Topock Project Executive Abstract

Document Title: Revised *Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California*

Submitting Agency: DTSC, DOI

Final Document? ☒ Yes ☐ No

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Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)

PG&E

Priority Status: ☒ HIGH ☐ MED ☐ LOW

Is this time critical? ☒ Yes ☐ No

Action Required:

☐ Information Only ☒ Review & Input

Type of Document:

☐ Draft ☐ Report ☐ Letter ☒ Memo

☐ Other / Explain:

☐ Other / Explain:

What does this information pertain to?

☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)

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

☐ Corrective Measures Study (CMS)/Feasibility Study (FS)

☒ Corrective Measures Implementation (CMI)/Remedial Action (RA)

☐ California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)

☐ Interim Measures

☐ Other / Explain:

Is this a Regulatory Requirement?

☒ Yes

☐ No

If no, why is the document needed?

What is the consequence of NOT doing this item? What is the consequence of DOING this item?

This technical memorandum is required for obtaining agencies approval to conduct field activities in an effort to find location(s) for new well(s) that could supply an adequate quantity of water and not require treatment prior to use for groundwater remedy operation.

Other Justification/s:

☐ Permit ☐ Other / Explain:

Brief Summary of attached document:

As an element of the final groundwater remedy design, freshwater sources including groundwater supply wells and the Colorado River have been considered for use during remedy operation. The minimum volume of freshwater required for remedy operation is estimated to be 600 gallons per minute (gpm). In the *Draft Basis of Design Report/Preliminary (30 Percent) Design Submittal for the Final Groundwater Remedy* (CH2M HILL, 2011), PG&E presented a plan to obtain freshwater from a well on the Havasu National Wildlife Refuge (HNWR)—well HNWR-1; however, the California Regional Water Quality Control Board, Colorado River Basin Region (RWQCB) has preliminarily indicated that the HNWR-1 water should be treated to remove naturally occurring arsenic prior to injection. With the RWQCB's consent, PG&E has opened discussions of the need to treat for arsenic with the State Water Resources Control Board (State Board). Because no decision from the State Board has as yet been forthcoming, PG&E continues to evaluate other options for freshwater supply in an effort to find location(s) for new well(s) that could supply an adequate quantity of water and not require treatment prior to use for remedy operation. This technical memorandum presents the plans to evaluate the potential for additional fresh groundwater sources in the Topock Remediation Project area.

This document has been revised from the initial November 20, 2012 submittal per comments received from the agencies and stakeholders.

Written by: Pacific Gas and Electric Company

Recommendations:

Provide input to PG&E.

How is this information related to the Final Remedy or Regulatory Requirements:

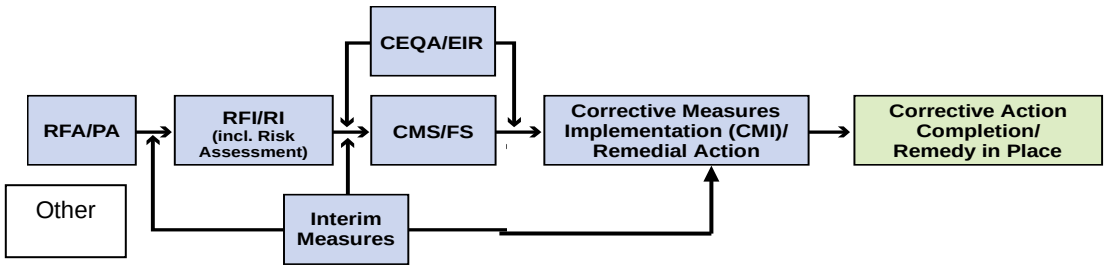
This technical memorandum is required to implementation field activities to find location(s) for new well(s) that could supply an adequate quantity of water and not require treatment prior to use for groundwater remedy operation.

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

Revised Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

DOCUMENT ID: PGE20130128A

PREPARED FOR Pacific Gas and Electric Company

PREPARED BY: CH2M HILL

DATE: January 28, 2013

Pacific Gas and Electric Company (PG&E) is implementing the selected groundwater remedy for chromium in groundwater at the PG&E Topock Compressor Station (TCS, or the Compressor Station) in San Bernardino County, California. The existing chromium contamination in groundwater is largely attributable to historical wastewater discharge from TCS operations to Bat Cave Wash, designated as Solid Waste Management Unit (SWMU) 1/Area of Concern (AOC) 1, and within the East Ravine, designated as AOC 10. Remedial activities at the Topock site are being performed in conformance with the requirements of the Resource Conservation and Recovery Act (RCRA) Corrective Action pursuant to a Corrective Action Consent Agreement (CACA) entered into by PG&E and the California Department of Toxic Substances Control (DTSC) in 1996, as well as the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) pursuant to the Administrative Consent Agreement entered into between PG&E and the federal agencies (U.S. Department of the Interior [DOI], Bureaus of Land Management [BLM] and Reclamation [Reclamation] and the U.S. Fish and Wildlife Service [USFWS]) in 2005. A Consent Decree between the United States and PG&E under CERCLA was lodged with the United States District Court for the Central District of California on January 10, 2013, and a public comment period on the Consent Decree is currently underway.

As an element of the final groundwater remedy design, freshwater sources including groundwater supply wells and the Colorado River have been considered for use during remedy operation. The minimum volume of freshwater required for remedy operation is estimated to be 600 gallons per minute (gpm) based on modeling. In the *Draft Basis of Design Report/Preliminary (30 Percent) Design Submittal for the Final Groundwater Remedy* (CH2M HILL, 2011), PG&E presented a plan to obtain freshwater from a well on the Havasu National Wildlife Refuge (HNWR)—well HNWR-1; however, the California Regional Water Quality Control Board, Colorado River Basin Region (RWQCB) has preliminarily indicated that the HNWR-1 water should be treated to remove naturally occurring arsenic prior to injection. With the RWQCB's consent, PG&E has opened discussions of the need to treat for arsenic with the State Water Resources Control Board (State Board). Because no decision from the State Board has as yet been forthcoming, PG&E continues to evaluate other options for freshwater supply in an effort to find location(s) for new well(s) that could supply an adequate quantity of water and not require treatment prior to use for remedy operation.

This document has been revised from the initial November 20, 2012 submittal (CH2M HILL, 2012a) per comments received from the agencies and stakeholders. A summary of comments received and associated responses to those comments are provided in Attachment A.

This technical memorandum presents the plans to evaluate the potential for additional fresh groundwater sources in the Topock Remediation Project area and is organized to include the following key details:

- Section 1.0 Locations for Freshwater Source Evaluation
- Section 2.0 Summary of Geophysical Survey
- Section 3.0 Freshwater Source Evaluation
- Section 4.0 Permitting and Approvals

- Section 5.0 Schedule and Reporting

1. Locations for Freshwater Source Evaluation

In *Geohydrology of the Needles Area, Arizona, California, and Nevada*, Metzger and Loeltz (USGS, 1973a) note that most of the higher-producing wells in the Needles area are completed in river gravels that were deposited since the end of the last ice age, in the geologic epoch known as the Holocene. Generally, these higher-producing wells are located on the Colorado River floodplain. Near the Topock site, there were no potential well locations located on the river floodplain in areas away from the elevated arsenic concentrations in groundwater near HNWR-1. The channels in the major washes near the river likely were incised during the last ice age and have subsequently been filled with alluvium as the basin has aggraded during the Holocene epoch. The depth of Holocene deposition in the Colorado River channel is estimated to be between 130 and 260 feet in the Parker area (USGS, 1973b). The thickness of fluvial sediments in wells near the Topock site indicate up to 150 feet of Holocene sediment above the older Tertiary alluvium, which is consistent with Metzger's observations near Parker (USGS, 1973b). Therefore, the likely targets for constructing wells capable of producing sufficient water for the final remedy would be Holocene gravel deposits in the wash channels in the range of 150 feet in depth or shallower. Deeper gravel deposits would likely be Tertiary in age and might produce lesser amounts of water and water of lesser quality.

Two general areas—both located within the historic channels of relatively large desert washes—were initially identified where hydrogeologic conditions might be favorable for developing a well capable of 600 gpm or more. One of these locations is in Sacramento Wash, in Arizona, and the other is in an unnamed wash in California about 1.75 miles north of Moabi Regional Park. Within these two general areas, three specific locations were identified for evaluation (see Figures 1 through 3):

- **Site A.** This site is located in Arizona on HNWR property approximately 1,800 feet east of Arizona County Highway 10 (Oatman-Topock Highway) within the surface channel of Sacramento Wash (outside of the jurisdictional channel).
- **Site B.** This site is located in Arizona on HNWR property adjacent on the west-bound shoulder of Arizona County Highway 10. This site is located just north of the surface expression of the Sacramento Wash, near its confluence with the Colorado River.
- **Site C (former).** This site was located within the surface expression of an unnamed wash in California approximately 1.75 miles northwest of Moabi Regional Park. Per the December 31, 2012 letter from DTSC to PG&E, DTSC has determined that additional exploratory work at or around the vicinity of the area in California (referred to as Site C in the November 20, 2012 submittal of this Plan) will not be approved due in part to the proximity of Site C to culturally sensitive areas and a BLM-designated Area of Critical Concern (Beale Slough). Therefore, while the results of surface geophysical survey that was conducted at Site C are presented in Section 2, discussion about Site C has been removed from other sections of the Plan related to planned field work for exploratory drilling and groundwater sampling, and supply well installation and aquifer testing.

In addition to the primary work area at Sites A and B, one contingency location (Site A-alt) might be evaluated near Site A. As presented in the next section, the surface resistivity data collected at Site A indicates that a second area of interest might be present. However, because interpretations of the resistivity survey must be verified through drilling and testing, the decision to evaluate a fourth location will be made based on the field data collected from Site A.

The approximate location of Sites A and B in relation to existing wells in the region is shown on Figure 4 (conceptual geologic cross section location is shown on Figure 1). The information displayed on this section is adapted from the Topock Groundwater Study report prepared for Arizona Department of Environmental Quality (Geotrans, 2006). Well HNWR-1 was added to the section. The sand and gravel unit below a depth of about 83' may be the Holocene gravel that is the target for the new supply wells. The two next-nearest wells on this section, Topock-3 and GSRV-1 are not located in the channel of Sacramento Wash so they don't provide any information about the Holocene gravel that is the target of this investigation.

2. Summary of Geophysical Survey

The surface expression of the wash channels in the area of Sites A and C are between 0.25 and 0.5 mile wide. In order to maximize a well's yield, the well should be located in the thickest sequence and/or coarsest facies of recent alluvial gravel. With a surface channel width greater than 0.25 mile, it is not certain that the deepest portion of the underlying paleochannel, or the portion with the coarsest alluvial sediments, would be beneath the center of the present day channel. Therefore, during the week of October 22, 2012, a geophysical survey (surface resistivity logging) was conducted across the wash channels near Sites A and C as a means to locate the most favorable portion of the subsurface channel before drilling exploratory borings. Surface resistivity logging was not conducted around Site B because there is not sufficient flexibility in where this exploratory borehole can be drilled to warrant using a geophysical survey. Tribal monitors observed the geophysical survey.

Figure 5 presents the location of the surface resistivity survey lines and cross-sections providing the color-coded results of the survey. Surface resistivity cannot distinguish between the sediment and groundwater resistivities. Freshwater has much higher resistivity than salty water, and gravel has higher resistivity than clay or silt. As such, the blue areas on the resistivity plots can represent fresher water and/or coarser grained sediments. Dry sediments and most types of bedrock also have high resistivity and would also be expected to show up as blue on the resistivity plot.

The current interpretation based on the basin's geologic history suggests that shallow areas of higher resistivity are the best target for exploratory drilling and groundwater sampling. Deeper areas of higher resistivity identified at both Sites A and C are unlikely to represent Holocene gravels that have been proven to provide the best freshwater sources in this basin. In addition, the quality of the resistivity data in the deeper portions of a surveyed section is lower, making interpreting deeper features less certain than shallower features. Empirical data that will be collected from the Site A and C exploratory boreholes might lead to an alternative interpretation of the resistivity results, thereby requiring that one of these deeper intervals be evaluated.

There is evidence from existing wells in both Arizona and California indicating that the salinity increases with depth. The Topock-3 water supply well[1], located approximately 0.75 mile from the southern end of the Site A survey line, was originally screened to a depth of 250 feet below ground surface (bgs), but it produced saline water. The bottom 100 feet of Topock-3 was subsequently sealed, and water quality improved substantially. Saline water is also present in the deeper part of the aquifer near TCS. Therefore, the current interpretation suggests that the best opportunity of finding freshwater is likely from shallower depths, and Sites A-alt has been identified as contingency sites for exploratory drilling.

The Site A resistivity results indicate a relatively large interval of higher resistivity (blue) in the target depth range near the southern end of the survey line. This area is in the depth range where Holocene-age sediments are expected and has a shape consistent with a buried stream channel. There is a larger area of higher resistivity identified in the middle of the survey line, however the depth of this area (from 200 to 400 feet bgs) suggests that it is likely Tertiary in age and, therefore, might not produce as much water as the shallower target. Therefore, the shallower area of higher resistivity near the southern end of the line has been identified as the best target for exploration drilling.

Surface resistivity results from the Site C survey line indicate only one area of higher resistivity in the depth range of interest (less than 150 feet), which is located about 500 feet from the northwest end of the survey line. This feature is smaller than the target area identified on the Site A line, and in general, the resistivity of the entire profile at Site C is lower than Site A, potentially indicating lower permeability and/or more saline water. There is a deeper zone of higher resistivity present near the southeast end of the survey line; however, for the same reasons

[1] The Topock-2 and Topock-3 wells were evaluated by PG&E as a potential freshwater source; however, the wells do not offer any advantages over HNWR-1 because there are not currently significant differences in the water quality, and there is greater uncertainty about the future water quality as well as the quantity of water available (CH2M HILL, 2012). The casing of Topock-3 is in very poor condition, so the future ability of this well to continue to provide water, especially if the pumping rate were dramatically increased as would be necessary for the remedy, is uncertain. In addition, it is known that poor quality water exists in aquifer below the bottom of Topock 3, so future water quality might decline at increased pumping rates. At HNWR-1, the casing is in good shape so it is not likely to collapse. HNWR-1 is likely in a thicker portion of the aquifer with greater distance to bedrock than Topock 3 and therefore may not be as likely to pull in poor quality water from below.

cited above regarding deeper features, this area is not considered an ideal target for exploratory drilling. The primary target for exploratory drilling at Site C is the shallower area of higher resistivity.

3. Freshwater Source Evaluation

Exploratory boreholes will be drilled and tested at up to three locations to assess groundwater quality and qualitatively assess groundwater quantity. A true estimate of the quantity of available groundwater, however, can only be obtained by testing a properly constructed supply well. Based on the comments received on the initial November 20, 2012 submittal of this Plan, it is understood that the HWNR prefers the use of existing well HNWR-1 over the installation of new freshwater supply well(s), and if a new well is required, Site B is preferred over Site A. The viability of a freshwater supply well at either Sites A or B will not be known until results from the two phases of work (exploratory drilling and groundwater sampling, and well installation and testing) are obtained. In response to HNWR concerns about disturbance, PG&E analyzed multiple approaches to the sequencing of this work considering schedule impact and level of disturbance, and resources. Based on this analysis, the following revised approach to work sequencing was developed:

1. Mobilize to conduct exploratory drilling and groundwater sampling at both Sites A and B. Demobilize the exploratory rig when complete. It should be noted that the overall level of disturbance/waste generation is far less for the exploratory work compared to supply well installation and aquifer testing (i.e., much less waste is generated during the exploration work, and less equipment is required for access).
2. Discuss exploratory data with the agencies. In general:
    a. If water quality (e.g., key analytes at concentrations below the MCL [see planned analytical list in Section 3.1]) and geologic data (e.g., a significant thickness [tens of feet] of coarse sand and gravel) from only one of the sites is favorable, then a supply well will be installed at that site, and the other will not be pursued any further.
    b. If water quality/geologic data from both sites is favorable, then a supply well will be installed at Site B only for subsequent testing.
3. Mobilize to install and test one supply well. Demobilize well installation and testing equipment when complete.
4. Discuss supply well testing data with the agencies. Generally, a supply well will be considered a viable source of freshwater for the groundwater remedy if a sufficient quantity of high quality water as required by the remedy can be sustained. If the well does not prove to be a viable source of freshwater for groundwater remedy operation then a supply well will be installed at the second location (unless it was already disqualified based on the exploratory data).

By taking a more phased approach to supply well installation and aquifer testing, the overall level of disturbance/waste generation is minimized, and supply well installation can be prioritized for Site B. Implementation details specific to conducting the exploratory borehole drilling and testing, installing and testing the freshwater supply wells, and managing all wastes generated during these activities are discussed in the following subsections.

3.1 Exploratory Borehole Drilling and Groundwater Sampling

Exploratory boreholes will be drilled using a rotary drilling method with casing advance capabilities using air and potentially freshwater as the drilling fluid (using water conditioning additives might be needed, but using bentonite-based drilling mud is not anticipated). This drilling method is commonly used for groundwater exploration and water supply well installation, and it will allow depth-specific lithologic and groundwater samples to be collected. The equipment required to conduct the exploratory drilling will include a drilling rig (likely track-mounted but potentially truck-mounted), rig support truck (highway-rated), water truck (highway-rated), forklift and/or backhoe (rubber tire), and crew vehicles (highway-rated). Examples of additional miscellaneous equipment that might be required to conduct the work include, but are not limited to, mobile storage tanks and bins, auxiliary compressors, pumps, and generators. Per the Programmatic Biological Assessment (PBA), up to 1 acre of upland habitat may be disturbed during work at each exploratory drilling site; however, the work will be conducted such that the total area disturbed is minimized.

The exploratory boreholes will be drilled to a total depth of up to 400 feet bgs and have a diameter of up to 8 inches (nominal). As discussed in Section 1, the total depth of Holocene deposition is estimated to be between 130 and 260 feet bgs based on review of literature, and not based on site-specific information. If good quality water and permeable aquifer materials exist in older sediments below the Holocene, it would be prudent to extend the well to greater depths in order to maximize the production rate. Conversely, it is important to know if poor quality water exists at depths below the freshwater zone, as was found in the Topock-3 well. If this is the case, it could be prudent to screen the well at shallower depths to avoid drawing in the poor quality water. Therefore, the investigation depth of 400 feet is being used for the exploratory boreholes in order to collect as complete a data set as reasonably possible from which to design the supply well. Bedrock is not a target source of freshwater supply, and therefore the exploratory boreholes would not be drilled into bedrock any deeper than that required to confirm its occurrence.

Borehole lithology will be logged from drill cuttings at the surface; the drill cuttings, which due to the high up-borehole velocity of the compressed air used for drilling, are observed in near real-time with the depth of the drill bit. Once the water table is reached, zone-specific groundwater samples will be collected from the borehole approximately every 50 feet to assess changes in water quality with depth and qualitative changes in borehole capacity. Borehole capacity is a qualitative measurement of aquifer yield (observing drawdown in the borehole for a given extraction rate during drilling or pumping of the open borehole), but cannot be used as a measure of permeability or transmissivity. These samples will be collected by pumping from within the drill casing (using either an air-lift or electric submersible pump) and monitoring water quality measurements at the surface (e.g., specific conductance, pH, oxidation-reduction potential, etc.). All groundwater samples will be analyzed for Title 22 (CAM 17) metals, silica, fluoride, and nitrate. A subset of samples (approximately half of those collected) will be analyzed for the list of water quality parameters that were used to characterize HNWR-1, including CAM 17 metals, perchlorate, petroleum hydrocarbons, pesticides, polyaromatic hydrocarbons, polychlorinated biphenyls, herbicides, chloride, sulfate, nitrate, nitrite, fluoride, bromide, phosphate, general minerals, total organic carbon, pH, gross alpha and beta, and stable isotopes of hydrogen and oxygen.

Based on review of existing hydrogeologic information in the area, the exploratory boreholes are expected to be advanced within an undivided aquifer, and individual aquifers separated by confining units are not expected to be encountered. Therefore, each exploratory borehole will be decommissioned by backfilling from total depth to 20 feet bgs with either bentonite grout or clean granular material. The upper 20 feet of each borehole will be sealed using bentonite. All granular backfilling and sealing materials will be installed using the drill casing as a tremie pipe. As determined necessary, an additional tremie pipe installed within the drill casing will be used to install fluid materials used for backfilling and sealing (e.g., grout) so that the material is introduced near the bottom of the borehole and standing water is displaced upward. If multiple aquifers are encountered, then additional intervals of sealing material might be required to properly decommission the borehole. Using granular materials rather than grout to backfill the exploratory boreholes allows the future option of later reaming the same borehole to construct a supply well, thereby minimizing the number of boreholes drilled.

