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June 18, 2008

Ms. Cathy Wolfe-White  
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Bureau of Land Management  
2610 Sweetwater Avenue  
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Ms. Cindi Hall  
U.S. Fish and Wildlife Service Project Manager  
Havas National Wildlife Refuge  
P.O. Box 3009  
317 Mesquite Avenue  
Needles, California 92363

Subject: Biological Resources Completion Report for the Arizona Drilling Project: PG&E  
Topock Compressor Station, Needles, California

Dear Ms. Wolff-White & Ms. Hall:

This letter transmits the Biological Resources Completion Report for the Arizona Drilling Project: Topock Compressor Station. The document is submitted in conformance with the January 2007 *Programmatic Biological Assessment for the Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Actions* and Condition #30 of the special conditions associated with well construction at Site 1 on the Havasu National Wildlife Refuge in the Department of the Interior approval letter for the Arizona Drilling Project, dated February 11, 2008.

PG&E appreciates your consideration of the attached report. Please contact me at (805) 234-2257 with any questions or concerns.

Sincerely,

Yvonne Meeks  
Topock Project Manager

cc: Carrie Marr/USFWS  
Kris Doebbler/DOI  
Aaron Yue/DTSC

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# **Biological Resources Completion Report for the Arizona Drilling Project, Topock Compressor Station Needles, California**

Prepared for  
**United States Bureau of Land Management  
United States Fish and Wildlife Service**

On behalf of  
**Pacific Gas and Electric Company**

June 2008

**CH2MHILL**  
155 Grand Avenue, Suite 1000  
Oakland, California 94612

# **Biological Resources Completion Report for the Arizona Drilling Project, Topock Compressor Station Needles, California**



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Gary Santolo  
CH2M HILL Senior Biologist



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Jennifer Low  
CH2M HILL Project Manager

# Contents

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Section	Page
<b>1.0 Introduction.....</b>	<b>1-1</b>
1.1 Regional Environmental Setting.....	1-1
1.2 Report Objectives and Organization .....	1-2
<b>2.0 Project Description.....</b>	<b>2-1</b>
2.1 Monitoring Well Construction .....	2-1
<b>3.0 Awareness Training.....</b>	<b>3-1</b>
<b>4.0 Project Location and Existing Disturbance .....</b>	<b>4-1</b>
<b>5.0 Pre- and Post-Activity Surveys .....</b>	<b>5-1</b>
<b>6.0 Conclusion .....</b>	<b>6-1</b>
<b>7.0 References .....</b>	<b>7-1</b>

## Appendices

- A Awareness Training Sign-off Sheets
- B Photograph Documentation

## Table

1	List of Observed Plants and Wildlife Incidental to Pre- and Post-activity Surveys.....	5-2
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## Figures

- 1 Location Map
- 2 Pre-existing and Post-construction Disturbance

# Acronyms and Abbreviations

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ADEQ	Arizona Department of Environmental Quality
DOI	Department of the Interior
ESA	Endangered Species Act
GPS	global positioning system
HNWR	Havasu National Wildlife Refuge
MW	monitoring well
PBA	Programmatic Biological Assessment for the Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Actions
PG&E	Pacific Gas and Electric Company
USFWS	United States Fish and Wildlife Service

# 1.0 Introduction

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Pacific Gas and Electric Company (PG&E) is addressing chromium in groundwater at the Topock Compressor Station located in eastern San Bernardino County, California, approximately 15 miles southeast of Needles, California. Figure 1 provides a site location map.

Investigative and remedial activities at the Topock Compressor Station are being performed under the Resource Conservation and Recovery Act Corrective Action process, as well as under the Comprehensive Environmental Response, Compensation and Liability Act, under agreements between PG&E and the California Department of Toxic Substances Control, and the Department of the Interior, respectively. Under the terms of these agreements, PG&E is conducting the Resource Conservation and Recovery Act Facility Investigation/Remedial Investigation to identify and evaluate the nature and extent of hazardous waste and constituent releases at the compressor station.

