

Topock Project Executive Abstract

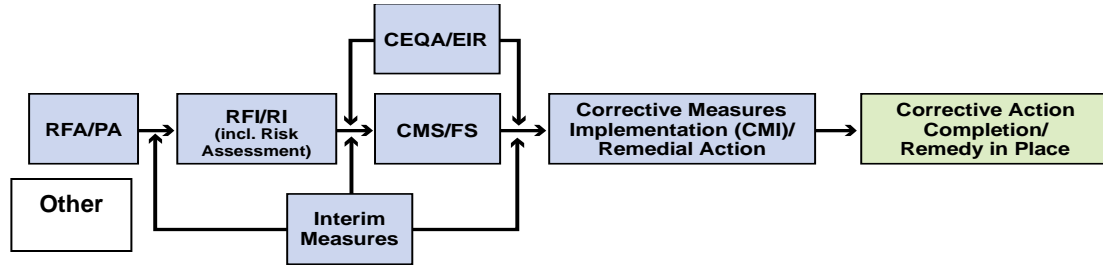
<p>Document Title:</p> <p><i>Biological Resources Completion Report for the Topock Remediation Project: Soil Investigations between 2015 and 2017</i></p> <p>Submitting Agency: BLM and USFWS</p> <p>Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Date of Document: June 23, 2017</p> <p>Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) – PG&E</p>
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<p>What is the consequence of NOT doing this item? What is the consequence of DOING this item?</p> <p>This report complies with General Project Management Measure No. 23 of the 2007 PBA. If this work was not performed, it would constitute a non-compliance with the approved 2007 PBA.</p>	<p>Is this a Regulatory Requirement?</p> <p><input checked="" type="checkbox"/> Yes <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 complies with General Project Management Measure No. 23 of the 2007 PBA. If this work was not performed, it would constitute a non-compliance with the approved 2007 PBA.</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>This Biological Resources Completion Report pertains to two rounds of soil investigations intended to define the nature and extent of the soil contamination, to evaluate the potential for soil contamination to affect groundwater, and to support the soil risk assessment. The soil investigations began on November 2, 2015 and were completed on April 27, 2017. During these investigations, soils and pore water were sampled using various methods, including equipment such as a roto-sonic drill rig, a backhoe, a hydrovac truck, and various hand tools. These soil investigation activities were covered under the Programmatic Biological Assessment (PBA) (CH2M HILL 2007) and followed all applicable Avoidance and Minimization Measures (AMMs) described in that document. The AMMs in the PBA were effective in minimizing impacts to these ESA-listed species and their habitat within the Area of Potential Effect (APE). No take or mortality of any ESA-listed or other special status species occurred during the investigation activities. Impacts were limited to a temporary disturbance of 0 acres of floodplain habitat and 0.155 acre of upland habitat.</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 memorandum presents a summary of the impacts of the completed Soil RFI/RI activities within the APE, as described in the 2007 PBA. This memorandum was prepared to comply with the reporting requirement for soil investigations in the 2007 PBA</p>	

(General Project Management Measure No. 23).

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

Version 9

**BIOLOGICAL RESOURCES COMPLETION REPORT FOR THE TOPOCK REMEDIATION
PROJECT: SOIL INVESTIGATIONS BETWEEN 2015 AND 2017**

Prepared for:

Bureau of Land Management
U.S. Fish and Wildlife Services

On Behalf of:

Pacific Gas and Electric Company

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1.0 INTRODUCTION AND BACKGROUND

Pacific Gas and Electric Company (PG&E) is addressing soil and groundwater contaminant issues related to operations at the Topock Compressor Station (Station) located in eastern San Bernardino County, California, approximately 15 miles southeast of Needles, California (Appendix A, Figure 1). PG&E is working under a voluntary consent agreement (agreement) with the Department of Toxic Substance Control (DTSC) and the U.S. Department of Interior, which follows corrective action processes under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act. In accordance with this agreement, PG&E has been conducting a RCRA Facility Investigation/Remedial Investigation (RFI/RI) for soils at the Station and in the surrounding areas.

This Biological Resources Completion Report pertains to two rounds of soil investigations intended to define the nature and extent of the soil contamination, to evaluate the potential for soil contamination to affect groundwater, and to support the soil risk assessment. The soil investigations began on November 2, 2015 and were completed on April 27, 2017.

