

Topock Project Executive Abstract

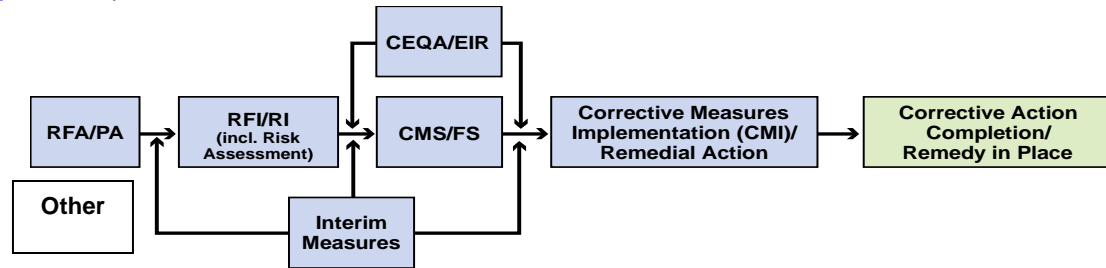
<p>Document Title:</p> <p><i>Riparian Vegetation and CDFW Jurisdiction</i></p> <p>Submitting Agency: DTSC, RWQCB</p> <p>Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Date of Document: May 9, 2014</p> <p>Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) – PG&E</p>
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<p>What does this information pertain to?</p> <p><input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)</p> <p><input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)</p> <p><input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS)</p> <p><input type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action</p> <p><input checked="" type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)</p> <p><input type="checkbox"/> Interim Measures</p> <p><input type="checkbox"/> Other / Explain:</p>	<p>Is this a Regulatory Requirement?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>If no, why is the document needed?</p>
<p>What is the consequence of NOT doing this item? What is the consequence of DOING this item?</p> <p>This report addendum complies with the EIR mitigation measures AES-1a and AES-2b. If this work was not performed, it would constitute a non-compliance with the EIR mitigation measure.</p>	<p>Other Justification/s:</p> <p><input type="checkbox"/> Permit <input type="checkbox"/> Other / Explain:</p>
<p>Brief Summary of attached document:</p> <p>The Final Environmental Impact Report (EIR) for the Topock Compressor Station Groundwater Remediation Project prescribes mitigation measures to reduce impacts associated with wetlands and waters under the jurisdiction of USACE or CDFW, as well as potential disturbance or removal of riparian vegetation along the Colorado River. Mitigation measures for Biological Resources include BIO-1, which addresses 'Potential Fill of Wetlands and Other Waters of the United States and Disturbance or Removal of Riparian Habitat - Areas of sensitive habitat in the project area have been identified during project surveys. These areas include floodplain and riparian areas, wetlands, and waters of the United States. Habitats designated by DFG as sensitive, including desert washes and desert riparian, are also included. To the extent feasible, elements of the project shall be designed to avoid direct effects on these sensitive areas.'</p> <p>This memorandum satisfies the BIO-1 requirement by documenting the nature and extent of CDFW jurisdictional areas within the Project Area and summarizes the relevant information that was gathered in plant surveys and the wetlands/waters delineation survey that were completed in 2012. The information presented in this memorandum will be used to help guide the final project design to minimize impacts within CDFW jurisdictional areas.</p> <p>Written by: PG&E</p> <p>Recommendations:</p> <p>This report is for your information only.</p> <p>How is this information related to the Final Remedy or Regulatory Requirements:</p> <p>This report presents data collected for use with the remedy design. This memorandum and the 2013 Delineation of Wetlands and Waters Report were prepared to comply with EIR mitigation measures BIO-1.</p>	

Other requirements of this information?

None.

Related Reports and Documents:

Click any boxes in the Regulatory Road Map (below) to be linked to the Documents Library on the DTSC Topock Web Site (www.dtsc-topock.com).



Legend

RFA/PA – RCRA Facility Assessment/Preliminary Assessment

RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment)

CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study

CEQA/EIR – California Environmental Quality Act/Environmental Impact Report

May 9, 2014

Chris Hayes
Deputy Regional Manager
California Department of Fish and Wildlife
Inland Deserts Region
Blythe Field Office
17041 South Lovekin
P.O. Box 2160
Blythe, California 92226

Subject: *California Department of Fish and Wildlife Jurisdictional Areas Report, Topock Groundwater Remediation Project*

Dear Mr. Hayes:

Attached please find a copy of the report and maps showing the extent of areas within the Topock Compressor Station Groundwater Remediation Project Final Environmental Impact Report Project Boundary that are considered to fall under the Jurisdiction of the California Department of Fish and Wildlife (CDFW). These areas include the Colorado River, Park Moabi Slough and the ephemeral desert washes found throughout the dissected terraces within the Project Boundary. Jurisdictional areas also include adjacent wetlands and riparian vegetation along the Colorado River and Park Moabi Slough.

In accordance with the March 6, 2013 letter from Chris Hayes, CDFW Deputy Regional Manager, Inland Deserts Region, response actions conducted onsite at the Pacific Gas and Electric Company (PG&E) Topock site, specifically soil and groundwater investigations and remediation activities, are exempted from obtaining a lake and streambed agreement under Section 121(e)(1) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). However, the project must comply with the substantive elements of such an agreement, including the 34 avoidance and minimization measures included in the letter. A copy of the letter as well as the 34 avoidance and minimization measures is provided in Appendix A of the enclosed document.

On February 21, 2014 CDFW environmental scientists, Victoria Chau and Austin Smith, met with Curt Russell from Pacific Gas and Electric Company and consulting biologist, Russell Huddleston, for a field review of the proposed final groundwater remedy project. During the site visit Mr. Russell provided an overview of the project including access routes, general well locations, soil stockpile areas and primary staging areas. In particular to CDFW jurisdiction are the two locations where pipelines will span Bat Cave wash. Mr. Russell noted that at the upstream location to the west of the compressor station the pipeline will parallel an existing natural gas pipeline located high on the adjacent slopes above the active wash channel. At the downstream crossing near the IM-3 treatment facility, Mr. Russell explained that a pipeline bridge structure would be installed in this area with the bridge supports located outside of the channel banks. In this area the pipeline would span the active floodplain of the wash approximately 8 to 10 feet above the top of the banks. The pipeline bridge in this location would be designed to avoid and minimize impacts to adjacent vegetation to the maximum extent possible.

The other area of primary interest was the low terrace adjacent to the Colorado River. During the site visit it was noted that majority of the remedy infrastructure (including access roads and well locations) would be located on

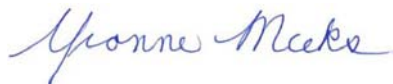
Mr. Chris Hayes
May 9, 2014
Page 2

the dredge sands that were deposited in this area during the dredging of the Colorado River between 1944 and 1968. It was also noted that the natural hydrology of the Colorado River in this area has been significantly altered as a result of upstream dams and highly regulated flows. It was noted that due to both the changes in the natural elevation by deposition of dredge materials and the managed flows of the Colorado River, the vegetation along the low terrace was not considered to be riparian habitat. Mr. Russell noted that limited activity including a new access road and a few wells would be located at the outer edge of the natural flood plain elevation south of the railroad bridge over the Colorado River, but vegetation impacts in this area would be limited to saltcedar (*Tamarix ramosissima*).

As noted during the February 21, 2014 site visit, the project has been designed to avoid direct effects on native vegetation and sensitive habitats. In an effort to ensure that construction related activities avoid and minimize impacts to areas under CDFW jurisdiction we have drafted the attached technical memorandum to delineate the jurisdictional areas based on feedback from the February 21, 2014 field review and our studies of the waters, streams and riparian areas. We would appreciate any feedback you may have on the technical memorandum and proposed CDFW jurisdictional areas.

Please feel free to contact Virginia Strohl (PG&E Senior Terrestrial Biologist) at 559-263-7417 or v1s4@pge.com if you have any questions or concerns.

Sincerely,

A handwritten signature in blue ink that reads "Yvonne Meeks". The signature is fluid and cursive, with the first name "Yvonne" and last name "Meeks" clearly distinguishable.

Yvonne Meeks
Topock Project Manager

Enclosure

*Riparian Vegetation and California Department of Fish and Wildlife Jurisdiction for the Topock Compressor Station
Groundwater Remediation Project San Bernardino County, California*

cc: Victoria Chau/CDFW
Aaron Yue/DTSC

**Riparian Vegetation and California
Department of Fish and Wildlife
Jurisdiction for the Topock
Compressor Station Groundwater
Remediation Project
San Bernardino County, California**

Prepared for
Pacific Gas and Electric Company

May 2014

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Appendixes

A	CDFW CERCLA Exemption Letter and list of Avoidance and Minimization Measures
B	Representative Photographs

Acronyms and Abbreviations

amsl	above mean sea level
BLM	U.S. Bureau of Land Management
CDFW	California Department of Fish and Wildlife
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cfs	cubic feet per second
CWA	Clean Water Act
DTSC	California Department of Toxic Substances Control
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
FHBM	Flood Hazard Boundary Map
FIRM	Flood Insurance Rate Map
HNWR	Havasu National Wildlife Refuge
I-40	Interstate 40
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
OHWM	ordinary high water mark
PG&E	Pacific Gas and Electric Company
U.S.	United States
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Introduction

This report is intended to address areas within the Pacific Gas and Electric Company's (PG&E) Topock Compressor Station Final Environmental Impact Report (FEIR) Study Area (study area) that may be subject to regulation by the California Department of Fish and Wildlife (CDFW). It includes sensitive habitats such as desert washes, floodplains, and riparian areas that are mentioned in the FEIR issued by the California Department of Toxic Substances (DTSC) in January 2011. Detailed information on wetlands and other waters of the United States as regulated under section 404 of the federal Clean Water Act (CWA) are addressed separately in the *Wetlands and Waters of the United States, Delineation for the Topock Compressor Station Groundwater Remediation Project, San Bernardino County, California* (CH2M HILL, 2013).