This biological completion report documents field activities associated with the construction of groundwater monitoring wells on the Arizona side of the Colorado River. Groundwater wells were constructed at three locations:

- “Site 1,” located on the Havasu National Wildlife Refuge managed by United States Fish and Wildlife Service (USFWS), north of the Burlington Northern Santa Fe railroad bridge.
- “Site 2,” located on land owned and managed by the Topock Marina and Restaurant, north of the BNSF railroad bridge.
- “Site-AB-2,” located on owned and managed by El Paso Natural Gas Pipeline, south of Interstate-40.

All three sites are located northeast of the PG&E Topock Compressor Station. The Department of the Interior (DOI) approved the activities addressed in this report in a letter dated February 11, 2008 (DOI, 2008). The well construction activities were also approved by the Arizona Department of Environmental Quality (ADEQ, 2007).

## 1.1 Regional Environmental Setting

The Topock Compressor Station is located in a sparsely populated, rural area. The surrounding land use is publicly owned (mostly by the federal government) and has important spiritual meaning to local Indian tribes. Public lands in the area are owned and/or managed by a number of federal and regional agencies including the Bureau of Land Management, USFWS, Bureau of Reclamation, and San Bernardino County.

Dominant features of the area include the Colorado River to the east; the Chemehuevi Mountains to the south; the Burlington Northern Santa Fe railroad tracks and bridge; and Interstate 40, which links Barstow, California and Topock, Arizona. Topography in the area

is abrupt, rising from around 450 feet above mean sea level at the Colorado River to over 1,200 feet above mean sea level within 1 mile to the south and southwest.

The area is characterized by arid conditions and high temperatures. The surrounding land consists of a series of terraces divided by desert washes. The landscape within the project area is considerably eroded and can most suitably be described as badlands. The lands are made of small to moderately-sized terraces with very steep slopes. Terraces occurring in the project area are homogeneous, composed of rocky soils with very sparse vegetation. Structurally diverse vegetation in the project area is primarily limited to the Colorado River floodplain and the ephemeral washes.

## 1.2 Report Objectives and Organization

This biological completion report documents field activities associated with the construction of groundwater monitoring wells performed between March 11, 2008 and April 23, 2008.

*A Programmatic Biological Assessment for the Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Actions (PBA)* was prepared to determine any potential effect on species protected under the federal Endangered Species Act (ESA) resulting from remedial and investigative activities at the Topock Compressor Station (CH2M HILL, 2007). The USFWS concurred with the determinations provided in the PBA as documented in a letter dated February 8, 2007 (USFWS, 2007). The field activities addressed in this report are included in the PBA; therefore, the PBA serves as supporting documentation under the ESA for the evaluation of project effects to listed species and resulting determinations.

This report has been prepared in compliance with the General Project Management Measure 23 of the PBA (CH2M HILL, 2007) and with Condition #30 in of the special conditions associated with well construction at Site 1 on the Havasu National Wildlife Refuge (HNWR) (DOI, 2008). These conditions require that, within 60 days of completion of construction activities, a brief report shall be prepared for the Bureau of Land Management and the HNWR. This report shall document the effectiveness of the mitigation measures, make recommendations for modifying the measures to enhance species protection, and provide information on survey and monitoring activities, observed listed species, and the actual acreage disturbed by the project.

To comply with these requirements, this report contains:

- A description of the project activities (Section 2.0).
- Documentation of awareness training (Section 3.0).
- Project location and existing disturbed areas (Section 4.0).
- Pre- and post-activity surveys, including the observed listed species (Section 5.0).
- Conclusions, including a discussion of the effectiveness of the mitigation measures and recommendations for modifying the measures to enhance species protection (Section 6.0).

