incubation begins with initiation of the first egg laying, known as asynchronous hatching, resulting in eggs and nestlings at different developmental stages in the same nest. Asynchronous hatching permits survival of the oldest nestlings in the event of a food shortage. The incubation period for yellow-billed cuckoos is 10 to 12 days. The young are fed large food items for the 5 to 8 day nestling period. Most young cuckoos leave the nest on day 6. After fledging, the young are dependent on the adults for at least 2 weeks (Hughes, 1999).

Western yellow-billed cuckoo occupy extensive deciduous riparian thickets or forests with dense, low-level or understory foliage and that are adjacent to slow-moving waterways, backwaters or seeps (CDFW, 2013). In Arizona and southern California, western yellow-billed cuckoo prefer desert riparian woodlands comprised of willow, Fremont cottonwood, and dense mesquite (*Prosopis* spp.). Nests are placed in willows, but cottonwood is used extensively for foraging (Hughes, 1999). Western yellow-billed cuckoo nest almost exclusively in low to moderate elevation riparian woodlands that cover 20 hectares (50 acres) or more within arid to semiarid landscapes. Western yellow-billed cuckoo may be restricted to the extensive, moist habitats because of humidity requirements for successful hatching and rearing of the young (Hughes, 1999; USFWS, 2013).

Willow is almost always a dominant component of the vegetation. Along the Colorado River, western yellow-billed cuckoo may inhabit mesquite thickets where willow is absent, but nests are usually located in thickets with at least some willow, dense low-level or under-story foliage, high humidity, and wooded foraging spaces in excess of 93 meters (300 feet) in width and 10 hectares (25 acres) in area (CDFW, 2013). Although breeding pairs have been observed in tamarisk, they are not found in areas that are totally dominated by tamarisk with a complete lack of willows or cottonwoods (USFWS, 2013).

Status of the Species in the Action Area

The Action Area contains potentially suitable, though not preferred, nesting habitat for the species. The Action Area is located in the vicinity of two western yellow-billed cuckoo study areas (Lower Colorado River Multi-Species Conservation Program [LCMSCP], 2013)—the Topock Marsh (a portion of which is within the Action Area) and Topock Gorge (south of the Action Area). Potential nesting habitat for the western yellow-billed cuckoo exists east of the Colorado River within the Action Area, while foraging and migratory habitat for the western yellow-billed cuckoo exists west of the Colorado River within and near the Action Area (see Figure 4). The nesting and migratory period for western yellow-billed cuckoo occurs around late May (arrival) through late September (departure).

While not the particular focus of protocol surveys within the Action Area, incidental observations of western yellow-billed cuckoo have been made as part of annual protocol surveys that were conducted for southwestern willow flycatcher between 2005 through 2010 and in 2012 (GANDA, 2005, 2006, 2007, 2008, 2009, 2010, 2012, and 2014b). Throughout these surveys, a single western yellow-billed cuckoo individual was detected in three consecutive years between 2008 and 2010 and again in 2014 (but not in 2012) at the same call point location within the western portion of Topock Marsh in Arizona (GANDA, 2014a).

The incidental sighting results at the same location seem to indicate that, even though no western yellow-billed cuckoo pairs were observed, there is potentially suitable nesting habitat in Arizona along the western margin of the Topock Marsh. The topography along this peninsula from west to east consists of rolling sand dunes increasing in elevation from the levee road to an additional 20 feet and decreasing to tamarisk thicket and eventually to marsh habitat. Presumably, these areas may also contain sufficient willow shrubs (but not cottonwood trees) in addition to the tamarisk, which could support the nesting by western yellow-billed cuckoo. The floristic survey (GANDA and CH2M HILL, 2013) indicated the presence of sand-bar willow in the southern portions of Topock Marsh that were surveyed within the Action Area. Based on this information, potentially suitable western yellow-billed cuckoo nesting habitat is presumed to occur along the western and southern margin of Topock Marsh.

As required by the 2014 PBA, protocol-level surveys for western yellow-billed cuckoo were completed in 2014 and 2015 by Jeff Steinman of Garcia and Associates (GANDA 2014b, 2015) and these reports were provided to the USFWS and to the BLM. These reports identified two potential western yellow-billed cuckoo breeding habitats in Arizona (i.e., the western portion of Topock Marsh and Sacramento Wash), but none within the Action Area in California. Proposed critical habitat for western yellow-billed cuckoo does occur on both the California and Arizona sides of the Colorado River to the north of Interstate 40 in the Action Area (see Figure 4).

In 2014, no western yellow billed cuckoo were detected during the protocol surveys; however, a single western yellow-billed cuckoo was detected visually and auditorily on July 16 during the protocol southwestern willow flycatcher survey (GANDA, 2014a,b). During the 2015 survey, a single, but unconfirmed, auditory western yellow-billed cuckoo observation was noted in Arizona (Site 1 Call Point A-5) at a time when western yellow-billed cuckoo could be expected to be transient and migrating through the area. While this single observation did not indicate that western yellow-billed cuckoo was breeding in the area, it confirmed the previous conclusion that western yellow-billed cuckoo has the potential to breed in the survey area in the future. This conclusion was reached because of this bird's cryptic nature, the quality of the habitat, and the fact that western yellow-billed cuckoo had been incidentally observed during four separate years in the Action Area as part of southwestern willow flycatcher surveys and in 2015 during protocol surveys.