In December 1951, the Topock Compressor Station began operations to compress natural gas collected from the southwestern U.S. for transport through pipelines to PG&E's service territory in central and northern California. The compressor station is still active and is anticipated to remain active into the foreseeable future. The operations at the compressor station consist of six major activities: water conditioning, compressing natural gas, cooling compressed natural gas and compressor lubricating oil, wastewater treatment, facility and equipment maintenance, and miscellaneous operations.

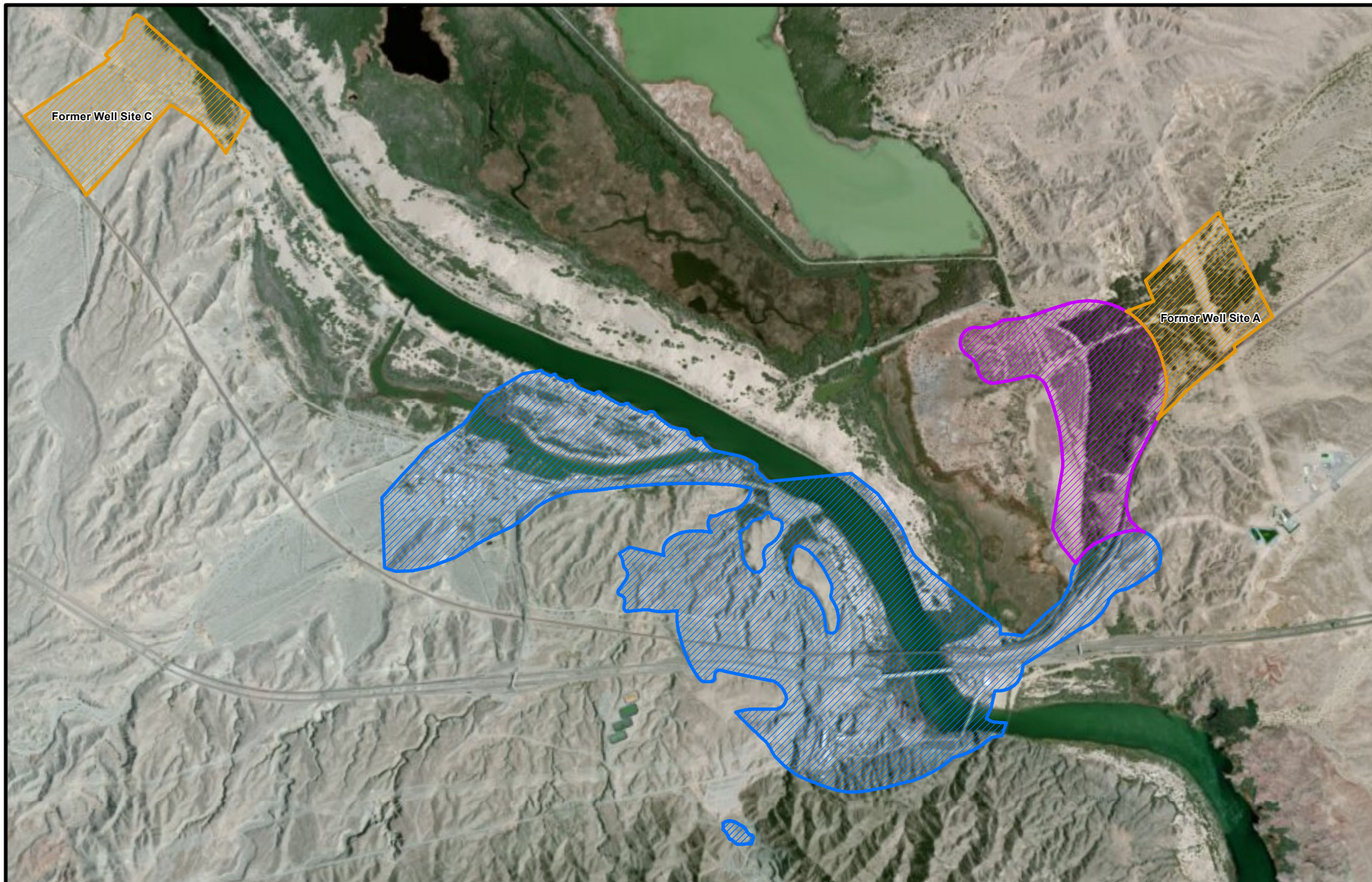
In 1996, PG&E entered into a Corrective Action Consent Agreement with the DTSC to oversee the investigation and remediation of the Topock Compressor Station site in accordance with California state law. DTSC is the California state lead agency charged with directing contaminant investigation activities in the action area in accordance with the Resource Conservation and Recovery Act. The Department of the Interior is the lead federal agency overseeing response actions for land under its jurisdiction, custody or control near the Topock Compressor Station pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). In July 2005, PG&E and the Federal Agencies entered into an Administrative Consent Agreement. In addition, PG&E and the United States have also entered into a Remedial Design/Remedial Action Consent Decree under CERCLA governing the groundwater remedy, which was entered by the U.S. District Court for the Central District of California in November 2013.

The purpose of this document is to identify and map the extent of rivers, streams, and riparian habitat within the study area under jurisdiction of the CDFW and as required by FEIR mitigation measure BIO-1 (AECOM, 2011). Because mitigation measures AES-1 and AES-2 involve revegetation in riparian habitats if disturbed by the project, which could require a permit from CDFW absent an exemption, these mitigation measures also are outlined in this report.

The 1,169-acre study area (Figure 1-1) includes the following sites:

- The 780-acre project area covered in the FEIR
- 182.7-acre area along Highway 95 in Arizona associated with an existing Havasu National Wildlife Refuge (HNWR) well site and potential new freshwater well site B
- 93.5 acres associated with former potential new freshwater well site A
- 112.8 acres associated with former potential new freshwater well site C

The freshwater well sites are part of the groundwater remediation strategy that require additional nearby groundwater supplies that are uncontaminated by hexavalent chromium.



LEGEND

- EIR Project Area and Wetlands Delineation Area (780 Acres)
- Additional Wetlands Delineation Area - Well Site B (183 Acres)
- Former Potential Freshwater Well Sites (206 Acres)

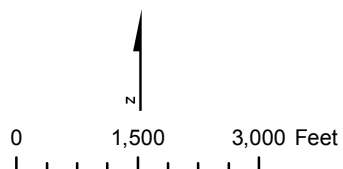


FIGURE 1-1
STUDY AREA
 PG&E Topock Compressor Station
 Needles, California

Regulations and FEIR Requirements

2.1 California Department of Fish and Wildlife

CDFW regulates activities that may “substantially divert or obstruct the natural flow of or substantially change or use any material from the bed, channel, or bank of, any river, stream or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream or lake...” (California Fish and Game Code Section 1602). If CDFW determines that any of the above activities may substantially adversely affect an existing fish or wildlife resource, a Lake and Streambed Alteration Agreement is required that includes reasonable measures necessary to protect such resources. This requirement applies to any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water (CDFW, 2013).

2.2 FEIR Requirements

The following mitigation measures are cited from the FEIR (AECOM, 2011).

AES-1(b) and AES-2(c)

Revegetation of disturbed areas within the riparian vegetation along the Colorado River shall occur concurrently with construction operations. Plans and specifications for revegetation shall be developed by a qualified plant ecologist or biologist before any riparian vegetation is disturbed. The revegetation plan shall include specification of maintenance and monitoring requirements, which shall be implemented for a period of 5 years after project construction or after the vegetation has successfully established, as determined by a qualified plant ecologist or biologist.

Mitigation Measure BIO-1

Areas of sensitive habitat in the project area have been identified during project surveys. These areas include floodplain and riparian areas, wetlands, and waters of the United States. Habitats designated by DFG as sensitive, including desert washes and desert riparian, are also included. To the extent feasible, elements of the project shall be designed to avoid direct effects on these sensitive areas. During the design process and before ground disturbing activities, a qualified biologist shall coordinate with PG&E to ensure that the footprints of construction zones, drill pads, staging areas, and access routes are designed to avoid disturbance of sensitive habitats to the extent feasible. DTSC shall be responsible for enforcing compliance with design and all preconstruction measures.

If during the design process it is shown that complete avoidance of habitats under DFG jurisdiction (such as changes to the natural flow and/or bed and bank of a waterway) is infeasible, a Section 1602 streambed alteration agreement shall be obtained from DFG and affected habitats shall be replaced and/or rehabilitated. If complete avoidance of identified riparian habitat is not feasible, the acreage of riparian habitat that would be removed shall be replaced or rehabilitated on a no-net-loss basis in accordance with DFG regulations and, if applicable, as specified in the streambed alteration agreement, if needed. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by methods agreeable to DFG and consistent with the purpose and intent of applicable county policies and codes, as well as those policies outlined under the respective federal agency guidance documents. Minimization and compensation measures adopted through the permitting process shall also be implemented.