During these investigations, soils and pore water were sampled using various methods, including equipment such as a roto-sonic drill rig, a backhoe, a hydrovac truck, and various hand tools. These soil investigation activities were covered under the Programmatic Biological Assessment (PBA) (CH2M HILL 2007) and followed all applicable Avoidance and Minimization Measures (AMMs) described in that document.

1.1 Regional Environmental Setting

The Station is located within a sparsely-populated, rural area. Much of the nearby surrounding land is publicly-owned by the federal government and has important spiritual meaning to local Tribes. These lands are owned and/or managed by a number of federal and regional agencies, including the Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (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 (BNSF) railroad tracks and bridge; and the Interstate 40 (I-40) highway and bridge. Topography is rugged, ranging from an elevation of approximately 450 feet (137 meters) at the Colorado River to over 1,200 feet (365 meters) within 1 mile (1.6 kilometers) 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 (Appendix A, Figure 1).

1.2 Report Objectives and Organization

The purpose of this Biological Completion Report is to provide documentation and report observations of the effectiveness of AMMs outlined in the PBA for the soil investigation portion of the RFI/RI. While the PBA was specific to six listed species, this report includes observations of other special status species that were observed during the project, in addition to those six listed species.

The PBA (CH2M HILL 2007) was prepared to determine any potential effects on species protected under the federal Endangered Species Act (ESA) resulting from remedial and investigative activities at the

Station, and to establish AMMs to reduce or eliminate impacts to listed species. The USFWS concurred with the determinations provided in the PBA, as documented in a letter dated February 8, 2007 (USFWS 2007). This report has been prepared to comply with AMM 23 of the PBA, which states:

“Within 60 days of completion of construction activities, the FCR and biologist shall prepare a brief report for the BLM documenting the effectiveness and practicality of the mitigation measure and making recommendations for modifying the measures to enhance species protection. The report will also provide information on survey and monitoring activities, observed listed species, and the actual acreage disturbed by the project.”
(CH2M HILL 2007)

To comply with these requirements, this report contains:

- Documentation of Worker Environmental Awareness Training (WEAT) (Section 2)
- Documentation of pre- and post-activity surveys, including the observed listed species and other special status species (Section 4)
- Documentation of disturbance in acreage (Section 5)
- Conclusions, including a discussion of the effectiveness of the AMMs and recommendations for modifying the AMMs to enhance protection of listed species (Section 6)

2.0 WORKER ENVIRONMENTAL AWARENESS TRAINING AND FIELD CONTACT REPRESENTATIVE COMPLIANCE MONITORING

2.1 Worker Environmental Awareness Training

In accordance to PBA AMM 5, a WEAT was provided to all personnel conducting soil investigation activities at the Site. Blue Rock Services, Inc. (Blue Rock) biologists, Mike Shrum and Brandy McWain, provided training to all personnel at the initial kick-off meeting on October 29, 2015 and the re-kick off meeting on January 5, 2017, as well as to all new personnel joining the project subsequent to the initial WEAT. The WEAT included information on species included in the 2007 PBA, such as the Mojave desert tortoise (*Gopherus agassizii*), southwestern willow flycatcher (*Empidonax traillii extimus*), Yuma clapper rail (*Rallus longirostris yumanensis*), bonytail chub (*Gila elegans*), and razorback sucker (*Xyrauchen texanus*). The WEAT also included species identified in the FEIR, such as ring-tailed cat (*Bassariscus astutus*), desert bighorn sheep (*Ovis canadensis nelsoni*), yellow-billed cuckoo (*Coccyzus americanus*), and several species of bats, as well as other bird species protected under the Migratory Bird Treaty Act. The WEAT also included information about jurisdictional waters and wetlands per Section 404 of the Clean Water Act. Attendance at the WEATs was recorded on sign-in sheets and a list of the dates for trainings can be found in Table 1 below.

TABLE 1 DATES OF WORKER ENVIRONMENTAL TRAININGS		
Dates	Number of New Employees	Number of New Companies
10/29/2015	56	19
11/10/2015	14	1
11/17/2015	1	1
11/30/2015	3	2
12/19/2015	2	2
1/7/2016	15	7
2/2/2106	1	1
2/9/2016	2	1

<p style="text-align: center;">TABLE 1 DATES OF WORKER ENVIRONMENTAL TRAININGS</p>		
Dates	Number of New Employees	Number of New Companies
2/18/2016	2	2
2/25/2016	3	2
2/29/2016	5	2
3/1/2016	1	1
1/5/2017	12	5
1/17/2017	2	1

2.2 Field Contact Representatives

Field Contact Representatives (FCRs) were tasked with assisting biologists with monitoring during soil investigation activities. At the initiation of the project, a qualified biologist conducted a detailed training with the FCRs that covered AMMs from every permitting or environmental compliance document and how to ensure compliance during investigation activities. FCRs were responsible for understanding which situations required work to be stopped and a biologist to be notified. FCRs were not permitted to conduct surveys or make field assessments that would require a qualified biologist. Eli Ludwig of Groundwater Partners acted as the primary FCR during soil investigation activities.