Potentially suitable nesting habitat exists along the western margin of the Topock Marsh within dense tamarisk stands where an individual western yellow-billed cuckoo was documented at the same location for three consecutive years between 2008 and 2010 and again in 2014. However, these areas are at least 1,500 feet from the nearest locations in California, such as the mouth of Bat Cave Wash, where potential future activities may occur. The burned tamarisk area near Sacramento Wash to the east of the Oatman-Topock Highway has been part of a planned restoration effort that seeks to re-establish native vegetation (Digital-Desert, 2013), so the potential suitability for western yellow-billed cuckoo foraging (and potentially nesting) in these habitats is expected to improve over time. However, additional wildfires in 2015 and 2016 coupled with an invasion of tamarisk leaf beetles has actually led to lower overall bird habitat quality in the Action Area (GANDA 2017).

The 2015 wildfire was started by a BNSF railroad crew that was grinding rails on the bridge on the California side of the Colorado River. It burned an approximately 0.914-acre area between the BNSF and the I-40 bridges consisting primarily of tamarisk with some arrow weed. The 2016 wildfire was reportedly started by an uncontrolled campfire within the HNWR in Arizona that jumped the Colorado River and burned additional areas within and near the Moabi Regional Park peninsula. As previously mentioned, none of the burned areas in California was considered as breeding habitat for western yellow-billed cuckoo (GANDA, 2014b; 2015), although portions of those burn areas may be suitable foraging and migration habitat. However, portions of the 2016 burn area in Arizona may have reduced potential breeding habitat for the western yellow-billed cuckoo.

While western yellow-billed cuckoo may inhabit mesquite thickets where willow is absent, nests are usually located in thickets with at least some willow, dense low-level or under-story foliage, high humidity, and wooded foraging spaces in excess of 93 meters (300 feet) in width and 10 hectares (25 acres) in area (CDFW, 2013). The fragmented tamarisk thickets in California are generally too small to support western yellow-billed cuckoo breeding. These thickets are found below the BNSF Railway and Interstate 40 bridges (approximately 6 acres); near the Bat Cave Wash at its confluence with the Colorado River (approximately 5 acres); near the unnamed western wash, which has its confluence with the Colorado River directly northwest of Bat Cave Wash (approximately 3 acres); and near the Park Moabi Marina (approximately 7 acres).

The tamarisk patches are also subject to regular human disturbance. The thickets near the Park Moabi Slough are subject to regular recreational boating traffic and the adjacent habitats on the island north of the slough and north of the National Trails Highway

between the Pirate's Cove Resort and the Bat Cave Wash outlet have an extensive network of ORV trails.

Additionally, since the beginning of the current remediation activities associated with the Topock Compressor Station, biological monitors have logged several hundred hours performing pre-activity surveys on the California floodplain as part of compliance with the mitigation measures associated with revised well sampling procedures (CH2M HILL, 2005); with the 2007 PBA (CH2M HILL, 2007); and with the Bird Impact Avoidance and Minimization Plan (BIAMP)(CH2M HILL, 2014b) that require monitoring for any migratory bird nests by a qualified biologist within a 200-foot work area prior to construction-related activities that occur between March 15 and September 30. To date, no active nests of any migratory birds have been documented during these surveys.

Direct Effects

Direct effects are those that are caused by the proposed activities and occur at the same time and place. The proposed activities are summarized here as only they relate to potential direct effects to western yellow-billed cuckoo. Potential future activities would only occur in California.

Specific actions that could occur within or adjacent to potentially suitable habitat in the floodplain in California or near the mouth of Bat Cave Wash have the potential to affect this species. This could include the activities associated with historical well abandonment, soil sampling, pilot testing, and roadway maintenance. However, most of the potential future activities will occur within upland habitats without riparian vegetation or other characteristics commonly associated with western yellow-billed cuckoo habitat. For this reason, these activities are not expected to have any effect to this species.

The potential future activities by PG&E may involve the use of heavy equipment including, but not limited to, backhoes and drill rigs that could be used to remove vegetation, abandon facilities, or disturb the ground surface. This equipment can create substantial ground disturbance and noise.

The Colorado River may function as a migration corridor for the western yellow-billed cuckoo. During migration periods, this species may briefly stop to roost and/or forage within or adjacent to potentially suitable roosting and foraging habitats within the fragmented tamarisk patches in the Action Area that are located at Bat Cave Wash and the unnamed wash to the west; under the BNSF railroad and Interstate 40 overpasses; near Moabi Regional Park; and the eastern edge of the Action Area.

Because western yellow-billed cuckoo may potentially use the habitat in the Action Area for roosting and foraging during the spring and fall migration seasons, it is possible that operational activities could alter the behavior of migrating individuals, but as discussed, the potential for impact is considered low. The greatest potential for direct effects to western yellow-billed cuckoo would be within the short migratory period during arrival (late May through June) and departure (July through late September) when individuals could be passing through the Action Area to and from more suitable nesting locations.

Habitat elements such as patch size, shrub density and the presence and/or location of water provide the appropriate habitat structure and features to allow for nesting behavior. However, while annual surveys for southwestern willow flycatcher conducted from 2005 through 2010 and in 2012, 2014, and 2017, as well as protocol yellow-billed cuckoo surveys in 2014 and 2015, have documented the presence of transient birds, they have not documented any nesting within the habitat patches in the historical or current

Colorado River floodplain of the Action Area. As previously explained, the regular disturbances by recreational boating and ORV traffic reduce the potential suitability of these areas for western yellow-billed cuckoo use. Also, based on the combination of survey results and the application of conservation measures, any direct effects to nesting or migratory western yellow-billed cuckoos is expected to be low to negligible.

In the future, tamarisk acreage may significantly increase along the Colorado River corridor and the larger thickets may serve as western yellow-billed cuckoo breeding habitat when they are found in conjunction with willow and cottonwood. While several fragmented, small stands of tamarisk could be peripherally affected as a result of the potential future activities, most of the work is expected to occur within sparsely vegetated areas outside the 100-year floodplain. Furthermore, all potential future activities would seek to avoid and minimize habitat disturbance. Limited riparian vegetation, primarily smaller patches or individual plants of tamarisk and arrow weed, may be crushed or trimmed as a result of the future actions.