Restoration of any disturbed areas shall include measures to achieve “no-net-loss” of habitat functions and values existing before project implementation. These measures shall be achieved by developing and

implementing a habitat restoration plan submitted to DFG, U.S. Bureau of Land Management (BLM), and U.S. Fish and Wildlife Service (USFWS) that is agreeable to these agencies, or, alternately, through the implementation of a habitat restoration plan consistent with the substantive policies of DFG, BLM, and USFWS. The plan shall include a revegetation seed mix or plantings design, a site grading concept plan, success criteria for restoration, a monitoring plan for achieving no net loss of habitat values and functions, and an adaptive management plan. Alternately, if DFG declines to assert jurisdiction because it determines that CERCLA Section 121(e)(1) applies, and during the design process it is shown that complete avoidance of habitats under DFG jurisdiction (such as changes to the natural flow and/or bed and bank of a waterway) is infeasible, the substantive mandates of a streambed alteration agreement shall be implemented, and affected habitats shall be replaced and/or rehabilitated. If complete avoidance of identified riparian habitat is not feasible, the acreage of riparian habitat that would be removed shall be replaced or rehabilitated on a “no-net-loss” basis in accordance with DFG regulations and, if applicable. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by methods agreeable to DFG and consistent with the purpose and intent of applicable county policies and codes, as well as those policies outlined under the respective federal agency guidance documents. Minimization and compensation measures adopted through the permitting process shall also be implemented. Restoration of any disturbed areas shall include measures to achieve “no-net-loss” of habitat functions and values existing before project implementation. These measures shall be achieved by developing and implementing a habitat restoration plan developed consistent with the substantive policies of DFG, BLM and USFWS. The plan shall include a revegetation seed mix or plantings design, a site grading concept plan, success criteria for restoration, a monitoring plan for achieving no net loss of habitat values and functions, and an adaptive management plan.

Mitigation Measure BIO-3

If selected as part of the final remedy, construction of the freshwater intake structure element of the proposed project could prevent fish from accessing spawning habitat or interfere with preferred habitat. In addition, operation of the water intake structure within the Colorado River could cause mortality to fish, including special-status species. Increased sedimentation and turbidity, the release of contaminants, and standing during construction activities could also adversely affect fish habitat and movement in the Colorado River.

The final remedy will not include any intake structures; therefore this mitigation measure does not apply.

2.3 CERCLA Exemption

On March 6, 2013, Chris Hayes, Deputy Regional Manager for CDFW’s Inland Desert Region, confirmed in a letter that response actions conducted at the Topock site, specifically soil and groundwater investigations and remediation activities, are exempted from obtaining a Lake and Streambed Alteration Agreement under Section 121(e)(1) of CERCLA. However, to comply with mitigation measure BIO-1, PG&E must comply with the substantive elements that would be required in an Agreement for the project. The letter from CDFW included a list of 34 avoidance and minimization measures required for all work in areas subject to CDFW jurisdiction. The letter and required avoidance and minimization measures are provided in Appendix A.

Definitions

3.1 Rivers and Streams

CDFW issued legal guidance on certain terms used in Section 1600 of the Fish and Game Code to clarify the definitions of things such as rivers and streams (Toffolt, 1990). The legal definition of a river was given as: “A natural stream of water, of greater volume than a creek or rivulet, flowing in a more or less permanent bed or channel, between defined banks or walls, with a current which may either be continuous in one direction or affected by the ebb and flow of the tide.” Such a definition is straightforward and consistent with the general understanding of what is considered to be a river. The definition of a stream is somewhat more complex.

A basic definition of a stream as given by the Merriam-Webster dictionary is “a body of running water flowing on the earth.” The legal definition of a stream, as provided by Toffolt (1990) is “a watercourse having a source and terminus, banks, and a channel, through which waters flow, at least periodically. Streams usually empty into other streams, lakes or the ocean, but a stream does not lose its character as a watercourse even though it may break up and disappear.” This definition includes two important distinctions: 1) only periodic flows are necessary and 2) watercourses that lose their bed and bank (such as a stream that meanders through a floodplain or a larger water body such as a lake or a marsh) are still a considered part of the stream. This legal definition is particularly relevant to the numerous ephemeral washes that occur throughout the dissected alluvial terraces in the vicinity of the compressor station. While these features are dry most of the time and only carry short-duration flows in response to heavy rain events, they are still considered streams under Section 1600 of the Fish and Game Code.

3.2 Floodplains

A floodplain is defined as “a strip of relatively smooth land bordering a stream and overflowed at time of high water.” (Leopold et al., 1964). The Natural Resources Conservation Service [NRCS] (2008) has a similar definition: “The nearly level plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It is usually a constructional landform built of sediment deposited during overflow and lateral migration of streams.”

The U.S. Army Corps of Engineers (USACE) defines the floodplain as “That portion of a drainage basin (watershed), adjacent to the channel, that is covered by sediments deposited during overbank flood flows” (USACE, 2008).

The Federal Emergency Management Agency (FEMA) uses the term “flood zones” to define geographic areas with various types of flooding and levels of flood risk. These zones are depicted on the published Flood Insurance Rate Map (FIRM) or Flood Hazard Boundary Map (FHBM). Portions of the project area, including the natural historical floodplain south of the Burlington Northern-Santa Fe railroad bridge over the Colorado River, have been mapped by FEMA as special flood hazard areas that are subject to inundation by the 1 percent annual chance of flood in any given year (100-year flood). However, because of upstream dams and flow regulation, the river no longer floods and no structures or new infrastructure is planned for the special flood hazard areas that would impede or redirect flood flows.

3.3 Riparian Habitat

It is commonly accepted that riparian vegetation occurs along the edges of streams, rivers and lakes. In other words, riparian habitats are associated with some type of persistent aquatic feature. However, such broad definition is oversimplified and fails to distinguish riparian vegetation from upland communities that

may also occur in proximity to water (Fischer et al., 2001). The term riparian is not included in the California Fish and Game Code (Sec. 1600-1616) and, as such, no definition is provided. Section 1602 broadly covers any activities that may “substantially adversely affect an existing fish or wildlife resource.” While not specifically stated as such, this language has generally been interpreted to include impacts to riparian vegetation. While the term riparian is not included in any part of Section 1600 of the Fish and Game Code, impacts to riparian vegetation are required to be addressed under Section 11 of the Lake and Streambed Notification Form. Additionally, the FEIR identifies riparian areas as sensitive habitat, but provides no definition of such areas. In order to adequately address impacts to riparian vegetation it is critical to have a scientifically-based definition of riparian habitat.

One such definition is provided by Johnson et al. (1984), who defined riparian as “pertaining to the banks and other adjacent terrestrial (as opposed to aquatic) environs of freshwater bodies, water courses, estuaries, and surface emergent aquifers (springs, seeps, oases), whose transported freshwaters provide soil moisture sufficiently in excess of that otherwise available through local precipitation to potentially support the growth of mesic vegetation.” Another, more complete definition, was developed by the National Research Council (2002): “Riparian areas are transitional between terrestrial and aquatic ecosystems and are distinguished by gradients in biophysical conditions, ecological processes, and biota. They are areas through which surface and subsurface hydrology connect water bodies with their adjacent uplands. They include those portions of terrestrial ecosystems that significantly influence exchanges of energy and matter with aquatic ecosystems (i.e., a zone of influence). Riparian areas are adjacent to perennial, intermittent and ephemeral streams, lakes and estuarine- marine shorelines.” Both of these definitions indicate that proximity of vegetation to a water feature alone does not constitute riparian habitat. There must also be some degree of hydrologic influence on the vegetation by the adjacent water feature.

Description of Rivers, Streams and Riparian Habitat in the Study Area

Water features including rivers and streams in the study area were identified and mapped as part of the wetlands delineation survey (CH2M HILL, 2013). The purpose of the wetland delineation was to identify and map the extent of jurisdictional waters of the U.S. as defined under Section 404 of the CWA and regulated by USACE. Waters of the U.S. include such features as rivers, streams, lakes, and ponds. In the absence of adjacent wetlands, USACE jurisdiction extends to the limits of the ordinary high-water mark, which is defined as “the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (33 Code of Federal Regulations 328.3 [e]).