3.0 PROJECT LOCATION AND EXISTING DISTURBANCE

Soil investigation activities were conducted within the Area of Potential Effect (APE). Work within the APE is divided into areas on or off the Station. Samples were taken “off-station” from eight Areas of Concern (AOCs), one Solid Waste Management Unit (SWMU), and ten pore water sample sites. Samples were taken “on-station” from 20 AOCs, 5 SWMUs, 4 Units, and 23 Perimeter sites. See Appendix A, Figure 2 for the location of each AOC.

3.1 On Station

The Station is composed entirely of disturbed habitat, with the exception of some upland habitat at the far south of the Station within AOC 4. No disturbance occurred to sites on the Station.

3.2 Perimeter Sites

Perimeter sites are located along the outer edge of the Station outside of the fence line. While these sites are outside of the fence line, they are comprised entirely of disturbed habitat, or ornamental landscaping, and disturbance was not documented. There are 23 sites designated as perimeter sites.

3.3 Storm Drains

Storm drain sites are located within several of the AOC directly adjacent and surrounding the Station. These sites are comprised of disturbed habitat, or upland habitat. There are 27 storm drain sites. No work at these sites resulted in disturbance; except at SD-19, which required backhoe work.

3.4 Mouth of Bat Cave Wash: AOC 1

A total of 23 drill sites were located within the Mouth of Bat Cave Wash. The vegetation in this area consisted of tightly-grouped tamarisk (*Tamarix ramosissima*). The adjacent laydown yard was located in a previously disturbed, bare parking area.

3.5 Bat Cave Wash: AOC 1, SWMU 21, and a Portion of AOC 4

Bat Cave Wash is an ephemeral stream and jurisdictional area that runs north from the Chemehuevi Mountains, along the west side of the Station, to the Colorado River. There are access roadways that

transect and run within the ordinary high water mark (OHWM) of Bat Cave Wash. There are 35 sites along the length of Bat Cave Wash, most of which are found within or along the access roadways that run through the wash. These sites have been previously disturbed and are further disturbed whenever runoff occurs in response to precipitation events. Sites along the eastern side of the wash directly adjacent to the Station are in previously disturbed habitat.

3.6 East Ravine: AOC 9, AOC 10, and Pore Water Samples

East Ravine runs from the southern end of the Station east towards the Colorado River. This ravine previously connected to the Colorado River but has long since been blocked by two roadway's fill slopes (including old Route 66) and a check dam berm. The two unpaved access roads run across the East Ravine area, one along the southern bench of the Colorado River and the other further south within the ravine. There are 32 sample sites found within East Ravine and most are considered previously disturbed. Sites without previous disturbance were located within the ravine, west of the unpaved access road. Three AOC 28 sites found along the access road heading east are also include in the East Ravine. These sites are also in previously disturbed habitat.

Ten Pore water samples were taken in the Mouth of East Ravine, along the Colorado River (see Appendix A, Figure 3). These sites are not within a previously disturbed location; they are located in emergent wetland habitat within a jurisdictional area.

3.7 AOC 11

AOC 11 is located within a ravine running northeast from the northeast corner of the Station to National Trails Highway. Most of the habitat in the western portion of this AOC is considered to be undisturbed upland habitat, while the eastern portion is considered to be a previously-disturbed access route. In order to gain access to some of the western sites, the access route was re-graded; this did not constitute a disturbance, but the pad sites that were graded would be considered disturbance. Prior to work activities, vegetation trimming and road grading was required to access two bore sample sites. There are 16 sites within AOC 11.

3.8 AOC 14

AOC 14 is located north of the I-40, south of the BNSF railway system, east of Bat Cave Wash. This AOC is comprised of some previously disturbed areas where regrowth has occurred and can now be considered upland habitat. There are six trenches and two hand sample sites in AOC 14.

3.9 AOC 27 – M27 Bench

AOC 27 is located on the M27 Bench approximately 250 feet north of the northern most corner of the Station. It is comprised entirely of previously disturbed access routes. There are 15 sites within AOC 27.