The approximate location coordinates presented in Northing/Easting format (North American Datum [NAD] 83 CA State Plane, Zone 5 [feet]) for each location where drilling might be conducted are:

Location	Northing	Easting
Site A	2107429.97	7621789.13
Site A-alt	2108173.01	7621518.29
Site B	2107502.98	7619598.81

All gated access routes will be maintained closed during working hours for activities implemented as part of this plan. Based on site experience communicated by HNWR during the January 3, 2013 comment resolution meeting, PG&E will plan to have a security detail present at all work sites during non-working hours to manage the potential for unauthorized trespass. Following well installation and testing, installed wellheads will be secured with fencing and/or other security measures as determined appropriate and permissible by the HWNR (see Section 3.2).

3.2 Freshwater Supply Well Installation and Aquifer Testing

Based on the data collected during exploratory drilling and groundwater sampling, up to two new groundwater supply wells might be installed near Sites A (including Site A-alt) and/or B. If the exploratory boring encounters a significant thickness (tens of feet) of coarse sand and gravel and shows overall good water quality (e.g., analyte concentrations below the MCL), then it would appear that there is a good chance of getting adequate supply from that location and only one well would likely be drilled. If either of the exploratory boreholes encounters poor water quality in the permeable portions of the aquifer at the target depth, then no well would be constructed at that location. Note that the water quality produced from a long screen well is a flow-weighted average of water quality from many different flow zones zone within the well screen. It is possible to have less than acceptable water quality in a zone that doesn't yield much water and still have a well that produces acceptable water quality. For that reason, there should be more weight given to sample results from the high permeability sections of the exploratory boreholes and less weight given to samples from the low permeability sections.

Ideally, boreholes for supply well construction will be drilled over the backfilled exploratory borehole at a given location to minimize the total number of boreholes installed; however, if the exploratory borehole were to be backfilled with sealing material near the target-screened interval for the supply well, then this approach might not be practicable because the sealing material could interfere with groundwater production from the formation. In this case, a new borehole would be drilled near the exploratory borehole. As described above, up to 1 acre of upland habitat may be disturbed for each exploratory borehole, and this same 1 acre area may be further disturbed by the freshwater supply well installation.

Boreholes for supply well construction will be drilled using drilling methods similar to the exploratory boreholes (i.e., casing advance), but the supply wells will have a larger diameter. Borehole diameter may be up to 42 inches in the uppermost part of the well where surface casing will be set. Borehole diameter in the deeper sections of the supply well would likely be 18 to 24 inches. Therefore, supply well drilling will require a larger drill rig and associated support equipment. Well construction details will be determined based on the lithologic, water quality, and hydraulic data collected from the exploratory borehole. Final design of the wellhead protection and associated instrumentation and control equipment[2], as necessary, will be included in the forthcoming Addendum to the *Basis of Design Report/Intermediate (60 Percent) Design Submittal for the Final Groundwater Remedy* (CH2M HILL, 2013 in progress) (see Section 5); however, because the well(s) will be installed in the active wash flow channel(s), temporary wellhead protection measures must be considered at the time of construction. Newly installed supply wells will be constructed so that they are sealed to prevent surface water inundation or so that the well seal is above the 100-year floodplain level. In addition, the wellhead will be completed with a steel monument casing within a concrete foundation with steel bollards at the foundation perimeter to resist damage from surface flow, and a temporary perimeter fence will be installed to secure the location until the groundwater remedy design is finalized. Temporary wellhead protection measures will be developed in coordination with USFWS HNWR. Following construction, a combination of bailing, surging, and pumping will be used to remove fluids introduced during drilling and develop the hydraulic connection between the well screen, gravel envelope, and the formation.

Hydraulic tests—including step-rate and constant-rate extraction tests—will be conducted at each newly installed supply well to collect data about both well and aquifer performance and changes in water quality when pumped over a period of multiple days. If the aquifer contains abundant coarse grained material and observations of pumping water levels during well development indicate abundant well capacity, then it might be possible to confirm well capacity with a short-term step-rate extraction test rather than a longer term constant-rate test. If the aquifer conditions and well capacity appear marginal during drilling and development, then a constant-rate pump test would be prudent to prove the well capacity. A step-rate extraction test likely will require 1 to 2 days, and a constant-rate extraction test likely will require up to 96 hours of continuous pumping; however, the duration of these tests might need to be adjusted shorter or longer depending on the data collected and/or as discharge constraints are identified. Discharge constraints include persistent ponding, runoff towards a

[2] The USFWS HNWR will be consulted regarding well head design such that the setup provides for alternative water uses (e.g. Refuge reclamation).

jurisdictional channel, the Colorado River, or Arizona County Highway 10, or filling storage vessels (if used). Because water generated during testing will be discharged to the ground surface it is possible that infiltration of discharged water could begin to influence water levels in the aquifer during a long-term pumping test. The purpose of this pumping test is to establish the capacity of the well rather than provide estimates of aquifer properties. The infiltration of discharged water is a relatively slow process that will occur over a relatively large area and likely have only small effects on the production rate of the well during a four day test. It is not likely that the results of the test would be substantially skewed due to infiltration of test water. The only way to eliminate the potential for any interference of test water is to either discharge farther away from the area or to the River, or to truck or pipe the water offsite, and none of these options is practicable. Data collected from these tests will be incorporated into design of the final groundwater remedy.

In addition to the testing for potential new supply wells, a constant-rate extraction test might be conducted at the existing well HNWR-1 (see Figure 1). The test purpose and implementation details would be similar to that mentioned above for the potential new supply wells. Based on the well operation data obtained from HNWR-1 and the samples collected during well sampling events, this test would be conducted by pumping the well near its maximum yield (approximately 800 to 1,000 gpm) for up to 96 continuous hours. Assuming a flow rate of 1,000 gpm, the total estimated discharge is over 5.5 million gallons. The test duration might need to be adjusted shorter or longer depending on the data collected and/or as discharge constraints are identified. Ideally, the test will be conducted using the pump that is currently installed in the well; however, depending on the final design of irrigation pipe layout, a temporary test pump might need to be installed.

Samples will be collected during the constant rate aquifer test to evaluate if water quality is changing over time. For a four day test, the sampling times will be 1 hour, 6 hours, 12 hours, 24 hours, 48 hours, 72 hours and 96 hours after the start of the test. In addition to field parameters, all groundwater samples will be analyzed for Title 22 (CAM 17) metals, silica, fluoride, and nitrate. Samples from the beginning and end of the test (1 hour and 96 hours) will be analyzed for a longer list of analytes, including CAM 17 metals, perchlorate, petroleum hydrocarbons, pesticides, polyaromatic hydrocarbons, polychlorinated biphenyls, herbicides, chloride, sulfate, nitrate, nitrite, fluoride, bromide, phosphate, general minerals, total organic carbon, pH, gross alpha and beta, and stable isotopes of hydrogen and oxygen. If the test ends early, then a sample will be collected near the end of the test and analyzed for the long list of parameters.

The potential impact of the hydraulic testing and potential long-term use of the proposed wells on the local and regional aquifer will be addressed by Mitigation Measures Reporting Program (MMRP), specifically mitigation measure WATER-1. Initial assessments using an existing groundwater model indicated that there would be no adverse effect from continuous operation of the HNWR-1 on the nearest pumping wells (Topock 2 and 3), which are located less than 0.2 mile from HNWR-1. During the revegetation pilot project, HNWR-1 was routinely pumped at rates of approximately 1,000 gpm for periods of up to 12 hours per day with no reported adverse effects on any nearby wells. The proposed new well locations are approximately ¾ mile from the Topock 2 and 3 wells so pumping from these locations would have even less effect than pumping from HNWR-1. The Golden Shores wells are approximately 2.5 miles away, well beyond the radius where pumping at the proposed new well locations would be expected to have measureable effects. Further evaluations of the effects of pumping from the new well will be made during the design process, using estimates of hydraulic properties of the aquifer developed through testing of the new well.

3.3 Management of Material Generated During Investigation

Three types of materials will be generated during the activities outlined for the alternative freshwater source evaluation: drill cuttings, purged groundwater, and trash. Drill cuttings and purged groundwater will be managed in accordance with site-specific and regulatory practice for groundwater supply well drilling. Note that, because this freshwater source evaluation is part of a CERCLA response action, implementation plan activities conducted onsite are covered under the permit exemption codified in Section 121(e)(1) of CERCLA. While the permit exemption applies to the administrative or procedural elements (e.g., preparing and submitting permit applications and obtaining permits), the substantive requirements of the applicable laws remain. Groundwater

discharge and drill cuttings will be managed in compliance with the substantive requirements of Aquifer Protection General Permit 1.04, as authorized by Arizona Administrative Code Section R18-9-B301(D).

Drill cuttings will comprise a combination of dry and saturated unconsolidated materials. This material will be contained at the ground surface using a cyclone that is attached to the cuttings return pipe and empties into a hopper. Cuttings, which appear to be clean, will then be spread on the ground near the drilling site (i.e., in an upland area, and not to jurisdictional waters) in a manner consistent with land owner approval and applicable requirements.

Purged groundwater will be generated during drilling, sampling, well development, and well testing activities. As planned, all purged groundwater will be discharged to the ground surface in a manner consistent with land owner approval and the Arizona Aquifer Protection General Permit (see Section 4.0). Purged groundwater will be discharged directly to the ground surface in areas that are not jurisdictional waterways using a discharge pipe (for small volumes that can be discharged slowly) or sprinkler irrigation system (for larger volumes requiring faster discharge).

The approach to discharge of large volumes of water generated at Sites A and B was discussed in detail with the agencies based on comments received on the initial submittal of this Implementation Plan. The HNWR-preferred approach to discharge is to utilize existing wash channels such that the potential for an increase in invasive plant species or feral hog usage (in the event of impounded water, which is not planned) is minimized. However, PG&E noted that direct discharge to the channels may not be practicable if infiltration rates are not high enough to prevent runoff from reaching barriers like the Colorado River or Arizona County Highway 10. To manage this potential for runoff, PG&E plans to use sprinkler systems in existing open areas (outside of the wash channels). As a part of this approach, PG&E will conduct reconnaissance of the irrigated area approximately 1-2 months after work (or as directed by HNWR) to determine if the irrigation stimulated unwanted vegetation. If so, PG&E will work with HNWR to determine if mitigation in the form of herbicide application may be required.

Proposed irrigation areas and preliminary equipment layout are indicated on Figures 2 and 3. The Site A and B "sprinkled areas" were selected because they are located in relatively large, flat, previously disturbed areas where discharge activities can be well monitored. In addition, surface topography at Site B is favorable for avoiding runoff during discharge. As planned, irrigation will be conducted using a network of high-volume sprinklers (Nelson® Series 200, or similar) that will be connected by temporary, above grade aluminum irrigation pipes (approximately 4-8 inches in diameter); however, final design and associated details (e.g., pipe diameter, specific sprinkler location and range, etc.) might need to be adjusted based on actual field conditions (e.g., well capacity or location of sensitive biological or cultural resources) at the time of testing. In addition to the discharge area indicated for Site B, if requested by HNWR at the time of work, PG&E will include piping and equipment in the irrigation system such that some discharge water can be delivered to the area of the ongoing Sacramento Wash Revegetation Project. PG&E will continue to coordinate with HNWR to determine the specific area outside of the potential work area that should receive irrigation water (see Figure 3). Personnel will remain on site during the duration of discharge activities to monitor for persistent ponding and runoff. Water will be discharged to these areas in a manner that minimizes ponding and limits the potential for runoff. During discharge, if persistent ponding or runoff towards a jurisdictional channel, the Colorado River, or Arizona County Highway 10 is observed, corrective action (e.g., modification of sprinkler layout, change in discharge rate, or using hand tools to control disperse ponding/control runoff) will be taken. If it is determined that persistent ponding or runoff cannot be easily corrected, then discharge will be discontinued. If rainfall occurs during discharge to the extent that the runoff of discharged water cannot be effectively monitored, then the discharge will be discontinued. It is impossible to predict the infiltration rate of the discharge areas. Therefore, the degree of infiltration and runoff will be closely monitored at all times during discharge. The discharge will be stopped if it is determined that persistent ponding and runoff towards a jurisdictional channel, the Colorado River, or Arizona County Highway 10 cannot be effectively controlled.

Trash associated with normal work operations, which might include well material packaging, plastic sheeting, and food waste, will be removed from the work site daily and transferred to a dumpster located on PG&E property. Dumpster contents are disposed at an offsite landfill.

4. Anticipated Approvals and Authorizations

Implementing the activities presented in this implementation plan will require prior approval from DTSC and DOI pursuant to their authority under RCRA and CERCLA, respectively. The 2007 PBA was extended on December 27, 2012 until December 31, 2017, and modified to cover this Freshwater evaluation work, in addition to certain other modifications. All proposed activities will be conducted in a manner consistent with the PBA and, therefore, will comply with requirements of the federal Endangered Species Act (ESA). Compliance with Section 106 of the National Historic Preservation Act will involve complying with the requirements and mitigation measures contained in the Programmatic Agreement (BLM, 2010) and the *Cultural and Historic Properties Management Plan* (BLM, 2012) and BLM's consultation with the Tribes, other signatories, and invited signatories to the Programmatic Agreement pursuant to the requirements of the Programmatic Agreement's consultation protocol.

Approval from the DTSC is subject to review pursuant to the California Environmental Quality Act to determine whether the activities presented in this implementation plan present any new or substantially more severe significant impacts compared to the impacts evaluated in the certified Final Environmental Impact Report (EIR) for the remedy. In carrying out the activities presented in this implementation plan, PG&E will comply with applicable mitigation measures set forth in the adopted Mitigation Monitoring and Reporting Plan (DTSC, 2011b) for the project.

Applicable or Relevant and Appropriate Requirements (ARARs) and associated compliance actions for this evaluation are summarized in Attachment B (Table B-1). Substantive compliance requirements associated with various other project documents are detailed in Attachment B (Table B-2). PG&E plans to obtain the approval to drill from the Arizona Department of Water Resources prior to starting exploratory drilling and/or well installation activities. Plans for groundwater discharge will be conducted under the Arizona General Aquifer Protection Permit. The general permit is self-implementing and notification to ADEQ is not required. PG&E is not planning to discharge dredged or fill materials to waters of the United States, and therefore, no additional requirements of Clean Water Act 404/401 apply.

Coordination with Transwestern and Kinder-Morgan pipeline companies will occur as needed to obtain access to Site A. It is PG&E's understanding is that authorization to access lands owned by the federal government at Sites A and B will be provided in the Department of Interior's approval of this Implementation Plan. In addition, before subject activities are implemented, underground service alert notifications will be made so that utility companies can locate and mark the locations of their underground facilities.

4.1 Biological Evaluation

The original PBA expired in December 2012 and was extended on December 27, 2012 until December 31, 2017. The current PBA includes a modification of the 2007 PBA Action Area along the boundaries for investigative activities and includes up to four test borings and up to two potential additional wells to accommodate freshwater source investigation work prior to final remedy construction. Upland habitat loss threshold of 8 acres would cover the disturbance from the installation of up to three test borings and up to two potential additional wells (of which up to 3 acres of disturbance would be attributable to the test borings and wells), in the current PBA.

The current PBA addresses a variety of PG&E Topock remedial and investigative actions, including those identified in the implementation plan for evaluation of alternate freshwater sources, and the modified Action Area encompasses the geographic scope of these activities. The intent of the PBA is to provide programmatic coverage of these actions up to the final remedy and avoid the need for individual project-specific consultations under ESA. The purpose of this biological evaluation is to outline the freshwater source evaluation activities as they relate to federally listed species in the area and to determine whether the actions are within the context and boundaries of the current PBA. Sections below discuss project timing, project location and habitat sensitivity, habitat loss, conservation measures, listed species determinations, and conclusion, respectively. The federally listed species being considered and evaluated include the southwestern willow flycatcher (*Empidonax traillii extimus*), Yuma clapper rail (*Rallus longirostris yumanensis*), Mojave desert tortoise (*Gopherus agassizii*), bonytail chub (*Gila*

elegans), and razorback sucker (*Xyrauchen texanus*) and the candidate species Sororan desert tortoise (*Gopherus morafkai*).

4.1.1 Project Timing

The fresh water source evaluation activities are anticipated to be conducted between early March and mid-June 2013. The start date is dependent upon receipt of necessary approvals and authorizations. The anticipated avian nesting season is defined as March 15 to September 30 in the PBA. Should the activities occur within the avian migration or nesting season, the required work windows and buffers outlined in the PBA will be implemented for any migratory or nesting birds that may be affected.

4.1.2 Project Location and Habitat Sensitivity

The freshwater source evaluation sites are mostly in upland areas from the Colorado River floodplain and consist of either creosote bush scrub or athel tamarisk habitats. It is anticipated that only existing roads and access pathways requiring minimal access improvements in select areas will be used during the work proposed in the Plan. The removal of vegetation is not expected to be required to gain access for equipment; however, the trimming of vegetation may be required. Trimming, if required, will be focused on non-native species (e.g., tamarisk) and the trimming of native species (e.g., palo verde and mesquite) will be avoided or minimized to the extent practicable. Prior to mobilization, a biologist will identify acceptable access routes, staging areas, and work zones. In addition, a biologist will be on site during all vegetation trimming activities.

The Sonoran desert tortoise is the only federally listed or candidate species that may occur within the creosote bush scrub or Mojave wash scrub habitats at the proposed freshwater source evaluation activities. The habitat in the area is considered marginal due to limited suitable plants and soils for forage and cover sites, past habitat disturbance and fragmentation, and natural and constructed barriers that deter this species from entering the site.

Other listed species that may potentially occur or are known to occur within the Action Area include the Yuma clapper rail, bonytail chub, and razorback sucker. Project activities will not occur within the Topock Marsh or Colorado River, where these species reside.

4.1.3 Habitat Loss

Loss of habitat will be minimized to the greatest extent possible. Freshwater source evaluation activities may disturb up to 1 acre per site location and are proposed in upland locations. Up to three locations are currently proposed (Sites A, B, and Alt-A), which equates to 3 acres of potential disturbance to upland habitat. Where possible, activities will be limited to previously disturbed areas, thereby reducing the impact to upland habitat vegetation; it is anticipated that actual disturbance to upland habitat will be less than 3 acres. Where possible, vegetation will be trimmed or crushed for equipment to access sites. The trimming or crushing of vegetation is not considered habitat loss as defined in the PBA. Any vegetation removal will be coordinated with the project biologist and in compliance with the PBA and the applicable mitigation measures set forth in the MMRP adopted by DTSC. The biologist will ensure that the 8-acre upland vegetation loss threshold is not exceeded.

4.1.4 Conservation Measures

The conservation measures identified in the PBA for listed species and habitat will be implemented. Any habitat loss is expected to be below the 8-acre upland threshold an in the PBA. The project biologist will be on site to perform pre-construction surveys, monitoring during equipment setup, and post-construction surveys to document any habitat loss and to ensure that the sites are clear of desert tortoises and any nesting birds as deemed necessary.

4.1.5 Listed Species Determinations

Annual surveys conducted since 2005 have not identified nesting pairs of the southwestern flycatchers within the Action Area, either in California and Arizona. A single western yellow-billed cuckoo has been observed three years in a row, indicating they may be breeding in the area. In 2012, solitary southwestern flycatchers were identified at the mouth of Bat Cave wash in California, as well as in the Topock Marsh. Yuma clapper rails were detected during surveys conducted in 2012 along the Arizona side in the emergent habitat near the marina.

Southwestern willow flycatcher. This action will have no direct effect upon this species. Southwestern willow flycatcher prefers riparian habitat. Tamarisk (*Tamarix ramosissima*) is a dominate species within the riparian habitats of the Topock Compressor Project. The tamarisk habitats in the areas of Sites A and B are dominated by athel (*Tamarix aphylla*) which is an upland species and not preferred by Southwestern willow flycatcher. The project will not occur within or near riparian habitat; therefore, any potential direct and indirect effects to this species will be avoided.

Yuma clapper rail. This action will have no effect upon this species. The project will not occur within or near the emergent marsh habitat; therefore, any potential direct and indirect effects to this species will be avoided.

Sonoran desert tortoise. This action will not likely have a direct effect upon this species based on the implementation of the minimization measures identified in the PBA. Additionally, USFWS protocol surveys were performed from 2004 through 2009 that resulted in no recent evidence of species presence within the California Action Area. The habitat within the Action Area is considered marginal, and any loss would be minor and well below the 8-acre upload threshold requested in the PBA). Therefore, this action will have minimal indirect effects upon this species that are covered within the PBA.

Mojave desert tortoise. The Mojave desert tortoise only occurs in California, therefore impacts to this species are no longer being considered in this evaluation.