## 2.0 Project Description

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The project activities addressed in this report consisted of the construction of groundwater monitoring wells at three locations between March 11, 2008 and April 23, 2008. This section describes the monitoring well construction activities. The locations of the monitoring wells and construction staging areas are depicted in Figure 2.

### 2.1 Monitoring Well Construction

Well construction for the Arizona Drilling Project included borehole drilling and well installation activities that were performed between March 10 and April 20, 2008. The project involved the installation of monitoring wells at three locations, known as Sites 1, 2, and AB-2, on the Arizona shore of the Colorado River. Two vertical boreholes were drilled at Site 1 for the installation of three monitoring wells. Monitoring well MW-54-195 was installed in the deepest borehole at Site 1, and nested wells MW-54-85 and MW-54-140 were installed in the other borehole at Site 1. One vertical borehole was drilled at Site 2 for the installation of nested monitoring wells MW-55-45 and MW-55-120. One slant borehole, extending below the Colorado River, was installed at Site AB-2 for the installation of one multilevel groundwater monitoring well, known as MW-56.

Rotosonic drilling methods, which involved advancing a rotating and vibrating drill casing or core barrel through the subsurface, were used to drill each borehole. Borehole drilling and well installation were accomplished by the use of a truck-mounted rotosonic drilling rig at Sites 1 and 2. A track-mounted rotosonic drilling rig was used at Site AB-2. The shallow and deeper borings at Site 1 were drilled to 137 and 237 feet below ground surface, respectively. The boring at Site 2 was drilled to 137 feet below ground surface. The slant boring at Site AB-2 was drilled to a depth of 223 feet westward, below the Colorado River, at an angle of approximately 30 degrees from horizontal.

Following the installation of the monitoring wells in each borehole, surface well completions were constructed. All wells installed at Sites 1 and 2 were completed with 12-inch-diameter well vaults, constructed flush with the ground surface. The vaults at Site 1 were each constructed within a 4-foot-square concrete pad. The vault at Site 2 was constructed in an area covered with asphalt. The multilevel monitoring well at Site AB-2 was completed with an aboveground, 12-inch-diameter monument casing. The monument casing was constructed within a 4-foot-square concrete pad with protective posts at the corners. The monument casing and protective posts were painted a light brown color to blend with the surrounding area.



## 3.0 Awareness Training

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In accordance with the General Project Management Measure 5 (CH2M HILL, 2007) described in the PBA, awareness training was provided to personnel before the start of construction activities. The awareness training focused on southwestern willow flycatcher for activities in and near the Colorado River floodplain areas. PG&E and CH2M HILL biologists provided training to onsite personnel prior to initiating work activities. The core groups were trained at the project initiation meeting on March 10, 2008, and new personnel were identified at safety meetings each morning before work. Training included a description of species, their habitat, natural history, threats, legal protection under the ESA, potential penalties, current survey findings, management, and protection measures. The awareness training sign-off sheets are provided in Appendix A of this report.

## 4.0 Project Location and Existing Disturbance

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Various past activities have resulted in land disturbance of the general area of the Topock Compressor Station. The general area is traversed by a major highway, a railway, several gas pipelines, gas pipeline access roads, private property access roads, and parking areas.

The well construction locations described in Section 2.0, the associated construction staging areas, and the access routes were located within the previously disturbed areas on the HNWR peninsula and on private property.

- Site 1 is a previously graded area located on the HNWR property, within the westernmost portion of the peninsula area, which is sparsely vegetated and is developed with an access road.
- Site 2 is a developed area located on private property within the paved parking lot for the Topock Marina and Restaurant.
- Site AB-2 is a previously graded and unvegetated area located on El Paso Natural Gas property.

Because the well construction locations, associated construction staging areas, and access routes have been used extensively for past activities, these areas were denuded of vegetation prior to the initiation of the well installation activities. All vegetation adjacent to pre-existing disturbed areas was avoided during project activities. All construction occurred within previously disturbed areas, and no additional areas were disturbed by the activity and no habitat loss occurred. Pre- and post-construction photographs are in Appendix B.