4.0 PRE- AND POST-ACTIVITY SURVEYS

Pre- and post-activity surveys were completed and documented for each sample site; a summary of pre- and post-activity surveys is below.

4.1 Pre-activity Surveys

Blue Rock biologist Brandy McWain, was USFWS-approved as a “qualified” biologist in accordance with the soil investigation permits. Mrs. McWain surveyed each soil and pore water sample site for the Mojave Desert tortoise, desert bighorn sheep, ring-tailed cat, nesting birds, and special status plant species. These surveys were done at the beginning and middle of each work week prior to the initiation of investigation activities.

4.2 Monitoring

An FCR was present for all investigation activities where the biologist was not required. A biologist was required to monitor all tamarisk removal activities and trenching work. Mrs. McWain was present for most of the monitoring, and was assisted by Blue Rock biologists Kendra Gietzen, Heather Breakiron, and Steve Ferrand; all of the biologists are USFWS-approved as “qualified” biologists in accordance with the soil investigation permits. Full-time biological monitoring was required from November 2 to December 15, 2015; from February 16 to February 24, 2016; from February 29 to March 3, 2016; on March 17, 2017; from February 16 to February 19, 2017, and from April 26 to April 27, 2017.

4.3 Post-activity Surveys

Post-activity surveys were conducted by Mrs. McWain to document post-activity conditions at each sample site and to assess any habitat disturbance. Vegetation removal and ground disturbance were recorded at each sample site. These surveys were conducted at the middle and end of each work week, after the conclusion of investigation activities at each site.

4.4 Results

No ESA-listed species, nesting birds, or signs of such species were observed during the pre-activity surveys. Of the species included in the PBA and other compliance documents, only desert bighorn sheep, ring-tailed cat, wild burro (*Equus asinus*), blue palo verde (*Parkinsonia florida*), honey mesquite (*Prosopis glandulosa*), catclaw acacia (*Senegalia greggii*), and several cactus species including beavertail cactus (*Opuntia basilaris* var. *basilaris*) were observed during pre-activity surveys.

No new species were observed during the post-activity surveys that were not observed during pre-activity surveys.

5.0 DISTURBANCE SUMMARY

For each soil sample site, disturbance was calculated as it pertained to floodplain habitat, which is identified in 2007 PBA as the area within the 100-year floodplain of the Colorado River and the mouth of Bat Cave Wash (as shown on Appendix A, Figure 3); or upland habitat, which includes all the remaining non-floodplain habitat. Geographic Positioning System (GPS) points were recorded for a track around the disturbed area; Google Earth Pro was used to calculate the area within the GPS track. The total area disturbed in each habitat is summarized in Table 2 below. These disturbance areas by site are depicted in Appendix A, Figure 3.

The disturbance areas summarized above were within the allowed acres of disturbance, per the PBA requirements. There was no permanent disturbance within the floodplain habitat as only minor trimming of above-ground tules was required for the 10 pore water samples for AOC 10 and only removal of the invasive tamarisk trees at the base of the trees for bore samples were required at the mouth of Bat Cave Wash. Upland habitat disturbances among five AOCs was 0.155 acres in total.

TABLE 2 HABITAT DISTURBANCE BY VEGETATION TYPE		
Vegetation Type	Allowed Acres of Disturbance*	Disturbance Area
<i>Upland creosote habitat</i>	3.0 acres or 130,680 square feet	
Entrance to mouth of Bat Cave Wash		0.022 acre
Bat Cave Wash		0.018 acre
AOC 10 East Ravine		0.008 acre

TABLE 2 HABITAT DISTURBANCE BY VEGETATION TYPE		
Vegetation Type	Allowed Acres of Disturbance*	Disturbance Area
AOC 11		0.059 acre
AOC 14		0.048 acre
	<i>Subtotal</i>	<i>0.155 acre</i>
<i>Floodplain habitat</i>	2.5 acres or 108,900 square feet	<i>0 acres</i>
Total for the Soil RFI/RI Activities		0.155 acres
*Allowed disturbance area was determined by the PBA (CH2M Hill 2007).		

5.1 Mouth of Bat Cave Wash

Prior to work activities, creosote (*Larea tridentata*), brittle bush (*Encelia farinosa*), and arrow weed (*Pluchea sericea*) were trimmed on the access road down from the laydown yard into the wash.

The entrance into the Mouth of Bat Cave wash resulted in 0.022 acre of Upland disturbance (Appendix B, Photos 1 and 2), as a result of trimming and minor grading along the access path.