Razorback sucker. This action will have no effect upon this species. The project will not occur within the Colorado River or affect the bed and bank of the river; therefore, any potential direct and indirect effects to this species will be avoided.

Bonytail chub. This action will have no effect upon this species. The project will not occur within the Colorado River or affect the bed and bank of the river; therefore, any potential direct and indirect effects to this species will be avoided.

4.2 Archeological Surveys and Reviews

The two areas subject to activities described in this plan were included in archaeological surveys conducted from August to November 2012, during which time tribal monitors were invited to observe, and monitors of some tribes were present for portions of the survey. A technical memorandum summarizing the findings of the archaeological surveys was sent to interested tribes by PG&E on January 10, 2013, and subsequently by BLM on January 15, 2013 (Applied Earthworks, 2012). Three archaeological and historical sites were located within these two areas. All archaeological and historical sites will be avoided during plan implementation to the maximum extent practicable, and this work will comply with all applicable cultural resource mitigation measures included in the *Programmatic Agreement, Cultural and Historic Properties Management Plan and* the adopted *Mitigation Monitoring and Reporting Plan* (DTSC, 2011b) for the project. Prior to any ground-disturbing activities, work areas will be reexamined to ensure that no resources are disturbed. Cultural resource-related documents generated during activities associated with this implementation plan will be made available for review by interested Tribes and the agencies.

The archaeological and historical sites will be protected from work activities and will be monitored during the course of work. The PG&E representative will be responsible for providing cultural sensitivity training to the workers implementing this plan and for ensuring compliance with all applicable archaeological measures during drilling activities. PG&E will invite participation from the Tribes, archaeological monitors, and agency staff, as appropriate, in this training.

Site orientation will stress that all site activities will be conducted in a respectful manner. Applied Earthworks, a professional cultural resources consulting firm, was retained by PG&E with DTSC approval. Applied Earthworks will observe ground-disturbing activities and will have the authority to temporarily divert or halt any activities in the event that previously unidentified potentially significant cultural resources are discovered. Specific steps to evaluate and safeguard any previously unidentified potentially significant cultural resources will follow the steps described in the EIR, Programmatic Agreement (PA), and Cultural and Historic Properties Management Plan (CHPMP) (DTSC, 2011a).

In addition, PG&E will invite the Tribes to arrange for tribal monitors to observe the activities in this plan. PG&E will work closely with tribal monitors to ensure that monitoring activity is consistent with security and health and safety considerations.

5. Schedule and Reporting

Figure 6 presents the estimated implementation schedule for the freshwater source evaluation. As illustrated, the target date for receipt of DOI and DSTC approval is the end of February 2013. Following approval, field mobilization is estimated to occur within the next three weeks. Exploratory drilling and groundwater sampling is estimated to require 6 field days per location for drilling and sample collection. Laboratory analysis and data validation activities will require approximately 7 days after sample collection. Approximately one week after the receipt of all validated laboratory data collected during the exploratory phase of the investigation a call will be scheduled with the agencies and interested stakeholders to discuss the path forward for supply well installation and aquifer testing. The installation of a supply well is estimated to require 5 field days for conductor casing installation and an additional 11 field days for well installation and development. Immediately following development an additional 8 field days are estimated for aquifer testing. Approximately one week after the receipt of all validated laboratory data collected during the supply well installation and aquifer testing phase of the investigation a call will be scheduled with the agencies and interested stakeholders to discuss whether the installation and testing of a second supply well is necessary. All field work is estimated to be complete by the end of May 2013 if one well is installed or the end of June 2013 if two wells are installed. As with previous well installation programs associated with the Topock Remediation Project, PG&E will provide the agencies and interested stakeholders with periodic schedule updates as mobilization dates are finalized and as work progresses in the field.

Per the December 31, 2012 letter from DTSC to PG&E the results of all activities conducted as part of this evaluation will be included in intermediate design addendum. This addendum will summarize fresh water source details (e.g., field activities conducted, evaluation of the data collected, and discuss associated conclusions and recommendations as they relate to the design objectives for the groundwater remedy) piping routes, and monitoring and contingency plan. This technical memorandum will be submitted to DOI and DTSC within 45 days after all field activities have ended and all validated groundwater analytical data have been received from the laboratory, but no later than the 90% design submission date for all other aspects of the remedy.

6. References

Applied Earthworks. 2012. *Technical Memorandum: Updated Archaeological Survey for the Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area*. December 19.

BLM. 2012. *Cultural and Historic Properties Management Plan (CHPMP) Topock Remediation Project*. U.S. Department of the Interior, Bureau of Land Management. January.

BLM. 2010. *Programmatic Agreement among the Bureau of Land Management, Arizona Historic Preservation Officer, California State Historic Preservation Officer, and the Advisory Council on Historic Preservation for the Topock Remediation Project in San Bernardino County, California and Mohave County, Arizona*. U.S. Department of the Interior, Bureau of Land Management. October.

CDFG. 2007. *Request to Amend Lake or Streambed Alteration Agreement (Notification No. 1600-2005-0140-R6)*. California Department of Fish and Game. January 10.CH2M HILL. 2013 in progress. *Basis of Design Report/Intermediate (60 Percent) Design Submittal for the Final Groundwater Remedy, PG&E Topock Compressor Station, Needles, California*. Prepared for the Pacific Gas and Electric Company.

CH2M HILL. 2012a. *Freshwater Source Evaluation, PG&E Topock Compressor Station, Needles, California*. Prepared for the Pacific Gas and Electric Company. April 27.

CH2M HILL. 2012b. *Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California*. November 20.

CH2M HILL. 2011. *Draft Basis of Design Report/Preliminary (30 Percent) Design Submittal for the Final Groundwater Remedy, PG&E Topock Compressor Station, Needles, California*. Prepared for the Pacific Gas and Electric Company. November.

CH2M HILL. 2007. *Programmatic Biological Assessment for the Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Action*. Prepared for the Pacific Gas and Electric Company.

DTSC. 2011a. *Final Environmental Impact Report for the Topock Compressor Station Groundwater Remediation Project*. California Department of Toxic Substances Control. January.

DTSC. 2011b. *Mitigation Monitoring and Reporting Program, Exhibit 2 to Attachment B, January 31, 2011 Memorandum to Karen Baker from Aaron Yue regarding Certification of the PG&E Topock Compressor Station Groundwater Remediation Final Environmental Impact Report.* California Department of Toxic Substances Control.

Geotrans. 2006. *Topock Groundwater Study, Topock, Arizona.* Final Report. August 23.

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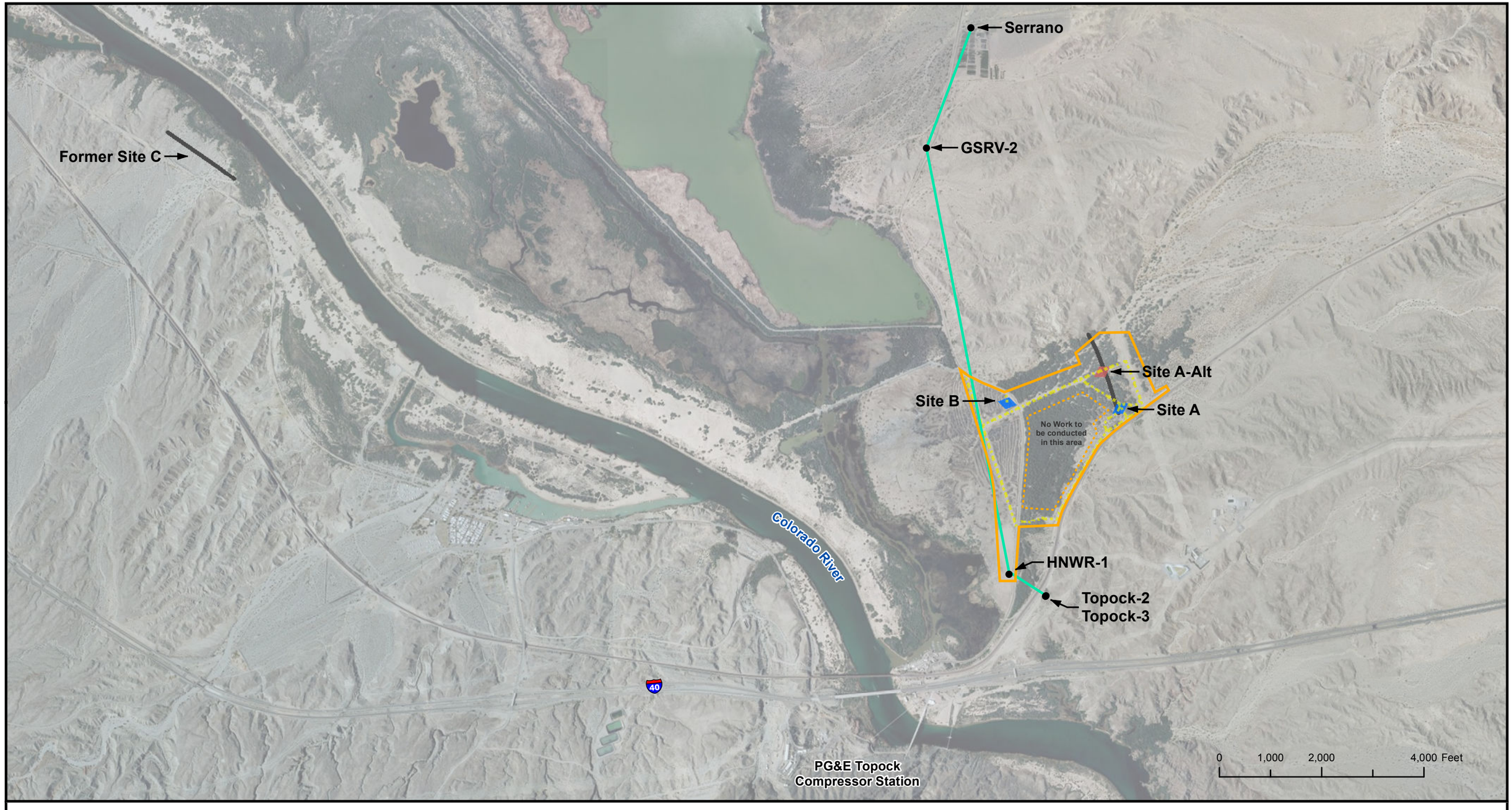
USFWS. 2013. *Extension and Modification of the Programmatic Biological Assessment for Pacific Gas and Electric Topock Compressor Remedial and Investigative Actions, January 2007 (Correction Letter).* January 9.

USGS. 1973a. *Geohydrology of the Needles Area, Arizona, California, and Nevada*. U. S. Geological Survey Professional Paper 486-J. Prepared by D.G. Metzger and O.J. Loeltz. Prepared for the U.S. Geological Survey.

USGS. 1973b. *Geohydrology of the Parker-Blythe-Cibola area, Arizona and California.* U.S. Geological Survey Professional Paper 486-G. 130 p. Prepared by D.G. Metzger, O.J. Loeltz, and B. Irelan. Prepared for the U.S. Geological Survey.

Figures



Approximate 1-acre area for primary work activities

- Freshwater Source Evaluation Locations
- Contingency Freshwater Source Evaluation Locations

- Existing Wells
- Conceptual Geologic Cross Section
- Surface Resistivity Survey
- Access Routes (excluding paved areas)
- Outer Boundary of Potential Work Area
- Inner Boundary of Potential Work Area

Note
Groundwater source evaluation sites (including contingency site) and access routes are not precisely located, and will be adjusted as necessary to minimze disturbance of biological and cultural resources.

FIGURE 1
SITE MAP

REVISED IMPLEMENTATION PLAN FOR EVALUATION OF ALTERNATIVE FRESHWATER SOURCES IN THE TOPOCK REMEDIATION PROJECT AREA
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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210-21-017
HNWR

210-21-007
AZ Land Trust

Site A-Alt

Site B

Site A

No Work To be
Conducted In This Area

Arizona County Highway 10

210-30-008
HNWR

210-30-008
HNWR

N

0 200 400 800 Feet

- Approximate Exploratory Boring/ Supply Well Location
- Approximate Sprinkler Location
- Approximate Route of Sprinkler Piping
- Existing Unpaved Access Route
- New Unpaved Access Route
- Approximate Sprinkled Area
- Approximate Freshwater Source Evalutation Work Area (1 acre)
- Approximate Contigency Freshwater Source Evalutation Work Area (1 acre)
- Potential Tank Storage Area
  - Actual area used will be less than area shown, and when combined with area used for drilling, will be within the one acre disturbance limit.
- Approximate Sprinkler Coverage Area
- 210-30-008 Approximate Property Lines
- Outer Boundary of Potential Work Area
- Inner Boundary of Potential Work Area
- Additional Area Surveyed for Biological and Cultural Resources
- Surface Resistivity Survey
- Waters of the State
- USACE Jurisdiction

Note
Groundwater source evaluation sites (including contingency site) and access routes are not precisely located, and will be adjusted as necessary to minimze disturbance of biological and cultural resources.

FIGURE 2
SITE A WORK AREA

REVISED IMPLEMENTATION PLAN FOR EVALUATION OF ALTERNATIVE FRESHWATER SOURCES IN THE TOPOCK REMEDIATION PROJECT AREA
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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Site B

No Work to
Be Conducted
In This Area

Irrigation pipe to existing HNWR
Revegetation Area. Details to be
finalized with HNWR prior to work

Arizona County Highway 10

210-30-008
HNWR

210-30-008
HNWR

HNWR-01

N

0 220 440 880 Feet

- Existing Supply Well Location
- Approximate Exploratory Boring/ Supply Well Location
- Approximate Sprinkler Location
- Approximate Route of Sprinkler Piping
- Existing Unpaved Access Route
- New Unpaved Access Route
- Approximate Sprinkled Area
- Approximate Freshwater Source Evalutation Work Area (1 acre)
- Approximate Contigency Freshwater Source Evalutation Work Area (1 acre)
- Potential Tank Storage Area
  - Actual area used will be less than area shown, and when combined with area used for drilling, will be within the one acre disturbance limit.
- Approximate Sprinkler Coverage Area
- 210-30-008 Approximate Property Lines
- Outer Boundary of Potential Work Area
- Inner Boundary of Potential Work Area
- Additional Area Surveyed for Biological and Cultural Resources
- Waters of the State
- USACE Jurisdiction

Note
Groundwater source evaluation sites (including contingency site) and access routes are not precisely located, and will be adjusted as necessary to minimze disturbance of biological and cultural resources.

FIGURE 3
SITE B WORK AREA

REVISED IMPLEMENTATION PLAN FOR EVALUATION OF ALTERNATIVE FRESHWATER SOURCES IN THE TOPOCK REMEDIATION PROJECT AREA
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

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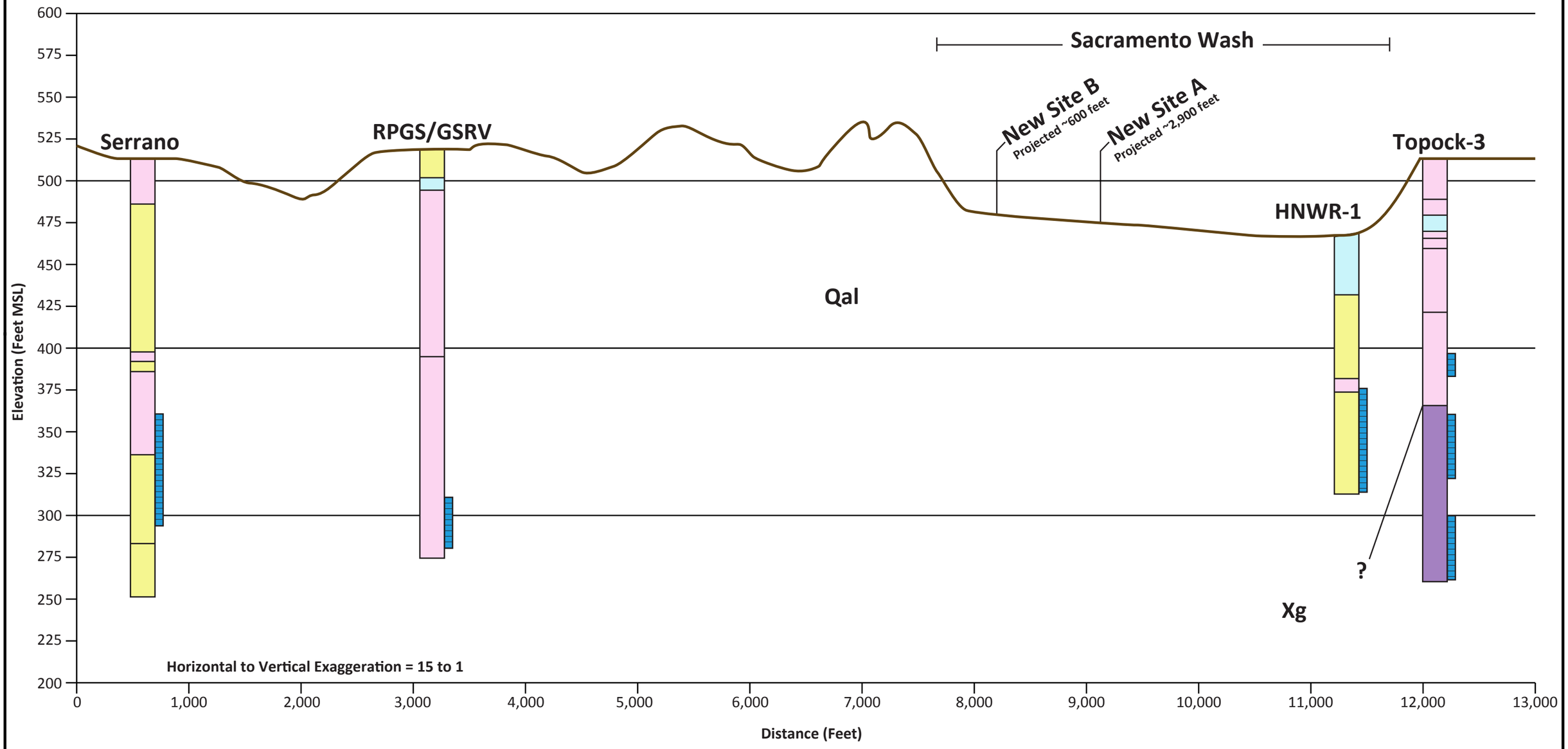


LEGEND

- Sand
- Gravel
- Clay
- Rock or Bedrock
- Well Screen

Qal = Quaternary Alluvium
Xg = Crystalline Bedrock

NOTE: The information displayed on this section is adapted from the Topock Groundwater Study report prepared for Arizona Department of Environmental Quality (Geotrans, 2006).