Potential future activities will not occur within cottonwood-willow stands and; therefore, will have no direct effect upon the Colorado River's overall balance of remaining cottonwood-willow riparian stands that historically were the native habitat for this species.

Indirect Effects

Indirect effects are those that are caused by the potential future actions and are later in time, but reasonably certain to occur. The possible actions that may occur in the future are related to decommissioning of additional wells, future periodic sampling of pilot tests, potential restoration of disturbed habitats, or use and maintenance of existing access roadways.

Sampling for pilot tests may occur and may require the use of off-road utility vehicles. Also, potential future access roadway maintenance may result in larger, more noisy equipment being used for this purpose. Should these activities happen within or adjacent to suitable western yellow-billed cuckoo habitat, they may lead to alterations of western yellow-billed cuckoo behavior. However, the lack of evidence of western yellow-billed cuckoo nesting within this portion of the Action Area suggests that the probability of negatively altering western yellow-billed cuckoo behavior is likely very low to negligible because foraging or migrating birds would simply move away from the disturbances. Further, the magnitude of project effects may be difficult to discern from other potentially impacting transportation activities (i.e., the Interstate 40 and the BNSF Railroad) and recreational activities (e.g., watercraft) that occur with regularity within the Action Area.

However, the potential effects of these activities would be reduced by the application of general project management measures discussed in the 2007 PBA and species-specific mitigation measures discussed below, so that the potential for indirect effects on western yellow-billed cuckoo are considered to be low.

Cumulative Effects

Cumulative effects include future state and private activities, excluding federal activities that are reasonably certain to occur within the Action Area. Continued operation of the Topock Compressor Station will occur. It is reasonably certain that remedial activities will also occur within the Action Area. There will also be a roughly 3-year effort beginning in 2018 where the final groundwater remedy will be constructed. After successful startup and testing of the groundwater remedy, there will also be activities related to decommissioning

of IM-3, as well as future restoration of disturbed habitats. The final soil remedy, if required, could include heavy equipment and personnel. The bulk of these activities would occur around the Topock Compressor Station or migrations pathways (i.e., Bat Cave Wash) with only minor potential activities in the 100-year floodplain. Habitat loss would likely not be sufficient enough to reduce the habitat value and thereby, alter western yellow-billed cuckoo use and behavior. Habitat loss is defined as the removal of trees and perennial shrubs. The trimming of vegetation is not considered habitat loss.

Future state and private actions separate from PG&E that are reasonably certain to occur within the project vicinity include continued recreational activities associated with the Colorado River and the HNWR, such as boating, fishing, and ORV use of the floodplain and surrounding areas. Examples of recent actions that have occurred within the Action Area in California since the 2007 PBA include the expansion of private commercial recreation facilities at the Moabi Regional Park (Pirate's Cove restaurant, individual lodging, motorized and non-motorized zip-line rides, as well as expanded ORV trail networks on the island north of the slough and north of the National Trails Highway east to the Bat Cave Slough outlet). Other actions include ongoing use of the 'open riding' ORV areas to the south of Moabi Regional Park, although an official 2006 BLM road closure to the east of Park Moabi Road would be expected to limit this effect within the Action Area.

Critical Habitat Effects Determination

Critical habitat for western yellow-billed cuckoo was proposed on December 2, 2014 (79 FR pages 71373-71375). Proposed critical habitat includes Topock Marsh in the Arizona portion of the Action Area. It also includes the Colorado River to the north of Interstate 40. Constituent elements that are part of the critical habitat designation include dense riparian areas that are dominated by willow, cottonwood, and mesquite. These areas have shallow groundwater levels that support the trees and create humid conditions. They also have a suitable prey base of large insects. While these particular conditions are present within Arizona (i.e., Topock Marsh and Sacramento Wash), they are not present within the California portion of the Action Area and, given the current hydrological management of the Colorado River, they are unlikely to become present. Because the proposed activities would be limited to California in the vicinity of the Topock Compressor Station, they would not affect the suitable resources mentioned above in Arizona nor would they affect the proposed Critical Habitat in California. For these reasons, the potential for adversely affecting constituent elements or proposed critical habitat is considered discountable.

Effects Determination

As previously discussed, western yellow-billed cuckoo has been detected during four separate years in the Action Area on the western side of Topock Marsh in Arizona as part of incidental observations during southwestern willow flycatcher surveys and in 2015 during protocol surveys. Given the multiple detections of western yellow-billed cuckoo over several years, the presence of potentially suitable habitat, and the presence of nearby breeding populations, there is a potential for western yellow-billed cuckoo to breed to the east of the Colorado River in the Action Area in the future.

However, nesting of western yellow-billed cuckoo is considered unlikely within portions of the Action Area along the western shore of the Colorado River due to the lack of appropriate vegetation composition, habitat structure, and size. Furthermore, due to the regular disturbances from recreational boating and ORV traffic, especially on the western side of the Colorado River near the Park Moabi Slough, the potential for negative effects to western yellow-billed cuckoo are very low and would therefore be considered

insignificant. To date, no take of western yellow-billed cuckoos (or any other migratory birds) has occurred within the Action Area from project activities.