Within the 100-year floodplain, tamarisk was removed to allow access to 23 bore sample sites. Within the dense tamarisk thicket, 20-foot-wide corridors were cleared for access to the sites in this area (Appendix B, Photos 3 and 4). Tamarisk trees were cleared by cutting trees at base and leaving the root ball intact for resprouting. This resulted in 0.941 acre of total disturbance, of which, 0.505 acre was within floodplain habitat (see Appendix A, Figure 3). Since tamarisk is an invasive species and regrowth is anticipated, the impacts are considered temporary. Therefore, this disturbance was not included in the overall disturbance for floodplain habitat.

5.2 Bat Cave Wash

Trimming of creosote or cheese-bush (*Ambrosia salsola*) was required at two of the sites AOC 1-1 and AOC 1-T6D. The trimming of one palo verde was required to access AOC 1-7 (Appendix B, Photos 5 and 6). In order to reduce the amount of trimming required, the branches of the palo verde were pulled back and tied off at the base of the tree so that the overall trimming needed was less than 1% of the overall crown of the tree.

Three sites within Bat Cave Wash, AOC 1-1 (Appendix B, Photos 7 and 8), AOC 1-T7 (Appendix B, Photos 9 and 10), and SD 19 (Appendix B, Photos 11 and 12), resulted in disturbance of 0.018 acre of Upland habitat. Ground disturbance occurred as a result of trenching with a backhoe.

5.3 AOC 10

Prior to work activities, vegetation trimming was required at two of the sites. An access path to AOC10-10 (Appendix B, Photos 15 and 16), located west of the unpaved access road, required the trimming of three brittle bush. This site resulted in a disturbance of 0.008 acre of Upland habitat. Disturbance occurred as a result of vegetation areas being disturbed by the drill rig.

Prior to sampling for the ten pore water sites, limited clearing of tules (*Schoenoplectus californicus*) was required. To gain access to the river sediment for these pore water samples, an area of approximately five by five feet was created by pushing over the tules rather than cutting them. Only the tules that were in the immediate location around the sample hole were cut to permit access to the pore water sample location. No more than 10 tules stems at each sample location were cut just above ground level with the root balls

left intact. All pre-clearing activities were conducted under the supervision of the authorized biologist and, by leaving the tules roots intact, these activities did not result in floodplain habitat loss or permanent disturbance (Appendix B, Photo 17).

5.4 AOC 11

Prior to work activities, vegetation trimming was required at two of the sites. An access path to and a pad site for AOC 11e-4 (Appendix B, Photos 18 and 19) and AOC 11e-5 (Appendix B, Photos 20 and 21) was graded by backhoe resulting in permanent disturbance, in order for the drill rig to access these bore hole samples; trimming of five creosote shrubs was required along the AOC11e-4 access path. These two sites resulted in a disturbance of 0.059 acre of Upland habitat.

5.5 AOC 14

Prior to work activities, vegetation trimming was required at one site. AOC 14-14 required the trimming of two creosotes to allow the backhoe to access the site. Five sites within AOC 14, AOC 14-14 (Appendix B, Photos 22 and 23), AOC14-15 (Appendix B, Photos 24 and 25), AOC14-16 (Appendix B, Photos 26 and 27), AOC 14-17 (Appendix B, Photos 28 and 29), AOC 14-20 (Appendix B, Photos 30 and 31), and AOC 14-21 (Appendix B, Photos 32 and 33), resulted in a disturbance of 0.048 acre of Upland habitat. Ground disturbance occurred while trenching with a backhoe resulting in permanent disturbance.

5.6 AOC 27

Prior to work activities, vegetation trimming was required at one site. AOC 27-3, located behind the tank, required the trimming of one creosote to allow the backhoe to access the site.

6.0 CONCLUSION AND RECOMMENDATIONS

The PBA and subsequent consultation with the USFWS determined that the soil investigation “may affect, but is not likely to adversely affect” the southwestern willow flycatcher, Mojave Desert tortoise, Yuma clapper rail, razorback sucker, and bonytail chub; the PBA also included a determination of “no effect” for the Colorado pikeminnow (*Ptycheilus lucius*). The AMMs in the PBA were effective in minimizing impacts to these ESA-listed species and their habitat within the APE. No take or mortality of any ESA-listed or other special status species occurred during the investigation activities.