## 5.0 Pre- and Post-activity Surveys

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Prior to the start of construction activity, work sites and surrounding areas were surveyed for sensitive biological resources on March 11, 2008. No listed species or nesting birds were observed during the pre-activity survey. Photographs of pre-construction conditions are provided in Appendix B and pre-existing disturbed areas near Site 1 are presented on Figure 2.

During the pre-construction survey at Site 1, work boundaries were established with temporary fencing within pre-existing disturbed areas. The fencing was installed several feet inside the pre-existing disturbance to provide a buffer and minimize impacts to the surrounding undisturbed landscape and vegetation. A temporary fence was installed across Levee Road (at the intersection with New South Dike Road) to prevent public access to the Site 1 work area. This temporary fence was installed within pre-existing disturbed areas. Levee Road and New South Dike Road, both established dirt roads, were used as ingress and egress to Site 1. Work was conducted within the established work boundaries.

Pre-existing disturbed areas in the vicinity of Site 2 and Site AB-2 are not presented on Figure 2 due to ongoing disturbance, lack of native vegetation, and their locations on private properties. However, extensive notes and photographs were taken to document existing site conditions at Site 2 and Site AB-2.

Following construction, a post-activity survey was conducted on April 29, 2008 to document field conditions. No listed species or nesting birds were observed during the post-activity survey. Photographs of post-construction conditions are provided in Appendix B. All construction activities were confined to areas with pre-existing disturbance. No vegetation was cleared as a result of mobilization, well construction, and demobilization.

All project activity areas were photographed to document post-activity field conditions. Photographs of pre- and post-construction conditions are provided in Appendix B.

Flora and fauna observed during the pre- and post-activity survey are listed in Table 1.

**TABLE 1**  
List of Observed Plants and Wildlife Incidental to Pre- and Post-activity Surveys

Common Name	Scientific Name
<b>Plants</b>	
Apricot mallow	<i>Sphaeralcea ambigua var ambigua</i>
Arrow weed	<i>Pluchea sericea</i>
Creosote bush	<i>Larrea tridentate</i>
Desert fescue	<i>Vulpia microstachys var microstachys</i>
Desert trumpet	<i>Eriogonum inflatum</i>
Fluff grass	<i>Erioneuron pulchellum</i>
Red brome	<i>Bromus madritensis var. rubens</i>
Rip-gut brome	<i>Bromus diandrus</i>
Russian thistle	<i>Salsola tragus</i>
Salt Cedar	<i>Tamarix ramosissima</i>
Saltgrass	<i>Distichlis spicata</i>
Storks bill	<i>Erodium cicutarium</i>
<b>Mammals</b>	
desert cottontail	<i>Sylvilagus audubonii</i>
<b>Reptiles</b>	
Side-blotched lizard	<i>Uta stansburiana</i>
Western whiptail	<i>Cnemidophorus tigris</i>
<b>Birds</b>	
Abert's towhee	<i>Pipilo aberti</i>
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>
Black-throated sparrow	<i>Amphispiza bilineata</i>
Blue-gray gnatcatcher	<i>Poliophtila caerulea</i>
California quail	<i>Callipepla californica</i>
Common raven	<i>Corvus corax</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Great blue heron	<i>Ardea herodias</i>
Great egret	<i>Ardea alba</i>
Great-tailed grackle	<i>Quiscalus mexicanus</i>
House finch	<i>Carpodacus mexicanus</i>
House sparrow	<i>Passer domesticus</i>
Ladder-backed woodpecker	<i>Picoides scalaris</i>
Mourning dove	<i>Zenaida macroura</i>
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Rock pigeon	<i>Columba livia</i>
Say's phoebe	<i>Sayornis saya</i>
Turkey vulture	<i>Cathartes aura</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
White-winged dove	<i>Zenaida asiatica</i>

## 6.0 Conclusion

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Construction of the monitoring wells was approved by the state and federal regulatory agencies. In conformance with PBA general project management measures and DOI's approval for this work at Site 1, personnel were provided with awareness training, and pre- and post-activity surveys were conducted of all areas subject to construction use. A Field Contact Representative remained onsite during all well construction activities.