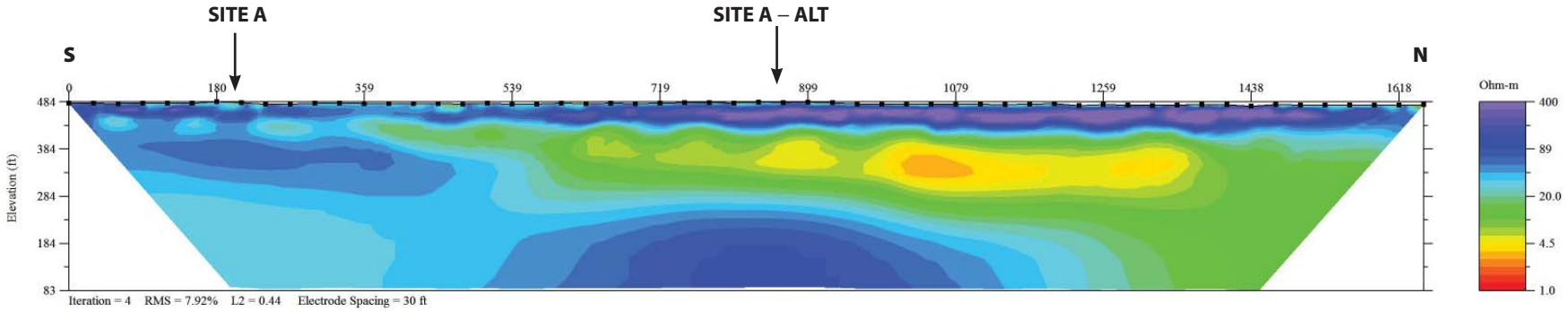
FIGURE 4
CONCEPTUAL GEOLOGIC CROSS SECTION

REVISED IMPLEMENTATION PLAN FOR EVALUATION OF ALTERNATIVE FRESHWATER SOURCES IN THE TOPOCK REMEDIATION PROJECT AREA
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

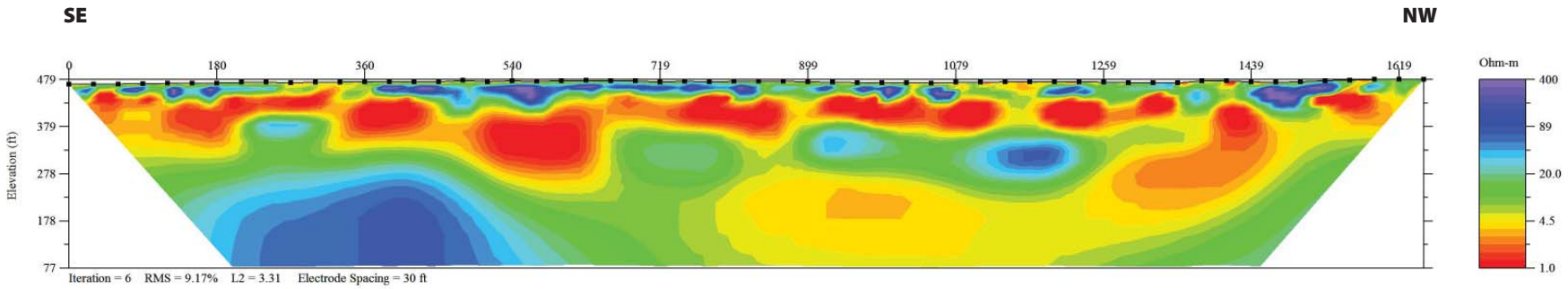
ES011013043044RDD_02 LA 1/23/13

ARIZONA – SITE A AREA



INVERTED RESISTIVITY SECTION

CALIFORNIA – SITE C AREA



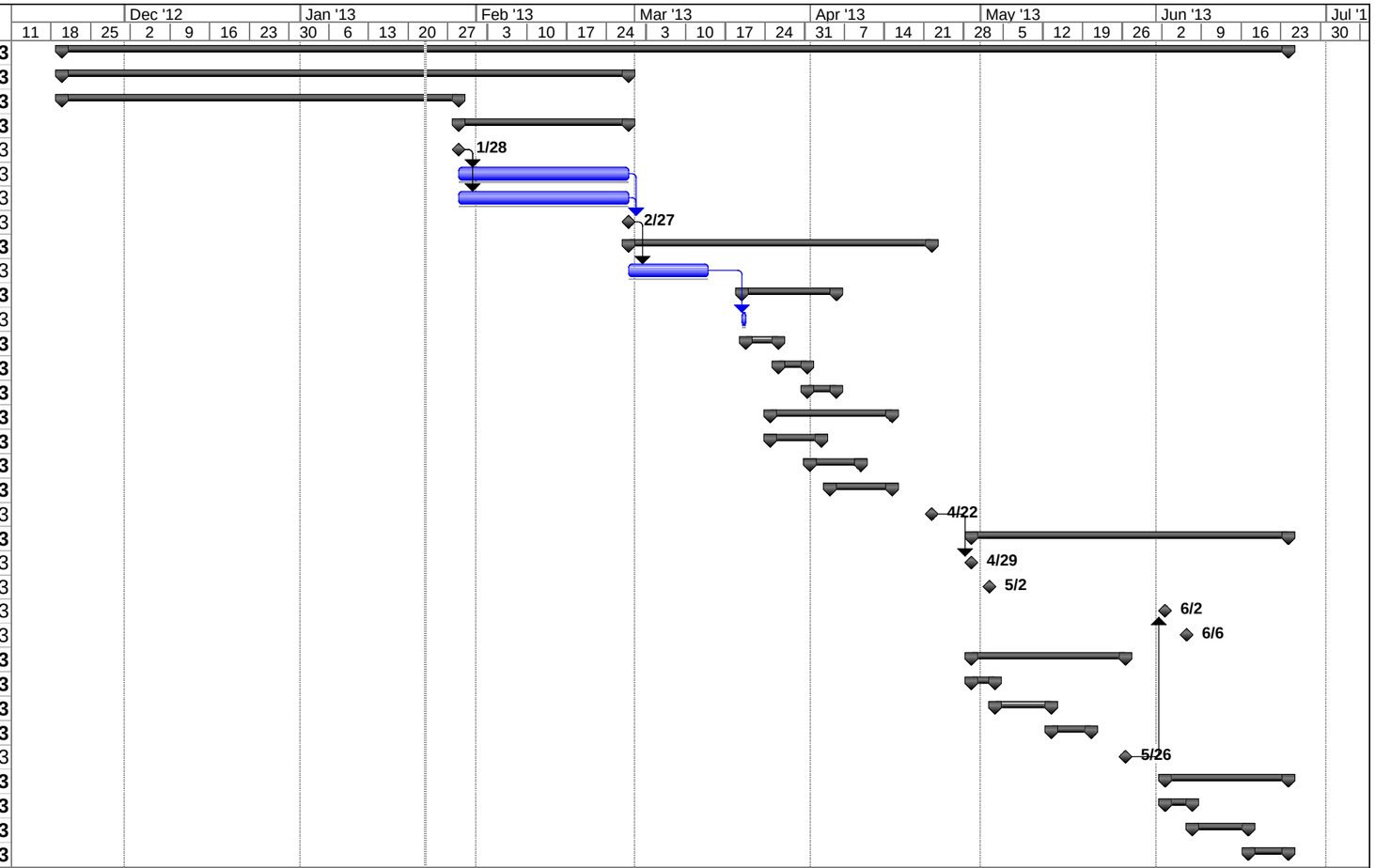
INVERTED RESISTIVITY SECTION

FIGURE 5

Summary of Surface Resistivity Data – Sites A and C

Revised Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area
PG&E Topock Compressor Station, Needles, California

ID	Task Name	Start	Finish
1	**Alternative Freshwater Source Evaluation**	**Tue 11/20/12**	**Mon 6/24/13**
2	**Implementation Plan Development/Approval**	**Tue 11/20/12**	**Wed 2/27/13**
3	**Draft Implmentation Plan**	**Tue 11/20/12**	**Mon 1/28/13**
9	**Revised Implementation Plan with RTCs**	**Mon 1/28/13**	**Wed 2/27/13**
10	Submittal to Agencies	Mon 1/28/13	Mon 1/28/13
11	DTSC Review/CEQA/EIR Addendum	Mon 1/28/13	Wed 2/27/13
12	DOI Review/Tribal Consultation/Approve	Mon 1/28/13	Wed 2/27/13
13	Receive Agency Approval	Wed 2/27/13	Wed 2/27/13
14	**Exploratory Drilling and Testing**	**Wed 2/27/13**	**Mon 4/22/13**
15	Tribal Notification of Planned Work	Wed 2/27/13	Wed 3/13/13
16	**Field Work**	**Wed 3/20/13**	**Fri 4/5/13**
17	Mobilization	Wed 3/20/13	Wed 3/20/13
18	**Site A**	**Wed 3/20/13**	**Tue 3/26/13**
23	**Site B**	**Tue 3/26/13**	**Sun 3/31/13**
28	**Site A-Alt**	**Sun 3/31/13**	**Fri 4/5/13**
33	**Laboratory Analysis and Data Validation**	**Mon 3/25/13**	**Mon 4/15/13**
34	**Site A**	**Mon 3/25/13**	**Tue 4/2/13**
37	**Site B**	**Mon 4/1/13**	**Tue 4/9/13**
40	**Site A-Alt**	**Thu 4/4/13**	**Mon 4/15/13**
43	Agency Call - Data Summary/Path Forward Check-In	Mon 4/22/13	Mon 4/22/13
44	**Supply Well Installation and Testing**	**Mon 4/29/13**	**Mon 6/24/13**
45	Mobilization 1 - Conductor Casing Rig	Mon 4/29/13	Mon 4/29/13
46	Mobilization 1 - Well Installation Rig	Thu 5/2/13	Thu 5/2/13
47	Mobilization 2 - Conductor Casing Rig	Sun 6/2/13	Sun 6/2/13
48	Mobilization 2 - Well Installation Rig	Thu 6/6/13	Thu 6/6/13
49	**Supply Well 1**	**Mon 4/29/13**	**Sun 5/26/13**
50	**Conductor Casing Installation**	**Mon 4/29/13**	**Fri 5/3/13**
55	**Well Installation/Development**	**Fri 5/3/13**	**Mon 5/13/13**
61	**Well Testing**	**Mon 5/13/13**	**Mon 5/20/13**
67	Agency Call - Data Summary/Path Forward Check-In	Sun 5/26/13	Sun 5/26/13
68	**Supply Well 2**	**Sun 6/2/13**	**Mon 6/24/13**
69	**Conductor Casing Installation**	**Sun 6/2/13**	**Fri 6/7/13**
74	**Well Installation**	**Fri 6/7/13**	**Mon 6/17/13**
80	**Well Testing**	**Mon 6/17/13**	**Mon 6/24/13**



Task | Progress | Summary | External Tasks | Deadline

Split | Milestone | Project Summary | External Milestone

FIGURE 6 - Forecast Implementation Schedule
Revised Implementation Plan for Evaluation of Alternative Freswater Sources in the Topock Remediation Area
PG&E Topock Compressor Station, Needles, California

Attachment A
Summary of Responses to Comments

Comments on Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California (submitted November 20, 2012)

Absolute Comment No.	Comment Source/ Number	Discussion Grouping/Topic	Section	Reference Text	Comment	Response to Comment
1	Arizona Department of Environmental Quality (ADEQ) Voluntary Remediation Program (VRP)	General Property lines and access agreements			The VRP requests PG&E to further define the property ownership for the sited locations on the Arizona side of the Colorado River discussed in Section 1 and shown on Figure 1. The VRP also requests copies of all applicable access agreements for the parcels in question.	Property ownership information will be added to site maps included in the Implementation Plan (IP). Copies of access agreements will be provided to the VRP prior to mobilization. Authorization to access lands owned by the federal government will be provided in the Department of Interior's approval of the Implementation Plan.
2	ADEQ VRP	General Long-term pumping effects, WATER-1			The VRP requests that PG&E discuss the potential impact of the hydraulic testing and potential long-term use of the proposed wells on the local and regional aquifer. The discussion should also include, at a minimum, impacts to the communities of Topock and Golden Shores, Arizona.	The potential impact of the hydraulic testing and potential long-term use of the proposed wells on the local and regional aquifer will be addressed by Mitigation Measures Reporting Program (MMRP), specifically mitigation measure WATER-1. The following text will be added to the Implementation Plan: "Initial assessments using an existing groundwater model indicated that there would be no adverse effect from continuous operation of the HNWR-1 on the nearest pumping wells (Topock 2 and 3), which are located less than 0.2 mile from HNWR-1. During the revegetation pilot project, HNWR-1 was routinely pumped at rates of approximately 1,000 gpm for periods of up to 12 hours per day with no reported adverse effects on any nearby wells. The proposed new well locations are approximately ¾ mile from the Topock 2 and 3 wells so pumping from these locations would have even less effect than pumping from HNWR-1. The Golden Shores wells are approximately 2.5 miles away, well beyond the radius where pumping at the proposed new well locations would be expected to have measureable effects. Further evaluations of the effects of pumping from the new well will be made during the design process, using estimates of hydraulic properties of the aquifer developed through testing of the new well."
3	ADEQ VRP	General VRP notification / communication			The VRP requests that PG&E copy the VRP project manager on correspondence related to this project regarding environmental matters that are submitted to Arizona agencies, whether they are city, county, or state.	The VRP Project Manager, Danielle Taber, will be copied on all correspondence related to this project regarding environmental matters that are submitted to Arizona agencies, whether they are city, county, or state.
4	ADEQ VRP	General PBA	Section 4.0		Please clarify what happens, or how the process changes, if the Programmatic Biological Assessment of 2007 is not extended.	The Programmatic Biological Assessment (PBA) of 2007 was extended on December 27, 2012 until December 31, 2017. Section 4.0 will be updated to reference this extension.
5	ADEQ VRP	Site A Pipeline owner(s)	Section 4.0, last paragraph		Please clarify who is the "affected pipeline company" mentioned in the last paragraph of Section 4.0.	The text will be revised to state that PG&E will coordinate with Transwestern and Kinder-Morgan pipeline companies, as necessary for Site A access.
6	ADEQ VRP	Permitting / Compliance VRP notification / communication			Please add the permitting requirements and approvals from Arizona agencies.	Anticipated approvals and substantive requirements from Arizona agencies will be added to Section 4.0 and Attachment B, respectively.
7	ADEQ VRP	General	Section 4.2, first paragraph		Within the first paragraph of Section 4.2, please clarify what "variously present" means.	Text will be revised to state that "…tribal monitors were invited to observe, and monitors of some tribes were present for portions of the survey."
8	DOI	General Use of HNWR-1			DOI has a preference of utilizing the existing HNWR-1 well rather than developing new roads on the Havasu National Wildlife Refuge or Bureau of Reclamation (BOR) lands managed by the Bureau of Land Management (BLM). Wells on Federal lands have the potential to impact cultural resources, to result in the loss of habitat, and to increase unwanted traffic into sensitive areas. PG&E should continue to work with the State and Regional Water Quality Control Boards to resolve the issue concerning arsenic and continue the evaluation of treatment options for arsenic. We recognize that a timely decision must be made on the path forward for a freshwater supply and intend to work closely with PG&E, DTSC, Tribes, and stakeholders to resolve this issue.	Comment noted.
9	DOI	Technical Approach			The maps in the current plan should be revised to include further detail on the well locations and potential discharge areas. Additionally, GPS coordinates of	Figures will be updated to indicate approximate well locations, discharge areas, and associated details which have been refined through discussions with the agencies since the initial submittal of the IP. Approximate well location coordinates

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		Site maps/GPS coordinates			the anticipated well locations should be included.	will be included in the text of the Plan; however, the actual well location may need to be adjusted slightly in the field to minimize disturbance of biological and cultural resources.
10	DOI	Site C Beale Slough ACEC			**California Proposed Well** The proposed well located in California is on land under the jurisdiction of BOR managed by BLM. This well location is within the Beale Slough Area of Critical Environmental Concern (ACEC). ACEC designations highlight areas where special management attention is needed to protect and prevent irreparable damage to important historical, cultural, and scenic values, and other resources. Furthermore, it is recognized that further impacts from associated supply well infrastructure would be realized if the well was located in this area. The Beale Slough ACEC well location is the least preferred location for the fresh water supply well.	Per the December 31, 2012 letter from DTSC to PG&E, DTSC has determined that exploratory work at or around the vicinity of the geophysical survey area Site C will not be approved. Therefore, Site C will be removed from the Plan.
11	DOI	Sites A and B Work sequencing/well locations			**Refuge Area Proposed Wells** Several acres of habitat on the HNWR could potentially be disturbed as a result of the proposed drilling. The discussion of an access road 15 feet in width through the tamarisk and mesquite is a point of concern. The existing HNWR-1 well has good access and would not incur new disturbance. If the existing HNWR-1 well is not used, Site B would be next in preference for wells within the Refuge. It is our expectation that this well would be located as close to the existing road as possible and that new disturbance would be minimized. Of the two sites, Site A is the least preferred location on the Refuge as it has the most potential for wildlife and habitat disturbance.	It is understood that the HWNR prefers the use of existing well HNWR-1 over the installation of new freshwater supply well(s), and if a new well is required, Site B is preferred over Site A. The viability of a freshwater supply well at either Sites A or B will not be known until results from the two phases of work (exploratory drilling and groundwater sampling, and well installation and testing) are obtained. In response to HNWR concerns about disturbance, PG&E analyzed multiple approaches to the sequencing of this work considering schedule impact and level of disturbance, and resources. Based on this analysis, the following revised approach to work sequencing was developed:. 1. Mobilize to conduct exploratory drilling and groundwater sampling at both Sites A and B. Demobilize the exploratory rig when complete. It should be noted that the overall level of disturbance/waste generation is far less for the exploratory work compared to supply well installation and testing (i.e., much less waste is generated during the exploration work, and less equipment is required for access) 2. Discuss exploratory data with the agencies. In general: a. If water quality (e.g., key analytes at concentrations below the MCL [see planned analytical list in Section 3.1]) and geologic data (e.g., a significant thickness [tens of feet] of coarse sand and gravel) from only one of the sites is favorable, then a supply well will be installed at that site, and the other will not be pursued any further. b. If water quality/geologic data from both sites is favorable, then a supply well will be installed at Site B only for subsequent testing. 3. Mobilize to install and test one supply well. Demobilize well installation and testing equipment when complete. 4. Discuss supply well testing data with the agencies. Generally, a supply well will be considered a viable source of freshwater for the groundwater remedy if a sufficient quantity of high quality water as required by the remedy can be sustained. If the well does not prove to be a viable source of freshwater for groundwater remedy operation then a supply well will be installed at the second location (unless it was already disqualified based on the exploratory data). By taking a more phased approach to supply well installation and testing, the overall level of disturbance/waste generation is minimized, and supply well installation can be prioritized for Site B. See response to Comment 13 regarding the actions required to establish work access routes.
12	DOI	Sites A and B Number of wells / level of disturbance			**Refuge Area Proposed Wells (continued)** During a site visit between PG&E and the Refuge Manager on December 5, 2012, the possibility of utilizing more than one well simultaneously was discussed; i.e., production from both the Site A and B wells. However, this option further increases wildlife and habitat disturbance on the Refuge and should not be evaluated further. Alternatively, use of the Site B well along with the HNWR-1 well may be considered. Trimming of tamarisk for well location access is not a significant concern. Preference for trimming of tamarisk over mesquite should be stated in the plan. Trimming or removal of other native trees such as palo verde should also be avoided where possible. For any newly disturbed areas or abandoned well sites located within the HNWR, PG&E shall provide mitigation by planting disturbed areas with native vegetation.	Comment noted. While up to two wells might need to be installed initially to determine the viability of a freshwater supply, only one of the wells would be kept for long term operation of the groundwater remedy (i.e., only one well would be piped to the remediation system). See response to Comment 13 regarding the actions required to establish work access routes, including trimming of vegetation.
13	DOI	Sites A and B			**Refuge Area Proposed Wells (continued)**	Comment noted. It is anticipated that only existing roads and access pathways requiring minimal access improvements in