Previously cited surveys in 2014 and 2015 for western yellow-billed cuckoo were conducted by GANDA wildlife biologist Jeff Steinman (USFWS Permit #TE-085026-5, AZGFD Permit #SP502602, and CDFW Permit SC-007801). Mr. Steinman has recommended that future protocol surveys for western yellow-billed cuckoo be conducted on the same survey schedule (every 3 years) that was adopted for the southwestern willow flycatcher in the 2014 PBA (USFWS, 2014a). Because southwestern willow flycatcher and western yellow-billed cuckoo surveys cannot be done in the same year, future western yellow-billed cuckoo surveys should occur in 2018, 2021, 2024, etc. in order to avoid concurrent surveys with the scheduled southwestern willow flycatcher surveys in 2017, 2020, 2023, etc.

In addition, pre-project surveys by qualified biologists will be conducted to identify the presence of western yellow-billed cuckoos and adapt operations to minimize any potential for effects. Further, it is expected that proposed activities (especially those involving in proximity to potentially suitable western yellow-billed cuckoo nesting habitat) will occur before May 15 or after September 30 (the migratory/nesting season) within the Action Area, where practicable, any potential effects would be a non-issue.

Nesting of western yellow-billed cuckoo on the floodplain is considered unlikely west of the Colorado River within the California portion of the Action Area. However, seasonal migratory use of habitat on the floodplains of California and Arizona can be anticipated to occur along the Colorado River as western yellow-billed cuckoos move to and from other known breeding locations. Potential future project activities, therefore, could influence western yellow-billed cuckoo activity during this period.

The following mitigation measures will be applied to all actions associated with proposed activities that will occur in or near potential western yellow-billed cuckoo habitat.

1. Minimize the net increase of disturbed habitat in the Action Area.
2. Riparian areas surrounding the designated work areas and subject to influence of proposed activities shall be surveyed by a USFWS permitted biologist for western yellow-billed cuckoo according to the protocol established by the USFWS. After the initial 2 years of surveys, ongoing surveys shall be performed every three years as agree to by the USFWS until the potential future activities have been completed and all facilities have been removed. Reports shall be provided to the biologists in the BLM Lake Havasu Field Office and to the USFWS's Phoenix AESO each time they are performed.
3. Construction and development activities that use heavy equipment should be completed prior to May 15. The use of any heavy equipment in or near western yellow-billed cuckoo habitat after May 15 will be required to be reassessed and additional conservation measures may be considered. Preferably such activities would occur from September 30 to May 15.
4. To the extent feasible, future project activities within the sensitive areas (i.e., potential western yellow-billed cuckoo habitat, wetlands, 100-year floodplain, and a 60-foot buffer from the Colorado River) should be avoided. Further, if greater than 5.887 acres of floodplain habitat (historical floodplain acreage) is lost or manipulated, specific project consultation with USFWS will be required and

possible mitigation may be required. Habitat loss is defined as the removal of trees and perennial shrubs. The trimming of vegetation is not considered habitat loss.

5. A biologist will be assigned to field teams for remediation activities within western yellow-billed cuckoo habitat during the period of May 15 through September 30.
6. Minimization measures outlined in the BIAMP will be implemented including preconstruction surveys during the nesting season, awareness training, pre-activity surveys, compliance monitoring, and reporting during field activities.

Potential future project activities, conducted in accordance with species-specific mitigation measures presented above will help to avoid, reduce, and mitigate potential impacts to the biological environment within the Action Area. Western yellow-billed cuckoos have been documented in several areas to the east of the Colorado River within the Action Area. Future potential project activities could occur on the California floodplains in or near potentially suitable foraging/migratory habitat along the Colorado River. In general, these activities will be near marginal yellow-billed cuckoo habitats and of relatively short duration. However, future activities are limited to California and no impacts will occur within the Topock Marsh on the HNWR where the suitable western yellow-billed cuckoo habitat has been shown to occur.

The location of potential project activities are relatively distance from potential suitable western yellow-billed cuckoo nesting habitat in Arizona. Furthermore, the western yellow-billed cuckoo habitat conditions within the California portion of Action Area have a fragmented distribution, composition, and structure. Given these reasons, together with the continued implementation of conservation measures, adverse effects from the potential future project activities to the western yellow-billed cuckoo are not expected to occur. Therefore, any potential direct or indirect effects from project activities are likely to be either negligible or avoidable. An effects determination of "not likely to adversely affect" is concluded for this species.

Northern Mexican gartersnake (Thamnophis eques megalops).

The northern Mexican gartersnake was listed as a federally threatened species on July 8, 2014 (USFWS 2014b), under the Endangered Species Act. Critical habitat was proposed on July 10, 2013 (USFWS 2013a) but has not yet been designated for this species.

As documented in the recent technical memorandum, *Biological Assessment of the northern Mexican gartersnake (Thamnophis eques megalops) for the Pacific Gas & Electric Topock Compressor Station Final Groundwater Remedy* (CH2M, 2016), the northern Mexican gartersnake was discovered in 2015 in Beal Lake. Beal Lake Conservation Area is within the Havasu National Wildlife Refuge and Topock Marsh in Arizona and is approximately 4.2 miles northwest of the Topock Compressor Station.

The previous northernmost detection had been on the Bill Williams River near Parker, Arizona in 2012, approximately 35 miles southeast of the Topock Compressor Station. Even with this detection in 2012, the northern Mexican gartersnake was still considered extirpated from the mainstem of the lower Colorado River due to presence of nonnative fish, bullfrogs, and crayfish as well as significant habitat alteration.

The presence of harmful non-native species is considered the most significant reason for the decline of northern Mexican gartersnake in nearly all localities within the United States (USFWS 2014b). These harmful non-native species are known to compete for

similar prey as the gartersnakes and so, can contribute to starvation. These harmful species may also reduce recruitment of young gartersnakes through predation.