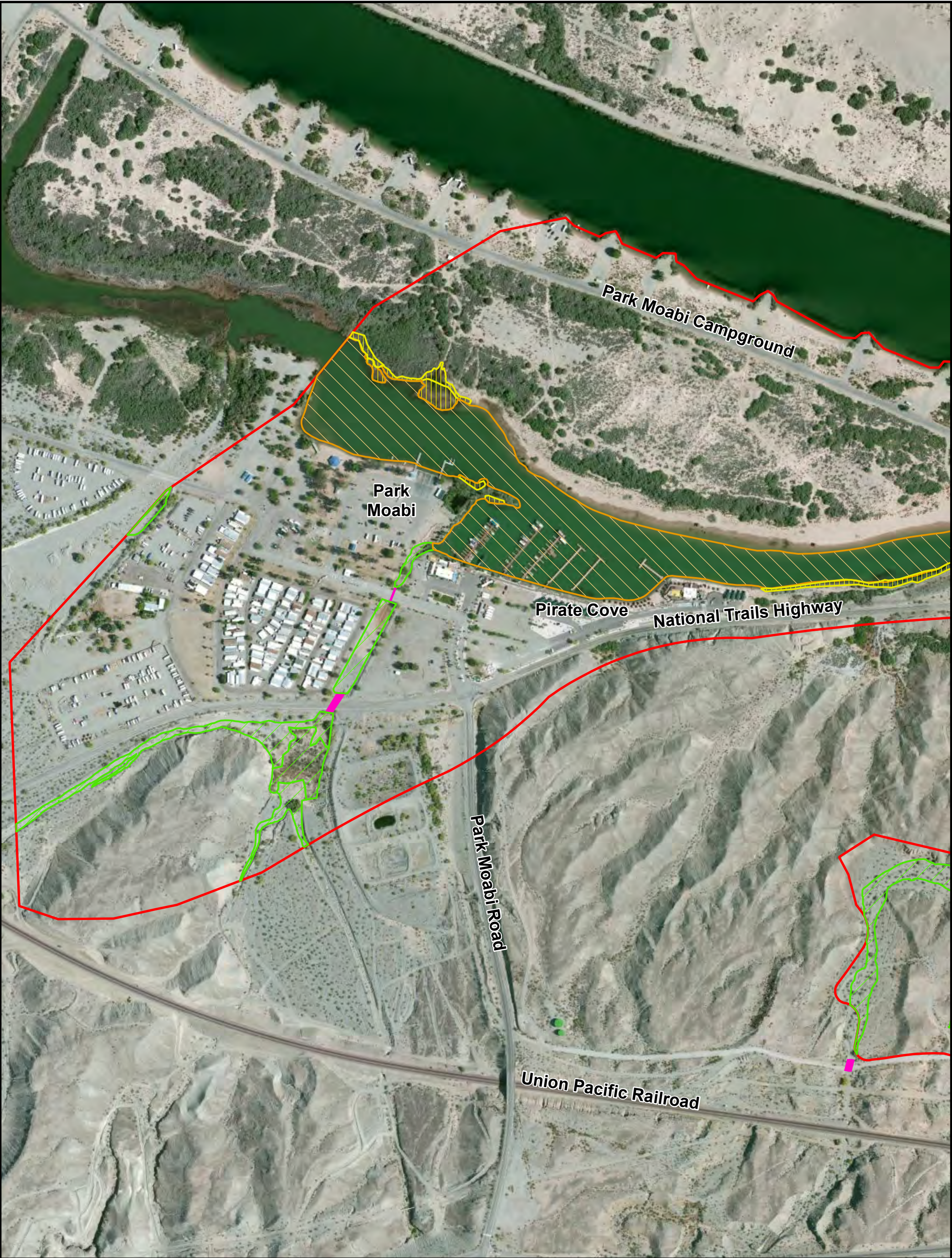
In contrast, the regulatory jurisdiction of CDFW includes the full extent of the bed, channel, and slopes of any river or stream, as well as any existing fish or wildlife resources (e.g., riparian habitat) associated with such features. As a result, the extent of jurisdictional areas regulated under Section 1600 of the Fish and Game Code are often greater than the areas that are subject to regulation under the CWA.

The following sections provide a description of rivers and streams as well as associated riparian habitat that are considered to be subject to regulation by CDFW. The distribution of these features is shown in Figure 4-1 and representative photographs are provided in Appendix B.

4.1 Colorado River

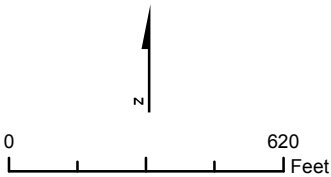
The Colorado River is the primary surface water feature in the study area. The river flows approximately 6,400 feet through the central part of the study area. Significant changes to the Colorado River hydraulic regime in the vicinity of the project area occurred after construction of Hoover Dam and Parker Dam. With the completion of Hoover Dam in 1936, annual spring floods and associated scouring events ended. With the closure of Parker Dam in 1938, and subsequent filling of Lake Havasu, the Colorado River channel between Needles and Topock rapidly aggraded (Metzger and Loeltz, 1973). By 1944, the aggradation of the river channel caused elevated groundwater levels and flooding in low-lying areas. In response to this condition, the U.S. Bureau of Reclamation (USBR) conducted extensive dredging of the river channel to maintain channel geometry and reduce flooding. All of these changes have had a significant impact on the natural floodplain processes and associated riparian vegetation in the project area.

The flows in this section of the Colorado River are dynamic, fluctuating seasonally and daily as a result of upstream flow regulation from the Davis Dam, located approximately 41 river miles upstream of the project area. Data from the U.S. Geological Survey (USGS) river gauge at the Topock Marsh inlet shows that average flow rate ranges from a low of 14 cubic feet per second (cfs) in January to a high of 99 cfs in June (Figure 4-2). Daily surface water elevation data for the Colorado River has been measured near the Interstate 40 Bridge since the middle of June 2003 as part of the ongoing monitoring program at the compressor station. The average water level elevation recorded for this period was 454.9 feet above mean sea level (amsl), with a minimum of 450.6 feet amsl and a maximum of 458.7 feet amsl. Average monthly flow rates measured at the Topock Marsh inlet between January 1967 and September 2012 show a fluctuating, but controlled, rate of discharge that did not exceed a mean of 193 cfs (Figure 4-3).

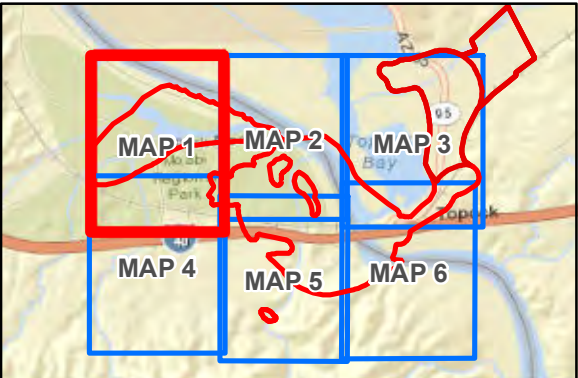


- LEGEND**
- Wetland Delineation Boundary
 - Culvert
 - CDFW Jurisdiction Areas**
 - CDFW Ephemeral Stream
 - CDFW Riparian
 - Colorado River
 - Park Moabi Slough

Note:
CDFW = California Department of Fish and Wildlife

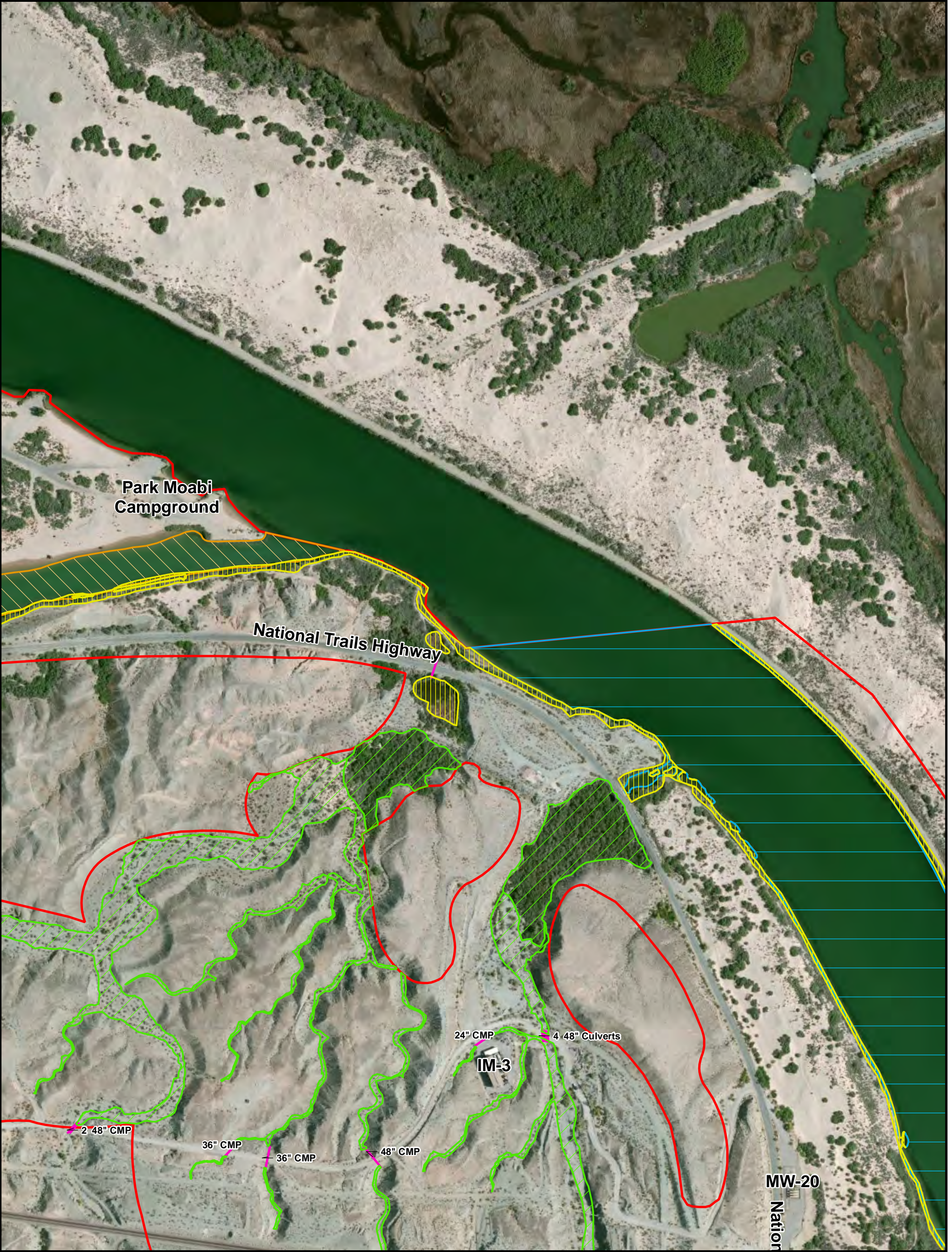


VICINITY MAP



Source:
Wetland Delineation Completed March 13-17, 2012
R. Huddleston and K. Steiner.
Update Completed July 16-17, 2012
R. Huddleston and M. Fowler.
Update Completed December 12-13, 2012
R. Huddleston.