Impacts were limited to a temporary disturbance of 0 acres of floodplain habitat and 0.155 acre of upland habitat. These disturbances did not exceed those allowed in the PBA: 3.0 acres of Upland habitat and 2.5 acres of floodplain habitat.

7.0 REFERENCES

CH2M HILL

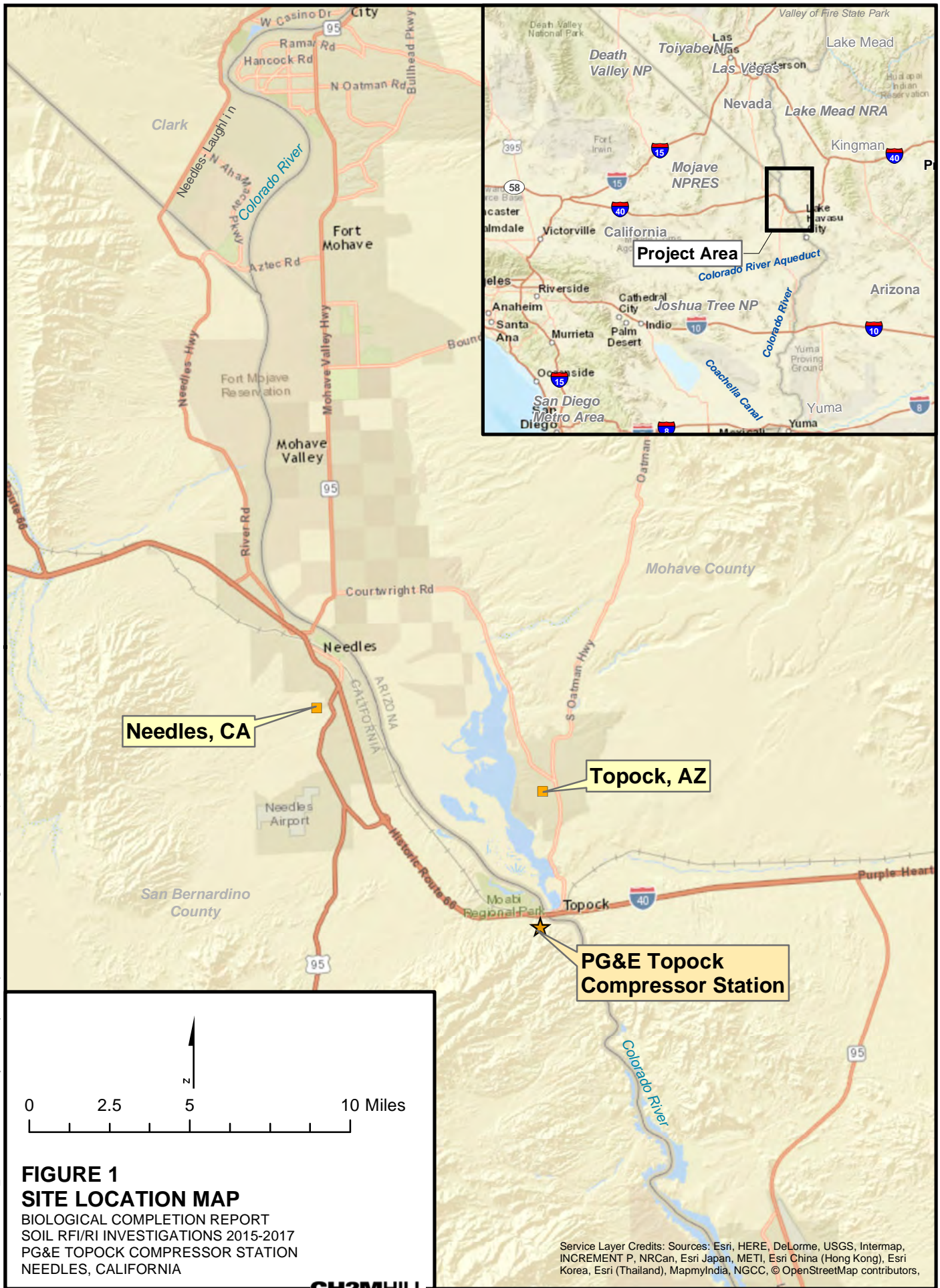
- 2007 Programmatic Biological Assessment for Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Actions. CH2M HILL.
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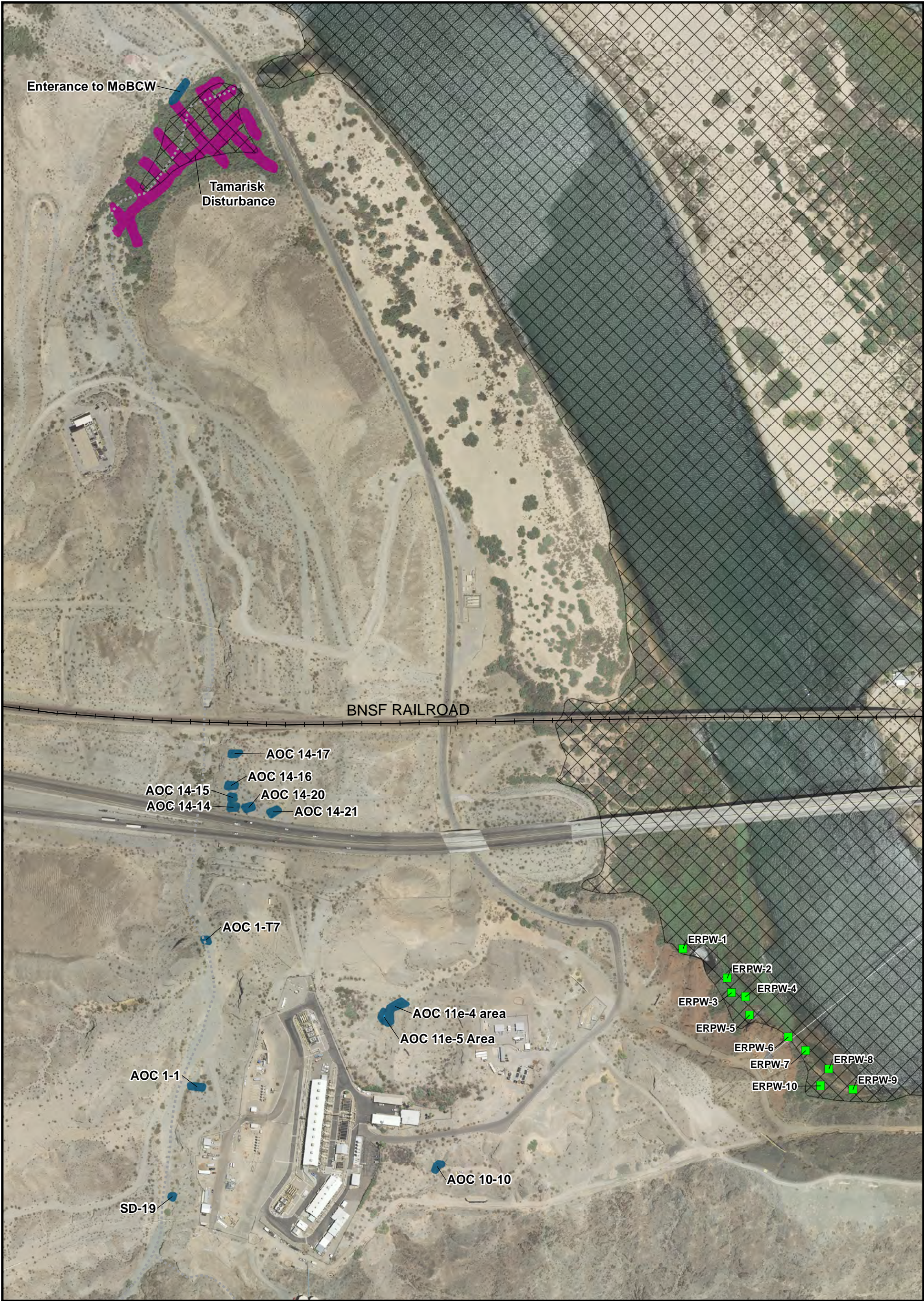
U.S. Fish and Wildlife Service (USFWS)