Critical habitat for the northern Mexican gartersnake has been proposed in 14 units in portions of Arizona and New Mexico totaling 421,423 acres (USFWS 2013a). The nearest of these designated critical habitats is the Bill Williams River, near Parker, Arizona approximately 35 miles southeast of the Topock Compressor Station. PG&E's activities are located outside designated critical habitat for the northern Mexican gartersnake. An effects determination of "no effect" to critical habitat is concluded.

All viable populations in the United States, where this subspecies may be reliably detected, are found in Arizona. Because the gartersnake is believed to be extirpated from the mainstem of the Colorado River, it is not considered to be present in California where all future activities under the 2007 PBA will occur. For this reason, the effect determination for the proposed activities under this extension is considered to have No Effect for the northern Mexican gartersnake.

Revisions for Listed Species Previously Included in the 2007 PBA

Southwestern willow flycatcher (Empidonax traillii extimus)

General Mitigation Measure (GMM) 26 of the 2007 PBA requires annual protocol surveys for the southwestern willow flycatcher (SWFL). Based on feedback from the USFWS permitted SWFL biologist Jeff Steinman, the frequency of protocol surveys was proposed as a triannual survey in the 2014 PBA which the USFWS subsequently concurred with. PG&E would like to update the 2007 PBA GMM 26 to reflect triannual protocol surveys as well.

Morafkai's (Sonoran) desert tortoise (Gopherus morafkai)

When the 2007 PBA was written, the Morafkai's (Sonoran) desert tortoise was not considered as a separate species from the Mojave desert tortoise (*Gopherus agassizii*). In December 2010, the USFWS determined the Sonoran population of desert tortoise, found only to the east of the Colorado River, warranted protection under the ESA, but that listing was precluded by higher priority listing needs, placing the Sonoran desert tortoise as a Candidate species for listing (USFWS 2010).

In 2011, a collaborative study with the USGS confirmed that the desert tortoise, thought to be one species for the past 150 years, now included two separate and distinct species (Murphy et al. 2011). The newly recognized species, Morafkai's desert tortoise, was formerly considered the Sonoran population of the desert tortoise. The study's finding that the Morafkai's desert tortoise is a new species confirmed the USFWS's decision to evaluate this population independently from the Agassiz's desert tortoise, and did not change the status of the species under the ESA.

In October 2015, the USFWS concluded that listing of Morafkai's (Sonoran) desert tortoise was not warranted, and so, the species currently has no federal listing status.

This species was added to the 2007 PBA during the 2012 reinitiation as a candidate species. Now that the species has no federal listing status, it is requested that the species be removed from the consultation.

References

Blue Rock Services, Inc (BRS). 2017. *Biological Resources Completion Report for the Topock Remediation Project: Soil Investigations between 2015 and 2017*

California Department of Fish and Wildlife (CDFW). 2013. Life History Account for Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*). Available online at: http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx. Accessed December 4, 2013.

CH2M HILL. 2005. *Monitoring Plan for Groundwater and Surface Water Monitoring Program. Revision 1. PG&E Topock Compressor Station, Needles, California*. July 13.

CH2M HILL. 2007. *Programmatic Biological Assessment for Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Actions*. January.

CH2M. 2016. *Biological Assessment of the northern Mexican gartersnake (Thamnopsis eques megalops) for the Pacific Gas & Electric Topock Compressor Station Final Groundwater Remedy*. November 16.

CH2M HILL, Inc. 2014a. *Programmatic Biological Assessment for Pacific Gas and Electric Topock Compressor Station Final Groundwater Remedy*. April 28.

CH2M HILL. 2014b. *Bird Impact Avoidance and Minimization Plan. Topock Groundwater Remediation Project*. April 30.

Digital-Desert. 2013. Article on Topock Marsh. Available online at: http://digital-desert.com/topock-marsh. Accessed December 12, 2013.

Garcia and Associates (GANDA). 2014a. *Southwestern Willow Flycatcher Presence/Absence Surveys for the PG&E Topock Compressor Station*. October 29.

Garcia and Associates (GANDA). 2014b. *Western Yellow-Billed Cuckoo Presence/Absence Surveys for the PG&E Topock Compressor Station*. December 22.

Garcia and Associates (GANDA). 2015. *Western Yellow-Billed Cuckoo Presence/Absence Surveys for the PG&E Topock Compressor Station*. November 30.

Garcia and Associates (GANDA). 2017. *Southwestern Willow Flycatcher Presence/Absence Surveys for the PG&E Topock Compressor Station*. October 31.

Garcia and Associates (GANDA) and CH2M HILL. 2013. *Revised Final Floristic Survey Report.* Topock Groundwater Remediation Project. August 19. Hughes, J. M. 1999. Yellow-billed Cuckoo (Coccyzus americanus). In *The Birds of North America.* No 418 (A. Poole and F. Gill, eds.). Philadelphia: The Birds of North America, Inc.

Innis, Pam (DOI). 2016. Forwarded email from Carrie Marr, Environmental Contaminant Specialist for USFWS concerning new information about the northern Mexican gartersnake, dated August 10.

Lower Colorado Multi-Species Conservation Program (LCMSCP). 2013. Yellow-Billed Cuckoo. Available online at: http://www.lcrmscp.gov/species/yellow_billed_cuckoo.html. Accessed December 9, 2013.