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		Site security / road construction			PG&E should propose methods for securing roads located within the Refuge. Refuge administrative roads (closed to public access) are gated, posted as closed, and patrolled to prevent unwanted traffic. The Refuge would prefer that new roads be constructed outside of refuge lands, other than minimal access improvements where needed. Both Site A and B would need security measures implemented to minimize the potential for unauthorized trespass. During testing, temporary fencing may be needed to prevent public trespass. After a well site is selected, permanent fencing may be needed and the footprint of this fencing on refuge lands should be kept to a minimum.	select areas will be used during the work proposed in the Plan. The grading of new access pathways is not planned. The access pathway for Site B will be established along a previously disturbed, flat area. Based on the pre-construction state, this area will require stabilization (e.g., with gravel) as opposed to grading for use as an access route. The removal of vegetation is not planned to gain access for equipment; however, the trimming of vegetation may be required. Trimming, if required, will be focused on non-native species (e.g.., tamarisk) and the trimming of native species (e.g., palo verde and mesquite) will be avoided or minimized to the extent practicable. Prior to mobilization, a biologist will identify all acceptable access routes, staging areas, and work zones. In addition, a biologist will be on site during all vegetation trimming activities. All gated access routes will be maintained closed during working hours. Based on site experience communicated by HNWR during the January 3, 2013 comment resolution meeting, PG&E will plan to have a security detail present at all work sites during non-working hours to manage the potential for unauthorized trespass. Following well installation and testing, installed well heads will be secured with fencing and/or other security measures as determined appropriate and permissible by the HWNR. Various portions of the Plan will be revised to include this information.
14	DOI	Sites A and B Wellhead design			**Refuge Area Proposed Wells (continued)** If a supply well is located on the Refuge, PG&E shall coordinate with FWS to ensure that the wellhead setup provides for alternative water uses (e.g., Refuge reclamation). The Refuge may secure future funding to conduct restoration work near Site B; however, current plans are focused on restoration of the area adjacent to the HNWR-1 well. The Refuge does not anticipate restoration work at Site A.	A coordination step with the FWS regarding well head design will be specifically stated in the Plan.
15	DOI	General Level of disturbance	Section 3.1, first paragraph		The one acre disturbance of upland habitat per borehole seems unusually large, particularly when minimizing the impact is preferred. Please provide additional explanation.	The estimated upper limit of 1 acre of disturbance is included based on language included in the PBA; however, the actual area of disturbance is anticipated to be less than 1 acre per borehole. While the footprint for all of the equipment required to conduct this work is estimated to be about an acre, based on experience from previous drilling activities, the majority of this footprint area does not result in disturbed habitat (i.e., the removal of vegetation). The last sentence of the first paragraph in Section 3.1 will be revised as follows: "Per the Programmatic Biological Assessment, up to 1 acre of upland habitat may be disturbed during work at each exploratory drilling site; however, the work will be conducted such that the total area disturbed is minimized."
16	DOI	Technical Approach Total depth of exploratory boreholes	Section 3.1, second paragraph		Please provide a short description of the factors used to evaluate the total depth of the exploratory boreholes. For example, why drill to 400 feet bgs when the target is at a depth less than 200 feet bgs? Twice as much waste is generated by drilling to this depth. Additionally, please define borehole capacity. Is this a measure of permeability or transmissivity?	The target depth of 200 feet bgs is estimated based on review of literature, and is not based on site-specific information. If good quality water and permeable aquifer materials exist below 200 feet depth, it would be prudent to extend the well to greater depths in order to maximize the production rate. Conversely, it would be important to know if poor quality water exists at depths below the freshwater zone, as was found in the Topock-3 well, it could be prudent to screen the well at shallower depths to avoid drawing in the poor quality water. Therefore, the investigation depth of 400 feet is being used for the exploratory boreholes in order to collect as complete a data set as reasonably possible from which to design the production well. Bedrock is not a target source of freshwater supply, and therefore the exploratory boreholes would not be drilled into bedrock any deeper than that required to confirm its occurrence. Borehole capacity is a qualitative measurement of aquifer yield (observing drawdown in the borehole for a given extraction rate during drilling or testing of the open borehole), but cannot be used as a measure of permeability or transmissivity. Section 3.1 will be revised to include this additional information.
17	DOI	Technical Approach Field measurements	Section 3.1, second paragraph		It makes sense to also measure, DO, ORP, conductivity, temperature, and pH in the field. This data will complement the drill log to identify the target zone.	Concur. These field measurements are routinely collected during groundwater sampling at the site. The text will be revised to explicitly include the collection of these measurements.
18	DOI	Technical Approach Number of wells	Section 3.2, first paragraph		Please describe the criteria (e.g., conditions, chemistry, and flow rate) that would be used to justify the drilling of one or two groundwater supply wells. Considering the large disturbance and waste generation (soil and water) from well construction and testing, it can be presumed that the chemical and flow data should indicate a very high potential for the success of the water supply well for this project for drilling to occur.	If the exploratory boring encounters a significant thickness (tens of feet) of coarse sand and gravel and shows good water quality(e.g., analyte concentrations below the MCL), then it would appear that there is a good chance of getting adequate supply from that location and only one well would likely be drilled. If the exploratory boring encounters less favorable aquifer conditions but good water quality at both locations, then it might be necessary to drill and test two wells to determine if either of the locations is able to provide an adequate supply. If either of the exploratory boreholes encounters poor water quality in the permeable portions of the aquifer at the target depth, then no well would be constructed at that location. Note that the water quality produced from a long screen well is a flow-weighted average of water quality from many different flow zones zone within the well screen. It is possible to have less than acceptable water quality in a zone that doesn't yield much water and still have a well that produces acceptable water quality. For that reason, there should be

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						more weight given to sample results from the high permeability sections of the exploratory boreholes and less weight given to samples from the low permeability sections. Also see response to Comment 11 regarding prioritization of Site B.
19	DOI	Technical Approach Criteria for hydraulic testing / pipe layout	Section 3.2, last paragraph		This paragraph notes that a constant-rate extraction test "might be conducted" at the existing well. The plan should indicate the criteria that would be used to determine if the test is warranted. Additionally, the final design of the irrigation pipe layout should be include in the implementation plan for the HNWR well and other wells for agency approval. Irrigation practices should minimize the potential for erosion and ponding.	If the aquifer contains abundant coarse grained material and observations of pumping water levels during well development indicate abundant well capacity, then it might be possible to confirm well capacity with a short-term step-rate extraction test rather than a longer term constant-rate test. If the aquifer conditions and well capacity appear marginal during drilling and development, then a constant-rate pump test would be prudent to prove the well capacity. As discussed during the January 3, 2013 comment resolution meeting the preliminary design for water discharge systems will be included in the Plan. The preliminary design will provide readers with a genferal understanding of the equipment and layout planned to discharge water; However, specific details (e.g., pipe diameter, specific sprinkler location and range, etc.) might need to be adjusted based on actual field conditions (e.g., well capacity or location of sensitive biological or cultural resources) at the time of testing. The Plan will be revised to include this additional information.
20	DOI	Sites A and B Discharge of water / survey for invasive plant species	Section 3.3, bullet 2		Please provide additional details on the discharge and management of the millions of gallons of water that would be generated during a constant rate aquifer test. If water is to be discharged to a wash, what is the expected fate of the water and how will discharge to the river be precluded? The text states that water will not be allowed to reach the river but provides no information on how this will be accomplished and include contingencies for events such as rain during testing. At Site A, the Refuge is concerned that using sprinklers to disperse the water during well testing may cause an increase in invasive plant species, as well as increased feral hog usage if any water impoundment occurs. Using the small washes that feed into the larger wash for test water dispersal might be a better option than wholesale sprinkling. For well testing at Site B, the Refuge Manager would prefer that the water be piped to the existing restoration area, by the HNWR-1 well, to be dispersed by sprinklers. Further discussions on irrigation should be held between PG&E and Refuge personnel. It is expected that personnel will remain onsite during the duration of the well testing at any of the locations to prevent improper discharge or impounding of water. A survey (or surveys) for invasive plant species shall follow well testing and necessary corrective actions shall be taken to address invasive species if problems are identified. PG&E shall coordinate with the Refuge Manager on the timing of the survey(s).	The approach to discharge large volumes of water generated at Sites A and B was discussed in detail during the January 3, 2013 comment resolution meeting. The HNWR-preferred approach to discharge is to utilize existing wash channels such that the potential for an increase in invasive plant species or feral hog usage (in the event of impounded water, which is not planned) is minimized. However, PG&E noted that direct discharge to the channels may not be practicable if infiltration rates are not high enough to prevent runoff from reaching barriers like the Colorado River or Arizona County Highway 10, and to manage this potential for runoff, would prefer to use sprinkler systems in existing open areas (outside of the wash channels). As a part of this approach, PG&E would also plan to conduct reconnaissance of the irrigated area approximately 1-2 months after work (or as directed by HNWR) to determine if the irrigation stimulated unwanted vegetation. If so, PG&E will work with HNWR to determine if mitigation in the form of herbicide application may be required. Proposed irrigation areas are indicated on the site maps for Sites A and B. In addition to the discharge area indicated for Site B, PG&E will include piping and equipment in the irrigation system such that some discharge water can be delivered to the area of the ongoing Sacramento Wash Revegetation Project. Personnel will remain on site during the duration of discharge activities to monitor for persistent ponding and runoff. Water will be discharged to these areas in a manner that minimizes ponding and limits the potential for runoff. During discharge, if persistent ponding or runoff towards a jurisdictional channel, the Colorado River, or Arizona County Highway 10 is observed, corrective action (e.g., modification of sprinkler layout, change in discharge rate, or using hand tools to control disperse ponding/control runoff) will be taken. If it is determined that persistent ponding or runoff cannot be easily corrected, then discharge will be discontinued. If rainfall occurs during discharge to the extent that the runoff of discharged water cannot be effectively monitored, then the discharge will be discontinued. The Plan will be revised to include this additional information.
21	DOI	Sites A and B Access routes / road construction	Section 4.1.2		The first paragraph notes that the "cutting of an access road up to 15' wide within the thicket" may occur. If a road is anticipated, details of the specific route must be defined in this plan. Avoidance of the thicket and mesquite stand is preferable.	This statement will be deleted. All access routes will be over existing access roads or pathways that will only require minimal access improvements in select areas.
22	DOI	General Trimming of vegetation	Section 4.1.3		There is a preference for trimming of tamarisk rather than native species such as mesquite or palo verde.	Comment noted. As with other work conducted as part of the Topock Remediation Program, native species will be avoided to the fullest extent practicable. It should also be noted that there is a mitigation measure specified in the EIR for transplant or replacement of indigenous plants of cultural significance if they cannot be avoided and destroyed (CUL-1a-5). Also see response to Comment 13.
23	DOI	General Plan approval process and timing	Section 5		DOI will coordinate the timing of approval of the implementation plan with DTSC. December approval should not be expected.	Comment noted.
24	DTSC-1	General Geologic or conceptual cross-	Pg 1, Section 1. Locations for		Suggest adding geologic cross-sections or conceptual section as a starting point for areas C and A/B. Would especially like to see the older formations in section at Site C.	Unfortunately, at Sites A and C there are no geologic data from which to construct cross sections prior to drilling exploratory borings. Site B is near HNWR-1, but that well only penetrated only a portion of the aquifer and by itself doesn't provide sufficient data for a meaningful cross section. Geotrans provided a cross section (Figure 2-4) between Topock-3 and Golden Shores in their Arizona Groundwater Study report prepared for ADEQ, but the two nearest wells on this

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		sections	Freshwater Source Evaluation			section, Topock-3 and GSRV-1 are not located in the channel of Sacramento Wash so they don't provide any information about the fluvial gravel that is the target of this investigation. As discussed during the January 3, 2013 comment resolution meeting a conceptual section incorporating Sites A and B and the any available regional data will be included in the revised Plan. A section will not be generated for Site C because it is being removed from the plan per the December 31, 2012 letter from DTSC to PG&E.
25	DTSC-2	Site C Site location	Pg 2, 3rd bullet. Site C		Some concern with Site C location as it is located close to older rock outcrops that, at least in some areas, contain large amounts of clay and silt. Being so close, one might expect finer-grained material to be incorporated into the newer wash and adversely alter yield. Consider adding a location to another wash to the north. Possibly a contingent location dependent on results from this area.	Per the December 31, 2012 letter from DTSC to PG&E, DTSC has determined that exploratory work at or around the vicinity of the geophysical survey area Site C will not be approved due in part to the proximity of Site C to culturally sensitive areas and a BLM-designated Area of Critical Concern (Beale Slough). Therefore, Site C will be removed from the IP. PG&E does not consider areas north of Site C viable due to logistical constraints and cost.
26	DTSC-3	Site C Site location	Pg 2, 3rd bullet. Site C		Should consider and look at old aerials photos of where Colorado river meanders to attempt to co-locate a boring location within recent wash deposits by high energy river deposits.	See response to Comment 25.
27	DTSC-4	Site C Grading and access improvements	Pg 2, 3rd bullet. Site C	"Once at the base of the wash, minor leveling might be required in select areas along the access pathway or in the work area."	What is considered "minor leveling?" According to Certified EIR, grading work for the purpose of well installation is defined to be approximately 1/2 acre.	See response to Comment 25 regarding Site C. Regarding Sites A and B, the term "minor leveling" has been removed from the text and additional detail is provided in response to comment 13.
28	DTSC-5	Site C Access routes / bio/cul surveys	Pg 2, 3rd bullet. Site C	"Alternatively, an access route might be established across Reclamation land from the southeast, which would require the trimming of some vegetation."	Has all the access routes been culturally and biologically surveyed? If not, would that be conducted prior to final selection and part of design?	See response to Comment 25. Regarding Sites A and B, all access routes have been surveyed for cultural and biological resources.
29	DTSC-6	Site C Property lines	Pg 2, 3rd bullet. Site C	"This site is located in California on either private or Reclamation land…"	Please include a figure that shows the land ownership information with boundaries of the parcels. Currently there is no way of understanding what activities are conducted in private land vs. BOR land.	See response to Comment 25.
30	DTSC-7	General Anticipated T-2/T-3 water quality	Superscript 1 for Section 2	"Topock-2 and Topock-3… there are not currently significant differences in the water quality, and there is greater uncertainty about the future water quality as well as the quantity of water available."	DTSC agrees that Topock 2 and 3 do not present any quality difference to HNWR-1. Please explain the basis for stating that there is *greater uncertainty* of future water quality and quantity.	The casing of Topock-3 is in very poor condition, so the future ability of this well to continue to provide water, especially if the pumping rate were dramatically increased as would be necessary for the remedy, is uncertain. In addition, it is known that poor quality water exists in aquifer below the bottom of Topock 3, so future water quality might decline at increased pumping rates. At HNWR-1, the casing is in good shape so it is not likely to collapse. HNWR-1 is likely in a thicker portion of the aquifer with greater distance to bedrock than Topock 3 and therefore may not be as likely to pull in poor quality water from below.
31	DTSC-8	General Definition of well "testing"	Section 3 – Freshwater Source Evaluation	"Exploratory boreholes will be drilled and tested at up to four locations…"	Appears to use the word "testing" for both groundwater sampling of exploratory borings and pump test of supply wells. This is confusing. Need to differentiate work in text.	Section 3.0 will be renamed: "Exploratory Borehole Drilling and Groundwater Sampling." References to "testing" within this section will be changed to "sampling".
32	DTSC-9	General Definition of well "testing"	Section 3.1 – Header	Exploratory Borehole Drilling and Testing	Recommend - Exploratory Borehole Drilling and Groundwater Sampling	See response to comment 31 (DTSC-8).
33	DTSC-10	General Level of disturbance	Section 3.1 – end of 1st Paragraph	"Potentially 1 acre of upland habitat is expected to be disturbed for each exploratory borehole."	What is the basis for this 1-acre estimate?	See response to comment 15 (DOI).
34	DTSC-11	Technical Approach Analytical list	Section 3.1 – 2nd paragraph	"All groundwater samples will be analyzed for total and hexavalent chromium, arsenic, iron, manganese, silica, fluoride, and nitrate."	If idea is to determine quality of water, shouldn't a full suite of analytes be conducted? Why not analyze all metals (Title 22), is this subset consistent with sampling done for HNWR-1?	The list of planned analyses for exploratory groundwater samples will be revised for consistency with HNWR-1, plus gross alpha and beta as requested in Comment 35 (note that gross alpha and beta were not included in the HNWR-1 analytical list). The last two sentences of the subject paragraph will be revised as follows: "All groundwater samples will be analyzed for Title 22 (CAM 17) metals, silica, fluoride, and nitrate. A subset of samples (approximately half of those collected) will be analyzed for the list of water quality parameters that were used to characterize HNWR-1, including CAM 17 metals, perchlorate, petroleum hydrocarbons, pesticides, polyaromatic

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						hydrocarbons, polychlorinated biphenyls, herbicides, chloride, sulfate, nitrate, nitrite, fluoride, bromide, phosphate, general minerals, total organic carbon, pH, gross alpha and beta, and stable isotopes of hydrogen and oxygen"
35	DTSC-12	Technical Approach Analytical list	Section 3.1 – End of Second Paragraph	"All groundwater samples… will be analyzed for a longer list of water quality parameters, including…"	For long list, do comprehensive analyses, e.g., all metals, perchlorate, even gross alpha and beta, etc. as we are trying to assess a fresh water source.	See response to comment 34 (DTSC-11).
36	DTSC-13	General Definition of well "testing"	Section 3.2 – Header	"Freshwater Supply Well Installation and Testing"	"Testing." Is this Aquifer or Hydraulic Testing?	The title of Section 3.2 will be changed to be "Freshwater Supply Well Installation and Aquifer Testing".
37	DTSC-14	General Definition of well "testing"	Section 3.2 – 1st sentence	"Based on the data collected during exploratory drilling and testing…"	Change 'testing' to 'groundwater sampling"?	Concur. This revision will be made.
38	DTSC-15	General Communication of data/well design	Section 3.2 – 2nd paragraph	"Well construction details will be determined based on the lithologic, water quality, and hydraulic data collected from the exploratory borehole."	When will PG&E share these information with agencies and stakeholders to evaluate proposal for well construction design for supply well(s)?	A conference call to brief the agencies and tribes will be scheduled after all validated data is obtained, and prior to mobilization for supply well installation. A second call will be schedule to discuss the results of the supply well installation and testing, and prior to mobilization to install a second supply well (if determined necessary).This is currently shown in the detailed forecast schedule (revised Figure 3) prepared in response to Comment 53 (DTSC-30).
39	DTSC-16	Technical Approach GW sampling / analytical list / periodic monitoring	Section 3.2 - Freshwater Supply Well Installation and Testing		The section should be expanded to describe groundwater well sampling. Sampling is suggested prior to and during the duration of the aquifer tests. Analytes need to be specified. A long, comprehensive list should also be proposed for periodic monitoring.	The requested details regarding frequency and laboratory analysis will be added to the section. Regarding analysis, "short" and long" lists of analyses will be consistent with those defined in Section 3.1 (Exploratory Borehole Drilling and Groundwater Sampling). The following paragraph will be added to Section 3.2: "Samples will be collected during the constant rate aquifer test to evaluate if water quality is changing over time. For a four day test, the sampling times will be 1 hour, 6 hours, 12 hours, 24 hours, 48 hours, 72 hours and 96 hours after the start of the test. In addition to field parameters, all groundwater samples will be analyzed for Title 22 (CAM 17) metals, silica, fluoride, and nitrate. Samples from the beginning and end of the test (1 hour and 96 hours) will be analyzed for a longer list of analytes, including CAM 17 metals, perchlorate, petroleum hydrocarbons, pesticides, polyaromatic hydrocarbons, polychlorinated biphenyls, herbicides, chloride, sulfate, nitrate, nitrite, fluoride, bromide, phosphate, general minerals, total organic carbon, pH, gross alpha and beta, and stable isotopes of hydrogen and oxygen. If the test ends early, then a sample will be collected near the end of the test and analyzed for the long list of parameters."
40	DTSC-17	Technical Approach Discharge constraints	Section 3.2 – 3rd paragraph	"…the duration of these tests might need to be adjusted shorter or longer depending on the data collected and/or as discharge constraints are identified."	Please discuss anticipated discharge constraints. Does this also include the potential for discharge water to percolate back into groundwater during the hydraulic test period, such that it would affect the results of the pump test?	The following statement has been added to Section 3.2: Discharge constraints include persistent ponding, runoff towards a jurisdictional channel, the Colorado River, or Arizona County Highway 10, or filling storage vessels (if used). Because water generated during testing will be discharged to the ground surface (assuming water quality is acceptable) it is possible that infiltration of discharged water could begin to influence water levels in the aquifer during a long-term pumping test.. The purpose of this pumping test is to establish the capacity of the well rather than provide estimates of aquifer properties. The infiltration of discharged water is a relatively slow process that will occur over a relatively large area and likely have only small effects on the production rate of the well during a four day test. It is not likely that the results of the test would be substantially skewed due to infiltration of test water. The only way to eliminate the potential for any interference of test water is to either discharge farther away from the area or to the River, or to truck or pipe the water offsite, and none of these options is practicable.
41	DTSC-18	General Communication of data / level of agency involvement in well testing	Section 3.2 – end of 3rd paragraph	"Data collected from these tests will be incorporated into design of the final groundwater remedy."	When will hydraulic test results be evaluated and shared with agencies? Will information be seen for the first time at 60% design? How much involvement will agency have on aquifer tests? When will decision be made if the wells are adequate (or not)?	Per the December 31, 2012 letter from DTSC to PG&E, this information will be included in the intermediate design addendum with freshwater source details. Section 5 will be revised to include this direction. As discussed during January 3, 2013 comment resolution meeting, PG&E will regularly update the agencies during work to communicate the field work schedule. It is understood that the agencies may provide field oversight during select portions of the work.
42	DTSC-19	Technical Approach Location of water discharge / flooding analysis	Section 3.2 – Hydraulic tests		How and where is PG&E proposing to disperse or discharge the extracted water? PG&E must analyze the potential flooding of the area from constant rate tests as well as the resulting effects to the environment.	See response to Comment 20. As discussed during the January 3, 2013 comment resolution meeting, the criteria detailed in the response to Comment 20 regarding the limitation of persistent ponding and runoff towards a jurisdictional channel, the Colorado River, or Arizona County Highway 10 will provide sufficient information to demonstrate that the effects of potential flooding of an area from constant rate tests (note that flooding is not planned) have been considered.