FIGURE 4-1
Rivers, Streams and Riparian Areas
Map 1 of 6
PG&E Topock Compressor Station
Needles, California



LEGEND

- Wetland Delineation Boundary
- Culvert

CDFW Jurisdiction Areas

- CDFW Ephemeral Stream
- CDFW Riparian
- Colorado River
- Park Moabi Slough

Note:
CDFW = California Department of Fish and Wildlife

0 600 Feet

VICINITY MAP

Source:
Wetland Delineation Completed March 13-17, 2012
R. Huddleston and K. Steiner.
Update Completed July 16-17, 2012
R. Huddleston and M. Fowler.
Update Completed December 12-13, 2012
R. Huddleston.

FIGURE 4-1
Rivers, Streams and Riparian Areas
Map 2 of 6
PG&E Topock Compressor Station
Needles, California



LEGEND

Wetland Delineation Boundary

Culvert

CDFW Jurisdiction Areas

CDFW Ephemeral Stream

CDFW Riparian

Colorado River

Park Moabi Slough

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0 660 Feet

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R. Huddleston.

FIGURE 4-1
Rivers, Streams and Riparian Areas
Map 3 of 6
PG&E Topock Compressor Station
Needles, California



LEGEND

Wetland Delineation Boundary

Culvert

CDFW Jurisdiction Areas

CDFW Ephemeral Stream

CDFW Riparian

Colorado River

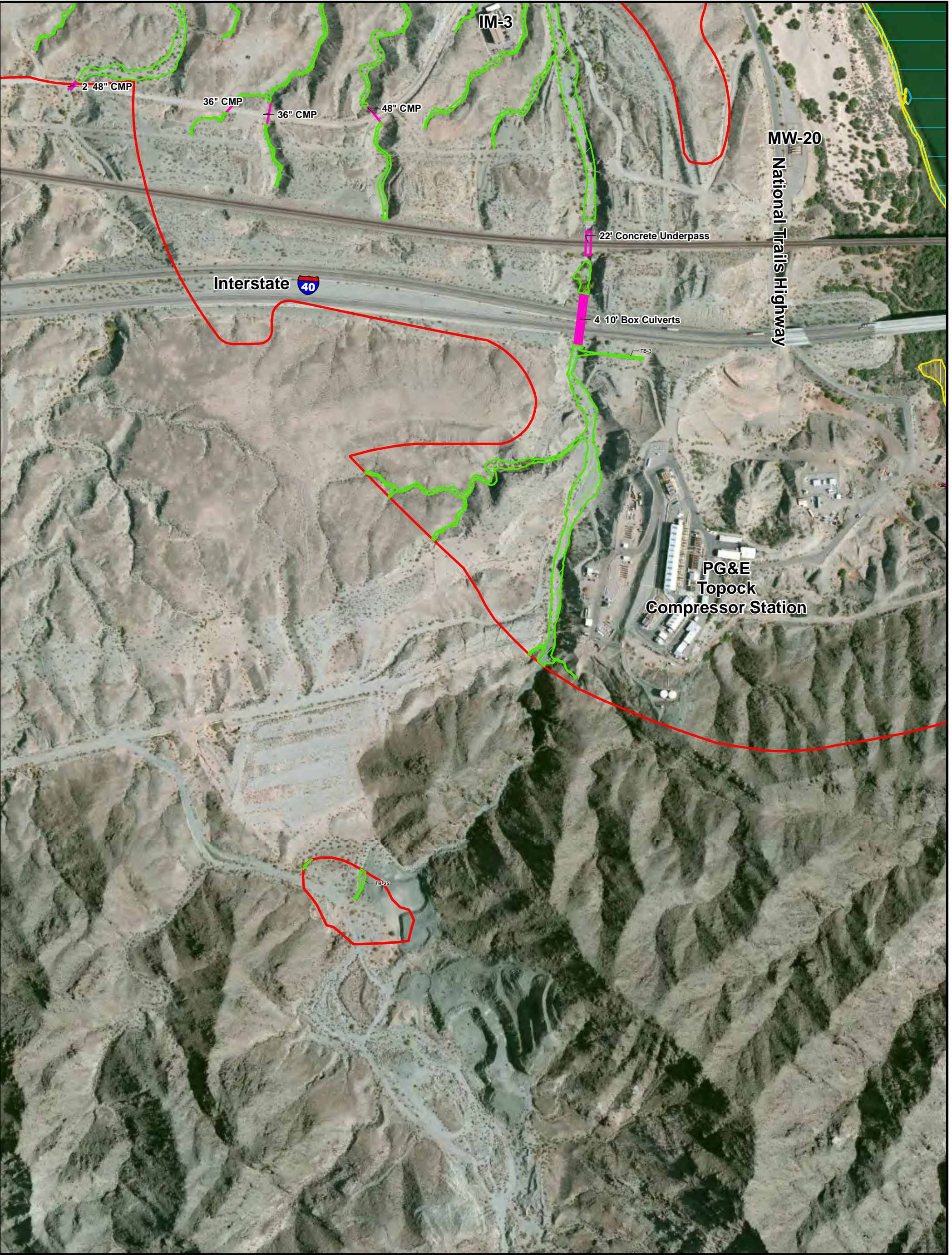
Park Moabi Slough

Note:
CDFW = California Department of Fish and Wildlife

VICINITY MAP

Source:
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R. Huddleston and K. Steiner.
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R. Huddleston and M. Fowler.
Update Completed December 12-13, 2012
R. Huddleston.

FIGURE 4-1
Rivers, Streams and Riparian Areas
Map 4 of 6
PG&E Topock Compressor Station
Needles, California



LEGEND

Wetland Delineation Boundary

Culvert

CDFW Jurisdiction Areas

CDFW Ephemeral Stream

CDFW Riparian

Colorado River

Park Moabi Slough

Note:
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0 600 Feet

VICINITY MAP

Source:
Wetland Delineation Completed March 13-17, 2012
R. Huddleston and K. Steiner.
Update Completed July 16-17, 2012
R. Huddleston and M. Fowler.
Update Completed December 12-13, 2012
R. Huddleston.

FIGURE 4-1
Rivers, Streams and Riparian Areas
Map 5 of 6
PG&E Topock Compressor Station
Needles, California



LEGEND

Wetland Delineation Boundary

Culvert

CDFW Jurisdiction Areas

CDFW Ephemeral Stream

CDFW Riparian

Colorado River

Park Moabi Slough

Note:
CDFW = California Department of Fish and Wildlife

0 620 Feet

VICINITY MAP

Source:
Wetland Delineation Completed March 13-17, 2012
R. Huddleston and K. Steiner.
Update Completed July 16-17, 2012
R. Huddleston and M. Fowler.
Update Completed December 12-13, 2012
R. Huddleston.

FIGURE 4-1
Rivers, Streams and Riparian Areas
Map 6 of 6
PG&E Topock Compressor Station
Needles, California

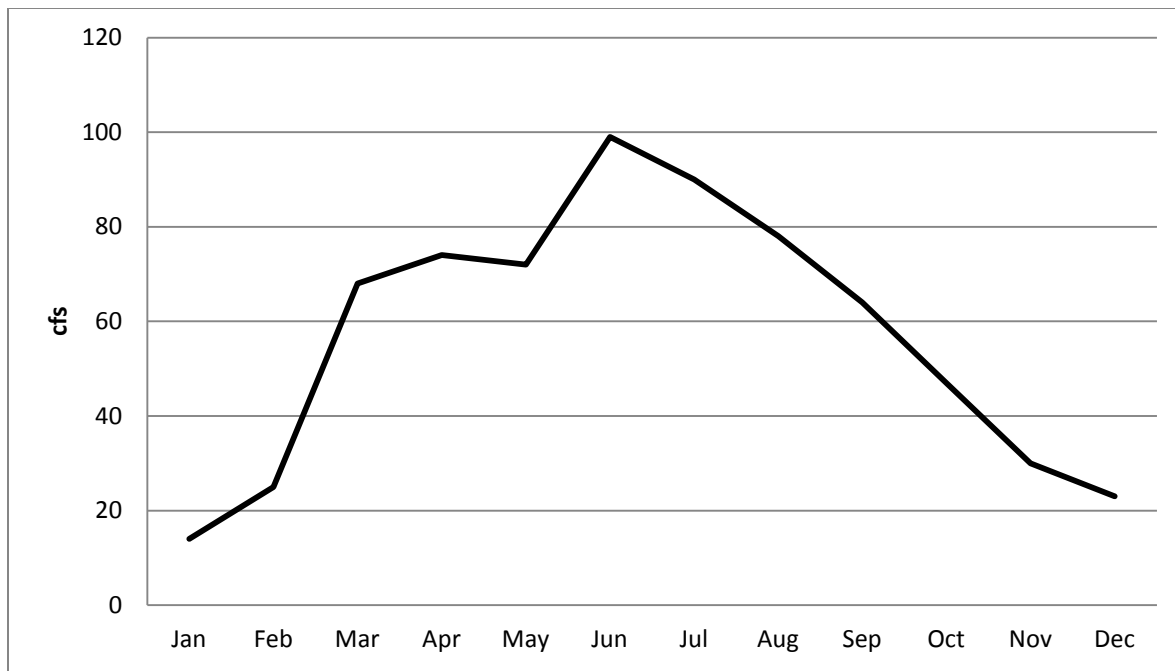


FIGURE 4-2

Overall monthly average flow rate (cfs) for the Colorado River as measured at the USGS River Gauge (09423550) at the Topock Marsh Inlet near Needles, California between January 1967 and September 2012.