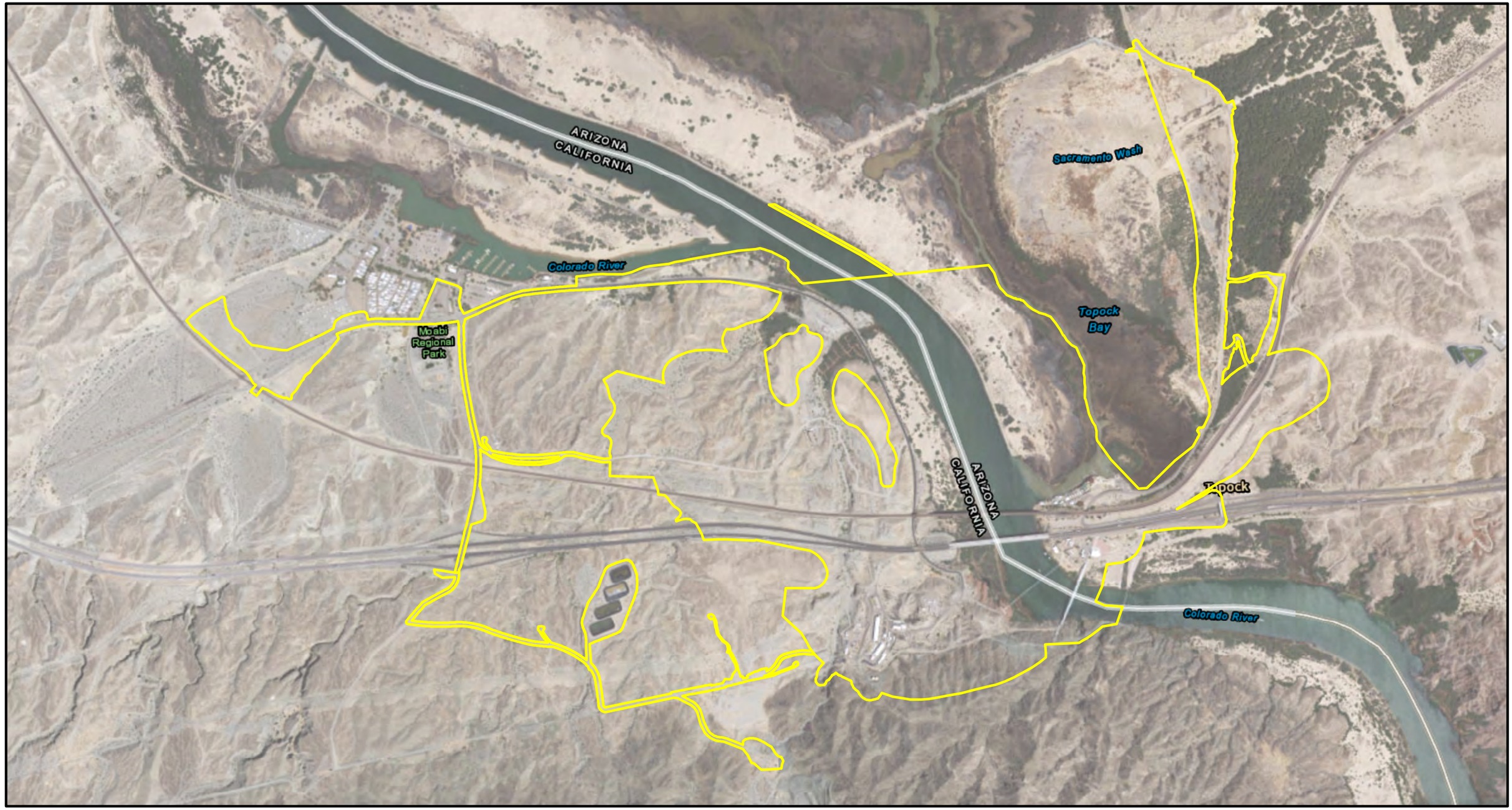
U.S. Fish and Wildlife Service (USFWS). 2013. Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for the Western Distinct Population Segment of the Yellow-billed Cuckoo (*Coccyzus americanus*); Proposed Rule. Federal Register 78(192), Thursday, October 3, 2013.

U.S. Fish and Wildlife Service (USFWS). 2014a. Email from Carrie Marr to Virginia Strohl (PG&E) and Pamela Innis (DOI) concerning frequency of southwestern willow flycatcher and western yellow-billed cuckoo surveys in the Topock Action Area. February 11.

U.S. Fish and Wildlife Service (USFWS). 2014b. Threatened Status for the Northern Mexican Gartersnake and Narrow-Headed Gartersnake; Final Rule. Federal Register 79: 38677-38746, USFWS, Washington, D.C. July 8.

William Self Associates, Inc. (WSA). 2014a. *Biological Completion Report for the Topock Remediation Project: Utility Potholing*. August 1.

William Self Associates, Inc. (WSA). 2014b. *Biological Completion Report for the Topock Remediation Project: Evaluation of Alternative Freshwater Sources*. September 11.