Absolute Comment No.	Comment Source/ Number	Discussion Grouping/Topic	Section	Reference Text	Comment	Response to Comment
43	DTSC-20	General EIR MM compliance	Section 3.3 – 1st bullet, Drill Cuttings		Since this implementation plan will commence prior to other construction activities for the remedy, PG&E must lay out all operating procedures that would be followed to substantively meet the objectives of the adopted certified EIR mitigation measures. As an example, for disturbed soil, PG&E should discuss soil management in accordance to the protocol drafted by the disturbed soil subgroup absent of an approved Cultural Impact Mitigation Program. DTSC suggests preparation of a mitigation compliance table with PG&E's proposed procedures to be followed during implementation of this plan.	An analysis of the operating plans and/or procedures required to address the objectives of each mitigation measure included in the certified EIR will be presented in a mitigation compliance table. This table will be incorporated as new Attachment A to the revised Plan.
44	DTSC-21	Technical Approach Differentiation of discharge water	Section 3.3 – 2nd bullet, Purged groundwater	"Purged groundwater will be discharged directly to the ground surface using a discharge pipe or surface irrigation system."	Type of well testing should be define - Aquifer or Hydraulic Testing? It is recommended that "purge water" be differentiated between groundwater well development, sampling purge water, and hydraulic testing purge water.	See response to Comment 20. As discussed during the January 3, 2013 comment resolution meeting, additional detail regarding the discharge of water (in general) is sufficient to satisfy this comment. Discussion of the discharge of water by type (e.g., development water vs. hydraulic testing purge water) is not required.
45	DTSC-22	Technical Approach Avoiding discharge to the river / discharge area	Section 3.3 – 2nd bullet, Purged groundwater	"Under no conditions will the surface discharge be allowed to reach the Colorado River."	How will PG&E stop flow to river? Also, need to define area of flooding on the map.	See response to Comment 20. It is impossible to predict the infiltration rate of the discharge areas. Therefore, the degree of infiltration and runoff will be closely monitored at all times during discharge. The discharge will be stopped if it is determined that persistent ponding and runoff towards a jurisdictional channel, the Colorado River, or Arizona County Highway 10 cannot be effectively controlled.
46	DTSC-23	General EIR MMRP / substantive compliance with CIMP objectives	Section 4 – 2nd paragraph	"In carrying out the activities presented in this implementation plan, PG&E will comply with applicable mitigation measures set forth in the adopted Mitigation Monitoring and Reporting Plan (DTSC, 2011b) for the project."	Reference to MMRP - We do NOT have a CIMP in place yet. PG&E will need to provide specific procedures to be in place and how will they substantively meet the objectives of the CIMP.	See Response to Comment 43. The mitigation compliance table will include the mitigation measures included in the certified EIR that specify requirements of the CIMP.
47	DTSC-24	General Jurisdictional waters and associated constraints	Section 4 – 3rd paragraph	"Portions of the plan activities are within the jurisdiction of the California Department of Fish and Game (CDFG)…"	Where are these areas? Who else has jurisdiction of the proposed activities and what are those jurisdictional constraints? PG&E should identify these constraints within the work plan.	Subsequent to submittal of the plan, a survey was conducted to delineate/map jurisdictional waterways within the project area. These areas will be added to the site maps for Sites A and B. As discussed in the response to Comment 20, water will not be discharged to these jurisdictional areas.
48	DTSC-25	General CERCLA exemption / compliance with substantive requirements	Section 4 – 3rd paragraph	"…work plan activities will be performed in compliance with the substantive requirements of California Fish and Game Section 1602."	Since PG&E will be relying on the CERCLA permit exemption for activities that may otherwise require a permit, PG&E should define all such substantive requirements within the workplan and procedures for compliance. Current statement is vague on the requirements and the compliance procedures.	A summary of all substantive requirements associated with this evaluation are presented in Attachment B (Tables B-1 and B-2).
49	DTSC-26	General Site maps	Section 4.1.2 – 1st paragraph	"The proposed alternate route for Site C may encroach minimally into the floodplain… it is possible that operational activities and loss of tamarisk and mesquite could alter the behavior of migrating birds."	More detailed maps should be attached to the work plan to clearly show primary and alternate access routes and any potential impacts to sensitive areas within each of three proposed investigation areas (Site A, B and C).	See response to comment 9 (DOI). These maps will include access routes.
50	DTSC-27	General EIR MMRP compliance	Section 4.1.3	"Any vegetation removal will be coordinated with the project biologist and documented as outlined in the PBA."	Please note that PG&E must also comply with the certified EIR MMRP requirements and not just the PBA.	Comment noted. The statement will be revised as follows: "Any vegetation removal will be coordinated with the project biologist and in compliance with the PBA and the EIR."
51	DTSC-28	General Biological	Section 4.1.4	"The project biologist will perform pre- and post-activity surveys to document any habitat loss and to	DTSC recommends having a biologist on site to monitor all site activities as it occurs.	Section 4.1.4 will be revised to state that "a biologist will be on site to perform pre-construction surveys, monitoring during equipment setup, and for post-construction surveys. For all other periods of work a biologist will be on call.

Absolute Comment No.	Comment Source/ Number	Discussion Grouping/Topic	Section	Reference Text	Comment	Response to Comment
		monitoring		ensure that the sites are clear of desert tortoises and any nesting birds as deemed necessary."		
52	DTSC-29	General EIR MMRP compliance	Section 4.2 – Archeological Surveys and Reviews	"…work will comply with all applicable cultural resource mitigation measures included in the Programmatic Agreement, Cultural and Historic Properties Management Plan and the adopted Mitigation Monitoring and Reporting Plan (DTSC, 2011b) for the project."	PG&E will need to specifically identify type of action to be taken to substantively meet the objectives set forth in MMRP, including CUL-1a-8.	See response to Comments 43 and 46. Specific items that will be included in the mitigation compliance table for CUL-1a-8 include: • All areas have been examined for archaeological and historical resources. • All archaeological and historical sites will be avoided and monitored to ensure their avoidance. • Ground disturbance will be monitored by an archaeological monitor; Tribal monitors will be invited. The mitigation compliance table will also include the mitigation measures in the Programmatic Agreement and Cultural and Historic Properties Management Plan. Specifically: • Existing facilities shall be used to the maximum extent practicable. • New facilities or activities will be placed in areas already disturbed by previous grading and other mechanized activities to the extent practicable, consistent with protecting human health and the environment and achieving cleanup in a timely manner. • PG&E will follow the procedures in the PA and CHPMP in the event any previously unidentified archaeological or historical resources or human remains, funerary objects, sacred objects, and objects of cultural patrimony are encountered during implementation of the Plan.
53	DTSC-30	General Schedule / level of detail	Section 5 – Schedule and Reporting		The schedule provided in Figure 3 is too vague and appears excessively long. Please provide further break down of work activities and duration within the Mobilization, Exploratory Drilling and Water Supply Well Installation/Pump Test periods.	Figure 3 will be replaced with a more detailed forecast schedule that does not include work at Site C. As discussed during the January 3, 2013 comment resolution meeting, text will be added to the revised Plan that provides justification for the durations of key tasks shown on the schedule.
54	FMIT (Hargis and Associates)	General Various topics			As you are aware, the Tribe has previously and repeatedly expressed preferences for limiting the amount of infrastructure and physical disturbances to the land as a result of the construction and implementation of the groundwater remedy associated with the Topock Compressor Station project. In regard to the previous (30 percent) design submittal, the Tribe expressed a preference for using groundwater supplied by the Arizona well referred to as HNWR-1 over the two alternative supplies identified at that time.[1] Additionally, the Tribe, in recognition of potential requirements of pre-conditioning this water to reduce arsenic concentrations, expressed a preference that any infrastructure necessary for this purpose be situated on the Arizona side, near the wellhead. Since that time, however, the Pacific Gas & Electric Company (PG&E) has indicated that the necessary infrastructure for arsenic treatment could be sited on the Compressor Station within the fence line.	Comment noted. PG&E is currently in discussions with the California State Water Resources Control Board regarding the need to treat groundwater supplied by HNWR-1 for arsenic, and how any such requirement affects the design of the groundwater remedy. PG&E will continue to communicate with the Tribe regarding the details of the design.
					At this time, the Tribe, however, reaffirms its position that infrastructure impacts the sacred nature of the traditional cultural property. Additionally, the Tribe notes that the alternative areas proposed at this time have further cumulative impacts both in terms of additional infrastructure requirements (e.g., longer pipeline runs, access roads, etc.), potential additional uncertainties in terms of future water quality dynamics, and expansion of the Area of Potential Effects (APE). These are concerns that will require further consideration and discussion with the Tribe(s). [1] Letter of May 11, 2012 from Dr. Leonhart to Mr. Yue and Ms. Innis re "FMIT Comments on RTC for 30% BOD."	DTSC is aware of Tribal concerns regarding additional infrastructure impacts within the project area and weighs those concerns heavily whenever we evaluate additional activities or requests for work within the area. This is one reason DTSC issued PG&E a directive letter on December 31, 2012 to cease evaluation of Area C in California for an alternative fresh water source. DTSC notes that Area C is not only designated as an Area of Critical Environmental Concerns (ACEC), but that the owner of the land within and adjacent to the proposed study Area C is entrusted with the protection of the area due to presence of cultural resource. DTSC also recognizes that the proposed investigation for additional source water, even in Arizona, is outside the scope of the original 2011 Certified Environmental Impact Report for the groundwater remedy. Therefore, DTSC is currently evaluating the potential environmental impacts of the proposed freshwater source implementation work plan to ensure compliance with the California Environmental Quality Act (CEQA). The conclusion and findings of our evaluation will be an integral part of our decision and approval of the implementation work plan.

Absolute Comment No.	Comment Source/ Number	Discussion Grouping/Topic	Section	Reference Text	Comment	Response to Comment
					The Tribe understands from the November 20th memo that PG&E is presently considering three additional groundwater sites for evaluation (namely A, B, and C) and two alternate sites. It has been presented that these sites are believed to be distant from the known high arsenic sites in Arizona and may avoid the necessity of pre-treatment and its associated infrastructure requirements. To date, PG&E has performed reconnaissance in the form of limited surface resistivity surveys aimed at the determination of optimal locations for exploratory drilling and aquifer testing. In consideration of the survey results, coupled with separate biological and cultural resource surveys, the memo presents recommendations for sites to conduct this further exploration and testing.	Comment noted.
					While it is understood that the memo does not present a full and final picture of the additional implications regarding the selection of these alternative sites, the Tribe requests that the following types of information be detailed in the eventual 60 percent Basis of Design document and/or any interim reports: • Detailed descriptions of the proposed infrastructure associated with the selected alternative including: o Routing of delivery system(s) including: • Location of tie-in with existing design. • Pipeline routings. • Pipeline diameters and materials. • Above- vs. below-ground runs. o Facilities and locations of infrastructure for water treatment if required. • Total acreage numbers including wellhead, routes of travel and delivery systems. • Well design and capacity. • Whether contingency wells are planned and location(s). • Description of testing proposed to ascertain long-term well yields. • Water quality parameters. • Basis for estimating long term yield based on recharge and aquifer boundaries.	These are all key elements of the freshwater design. All infrastructure and design related the freshwater alternative will be presented in the intermediate design (60%) addendum per the December 31, 2012 letter from DTSC to PG&E All other design elements after the HWNR-1 location, including those associated with water treatment, will be included in the 60% design.
					We also request that the following be provided to the tribe(s) prior to any decisions being made regarding the proposed action: • All archaeological surveys and reviews in draft form for review and comment. • A clear statement as to whether the proposed action is consistent with the current Programmatic Biological Agreement (PBA) (not merely consistent with the PBA reinitiation). • Explanation of the relationship of the proposed action to the previous California Environmental Quality Act (“CEQA”) determination and report and any NEPA equivalent determination. • Relationship of the expanded evaluation area to the Area of Potential Effects (“APE”) approved in the Cultural Resources Programmatic Agreement (“PA”) and demonstration that PA and other protocols have been followed.	First bullet – A technical memorandum summarizing the findings of the archaeological survey was sent to interested tribes by PG&E on January 10, 2013, and subsequently by BLM on January 15, 2013. Also see response to Comment 52. Second bullet – The proposed activity is consistent with the 2007 Programmatic Biological Assessment (PBA) and the December 27, 2012 extension and modification of the PBA. Third bullet –. As stated earlier, DTSC is conducting additional environmental evaluation of the proposed work plan against the findings of the certified EIR in accordance with the CEQA guidelines. DOI further iterates that NEPA does not apply on this project. Fourth bullet – The expanded evaluation area extends beyond the existing Area of Potential Effects for the project. Whether an amendment to the APE is needed will be determined by BLM in consultation with the Tribes, the SHPOs and PG&E, currently anticipated to be conducted during review of the 60% design addendum when further design details are available, including regarding the location of a freshwater source for the remedy. See comments 43, 46 and 52 for a demonstration that the PA and other protocols have been followed.

Absolute Comment No.	Comment Source/ Number	Discussion Grouping/Topic	Section	Reference Text	Comment	Response to Comment
					Prior to deciding on an alternative site, PG&E should present information concerning proposed measures to avoid or reduce intrusion at each site. For example: • Avoidance of wetland areas. • Minimizing public incursions and access. • Avoiding vegetation loss and wildlife disturbances. • Minimizing visual impacts. • Minimizing erosion impacts from discharge waters during aquifer testing. • Protocol for handling of drill cuttings and waste materials. • Avoidance of Beale Slough ACEC designated lands.	See response to Comment 43 and 52. Site C, which was the only work area in proximity to Beale Slough ACEC has been removed from the plan per the December 31, 2012 letter from DTSC to PG&E.
55	Metropolitan Water District (MWD)	General Level of disturbance and extent of bio/cul survey areas			The Freshwater Evaluation Implementation Plan considers that up to 1 acre of land may be disturbed for each of the four (4) planned test boring/well locations, though it does not state how this would be distributed between the access road and the drilling pad. We recommend that biological/archeological clearance of areas for the planned drill sites (i.e. drill pad area) be maximized, to the extent possible so that re-locating the drill site at each location, if necessary, can be accomplished without requiring additional clearance activities. In general, the evaluation plan for identifying a freshwater source is reasonable.	Concur. The area surveyed for biological and cultural resources is large enough to provide flexibility in precise access routes and drilling locations such that sensitive areas/resources can be avoided.
56	TRC (Southwest Hydrologic)	General Conceptual model for Sacramento Wash area			Sacramento Wash contains numerous historical and active hardrock mines; therefore, the alluvium in the wash is sourced, in part, from mineralized rocks. Laboratory analyses of trace metals in water from the aquifer tests would, therefore, seem appropriate. The new exploratory boreholes are located farther up the wash and away from the Colorado River than the HNWR-1 well. It seems that most of the water available to the new wells might be limited by natural recharge in the Sacramento Wash drainage, whereas the HNWR-1 well would draw a substantial amount of water from the Topock Marsh and Colorado River (a much larger long-term supply). Clarification, the possible presence of metal minerals in alluvium of Sacramento Wash is not due to mines, but due to the geology of the region that includes copper porphyry deposits and lead/zinc/silver/gold deposits.	Comment noted. See response to Comments 34 and 39.
57	TRC (C. Schlinger – En3Pro)	Technical Approach GW sampling during well testing / water quality trends	Section 3.2, 3rd paragraph, first sentence		Recommend that the plan spell out in greater detail the water quality testing and analysis that will be done to identify, if possible, any trends in water quality under the action of long-term aquifer test pumping.	See response to Comment 39.

Attachment B
Compliance Table

Table B-1
Summary of Compliance Approach for ARARs Established for the Topock Groundwater Remedy That Are Pertinent to the Alternative Freshwater Source Evaluation
Revised Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area,
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Item No.	Category	Citation	Determination	Description in DOI's ARARs Table	Pertinent to Freshwater Source Evaluation	Triggering Event	Compliance Responsibility	Action by PG&E (Alternative Freshwater Source Evaluation)
2	Federal Chemical-Specific	Federal Safe Drinking Water Act - 42 USC § 300g-1; 40 CFR 141 -- Subpart G – National Primary Drinking Water Regulations (MCLs)	ARAR Relevant and Appropriate	These MCLs are relevant and appropriate standards, which establish the maximum permissible level of contaminants (e.g., Chromium) in sources (or potential sources) of drinking water. MCLs may be applicable where water at a CERCLA site is delivered through a public water supply system.	Yes	Remedy Implementation	PG&E	The purpose of the freshwater evaluation is to identify a fresh water source that meets MCLs
52	California Chemical-Specific	California Safe Drinking Water Act - Title 22, CCR, Div 4, Ch 15, §64431, §64444	ARAR Applicable	Maximum Contaminant Levels (MCLs) which shall not be exceeded in the water supplied to the public. California state MCLs for drinking water standards are more stringent than primary federal standards.	Yes	Remedy Implementation	PG&E	The purpose of the freshwater evaluation is to identify a fresh water source that meets MCLs
53	California Chemical-Specific	Secondary MCLs list for drinking water - Title 22, CCR, Div 4, Ch 15, §64449	ARAR Relevant and Appropriate	State secondary MCLs for drinking water standards are more stringent than federal standards. These secondary MCLs are relevant and appropriate standards, which establish the maximum permissible level of contaminants in sources (or potential sources) of drinking water. These secondary MCLs would be applicable if water at the site was used as drinking water and delivered through a community water supply system.	Yes	Remedy Implementation	PG&E	The purpose of the freshwater evaluation is to identify a fresh water source that meets MCLs
55	California Chemical-Specific	Groundwater and vadose zone protection standards - Title 22, CCR, Div 4.5, Ch 15, Article 6, §66265.94	ARAR Applicable	RCRA hazardous waste Interim Status TSD facilities shall comply and ensure that hazardous constituents entering the groundwater, surface water, and soil from a regulated unit do not exceed the concentration limit from contaminants of concern in the uppermost aquifer underlying the waste management area beyond the point of compliance.	Yes	Remedy Implementation	PG&E	Providing a fresh water source that meets MCLs will conform with this requirement.

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5	Federal Location-Specific	Federal Land Policy and Management Act - (FLPMA); 43 USC § 1701, et seq.; 43 CFR 2800	ARAR Applicable	In managing public lands, BLM is directed to take any action necessary to prevent unnecessary or undue degradation of the lands. Actions taken on the public land (i.e. BLM-managed land) portions of the Topock site should provide the "optimal balance between authorized resource use and the protection and long-term sustainability of sensitive resources."	Yes	Activities on public lands	BLM	The *Revised Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California* was submitted to DOI for review and comment. PG&E understands that DOI will coordinate its review of these submittals with BLM.
7	Federal Location-Specific	National Wildlife Refuge System Administration Act, as amended - 16 USC §§ 668dd-ee; 50 CFR Part 27	ARAR Applicable	This Act governs the use and management of National Wildlife Refuges. The Act requires that FWS evaluate ongoing and proposed activities and uses to ensure that such activities are appropriate and compatible with both the mission of the overall National Wildlife Refuge System, as well as the specific purposes for which the Havasu National Wildlife Refuge was established. The Topock site includes portions of the Havasu National Wildlife Refuge. Prior to selection of a remedial action by DOI/FWS, that remedial action must be found by the Refuge Manager to be both an appropriate use of the Refuge and compatible with the mission of the Refuge and the Refuge System as a whole. Any remedial action proposed to be implemented on the Refuge that was not selected by DOI/FWS would be subject to the formal appropriate use/compatibility determination process.	Yes	Activities on the HNWR	USFWS/DOI	The *Revised Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California* was submitted to DOI for review and comment. PG&E understands that DOI will coordinate its review of these submittals with USFWS.
14	Federal Location-Specific	National Historic Preservation Act - 16 USC § 470, et seq.; 40 CFR 6.301(b); 36 CFR 800.1, et seq.	ARAR Applicable	This statute and the implementing regulations direct federal agencies to consider the effects of their undertakings on historic properties included in or eligible for inclusion in the National Register of Historic Places and to consult with certain parties before moving forward with the undertaking. The agency must determine, based on consultation, if an undertaking's effects would be adverse and consider feasible and prudent alternatives that could avoid, mitigate, or minimize such adverse effects on a National Register or eligible property. The agency must then specify how adverse effects will be avoided or mitigated or acknowledge that such effects cannot be avoided or mitigated. The Topock site includes historic properties in or eligible for inclusion in the National Register and remedial action selected for the Topock site qualifies as an undertaking pursuant to the NHPA. Measures to avoid or mitigate adverse effects of any selected remedial action that are adopted by the agency through consultation must be implemented by the remedial action to comply with the NHPA.	Yes	The remedial investigations and groundwater and soil removal and response actions at the Topock site qualify as an undertaking under NHPA	BLM, Advisory Council on Historic Preservation, California and Arizona State Historic Preservation Offices, USFWS, the Hualapai Tribe, and PG&E are parties to the PA	Compliance will involve complying with the requirements and mitigation measures contained in the Programmatic Agreement (BLM, 2010) and the *Cultural and Historic Properties Management Plan* (BLM, 2012)..