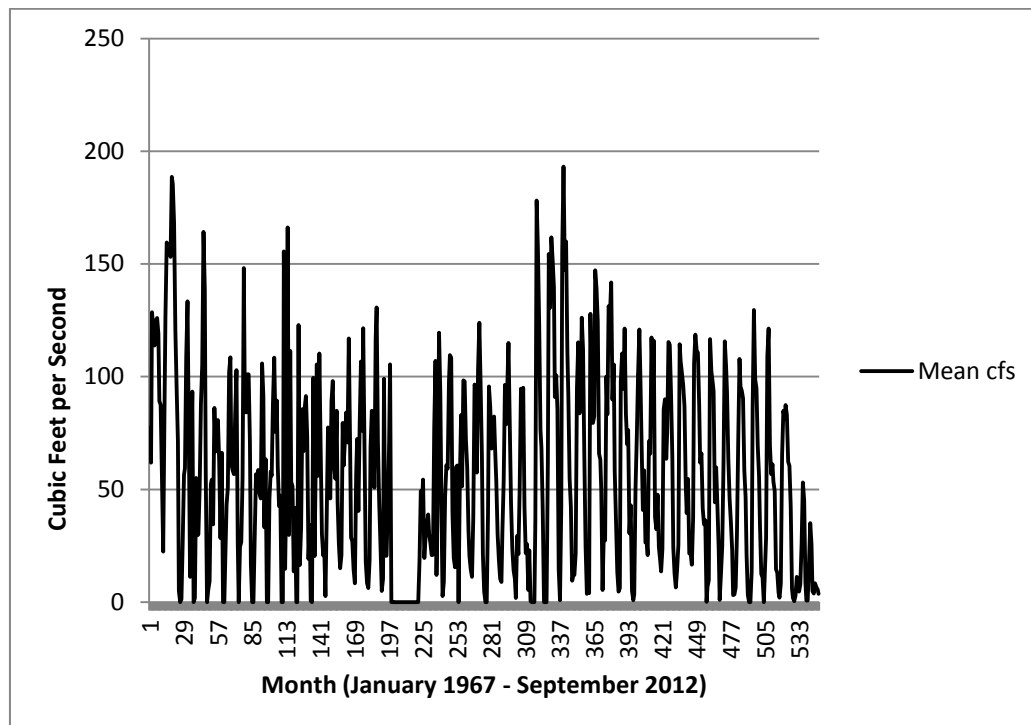


FIGURE 4-3

Monthly Average flow rate (cfs) for the Colorado River as measured at the USGS River Gauge (09423550) at the Topock Marsh Inlet near Needles, California between January 1967 and September 2012. The data gap circa 1983-4 (or circa month 200) corresponds to the Colorado River flood after which the Topock gauge was replaced.

Upstream of the Interstate 40 Bridge, the river channel ranges from approximately 600 to 740 feet wide. Downstream of the bridge, the river traverses the exposed bedrock of the Chemehuevi Mountains, and the channel width narrows to approximately 435 feet. Throughout much of the study area the channel banks are primarily characterized by steep slopes that have been armored with large boulders. The elevation at the top of the banks is approximately 466 feet above amsl; over 7 feet above the maximum flow level recorded in this area since 2003. Further to the south along the Arizona side of the river, near the inlet to the Topock Marina, the banks are slightly lower and have narrow sandy beaches and eroded sandy banks at elevations ranging from around 460 to 463 feet above amsl.

Due to controlled discharges regulated by upstream dams as well as past dredging and channelization along this reach of the Colorado River there is no longer an active floodplain in the study area and, as described below, the riparian habitat is limited to a narrow band immediately along the channel banks of the river.

4.2 Park Moabi Slough

Park Moabi Slough was created by major dredging activities by USBR. Historical photographs indicate that much of the present shoreline, bank stabilization, and sand dune area features in the Park Moabi area were completed during in the mid 1960s. Within the project area, most of the areas along the channel are characterized by developed beaches, vacation cabins, boat docks, and boat ramps associated with the Pirates Cove Resort and Park Moabi. East of the developed areas, the south shore of the slough is characterized by relatively steep sandy and rocky banks with dense vegetation. As with the Colorado River there is no active floodplain associated with the slough and riparian vegetation, where present, is limited to a narrow band along the edges of the channel.

4.3 Ephemeral Washes West and North of the Compressor Station

Arid region ephemeral washes are a unique type of stream feature, which has required that USACE publish a number of guidance documents regarding the determination of jurisdictional limits in these areas including *A Field Guide to Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley, 2008) and the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Curtis and Lichvar, 2010). Unlike perennial or seasonal streams in wetter environments where the extent of federal jurisdiction is determined by the ordinary high water flows, the extent of jurisdiction of arid-region ephemeral washes includes all of the hydrogeomorphic floodplain units such as low flow channels, active floodplain, and low terraces. In these areas, the federal jurisdictional limits are defined by the lateral extent of the active floodplain, which is also generally the extent of desert wash (riparian) vegetation. Therefore, the areas of ephemeral washes included in the wetlands delineation for federal waters of the U.S. were considered representative of area that would be regulated under state regulations by CDFW or similar requirements as stated in the FEIR.

The alluvial terraces located along the south side of the Colorado River and north of the Chemehuevi Mountains are characterized by numerous incised drainage channels and ephemeral washes. One of the largest ephemeral washes in the project area is Bat Cave Wash, a north-south-trending channel that is immediately west of the Topock Compressor Station. Bat Cave Wash is shown as an intermittent blue line stream on the USGS Topock topographic quadrangle map, and is also included as an intermittent stream in the National Hydrographic Dataset (NHD). Bat Cave Wash is a tributary of the Colorado River. Large volume surface flows are generally infrequent and occur only briefly in response to high-intensity rainfall events. Storm water flows are conveyed directly into the river under a bridge along the National Trails Highway. Within the project area the upper part of Bat Cave Wash is confined by steep rocky slopes and has an approximately 30-foot-wide gravel-cobble floodplain. Vegetation in the upper reaches of the wash is sparse, consisting of scattered shrubs such as Anderson's box-thorn (*Lycium andersonii*), catclaw (*Senegalia greggii*),

and desert lavender (*Hyptis emoryi*). As the wash continues downslope, the channel broadens to over 190 feet wide in some areas. In this reach, it has multiple low flow channels that are present throughout the active floodplain. Vegetation cover also increases downslope with blue palo verde (*Parkinsonia florida*) and saltcedar (*Tamarix ramosissima*) trees scattered throughout the active floodplain. Other common shrubs on, or immediately adjacent to, the active floodplain include brittlebush (*Encelia farinosa*), creosote bush (*Larrea tridentata*), white bur-sage (*Ambrosia dumosa*), sweetbush (*Bebbia juncea*), and white rhatany (*Krameria bicolor*). Total vegetative cover throughout most of the wash is less than 30 percent, with the exception of a dense stand of saltcedar present at the northern end of the wash, just south of the National Trails Highway.

A second large ephemeral wash is present to the west of Bat Cave Wash. There is no blue line stream indicated on the USGS Topock quadrangle map in this area, nor is there any mapped feature in the NHD at this location. The active floodplain of this channel ranges from approximately 100 feet to 240 feet wide and is characterized by a sandy-pebble-cobble substrate with multiple low-flow channels. Scattered perennial vegetation throughout the channel includes blue palo verde, catclaw, Anderson's box-thorn, sweetbush, creosote bush, white rhatany, and cheesebush (*Ambrosia salsola*). Similar to Bat Cave Wash, there is a dense thicket of saltcedar and honey mesquite (*Prosopis glandulosa*) at the northern (downslope) end of the wash feature. A large earthen dam has been constructed at the downstream terminus of this feature and there is no longer a direct hydrologic connection to the Colorado River. A perennial pond is located immediately north of the dam that is connected to a small wetland adjacent to the Colorado River via a large culvert that passes under the National Trails Highway.