LEGEND

Updated Action Area

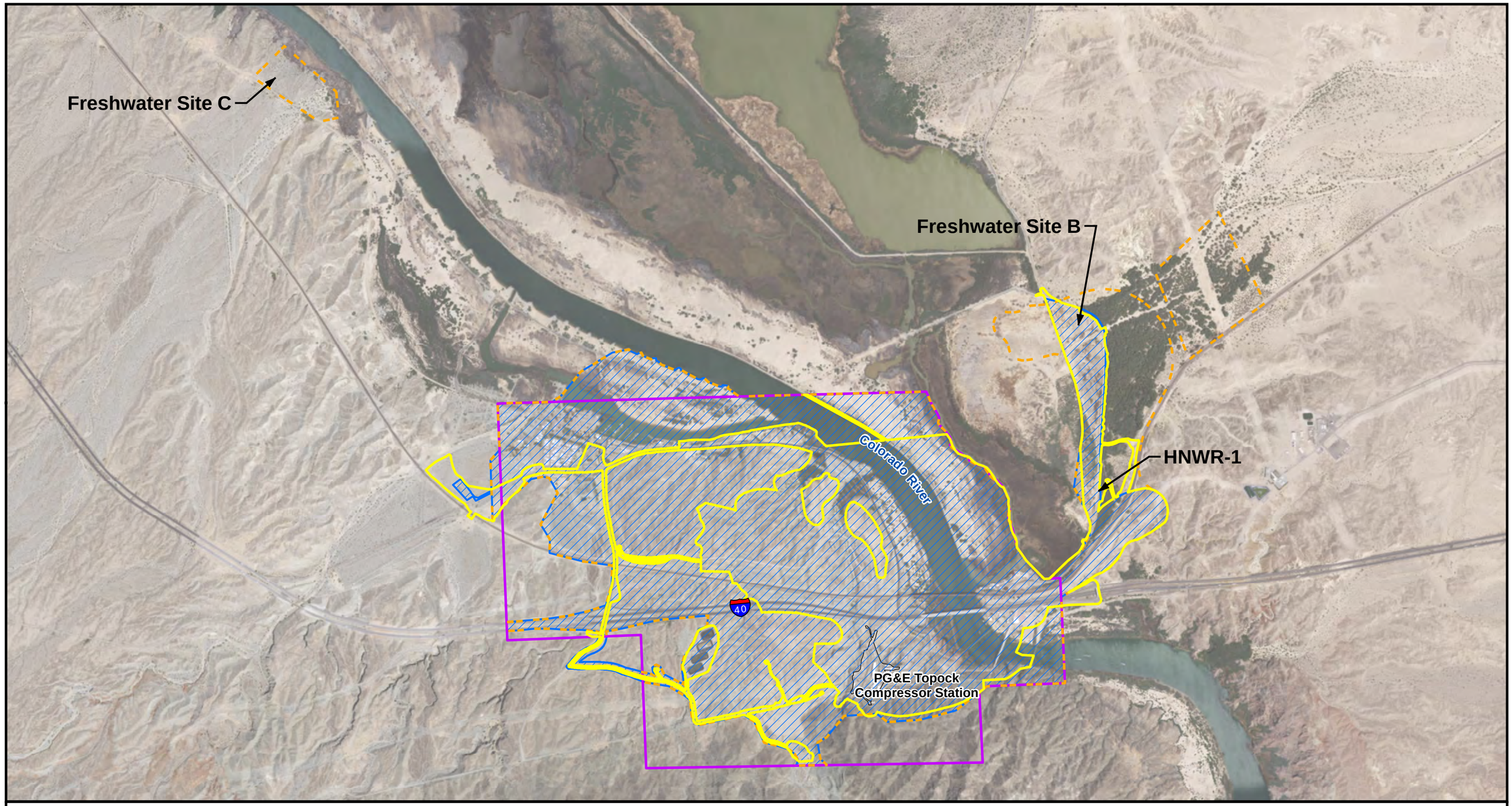
N

0 600 1,200 Feet

FIGURE 1
UPDATED ACTION AREA
2007 PBA REINTITIATION LETTER
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

Path: \\Brookside\GIS_SHARE\ENBG\00_Proj\P\PGE\Topock\MapFiles\2017\Figure1_EIR_Boundary_11x17.mxd



LEGEND

- 2007 PBA Area of Potential Effect (APE)
- 2012 PBA Re-Initiation Action Area
- 2014 Final PBA Action Area
- 2016 Updated PBA Action Area

N

0 1,000 2,000 4,000 Feet

FIGURE 2
PBA ACTION AREA PROGRESSION

2007 PBA REINTITIATION LETTER
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

Path: \\Brookside\GIS_SHARE\ENBG\00_Proj\P\PGE\Topock\MapFiles\2016\EIR\Figure2_2016UpdatedPBAActionArea.mxd Date Saved: 11/13/2017 2:11:56 PM

2008
Burn Area

Refference:

[1] Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California vegetation, 2nd ed. California Native Plant Society, Sacramento, CA.

Aerial Image Source:

NAIP 2015, 6/6/15, USDA FSA, ESRI World Imagery

LEGEND

Updated Action Area

Vegetation Types

- Desert Lilly
- Allscale Scrub (MCV2[1]: Allscale scrub) [1]
- Arrow Weed (MCV2: Arrow weed thickets)[2]
- Athel Tamarisk (MCV2: Tamarisk thickets)[3]
- Blue Paloverde (MCV2: Blue palo verde-Ironwood woodland)[4]
- Blue Paloverde/Catclaw Acacia (MCV2: Blue palo verde-Ironwood woodland)[5]
- Blue Paloverde/Honey Mesquite (MCV2: Blue palo verde woodland)[6]
- Broad-leaved Cattail (MCV2: Cattail marshes)[7]
- California Bullrush (MCV2: California bulrush marsh)[8]
- Catclaw Acacia (MCV2: Catclaw acacia thorn scrub)[9]
- Common Reed (MCV2: Common reed marshes)[10]
- Creosote bush scrub (MCV2:Creosote bush scrub)[11]
- Creosote Bush/Cattle Saltbush (MCV2: Allscale scrub)[12]
- Desert Smoke Tree (MCV2: Blue palo verde-Ironwood woodland)[13]
- Developed/Disturbed[14]
- Giant Reed (MCV2:Giant reed breaks)[15]
- Hillside Paloverde (MCV2: Foothill palo verde desert scrub)[16]
- Honey Mesquite (MCV2: Mesquite bosque)[17]
- Landscaped[18]
- Open Water [19]
- Quailbush Scrub (MCV2: Quailbush scrub)[20]
- Salt Cedar (MCV2: Tamarisk thickets)[21]
- Salt Cedar/Arrow Weed (MCV2: Tamarisk/Arrow weed thickets)[22]
- Salt Cedar/Athel Tamarisk (MCV2: Tamarisk thickets)[23]
- Salt Cedar/Honey Mesquite (MCV2: Tamarisk thickets/Mesquite bosque)[24]
- Salt Cedar/Honey Mesquite/Blue Paloverde (MCV2: Tamarisk thickets/Mesquite bosque/Blue palo verde-Ironwood woodland)[25]
- Salt Cedar/Screwbean Mesquite (MCV2: Tamarisk thickets/ Screwbean mesquite bosque)[26]
- Screwbean Mesquite (MCV2: Screwbean mesquite bosque)[27]
- Wetland [28]