The general project management measures described in the PBA were effective in minimizing impacts to the work area and surrounding lands. There are no recommendations for modifying the measures to enhance species protection. The project was conducted under a "may affect, but not likely to adversely affect" determination for the southwestern willow flycatcher, Mojave desert tortoise, Yuma clapper rail, razorback sucker, and bonytail chub, and a "no effect" determination for the Colorado pikeminnow. In compliance with these determinations, there was no take of these species.

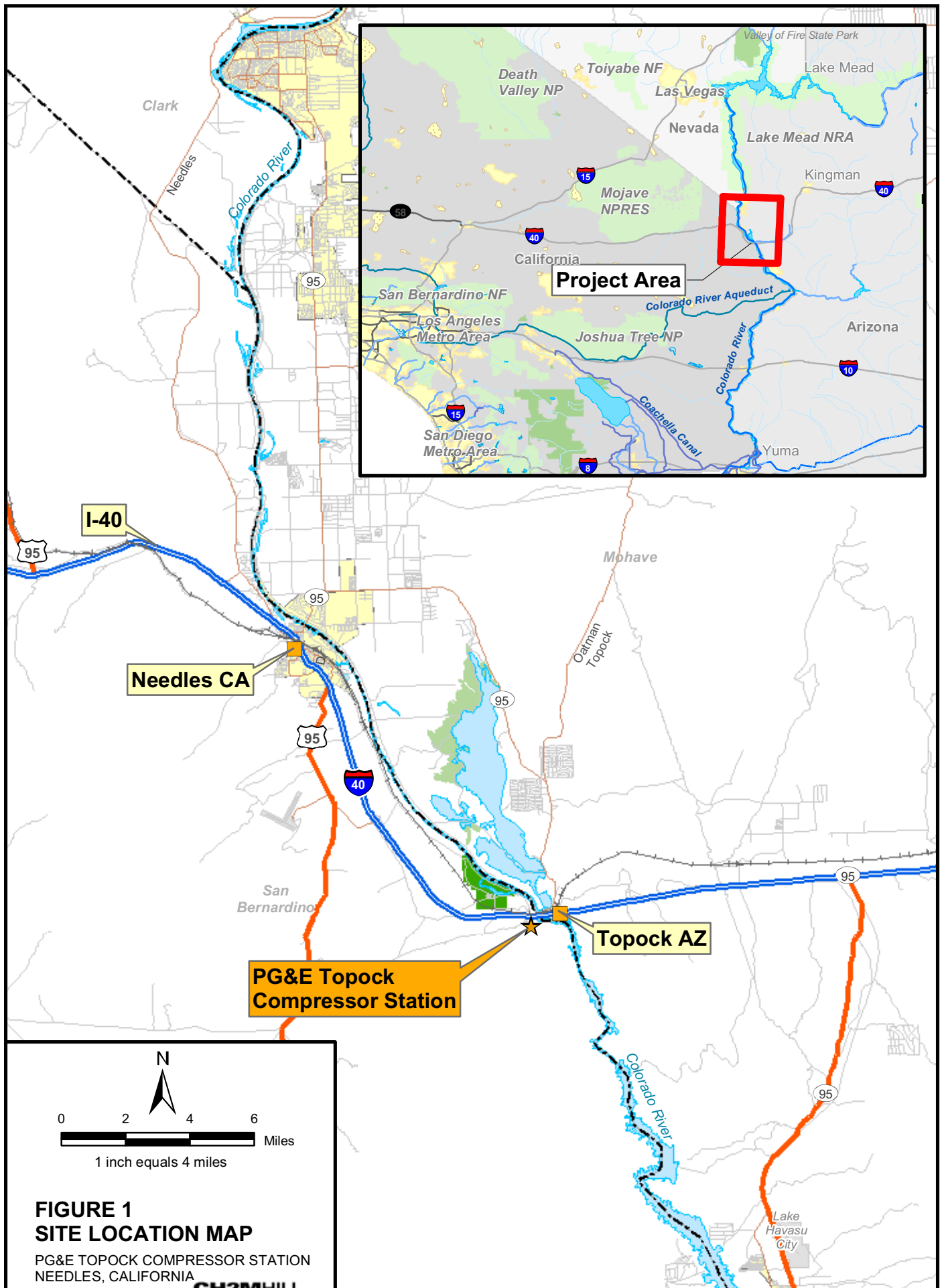
## 7.0 References

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- Arizona Department of Environmental Quality (ADEQ). 2007. Letter from ADEQ to PG&E "Review of Revised Work Plan received March 5, 2007 for Groundwater Characterization on Arizona Shore of the Colorado River at Topock, Arizona." May 10.
- CH2M HILL. 2007. *Programmatic Biological Assessment for Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Actions*. January.
- United States Department of the Interior (DOI). 2008. Letter from Department of the Interior to PG&E. "PG&E Topock Compressor Station Remediation Site – DOI Direction to PG&E to Implement *Revised Work Plan for Well Installation and Groundwater Characterization on Arizona Shore of the Colorado River at Topock, Arizona*." February 11.
- United States Fish and Wildlife Service (USFWS). 2007. Letter to Field Manager, Lake Havasu Field Office, Bureau of Land Management. "Programmatic Biological Assessment for Pacific Gas and Electric Topock Compressor Station Remedial Investigative Actions, January 2007." February 8.

## Figures

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**Appendix A**  