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Item No.	Category	Citation	Determination	Description in DOI's ARARs Table	Pertinent to Freshwater Source Evaluation	Triggering Event	Compliance Responsibility	Action by PG&E (Alternative Freshwater Source Evaluation)
17	Federal Location-Specific	National Archaeological and Historic Preservation Act - 16 USC § 469, et seq.; 36 CFR 65; 40 CFR 6.301[c]	ARAR Applicable	This statute requires the evaluation and preservation of historical and archaeological data which might otherwise be irreparably lost or destroyed through any alteration of terrain as a result of federal construction projects or a federally-licensed activity. The Topock site includes historical and archaeological data. Any remedial action selected for the Topock site must include measures for the evaluation and preservation of historical and archaeological data that might be lost or destroyed as a result of the remedial action.	Yes	Alteration of terrain that threatens significant scientific, historical or archaeological data.	Federal Agencies, PG&E	The two areas subject to activities described in this plan were included in archaeological surveys conducted from August to November 2012, during which time tribal monitors were invited to observe, and monitors of some tribes were present for portions of the survey. Three archaeological and historical sites were located within these areas. All archaeological and historical sites will be avoided during plan implementation to the maximum extent practicable, and this work will comply with all applicable cultural resource mitigation measures included in the *Programmatic Agreement, Cultural and Historic Properties Management Plan and* the adopted *Mitigation Monitoring and Reporting Plan* (DTSC, 2011b) for the project. Prior to any ground-disturbing activities, work areas will be reexamined to ensure that no resources are disturbed. Cultural resource-related documents generated during activities associated with this implementation plan will be made available for review by interested Tribes and the agencies. See discussion in Section 4.2.
21	Federal Location-Specific	Native American Graves Protection and Repatriation Act (NAGPRA) - 25 USC § 3001, et seq.; 43 CFR 10.1, et seq.	ARAR Applicable	NAGPRA establishes requirements regulating the removal and trafficking of human remains and cultural items, including funerary and sacred objects. The Topock site may contain human remains. If remediation activities result in the discovery of Indian human remains or related objects, NAGPRA requirements must be met.	Yes	Federal Lands only - Discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony	PG&E	Requirements of the PA and the CHPMP (led by BLM), which include compliance with NAGPRA, will be adhered to during the implementation of this activity.
22	Federal Location-Specific	American Indian Religious Freedom Act - 42 USC § 1996, et seq.	ARAR Relevant and Appropriate	The United States must "protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise [their] traditional religions..." Any remedial action selected for the Topock site must satisfy this requirement.	Yes	Remedy selection	Federal Agencies (BLM Lead), PG&E	BLM led the preparation of the Tribal Access Plan, and the Plan was completed on November 26, 2011.
33	Federal Action-Specific	Federal Water Pollution Control Act (Clean Water Act) - 33 USC § 1342; 40 CFR 122; 40 CFR 125	ARAR Applicable	These National Pollutant Discharge Elimination System (NPDES) requirements regulate discharges of pollutants from any point source into waters of the United States.	Yes	Point source discharges to waters of the US.	PG&E	If water from well purging, development, or testing is discharged to waters of the United States, the substantive requirements of Arizona general NPDES permit AZG2010-001, Arizona Pollutant Discharge Elimination System General Permit for De Minimis Discharges to Waters of the U.S. will be met. Discharges authorized under this permit include those from well development and maintenance and/or aquifer testing. Best management practices (BMPs) will be implemented to achieve compliance with the substantive provisions of the general permit, including the following: • Plan to prevent and contain spills of fuel and oil from drilling equipment • Appropriate measures to minimize erosion, scour or sedimentation, including, as appropriate, control of the application rate and location of discharged water, rock check dams or velocity dissipaters, fiber rolls, or silt fences. • Training of personnel in spill prevention and

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Item No.	Category	Citation	Determination	Description in DOI's ARARs Table	Pertinent to Freshwater Source Evaluation	Triggering Event	Compliance Responsibility	Action by PG&E (Alternative Freshwater Source Evaluation)
								response and BMP implementation. Monitoring will be performed as specified in Appendix A of the general permit. Discharge limitations specified in Appendix A will not be exceeded.
40	Federal Action-Specific	Endangered Species Act of 1973 - 16 USC §§ 1531-1544; 50 CFR 402	ARAR Applicable	The ESA makes it unlawful to remove or "take" threatened and endangered plants and animals and protects their habitats by prohibiting certain activities. Examples of such species in or around the Topock site may include, but are not limited to, southwestern willow flycatcher, Mojave Desert tortoise, Yuma clapper rail, Colorado pike minnow, razorback sucker, and bonytail chub. Any remedial action selected for the Topock site will not result in the take of, or adverse impacts to, threatened and endangered species or their habitats, as determined based on consultation with the Fish and Wildlife Service under section 7 of the ESA.	Yes	Extension of existing Programmatic Biological Assessment (PBA) through December 31, 2017 and modification to encompass freshwater investigation activities	DOI/USFWS/ PG&E	All activities will be conducted in a manner consistent with the PBA, which has been extended until December 31, 2017 and modified to include the freshwater evaluation activities, and, therefore, will comply with requirements of the federal Endangered Species Act (ESA). See discussion in Section 4.1, and see Table B-2.
41	Federal Action-Specific	Migratory Bird Treaty Act - 16 USC 703-712	ARAR Applicable	This Act makes it unlawful to "take, capture, kill," or otherwise impact a migratory bird or any nest or egg of a migratory bird. The Havasu National Wildlife Refuge, which is part of the Topock site, was created as a refuge and breeding ground for migratory birds and other wildlife, therefore, there is potential for contact with migratory birds during proposed remediation activities. Any remedial action selected for the Topock site will be designed and implemented so as to not take, capture, kill, or otherwise impact a migratory bird, nest, or egg.	Yes	Remedial action for Topock site	PG&E	The project biologist will perform pre-activity surveys to verify that federally protected migratory birds or their nests are not present. See discussion in Section 4.1
45	Arizona Action-Specific	Arizona Well Standards - A.A.C. R-12-15-850	ARAR	These requirements on the placement of wells will apply if the selected remedy includes placement of wells in Arizona.	Yes	During project design and before construction	PG&E	PG&E will comply with any requirements specified by ADEQ that are based on the location of the proposed wells.
47	Arizona Action-Specific	Requirements for wells, groundwater withdrawal, treatment, and reinjection - A.R.S. §45-454.01	ARAR	This statute exempts new well construction, withdrawal, treatment, and reinjection into a groundwater aquifer as a part of a CERCLA Remedial Action from the requirements of the Arizona Groundwater Code, except that they must comply with the substantive requirements of A.R.S. 45-594, 45-595, 45-596, and 45-600. If groundwater that is withdrawn is not reinjected into the aquifer, the groundwater shall be put to reasonable and beneficial use.	Yes	Construction of wells in Arizona	PG&E	Construction of wells will occur as part of a CERCLA remedial action. Compliance with A.R.S. 45-594, 45-595, 45-596, and 45-600 is addressed below.
48	Arizona Action-Specific	Well construction standards - A.R.S. §45-594 and 595	ARAR	These provisions identify the well construction standards and requirements for new well construction in the State of Arizona. These requirements will apply if the selected remedy involves the construction of wells in Arizona.	Yes	Construction of wells in Arizona	PG&E	Wells will be constructed in conformance with the minimum well construction standards specified in A.A.C. R12-15-811. Wells will be installed by an Arizona-licensed well driller.

Table B-1
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Revised Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area,
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Item No.	Category	Citation	Determination	Description in DOI's ARARs Table	Pertinent to Freshwater Source Evaluation	Triggering Event	Compliance Responsibility	Action by PG&E (Alternative Freshwater Source Evaluation)
49	Arizona Action-Specific	Notice of intention to drill - A.R.S. §45-596	ARAR	Substantive requirements will apply if the selected remedy involves the construction of wells in Arizona.	Yes	Construction of wells in Arizona	PG&E	A notice of intention to drill will be submitted prior to the start of work.
50	Arizona Action-Specific	Report by driller - A.R.S. §45-600	ARAR	Substantive requirements will apply if the selected remedy involves the construction of wells in Arizona.	Yes	Construction of wells in Arizona	PG&E	A well driller report and a completion report will be filed upon completion of work.
18	Federal Location-Specific	Archaeological Resources Protection Act - 16 USC § 470aa-ii, et seq.; 43 CFR 7.1, et seq.	ARAR Applicable	This statute provides for the protection of archeological resources located on public and tribal lands. The Act establishes criteria which must be met for the land manager's approval of any excavation or removal of archaeological resources if a proposed activity involves soil disturbances. The Topock site includes archaeological resources on public land. Any remedial action selected for the Topock site must satisfy the criteria applicable to excavation or removal of archaeological resources that might be affected as a result of the remedial action.	Yes	Disturbance of archaeological and historical sites	Federal Agencies, PG&E	The two areas subject to activities described in this plan were included in archaeological surveys conducted from August to November 2012, during which time tribal monitors were invited to observe, and monitors of some tribes were present for portions of the survey. Three archaeological and historical sites were located within these areas. All archaeological and historical sites will be avoided during plan implementation to the maximum extent practicable, and this work will comply with all applicable cultural resource mitigation measures included in the *Programmatic Agreement, Cultural and Historic Properties Management Plan and* the adopted *Mitigation Monitoring and Reporting Plan* (DTSC, 2011b) for the project. Prior to any ground-disturbing activities, work areas will be reexamined to ensure that no resources are disturbed. Cultural resource-related documents generated during activities associated with this implementation plan will be made available for review by interested Tribes and the agencies. See discussion in Section 4.2.
1	Federal Chemical-Specific	Federal Safe Drinking Water Act - 42 USC § 300f, et seq.; 40 CFR 141 -- Subpart F– Maximum Contaminant Level Goals (MCLGs)	ARAR Relevant and Appropriate	MCLGs are not federally enforceable drinking water standards, but CERCLA § 121(d) identifies MCLGs as relevant and appropriate requirements.	No	Remedy Implementation	PG&E	The purpose of the freshwater evaluation is to identify a fresh water source that meets MCLs. Because MCLGs are not identified as water quality objectives for the aquifer into which the fresh water will be injected, they are not pertinent to this activity.
3	Federal Chemical-Specific	Federal Water Pollution Control Act (Clean Water Act) - 33 USC §§ 1251-1387; 40 CFR 131.38	ARAR Applicable	These are federally promulgated Water Quality Standards for surface waters. Such water quality standards include specific criteria for water bodies in California, including standards for Hexavalent Chromium.	No	Remedy Implementation	PG&E	Because these activities will not be performed in the State of California, the California Toxics Rule is not pertinent.

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Revised Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area,
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Item No.	Category	Citation	Determination	Description in DOI's ARARs Table	Pertinent to Freshwater Source Evaluation	Triggering Event	Compliance Responsibility	Action by PG&E (Alternative Freshwater Source Evaluation)
13	Federal Location-Specific	Fish and Wildlife Coordination Act - 16 USC §§ 661-667e; 40 CFR 6.302(g)	ARAR Applicable	This Act requires that any federally-funded or authorized modification of a stream or other water body must provide adequate provisions for conservation, maintenance, and management of wildlife resources and their habitat. Necessary measures should be taken to mitigate, prevent, and compensate for project-related losses of wildlife resources. Any remedial action selected for the Topock site that includes any modification of a water body will be subject to these requirements.	No	Any modification of a water body	PG&E	This activity will not result in a modification of a stream or other water body.
19	Federal Location-Specific	Historic Sites Act - 16 USC 461-467; 40 CFR 6.301(a)	ARAR Applicable	Pursuant to this Act, federal agencies are to consider the existence and location of historic sites, buildings, and objects of national significance using information provided by the National Park Service to avoid undesirable impacts upon such landmarks. There are no designated historic landmarks within the APE, although 16 USC 461, through Public Law 106-45, provides for a cooperative program "for the preservation of the Route 66 corridor" through grants and other measures. Undesirable impacts on this site that might result from any remedial action selected for the Topock site will be evaluated and mitigated to the maximum extent practicable.	No	Existence of a historic landmark	Federal Agencies	No action unless directed by federal agencies.
27	Federal Location-Specific	Resource Conservation and Recovery Act - 42 USC § 6901, et.seq.; 40 CFR 264.18	ARAR Applicable	These regulations promulgated under RCRA establish Seismic and Floodplain considerations which must be followed for treatment, storage, or disposal facilities constructed, operated, or maintained within certain distances of fault lines and floodplains. Portions of the Topock site are located on or near a 100-year floodplain.	No	Infrastructure in 100-year floodplain/ regulatory floodway	PG&E	These activities do not comprise construction of hazardous waste treatment, storage, or disposal facilities that are subject to this requirement.
28	Federal Location-Specific	Floodplain Management and Wetlands Protection - 40 CFR § 6.302(a) & (b); 40 CFR 6, Appendix A	ARAR Applicable	Before undertaking an action, agencies are required to perform certain measures in order to avoid the long and short term impacts associated with the destruction of wetlands and the occupancy and modification of floodplains and wetlands. The regulation sets forth requirements as means of carrying out the provisions of Executive Orders 11988 and 11990.	No		PG&E	Sites A and B are not located in a floodplain or wetland area.

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Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Item No.	Category	Citation	Determination	Description in DOI's ARARs Table	Pertinent to Freshwater Source Evaluation	Triggering Event	Compliance Responsibility	Action by PG&E (Alternative Freshwater Source Evaluation)
43	Arizona Location-Specific	Archeological Discoveries - A.R.S. § 41-841 through 847	ARAR	This Act prohibits any person from knowingly excavating on Arizona State or State agency owned land which is a historic or prehistoric ruin, burial ground, archaeological or paleontological site. These requirements will apply if the selected remedy involves excavation in Arizona.	No	Only if activities in Arizona on lands owned or controlled by Arizona or an agency of Arizona - Discovery of any archaeological, paleontological or historical site or object (including human remains) that is at least fifty years old	PG&E	No further action is required because work will be conducted on federal lands.
44	Arizona Location-Specific	Historic Preservation - A.R.S. § 41-865	ARAR	This Act restricts any person from disturbing human remains or funerary objects on lands other than lands[1] owned or controlled by the State. These requirements will apply if the selected remedy involves excavation in Arizona.	No	Only if activities in Arizona on private lands - Discovery of human remains/funerary objects	PG&E	No further action is required because work will be conducted on federal lands.
31	Federal Action-Specific	Federal Safe Drinking Water Act - 42 USC §300f, et seq. Part C – Protection of Underground Sources of Drinking Water; 40 CFR 144-148	ARAR Applicable	These Underground Injection Control Regulations assure that any underground injection performed on-site will not endanger drinking water sources. Substantive requirements include, but are not limited to, regulation of well construction and well operation. These requirements will be applicable if underground injection is proposed as a part of a site remedy.	No	Underground injection activities	PG&E	This activity will not involve underground injection.
32	Federal Action-Specific	Federal Water Pollution Control Act (Clean Water Act) - **33** USC § 1344 ; 40 CFR 230.10	ARAR Applicable	This section of the Clean Water Act prohibits certain activities with respect to on-site wetlands and waterways. No discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed activity which would have less adverse impact to the aquatic ecosystem.	No	Activities that occur in the Colorado River or in jurisdictional waters of the United States that result in discharge of dredged or fill material.	PG&E	This activity will not involve discharge of dredged or fill material to jurisdictional waters of the United States. Sites A and B are not located in jurisdictional waters of the United States. Drill cuttings will be spread on the ground near the drilling site (not in jurisdictional waters of the United States).

[1] As corrected by the Department of the Interior.

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Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

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34	Federal Action-Specific	Federal Water Pollution Control Act (Clean Water Act) - 40 CFR 122.26	ARAR Applicable	These regulations define the necessary requirements with respect to the discharge of storm water under the NPDES program. These regulations will apply if proposed remedial actions result in storm water runoff which comes in contact with any construction activity from the site remediation.	No	Ground disturbance as a result of construction is equal to or greater than 1 acre	PG&E	Activities will not result in soil disturbance, as defined in the construction general permit, of five acres or more at each well location per the Construction General Permit (AZG2008-001).
35	Federal Action-Specific	River and Harbor Act of 1899 - 33 USC §§ 401 and 403	ARAR Applicable	This Act prohibits the creation of any obstruction in navigable waters, in addition to banning activities such as depositing refuse, excavating, filling, or in any manner altering the course, condition, or capacity of navigable waters. These requirements will apply if proposed activities at the Topock site have the potential of affecting any navigable waters on the site.	No	Activities with the potential to affect any navigable waters on the site	PG&E	These activities will not create an obstruction in or alter the course, condition, or capacity of navigable waters.
38	Federal Action-Specific	Clean Air Act - USC §§ 7401, et seq. (National Emission Standards for Hazardous Air Pollutants (NESHAP)); 40 CFR 61; 40 CFR 63	ARAR Applicable	NESHAPs are regulations which establish emissions standards for certain hazardous air pollutants (HAPs) identified in the regulations. NESHAPs will apply if remediation activities on the site produce identified HAP emissions.	No	Activities produce identified HAP emissions	PG&E	These activities will not generate emissions of hazardous air pollutants that are regulated by NESHAPS.
39	Federal Action-Specific	Religious Freedom Restoration Act - 42 USC § 2000bb	ARAR Applicable	Pursuant to this Act, the government shall not substantially burden a person's exercise of religion, unless the application of the burden is in furtherance of a compelling government interest, and it is the least restrictive means of furthering that interest. To constitute a "substantial burden" on the exercise of religion, a government action must (1) force individuals to choose between following the tenets of their religion and receiving a governmental benefit or (2) coerce individuals to act contrary to their religious beliefs by the threat of civil or criminal sanctions. If any remedial action selected imposes a substantial burden on a person's exercise of religion, it must be in furtherance of a compelling government interest and be the least restrictive means of achieving that interest.	No	Activities with the potential to impose a substantial burden on a person's exercise of religion.	DOI/BLM	This activity does not substantially burden a person's exercise of religion.
46	Arizona Action-Specific	Design criteria for treatment units - A.A.C. R18-5-(501-502)	ARAR	These minimum design criteria will apply if the selected remedy includes construction of a groundwater treatment plant.	No	Construction of treatment plant in Arizona	PG&E	These activities will not involve construction of a groundwater treatment plant.

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Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

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51	Arizona Action-Specific	Arizona Remedial Action Requirements - A.R.S. §49-282.06(A)(2)	ARAR	Any treatment of groundwater must be conducted in a manner to provide for the maximum beneficial use of the waters of the state.	No	Treatment of groundwater in Arizona	PG&E	These activities do not involve treatment of groundwater.

Table B-2
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No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
1	Programmatic Biological Assessment (PBA)	1. Project activities will be conducted in a manner that avoids take of a federally listed species. "Take" (under the federal ESA, Section 3) is defined to include "harm" , including significant habitat modification or degradation where it actually kills or injures listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Take" also includes "harassment", which means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, including breeding, feeding, or sheltering. Should a listed species enter the project work area or become harmed, harassed or killed by project activities, the activity will be stopped and the USFWS, BLM, and/or California Department of Fish and Game (CDFG) will be consulted. Impacts to habitat will also be minimized to the maximum possible extent.	Immediately prior to mobilization, as part of the preconstruction biological survey, a biologist will identify all acceptable access routes, staging areas, and work zones that limit impacts to habitat. In addition, a biologist will be on site during all vegetation trimming activities. Upon mobilization and prior to work, a biologist will brief the field team on the content of the PBA and PG&E's threatened and endangered species education program. This briefing will cover measures required to avoid a "take", and stop work action/communication procedures required in the event of listed species entering the work area or a "take". In addition, avoidance and minimization measures referenced in this table from the Programmatic Biological Assessment (PBA) will be implemented to avoid take to listed species.
2	PBA	2. PG&E will designate a field contact representative who will be responsible for overseeing compliance with the mitigation measures. The representative must be onsite during project activities. The representative will have authority to halt activities that are in violation of the mitigation measures and/or pose a danger to listed species prior to a potential "take". The representative will have a copy of the mitigation measures when work is being conducted on the site. The representative may be a project manager, PG&E representative, or a biologist.	PG&E will designate a field contact representative responsible for overseeing compliance with the mitigation measures prior to commencement of work.
3	PBA	3. PG&E will have a qualified biologist responsible for assisting crews in compliance with the mitigation measures, performing surveys in front of the crew as needed to locate and avoid listed species, and monitoring compliance. Preconstruction surveys by a biologist will be implemented for special-status wildlife species in impact areas immediately prior to initiation of ground-disturbing activities. The inspection will provide 100 percent coverage of the area within the project limits. Any desert tortoise burrows and pallets outside of, but near, the project footprint will be flagged at that time so that they may be avoided during work activities. At conclusion of work activities, all flagging will be removed.	Immediately prior to mobilization, as part of the preconstruction biological survey, a biologist will identify all acceptable access routes, staging areas, and work zones that limit impacts to habitat.
4	PBA	4. Listed species, including the desert tortoise, will not be handled or harassed. Encounters with a listed species will be reported to the project biologist and BLM Lake Havasu biologists. These biologists will maintain records of all listed species encountered during project activities. This information will include for each individual: the locations (narrative, vegetation type, and maps) and dates of observations; general conditions and health; any apparent injuries and state of healing; and diagnostic markings.	Field crews will be instructed not to handle listed species. All encounters with wildlife shall be reported to the project biologist, who will be responsible for notifying PG&E and the appropriate agencies.
5	PBA	5. PG&E employees and the contractors involved with the proposed project will be required to attend PG&E's threatened and endangered species education program prior to initiation of activities. New employees will receive training prior to working onsite.	See action for Item 1.
6	PBA	6. To the maximum extent possible, facilities (treatment facility, pipelines, injection wells, and access routes) will be sited within an existing right–of-way and previously disturbed or barren areas to limit new surface disturbance.	Site facilities will be sited within an existing right–of-way and previously disturbed or barren areas to the maximum extent possible. This review will include feedback from the project biologist.
7	PBA	7. Existing routes of travel to and from the proposed project site will be used. Cross country vehicle and equipment use will be prohibited.	It is anticipated that only existing roads and access pathways requiring minimal access improvements in select areas will be used during the work proposed in the Plan. The removal of vegetation is not planned to gain access for equipment; however, the trimming of vegetation may be required. Trimming, if required, will be focused on non-native species (e.g., tamarisk) and the trimming of native species (e.g., palo verde and mesquite) will be avoided or minimized to the extent practicable. Prior to mobilization, a biologist will identify all acceptable access routes, staging areas, and work zones. In addition, a biologist will be on site during all vegetation trimming activities.
8	PBA	8. Trash and food items will be contained in closed containers and removed daily to reduce attractiveness to opportunistic predators such as common ravens (Corvus corax), coyotes (Canis latrans), and feral dogs.	Trash will be stored in closed containers and removed from the site daily.
9	PBA	9. To minimize effects, lights shall be angled toward the ground, reduced in intensity to levels compatible with safety concerns, and limited in duration of usage. The hue of lighting shall be that which is most compatible with and least disturbing to wildlife.	Night work which would require lighting is not anticipated to occur with the proposed work. However should lighting be needed this minimization measure would be implemented.
10	PBA	10. Employees will not bring pets to the project site.	Pets will be prohibited from the project site.
11	PBA	11. Firearms will be prohibited from the project site, except as required for security employees.	Firearms will be prohibited from the project site with the potential exception of site security personnel. Site security personnel will not be permitted to have firearms on site without approval from USFWS HNWR.