There are several small, incised tributary drainages that flow directly into either Bat Cave Wash or the western wash system within the project area. These channels are characterized by a single low-flow channel and generally have sandy-gravel, cobble, or rocky substrates. Most of the low-flow channels are devoid of vegetation or have only sparse, scattered herbaceous species such as spurge (*Chamaesyce* spp.), Spanish needle (*Palafoxia arida*), ovate plantain (*Plantago ovata*), and needle grama (*Bouteloua aristidoides* var. *aristidoides*). Common trees and shrubs along the lower slopes and channel edges in these areas include blue palo verde, catclaw, Anderson's box-thorn, creosote bush, white bur-sage, white rhatany, and sweetbush.

4.4 Park Moabi Drainages

Three ephemeral drainages are present in the western part of the project area, originating south of the developed portion of Moabi Regional Park. Two of these drainages are shown as un-named blue line streams of the USGS Whale Mountain Topographic quadrangle map and are include as intermittent streams in the NHD. These ephemeral channels are characterized by relatively steep vertical side banks and sand-pebble-cobble beds that are largely devoid of vegetation. Scattered blue palo verde trees and occasional shrubs such as cheesebush, brittlebush, and creosote bush are present along the edges and side slopes of the channels. All three channels flow into a broad retention basin located on the south side of the National Trails Highway, west of Park Moabi Road. There are six 48-inch diameter culverts in the northeast corner of the retention basin that convey flows under the National Trails Highway into a broad U-shaped, routinely maintained, stormwater channel in the developed area of the park. At the time of the survey the sandy-gravel substrate of the stormwater channel was devoid of vegetation and due to recent maintenance activities. At the north end of the U-shaped channel there is a 24-inch-diameter culvert under a paved road that drains into a low topographic swale characterized by upland vegetation. The swale feature continues to the north where stormwater flows are discharged into Park Moabi Slough near the southwest corner of the Pirate Cove Marina.

4.5 Sacramento Wash and Discontinuous Ephemeral Drainages

The Sacramento Wash is located at near the northern end of the project area east of the Topock Marsh. Within the project area, Highway 95 bisects the wash with an at-grade crossing. The Sacramento Wash is shown as a blue line stream on the Topock USGS 7.5-minute quadrangle and as an intermittent stream in the NHD. Within the project area the Sacramento Wash is a broad, open sandy channel that is largely confined within constructed levees. The channel ranges from approximately 50 to 70 feet wide and has a flat, generally uniform bed that lacks well-defined low flow channels. There are minor benches and terraces along the channel in a few locations, but there is no active floodplain outside of the channel as a result of the constructed levees along this section of the wash. On the east side of Highway 95, the channel is devoid of vegetation with extensive athel tamarisk thickets present along both sides of the wash. On the west side of the road, the wash continues to flow through a channel confined by levees for approximately 950 feet where it then broadens out along the floodplain adjacent to the Topock Marsh just west of the project area. Some blue palo verde trees are present along the levees on the west side of the road and a few small trees and shrubs including saltcedar, smoke tree (*Psoralea argemone*), bush seepweed (*Suaeda nigra*), and creosote bush occur within the wash channel. Prior to a large wildfire in October 2008, dense tamarisk thickets were also present along both sides of the wash in this area.

Two low, open sandy ephemeral drainages are present in the area east of Highway 95. Both of the drainages flow through semi-circular culverts under the Burlington Northern-Santa Fe railroad just east of the project area. These two drainages are characterized by low sandy substrates that lack defined channel banks. Both of the drainages are devoid of vegetation and exhibited evidence of recent flows including sediment deposits, debris lines, and scouring at the time of the July 2012 survey. Unlike the Sacramento Wash, these smaller drainages dissipate into sheet flow on the east side of the highway and have no apparent hydrologic connection to the Topock Marsh.

4.6 Riparian Vegetation

Riparian vegetation includes areas of emergent vegetation along the edges of the Colorado River and Park Moabi slough, trees and shrubs growing immediately adjacent to the Colorado River and undeveloped areas of Park Moabi slough and adjacent wetlands that have a direct hydrologic connection with the Colorado River. Vegetated areas along the low terraces located above the high water limit of the Colorado River, that are not subject to occasional flooding were not considered to be riparian habitat.

Riparian habitat associated with the Colorado River and Park Moabi slough include scattered patches of southern cattail (*Typha domingensis*), California bulrush (*Schoenoplectus californicus*), common reed (*Phragmites australis*) and giant reed (*Arundo donax*) growing along the edges of the Colorado River and Park Moabi Slough. Most of these areas occur below the ordinary high water line or on low terraces that are likely subject to regular flooding. Patches of emergent vegetation are most common along the southern banks of the Park Moabi Slough, but are also found along the north banks of the slough in the western most part of the project area. Patches of emergent vegetation are less common along the Colorado River and occur in scattered locations along the south/west bank as well as in the vicinity of the Topock Marina. Also included are areas with California bulrush along the outlet of Bat Cave Wash and areas with broad-leaved cattail (*Typha latifolia*) in the outlet of the East Ravine near the southern boundary of the study area.

Much of the riparian vegetation associated with the rocky banks adjacent to the water's edge is characterized by scattered patches of saltcedar and arrow weed (*Pluchea sericea*), with some locally dense areas of honey mesquite. Species such as broom baccharis (*Baccharis sarothroides*) and occasional sand bar willow (*Salix exigua*) are present along some of the sandy banks on the south side of Park Moabi Slough.

Riparian habitat also includes adjacent wetlands that are immediately adjacent to the Colorado River or Park Moabi Slough. The largest such wetland is located on the south side of the Interstate 40 Bridge on the west

side of the Colorado River. This wetland is characterized by a dense monoculture of common reed. At the time of the survey saturated soils and groundwater were present at a depth of 8 inches. Based on the location and elevation of this wetland surface water is likely present in the summer months (May to July) during higher flow levels of the Colorado River.

Another adjacent wetland is located on the east side of the Colorado River, north of the Topock Marina. This wetland is characterized by a strip of emergent wetland immediately above the shore line and also includes a narrow band of low trees and shrubs further inland. Emergent vegetation is characterized by iris-leaved rush (*Juncus xiphioides*), dallis grass (*Paspalum dilatatum*), and marsh pennywort (*Hydrocotyle verticillata*) with scattered common reed and California bulrush. A shallow water table and saturated soils were present at 12 inches below ground surface at the time of the February 2012 survey. This area appears subject to some flooding during higher flows and appears to have saturated conditions in the upper part of the soil for most of the year. Immediately inland the riparian vegetation is characterized by small saltcedar trees and shrubs, arrow-weed, broom baccharis and scattered narrow-leaved willow (*Salix exigua*). Herbaceous vegetation in this area is limited to sparse common reed. A shallow water table was encountered at a depth of 15 inches below the ground surface during the February 2012 survey.

The third adjacent wetland is on the south bank of the Colorado River, approximately 600 feet downstream of the confluences of the Park Moabi Slough and the Colorado River. This low, depressional area is filled with dense growth of southern cattail. At the time of the February 2012 survey, shallow groundwater and saturated soils were present at a depth of 10 inches below the ground surface. A culvert connects this area to a pond on the south side of the National Trails Highway. Given the low topographic position, hydrologic connection to the pond south of the road, and shallow groundwater noted at the time of the survey, it is likely that this area is subject to shallow seasonal flooding for part of the year.

The fourth adjacent wetland occurs on the north side of Park Moabi Slough to the northwest of the Moabi Regional Park parking area and boat ramp. This wetland is located on the landward side of shore zone and is characterized by iris-leaved rush, marsh pennywort, and dallis grass with scattered southern cattail. Shallow groundwater and saturated soils were encountered at 11 inches below the ground surface in this area during the February 2012 survey. This wetland area appears to be located in a topographic low area where some flooding likely occurs during periods of higher flows.

There is a pond on the south side of the National Trails Highway approximately 800 feet southeast of the confluence of Park Moabi Slough and the Colorado River. An earthen dam separates the pond from the ephemeral wash system that extends to the south. The pond is connected to the adjacent emergent wetland described above via a large culvert. The southern half of the pond is characterized by dense growth of southern cattail, while the northern part is open water. Several feet of water was observed in the pond during both the February and July 2012 surveys. A beaver lodge is present near the center of the pond at the edge of the cattails. It appears that this was at one time part of the larger wash system that has been cut off by the earthen dam. This area was considered to be riparian habitat as it is now functionally a small backwater area of the Colorado River (via culvert connections). The history of the dam is not well known, but it was likely built to protect the then-existing railroad bed from flood damage. It is also possible that it is associated with development of a "roadhouse" with buildings and campground that operated west of this feature when Historic Route 66 and the later National Trails Highway were in use as primary travel routes, before Interstate 40 construction.

The portion of the Topock Marsh included in the study area was also considered riparian habitat. The section of the marsh in the project area is characterized by dense growth of southern bulrush (*Schoenoplectus californicus*). Surface water to a depth of 7 inches was present at the sample location at the time of the February 2012 survey.