**Awareness Training Sign-off Sheets**

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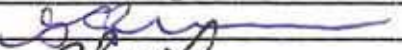




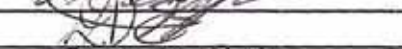
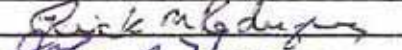

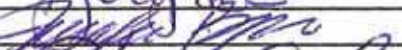





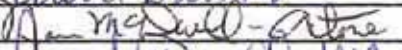


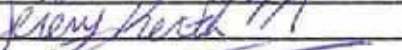









# PG&E Topock Groundwater Extraction & Remediation Project 2008

## Biological & Cultural Resources Awareness Training Attendance Sheet

### Arizona Drilling

Your signature constitutes an agreement to abide by the biological and cultural resources avoidance and minimization measures presented in this training.

Date	Name (print)	Company/Affiliation	Telephone	Signature
3-10-2008	COAT RUSSEN	PG&E	760-791-5889	
	CHRIS SMITH	PG&E	760-258-7899	
	JOHN LUECK	CH2M HILL	530-945-2245	
	BOB TRENKLE	CH2M HILL	541-602-0448	
	BRETT FOSTER	BOART LONGYEAR	530-682-3054	
3-10-08	Ken Vose	CH2M HILL OMT	760-326-3328	
3-10-08	Victor Duggs	DSS INTERNATIONAL	925-545-4127	
3-10-8	John Earle	USFWS - Havasu NW	760-326-3850	
3-10-08	Rick M. RODRIGUEZ	EPNG	928-727-5449	
3-10-08	JOHN R. HAZEN	EPNG	928-768-6924	
3-10-08	JOEY PAGE	ADEQ	602-771-4574	
3-10-08	JENNIFER BARR	ADEQ	602-771-4829	
"	CRAZY RICK	BOART LONGYEAR	714-310-1605	
3-10-08	ROBERT HERNANDEZ	CH2M HILL	714-227-4546	
3-10-08	Barry Collom	CH2M Hill	541-740-3250	
3-10-08	Rick Cavi	" "	408-896-0140	
3-10-08	CHRISTINA HONZ	" "	714-552-265	
3-10-08	ROB TWEIDT	NORTHSTAR	949-633-6514	
3-10-08	Arlin Brewster	Northstar	949-274-1919	
3-10-08	Nora McDowell-Antone	Ft. Mojave Tribe	928-768-4475	
3/10/08	CARA MCDONALD-MCCOY	CHEMURVIEW I.T.	760-874-2052	
3/10/08	GLENN CAMPO	PG&E	925-301-6954	
3/10/08	Shawn Duffy	CH2M HILL	530-941-9227	
3/10/2008	Jeremy Keith	BOART LONGYEAR E&E	530-562-1960	
3-10-2008	Daniel Roberts	"	562-239-1028	
3-10-2008	MIKE CAVALIERE	CH2M HILL	510-325-0622	