N

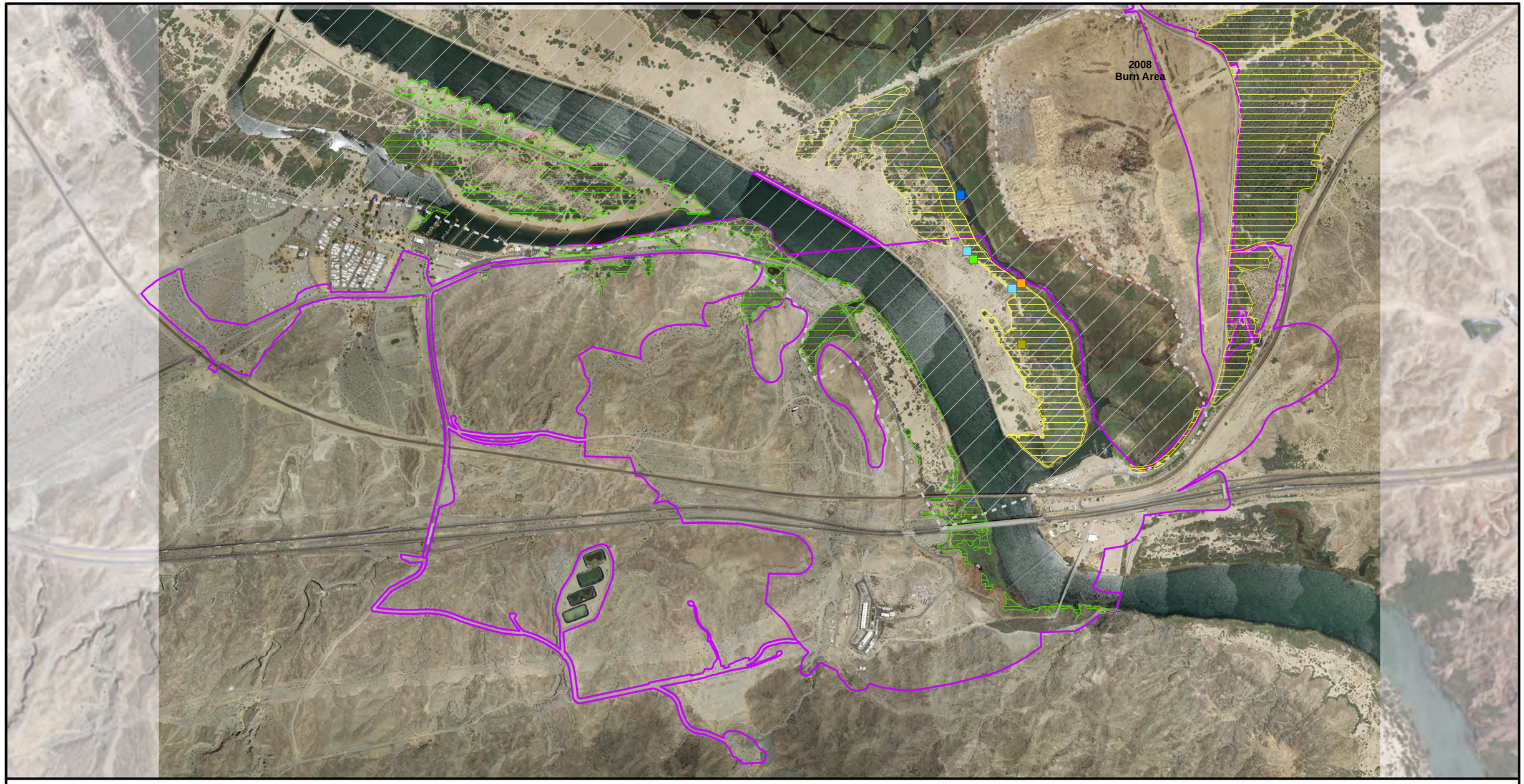
0 1,000 2,000 Feet

FIGURE 3
VEGETATION COMMUNITIES IN ACTION AREA

2007 PBA REINTITIATION LETTER
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

Path: \\Brookside\GIS_SHARE\ENBG\00_Proj\P\PGE\Topock\MapFiles\2017\PBA\Figure3_VegCommunities_11X17.mxd Date Saved: 11/30/2017 12:57:21 PM



LEGEND

- Action Area Boundary
- 2008 YBCU Detection
- 2009 YBCU Detection
- 2010 YBCU Detection
- 2014 YBCU Detection
- 2015 YBCU Detection
- Western Yellow-Billed Cuckoo Breeding Habitat
- Western Yellow-Billed Cuckoo Migration/Foraging Habitat
- Proposed Western Yellow-billed Cuckoo Critical Habitat (FWS)

N

0 500 1,000 Feet

FIGURE 4
WESTERN YELLOW-BILLED CUCKOO HABITAT
2007 PBA REINTITIATION LETTER
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

Path: \\Brookside\GIS_SHARE\ENBG\00_Proj\P\PGE\Topock\MapFiles\2017\PBA\Figure4_PBA_WYBC_2007Letter.mxd Date Saved: 11/29/2017 11:00:49 AM