SECTION 5

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Appendix A
CDFW CERCLA Exemption Letter and list of
Avoidance and Minimization Measures



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Inland Deserts Region
Blythe Field Office
P.O. Box 2160
Blythe, California 92226
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



March 6, 2013

Yvonne Meeks
Manager, Environmental Remediation
Pacific Gas and Electric Company
4325 South Higuera Street
San Luis Obispo, CA 93401

Subject: Confirmation of Application of the CERCLA 121(e)(1) Permit Exemption to Pacific Gas and Electric Company's Soil and Groundwater Investigation and Remediation Project

Dear Ms. Meeks:

You asked the California Department of Fish and Wildlife (CDFW) to determine whether or not the permit exemption in Section 121(e)(1) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) applies to response actions conducted onsite at the Pacific Gas and Electricity (PG&E) Topock CERCLA site, specifically soil and groundwater investigations and remediation activities at the site (Project). CDFW has determined that the permit exemption applies to the Project. As a result, PG&E is relieved from obtaining a Lake or Streambed Alteration Agreement (Agreement). However, PG&E must still comply with any substantive elements CDFW would require in an Agreement for the Project. In this case, the substantive elements are the avoidance and mitigation measures (AMMs) attached hereto which PG&E previously agreed to follow. PG&E must comply with the AMMs for the duration of the Project unless they are modified later.

Please note in particular the five day notification procedure specified in AMM 34. The notification required under AMM 34 must include: a written description of any Project-related construction activities; a location map; biological clearance; and additional AMMs PG&E's biologist determines are necessary.

If you have any questions regarding this matter, please contact Victoria Chau, Environmental Scientist at (760) 922-6783 or Victoria.Chau@wildlife.ca.gov.

Sincerely,

Chris Hayes
Deputy Regional Manager
Inland Deserts Region

Attachment: CDFW Topock Remediation AMMs

2/5/13

Avoidance and Mitigation Measures for Topock Remediation Project (Project)

The California Department of Fish and Wildlife (Department) recommends the following avoidance and mitigation measures (AMMs 1-34) for all work conducted in CDFW Jurisdictional Washes. Additional AMMs will be developed for the Project, as needed, by the qualified Biologist or Cultural Specialist. The following AMMs will be implemented in a manner consistent with the mitigation measures set forth in the Mitigation Monitoring and Reporting Program (MMRP) for the Topock Compressor Station Final Remedy FEIR approved by DTSC on January 31, 2011.

1. Formal environmental training will be provided for all onsite personnel prior to construction. This training will include biological, environmental laws, and guidelines.
2. If required for species or habitat protection, a biological site monitor will be on site during all ground disturbing activities.
3. No direct or indirect impacts shall occur to any State or federally listed threatened, endangered, or candidate species. Any and all impacts to these species are strictly prohibited and are punishable by Federal and State laws. If threatened, endangered, or candidate species occur within the proposed work area or could be impacted by the proposed project, Pacific Gas and Electric Company (hereinafter called the Operator) shall obtain the required State and Federal threatened and endangered species permits or comply with the substantive requirements of such laws, pursuant to CERCLA Section 121(e)(1).
4. No discharges to the CDFW Jurisdictional Washes or Colorado River shall occur without permits or compliance with the substantive requirements of applicable Federal and state laws, pursuant to CERCLA Section 121(e)(1).
5. Spoil sites shall not be located within the bed, bank, and channel of any watercourse, where spoil could be washed back into a stream, or where it will cover aquatic or riparian vegetation. Any materials placed in seasonally dry portions of a stream that could be washed downstream or could be deleterious to aquatic life shall be removed from the project site prior to inundation by high flows.
6. Structures and associated materials, including construction debris, not designed to withstand high seasonal flows shall be removed to areas above the high water mark before such flows occur.
7. All debris, bark, slash, sawdust, rubbish, silt, cement or concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances resulting from project related activities that could be hazardous to aquatic life or waters of the State, shall be prevented from

contaminating the soil and/or entering the waters of the State and shall not be deposited within 150 feet of the high water mark, unless containerized. None of these materials shall be allowed to enter into or be placed within or where they may enter or be washed by rainfall or runoff into waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area.

8. Erosion control measures shall be implemented where necessary to reduce erosion and sedimentation in wetlands, waters of the United States, waters of the state, and habitat occupied by covered species and plant species when activities are the source of potential erosion impacts.
9. During construction, the contractor shall not dump any litter or construction debris within the riparian/stream zone. All such debris and waste shall be removed daily and properly disposed of at an appropriate site.
10. The Operator shall comply with all litter and pollution laws. All contractors, subcontractors and employees shall also obey these laws and it shall be the responsibility of the Operator to ensure compliance. The clean-up of all pollution spills shall begin immediately. The Operator shall notify the Department immediately of any spills and shall consult with the Department regarding clean-up procedures and requirements.
11. Spills and releases of materials shall be cleaned up immediately and thoroughly. Appropriate spill response equipment, including spill kits preloaded with absorbents in an over-pack drum (where feasible), will be provided at convenient locations throughout the site. Spent absorbent material will be managed and disposed of in accordance with applicable regulations. In particular, absorbents used to clean up spills of hazardous materials or waste will be managed as hazardous waste unless characterized as nonhazardous.
12. Trash and scrap receptacles shall be located throughout work areas, as necessary, to promote proper disposal of solid wastes. Receptacles shall be provided with lids or covers to prevent windblown litter.
13. Proper receptacles to dispose of hazardous wastes shall be provided at each work area.
14. Excess concrete will be collected and disposed of in designated concrete washout facilities.
15. Any sanitary and septic waste facilities provided during project work will be located away from drainage courses and traffic areas. These facilities will be maintained regularly.
16. Staging/storage areas for equipment and materials shall be located outside of the

Colorado River's bed, bank, and channel. No equipment maintenance shall be done within 150 feet of the Colorado River channel where petroleum products or other pollutants from the equipment may enter these areas under any flow.

17. Stationary equipment such as motors, pumps, generators, and welders, located within or adjacent to the Colorado River, shall be positioned over drip pans.
18. Vehicles shall not be driven or equipment operated in water covered portions of the Colorado River or in wetted areas (including but not limited to ponded, flowing, or wetland areas), or where riparian vegetation may be destroyed, except as necessary to complete authorized work as described under the plan.
19. Any equipment or vehicles driven and/or operated within or adjacent to the Colorado River shall be checked and maintained daily to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life, wildlife, or riparian and wetland habitat.
20. Project-related vehicle traffic, construction activity, and equipment storage shall be restricted to established roads, designated access roads, the working strip, storage areas, staging and parking areas, and other designated project areas. All of these areas shall be clearly marked by posting signs.
21. All vehicles and equipment regularly entering and leaving work areas shall be cleaned to reduce material track-out.
22. Vehicles shall not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.
23. All disturbed portions of the Colorado River shall be restored to as near original condition as possible, except as otherwise indicated to the Department.
24. No vehicles shall be refueled within 100 feet of a wetland, stream, or other water-body unless done within a constructed secondary containment area that includes, at a minimum, a perimeter berm and leak-proof liner.
25. All equipment and vehicles will have federal or state approved spark arrestors. All vehicles will carry an approved fire extinguisher (or backpack pump filled with water) and a shovel.
26. The development of new access and ROW roads by PG&E and vegetation clearing and blading for temporary vehicle access shall be minimized.
27. Covered storage for materials, especially toxic or hazardous materials, shall be provided to prevent exposure of these materials to storm water. Toxic or hazardous materials will be stored or transferred on impervious surfaces that will provide secondary containment for spills. Vehicles and equipment used for

material delivery and storage, as well as all contractor vehicles, shall be parked in designated areas.

28. Trash dumping, firearms, open fires (such as barbecues) not required by the activity, hunting, and pets will be prohibited in O&M work activity sites.
29. The perimeter of the work site shall be adequately flagged to prevent damage to adjacent riparian and wetland habitats. The upstream and downstream limits of the work area, including all areas of impact to existing desert riparian habitat and "Environmentally Sensitive Areas (ESA)", shall be identified with flagging or brightly colored mesh fencing or some other means readily conveyed to the equipment operators. These limits will be identified by a supervisor familiar with the terms of these AMMs, prior to the beginning of activities, and will be confined to the minimal area needed to accomplish the proposed work.
30. If disturbance or removal of riparian habitat is unavoidable the operator shall implement measures outlined in MMRP BIO-1 regarding restoration, rehabilitation and/or replacement of such habitat. Measures to implement MMRP BIO-1 shall be outlined in the notification listed below in measure #33.
31. No herbicides shall be used on vegetation unless specifically authorized, in writing, by the Department.
32. The Operator assumes responsibility for the restoration of any wildlife habitat which may be impaired or damaged, either directly or incidental, to the project, as a result of failure to properly implement or complete the listed mitigative features or from activities which were not included in the Operator's Notification.
33. All project resident engineers, project engineers, project inspectors, and contractors and sub-contractors shall be provided with a copy of the AMMs, and shall abide by the terms and conditions of the AMMs.
34. The Operator shall notify the Department, in writing, at least five (5) days prior to initiation of construction (project) activities and at least five (5) days prior to completion of construction (project) activities. Notification shall be sent to: Department of Fish and Wildlife, Colorado River Program, P.O. 2160, Blythe, California 92226; FAX No. (760) 922-5638.

Appendix B

Representative Photographs



The Colorado River



Park Moabi Slough



Bat Cave Wash



Ephemeral Drainage West of Bat Cave Wash



Ephemeral Tributary



Park Moabi Drainage



Emergent vegetation and narrow band of riparian trees and shrubs along the shore of the Colorado River



Wetlands Adjacent to the Colorado River, south of the Interstate 40 Bridge



Backwater pond – connected to the Colorado River via culverts under the National Trails Highway



Topock Marsh