**PG&E Topock Groundwater Extraction & Remediation Project 2008  
Biological & Cultural Resources Awareness Training Attendance Sheet  
Arizona Drilling**

Your signature constitutes an agreement to abide by the biological and cultural resources avoidance and minimization measures presented in this training.

[illegible]



**PG&E Topock Groundwater Extraction & Remediation Project 2008  
Biological & Cultural Resources Awareness Training Attendance Sheet  
Arizona Drilling**

**Your signature constitutes an agreement to abide by the biological and cultural resources avoidance and minimization measures presented in this training.**

[illegible]

## **Appendix B**

### **Photograph Documentation**

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**Photo 1. Pre-Construction:** Viewing south at the work area on the south side of the peninsula on HNWR.



**Photo 2. Post-Construction:** Viewing south at the Site-1 (MW-54) work area on the south side of the peninsula on HNWR. All work activities were confined to pre-existing disturbance.



**Photo 3. Pre-Construction:** Viewing north from the Site-1 (MW-54) work area at Levee Road, the access road.



**Photo 4. Post-Construction:** Viewing north from the Site-1 (MW-54) work area at Levee Road, the access road.





**Photo 5. Pre-Construction:** Viewing northwest from the south part of the Site-1 (MW-54) work area.



**Photo 6. Post-Construction:** Viewing northwest from the south part of the Site-1 (MW-54) work area.



**Photo 7. Pre-Construction:** Viewing north from the south part of the Site-1 (MW-54) work area.



**Photo 8. Post-Construction:** Viewing north from the south part of the Site-1 (MW-54) work area.





**Photo 9. Pre-Construction:** Viewing south from the east side of the Site-1 (MW-54) work area.



**Photo 10. Post-Construction:** Viewing south from the east side of the Site-1 (MW-54) work area.



**Photo11. Pre-Construction:** Viewing east at New South Dike Road, used as an access point to Site-1 (MW-54) between Highway 95 and Levee Road.



**Photo12. Post-Construction:** Viewing east at New South Dike Road, used as an access point to Site-1 (MW-54) between Highway 95 and Levee Road.



**Photo13. Pre-Construction:** Viewing west at New South Dike Road, used as an access point to Site-1 (MW-54) between Highway 95 and Levee Road.



**Photo14. Post-Construction:** Viewing west at New South Dike Road, used as an access point to Site-1 (MW-54) between Highway 95 and Levee Road.





**Photo15. Pre-Construction:** Viewing north at the Site-2 (MW-55) work area south of the Topock marina.



**Photo16. Post-Construction:** Viewing north at the Site-2 (MW-55), now entirely paved.



**Photo17. Pre-Construction:** Viewing northwest at the AB-2 (MW-56) work area located south of the I-40 bridge.



**Photo18. Post-Construction:** Viewing south at AB-2 (MW-56).



**Photo19. Pre-Construction:** Viewing north at the AB-2 (MW-56) work area located south of the I-40 bridge.



**Photo20. Post-Construction:** Viewing north at AB-2 (MW-56).