- 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.” Dated February 8, 2007. On file,
Bureau of Land Management, Havasu Field Office, Lake Havasu, Arizona.

APPENDIX A
FIGURES AND MAPS

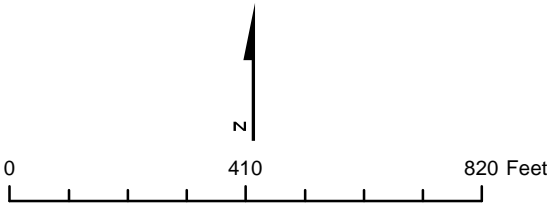
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LEGEND

- PoreWaterSampleLocations
- Upland Habitat Disturbance
- Tamarisk Disturbance
- 100-year Floodplain as shown on Figure 8 in 2007 PBA



**FIGURE 3
FINAL TOPOCK DISTURBANCE**
BIOLOGICAL COMPLETION REPORT
SOIL RFI/RI INVESTIGATIONS 2015-2017
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

APPENDIX B

SITE PHOTOS



Photo-1: Before grading and trimming the access path to the Mouth of Bat Cave Wash entrance



Photo-2: After grading and trimming the access path to the Mouth of Bat Cave Wash entrance



Photo-3: Before tamarisk removal for bore sample sites in Mouth of Bat Cave Wash.



Photo-4: After tamarisk removal for bore sample sites in Mouth of Bat Cave Wash.



Photo-5: Before palo verde was trimmed for access to AOC 1-7 drill site.



Photo-6: After trimming the palo verde for access to AOC 1-7 drill site.



Photo-7: AOC 1-1 before creosote removal and grading



Photo-8: AOC 1-1 after creosote removal and grading.



Photo-9: AOC 1-T7 before trenching with backhoe.



Photo-10: AOC 1-T7 after trenching with backhoe.



Photo-11: SD-19 before using backhoe for a storm drain inspection.



Photo-12: SD-19 after backhoe for a storm drain inspection.

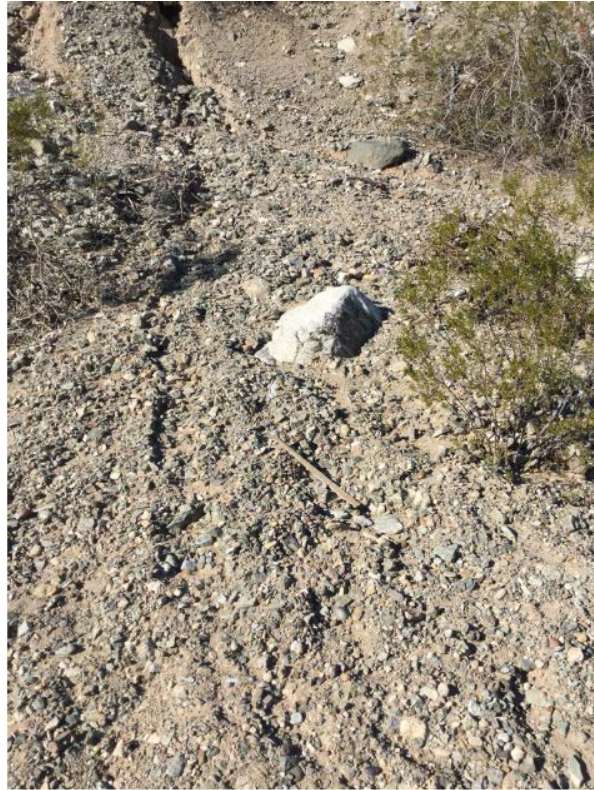


Photo-13: Example of AOC 9-20 work before hand-sampling.



Photo-14: Example of AOC 9-20 work after hand-sampling.



Photo-15: AOC 10-10 before brittle-bush trimming to gain site access for borehole sample.



Photo-16: AOC 10-10 after brittle-bush trimming to gain site access for borehole sample.



Photo-17: East Ravine Pore Water sample site 8 after clearance.



Photo-18: AOC 11e-4 before grading the access road and pad sites for access to the bore sample site.



Photo-19: AOC 11e-4 after grading the access road and pad sites for access to the bore sample site.



Photo-20: AOC 11e-5 before pad grading for access to bore sample site.



Photo-21: AOC 11e-5 after pad grading for access to bore sample site.



Photo-22: AOC 14-14 before creosote were trimmed and trenching with a backhoe.



Photo-23: AOC 14-14 after creosote were trimmed and trench was back filled.



Photo-24: AOC 14-15 before trenching with a backhoe.



Photo-25: AOC 14-15 after the trench was backfilled.



Photo-26: AOC 14-16 before trenching with a backhoe.



Photo-27: AOC 14-16 after the trench was backfilled.



Photo-28: AOC 14-17 before trenching with a backhoe.



Photo-29: AOC 14-17 after the trench was backfilled.



Photo-30: AOC 14-20 before trenching with a backhoe.



Photo-31: AOC 14-20 after the trench was backfilled.



Photo-32: AOC 14-21 before trenching with a backhoe.



Photo-33: AOC 14-21 after the trench was backfilled.



Photo-34: Example of AOC 27-51 before trenching.



Photo-35: Example of AOC 27-51 after trenching.