Table B-2
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Revised Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area,
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
12	PBA	12. If a desert tortoise or other wildlife is encountered under vehicles or equipment, the vehicle will not be moved until the animal has voluntarily moved to another location or to a safe distance from the parked vehicle.	Field crews will be instructed (and reminded daily) to check under vehicles for wildlife before driving. Vehicles shall not be moved until it has been confirmed they are clear of wildlife. Field crews will be instructed to not disturb or engage wildlife if encountered.
13	PBA	13. Upon project completion, all unused material and equipment will be removed from the site. This condition does not apply to fenced sites.	All equipment and materials will be removed from the project site following work unless within fenced areas, as coordinated with HNWR.
14	PBA	14. Palo verde, ocotillo, mesquite, cat-claw, smoke tree, and cacti species are considered sensitive by the BLM. To the extent practicable, these species will be avoided. If avoidance is not possible, these species will be transplanted when practical. Should any of the aforementioned plants be destroyed, they will be replaced.	Sensitive plant species including palo verde, ocotillo, mesquite, cat-claw, smoke tree, and cacti species will be avoided to the extent practicable.
15	PBA	15. The area of disturbance will be confined to the smallest practical area, considering topography, placement of facilities, location of burrows, nesting sites or dens, public health and safety, and other limiting factors. As needed, work area boundaries will be delineated with flagging or other marking to minimize surface disturbance associated with vehicle straying.	Ensure that area of disturbance will be confined to the smallest practical area. Work areas will be demarcated immediately prior to mobilization by the project biologist.
16	PBA	16. Activities will be restricted to a predetermined area. If unforeseen circumstances require project expansion, the potential expanded work areas shall be surveyed for listed species prior to use of the area. All appropriate mitigation measures shall be implemented within the expanded work areas based on the judgment of the agencies and the project biologist. Work outside of the original predetermined area will proceed only after receiving written approval from the BLM, USFWS, and/or CDFG describing the exact location of the expansion.	Site maps, aerial photographs and other project data will be reviewed prior to and during work to ensure that only existing routes of travel are used to access work areas. Field crews will be notified that “cross-country” travel, or the creation of new access routes, is prohibited. Preconstruction biological surveys will be conducted prior to working in new areas.
17	PBA	17. Construction vehicles and equipment will be periodically checked to ensure proper working condition and to ensure that there is no potential for fugitive emissions of oil, hydraulic fluid, or other hazardous products. The BLM will be informed of any hazardous spills.	All equipment will be inspected prior to use on the site and periodically during operation to ensure that it is in good working condition and free of leaking fluids. Any incidents involving releases of oils, petroleum, hydraulic fluids or any hazardous substance shall be immediately reported.
18	PBA	18. Workers will exercise caution when traveling to and from the Action Areas. To minimize the likelihood for vehicle strikes of listed species, speed limits when commuting to project areas on right–of-way roads will not exceed 20 miles per hour.	Discussion of speed limitations will be included in daily safety briefings. Any vehicular incident involving a wildlife strike shall be reported to the PM and project biologist.
19	PBA	19. Intentional killing or collection of either plant or wildlife at construction sites and surrounding areas will be prohibited. The BLM will be notified of any such occurrences.	All field team members will be required to participate in PG&E field sensitivity training. All staff shall also be informed that intentional killing of plant or wildlife is prohibited. The BLM will be notified of any intentional killing or collection of either plant or wildlife.
20	PBA	20. For emergency situations involving a pipeline leak or spill or any other immediate safety hazard, PG&E will notify the BLM within 48 hours. As a part of this emergency response, the BLM may require specific measures to protect listed species. During cleanup and repair, the agencies may also require measures to recover damaged habitats.	Field staff will report pipeline leaks or spills or any other immediate safety hazards to the BLM within 48 hours.
21	PBA	21. 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.	A report documenting the effectiveness and practicality of the mitigation measures, along with a summary of survey results and monitoring activities will be submitted to BLM within 60 days of the completion of construction activities.
22	PBA	22. Any future construction during the nesting season for migratory birds, generally February to September for most birds, will require preconstruction surveys for nesting pairs, nests and eggs. These preconstruction surveys shall occur in areas proposed for any vegetation removal and active nesting areas flagged. If nesting birds are detected, vegetation removal will be avoided during the nesting season. All construction activity within 200 feet of active nesting areas will be prohibited until the nesting pair/young have vacated the nests.	Should the activities occur within the nesting season, the required work windows and buffers outlined in the PBA will be implemented for any migratory or nesting birds that may be affected.
23	PBA	23. All areas within the proposed action areas, subject to operations and maintenance activities, and within the potential impact of the action, shall be monitored annually during the active period for tortoise by a biologist knowledgeable of desert tortoise ecology. Surveys shall be completed throughout the duration of the action to verify the presence or absence of desert tortoise and reports shall be provided to the biologists in the BLM Lake Havasu Field Office annually.	USFWS protocol surveys were performed from 2004 through 2009 that resulted in no recent evidence of species presence within the California Action Area. USFWS then determined that future protocol surveys were not warranted. Preconstruction surveys and other minimization measures included in the PBA and listed in this table will be incorporated to avoid and minimize impacts the Sonoran desert tortoise or its habitat.
24	PBA	24. Riparian areas surrounding the proposed action site and subject to influence of operations and maintenance activities shall be surveyed for South western willow flycatcher (SWFL) according to the protocol established by the USFWS. These surveys will be completed each year by a biologist permitted by the USFWS to carry out flycatcher surveys until the action has been completed and all facilities have been removed. Reports will be provided to the biologists in the BLM Lake Havasu Field Office annually.	Based on additional consultation with USFWS and BLM, protocol surveys for SWFL occur once every two years at the Topock Compressor project. The last survey was completed in 2012. Proposed work in this evaluation will not impact SWFL or its riparian habitat.
25	PBA	25. Upon locating an individual of a dead or injured listed species, PG&E will make initial notification to the BLM Havasu Office and USFWS Phoenix Office within 3 working days of its finding. The notification must be made by telephone and writing to the Lake Havasu BLM Office (2610 Sweetwater Avenue, Lake Havasu City,	BLM Havasu Office and USFWS Phoenix Office will be notified within 3 working days of finding a dead or injured listed species.

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
		Arizona 86406, 928 505-1200) and the Phoenix Fish and Wildlife Office (2321 West Royal Palm Road, Suite 103, Phoenix, AZ 85021, 602-242-0210). The report will include the date and time of the finding or incident (if known), location of the carcass, a photograph, cause of death (if known), and other pertinent information. Animals injured through PG&E activities will be transported to a qualified (authorized or permitted) veterinarian for treatment at the expense of PG&E. If an injured animal recovers, the USFWS and the BLM will be contacted for final disposition of the animal.	
26	PBA	26. PG&E will immediately notify the BLM Lake Havasu Field Manager (or his designated representative) of any cultural resources (prehistoric/historic sites or objects) and/or paleontological resources (fossils) encountered during permitted operations and will maintain the integrity of such resources pending subsequent investigation. All operations in the immediate area of the discovery must be suspended until written authorization from BLM to proceed is issued. An evaluation of the discovery will be made by a qualified archaeologist or paleontologist to determine appropriate actions to prevent the loss of significant cultural or scientifically important paleontological values.	The archaeological and historical sites will be protected from work activities and will be monitored during the course of work. The PG&E representative will be responsible for providing cultural sensitivity training to the workers implementing this plan and for ensuring compliance with all applicable archaeological measures during drilling activities. PG&E will invite participation from the Tribes, archaeological monitors, and agency staff, as appropriate, in this training. If any cultural resources and/or paleontological resources are encountered during work, operations in the immediate area of the discovery will be suspended, and BLM will be notified.
27	Environmental Impact Report (EIR) Mitigation Monitoring and Reporting Program (MMRP) for the Topock Compressor Station Groundwater Remediation Project	**AES-1.** Impacts on Views from Topock Maze Locus B, a Scenic Vista (Key View 5) The proposed project shall be designed and implemented to adhere to the design criteria presented below. a) Existing mature plant specimens shall be protected in place during construction, operation, and decommissioning phases consistent with CUL1a-5. The identification of plant specimens that are determined to be mature and retained shall occur as part of the design phase and mapped/identified by a qualified plant ecologist or biologist and integrated into the final design and project implementation. b) 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 and shall be implemented consistent with CUL1a-5. 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. c) Plant material shall be consistent with surrounding native vegetation. d) The color of the wells, pipelines, reagent storage tanks, control structures, and utilities shall consist of muted, earth-tone colors that are consistent with the surrounding natural color palette. Matte finishes shall be used to prevent reflectivity along the view corridor. Integral color concrete should be used in place of standard gray concrete. e) The final revegetation plans and specifications shall be reviewed and approved by an architect, landscape architect, or allied design professional licensed in the State of California to ensure that the design objectives and criteria are being met. Planting associated with biological mitigation may contribute to, but may not fully satisfy, visual mitigation.	The field work portion of the project,, the only aspect of the project that might be visible from the maze, is short-term and temporary. If a supply well is installed, it with will be too small to be visible from the maze. From the maze, Site A will be obscured from view by existing vegetation.
28	EIR MMRP	**AES-2.** Impacts on Views from Colorado River, a Scenic Resources Corridor (Key View 11) The proposed project shall be designed and implemented to adhere to the design criteria presented below. a) A minimum setback requirement of 20 feet from the water (ordinary high water mark) shall be enforced, except with regard to any required river intake facilities, to prevent substantial vegetation removal along the riverbank. b) Existing mature plant specimens shall be protected in place during construction, operation, and decommissioning phases. The identification of plant specimens that are determined to be mature and retained shall occur as part of the design phase and mapped/identified by a qualified plant ecologist or biologist and integrated into the final design and project implementation consistent with CUL1a-5. 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. d) Plant material shall be consistent with surrounding native vegetation. e) The color of the wells, pipelines, and utilities shall consist of muted, earth-tone colors that are consistent with the surrounding natural color palette. Matte finishes shall be used to prevent reflectivity along the view corridor. Integral color concrete should be used in place of standard gray concrete. f) The final revegetation plans and specifications shall be reviewed and approved by an architect, landscape architect, or allied design professional licensed in the State of California to ensure that the design objectives and criteria are being met. Planting associated with biological mitigation may contribute to, but may not fully satisfy, visual mitigation.	The field work portion of the project is short-term and temporary, and generally not visible from the river. From the river, Site A and Site B will be obscured from view by existing vegetation.
27	EIR MMRP	**AES-3.** Impacts on Visual Quality and Character along the Colorado River (Key View 11). Mitigation Measure AES-1 shall be implemented. Implementation of Mitigation Measures AES-1 would reduce the overall change to the visual character of the	See AES-1 and AES-2.

Table B-2
Summary of Compliance Approach for Requirements Not Identified as ARARs for the Topock Groundwater Remedy That Are Pertinent to the Alternative Freshwater Source Evaluation
Revised Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area,
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
		view corridor along the Colorado River. Although the proposed project would still be visible, incorporating a facilities design that is aesthetically sensitive and preserving the vegetation would blend the proposed project into their visual setting within the floodplain and would reduce the overall contrast of the proposed project.	
28	EIR MMRP	**AIR-1. Short-Term Construction-Related Emissions of Criteria Air Pollutants and Precursors** PG&E shall implement the fugitive dust control measures below for any construction and/or demolition activities: a) Use periodic watering for short-term stabilization of disturbed surface area to minimize visible fugitive dust emissions during dust episodes. Use of a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes shall be considered sufficient; b) Cover loaded haul vehicles while operating on publicly maintained paved surfaces; c) Stabilize (using soil binders or establish vegetative cover) graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than 30 days, except when such delay is caused by precipitation that dampens the disturbed surface sufficiently to eliminate visible fugitive dust emissions; d) Cleanup project-related track out or spills on publicly maintained paved surfaces within twenty-four hours; and e) Curtail nonessential earth-moving activity under high wind conditions (greater than 25 miles per hour) or develop a plan to control dust during high wind conditions. For purposes of this rule, a reduction in earth-moving activity when visible dusting occurs from moist and dry surfaces due to wind erosion shall be considered sufficient to maintain compliance.	Dust generation attributable to site activities and disturbances will be monitored during work, especially along unpaved access pathways, and dust suppression will be conducted as necessary. Hauling of drill cuttings is not anticipated. However, if required, materials will be covered or completely contained to manage fugitive dust. Grading will not be conducted as part of the planned activities. Minor stabilization improvements along existing access pathways at Site A are anticipated. The access pathway for Site B will be established along a disturbed, flat area. Based on the pre-construction state, this area will require stabilization as opposed to grading for use as an access route. See item a. Track-out onto Arizona County Highway 10, which is the only publicly maintained paved surface in the project area will be monitored and cleaned daily (as required). Earth-moving activities will not be conducted.
29	EIR MMRP	**BIO-1. 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. During the design process and before ground disturbing activities within such areas (not including East Ravine), 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 USACE jurisdiction is not feasible, the Section 404 permitting process shall be completed, or the substantive equivalent per CERCLA Section 121(e)(1). In either event, the acreage of affected jurisdictional habitat shall be replaced and/or rehabilitated to ensure “no-net-loss.” Before any ground-disturbing project activities begin in areas that contain potentially jurisdictional wetlands, the wetland delineation findings shall be documented in a detailed report and submitted to USACE for verification as part of the formal Section 404 wetland delineation process and to DTSC. For all jurisdictional areas that cannot be avoided as described above, authorization for fill of wetlands and alteration of waters of the United States shall be secured from USACE through the Section 404 permitting process before project implementation. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by feasible methods agreeable to USACE and consistent with applicable county and agency policies and codes. Minimization and compensation measures adopted through any applicable permitting processes shall be implemented. Alternately, if USACE declines to assert jurisdiction because it determines that CERCLA Section 121(e)(1) applies, the substantive equivalent of the Section 404 permitting process shall be complied with by ensuring that the acreage of jurisdictional wetland affected is be replaced on a “no-net-loss” basis in accordance with the substantive provisions of USACE regulations. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by feasible methods consistent with USACE methods, and consistent with the purpose and intent of applicable county and agency policies and codes. Minimization and compensation measures adopted through any applicable permitting processes shall be implemented. In any event, a report shall be submitted to DTSC to document compliance with these mandates. 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, BLM, and 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.	A survey was conducted to delineate/map jurisdictional areas within the project area so that planned activities could avoid State and Federal jurisdictional waters. The planned activities are not expected to result in a fill or discharge within jurisdictional waterways. Immediately prior to mobilization, as part of the preconstruction biological survey, a biologist will identify all acceptable access routes, staging areas, and work zones to ensure that jurisdictional waterways are avoided by construction activities. Discharging of water is planned for upland areas only. Corrective action included in the work plan will be implemented to prevent runoff to jurisdictional channels.

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
		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.	
30	EIR MMRP	**BIO-2a Disturbance of Special-Status Birds and Loss of Habitat.** To the extent feasible, the project implementation plans shall be designed to minimize removal of habitat for special-status birds. During the design process and before ground disturbing activities (except within the East Ravine as described in the Revised Addendum and unless otherwise required as noted below), a qualified biologist shall coordinate with PG&E to ensure that the footprints of project elements and construction zones, staging areas, and access routes are designed to avoid direct or indirect effects on habitat and nesting habitat for other special-status species, to the extent feasible. DTSC will ensure compliance with all preconstruction and construction phase avoidance measures identified during this process and included in any design plans. Vegetation removal and other activities shall be timed to avoid the nesting season for special-status bird species that may be present. The nesting cycle for most birds in this region spans March 15 through September 30. ***Preconstruction Measures*** Preconstruction breeding season surveys shall be conducted during the general nesting period, which encompasses the period from March 15 through September 30, if the final design of the project (including East Ravine investigation Sites I, K and L) could result in disturbance or loss of active nests of special-status bird species. If vegetation removal or other disturbance related to project implementation is required during the nesting season, focused surveys for active nests of special-status birds shall be conducted before such activities begin. A qualified biologist shall conduct preconstruction surveys to identify active nests that could be affected. The appropriate area to be surveyed and the timing of the survey may vary depending on the activity and species that could be affected. For the Yuma clapper rail, the preconstruction surveys shall specifically identify habitat within 300 feet of construction areas, in accordance with substantive policies of USFWS including those set out in USFWS protocols. ***Construction Measures*** Before the initiation of project elements that could result in disturbance of active nests or nesting pairs of other special-status birds, a qualified biologist shall be consulted to identify appropriate measures to minimize adverse impacts during the construction phase of the project. If deemed appropriate for the final project design because of the potential for impacts, minimization measures will include focusing construction activities that must be conducted during the nesting season to less- sensitive periods in the nesting cycle, implementing buffers around active nests of special-status birds to the extent practical and feasible to limit visual and noise disturbance, conducting worker awareness training, and conducting biological monitoring (including noise monitoring to determine if construction noise at the edge of suitable nesting habitat is elevated above 60 dBA_{Leq} or ambient levels). An avoidance and minimization plan for special status bird species, as defined in Table 4.3-3 and those species protected under the federal Migratory Bird Treaty Act, including the Yuma clapper rail, shall be developed and implemented in consultation with USFWS, and agreed upon by DTSC. Avoidance and impact minimization measures, such as prohibiting construction near or in sensitive bird habitat, limiting construction during breeding seasons, and requiring an on-site biological monitor, shall be included in the design plan and implemented to the extent necessary to avoid significant impacts on sensitive bird species.	Proposed activities will not impact habitat for the special-status birds SWFL and Yuma clapper rail. Pre-construction surveys will be completed by a biologist to avoid impacting nesting birds protected under MBTA. Trimming of vegetation will only occur after a biologist has confirmed that MBTA nesting birds are absent. Trimming activities will be minimized to the extent practicable to achieve access for equipment.
31	EIR MMRP	**BIO-2b Disturbance of Desert Tortoise and Loss of Habitat.** ***Preconstruction Measures*** In areas where impacts to potential desert tortoise habitat are unavoidable, measures outlined in the Programmatic Biological Agreement (PBA) and in the USFWS letter concurring with the PBA, shall be implemented, as described below. To the extent feasible, project construction shall be designed to minimize removal of habitat for the desert tortoise. Before any ground-disturbing project activities begin, and (except within the East Ravine for which potential effects to the tortoise have been considered per the PBA), a USFWS-authorized desert tortoise biologist shall identify potential desert tortoise habitat in areas that could be affected by the final project design. Through coordination with the authorized biologist, PG&E shall ensure that the footprints of project elements and construction zones, staging areas, and access routes are designed to avoid direct or indirect effects on potential desert tortoise habitat to the extent feasible. These measures include the presence of a USFWS-authorized desert tortoise biologist on-site who will examine work areas and vehicles for the presence of desert tortoises, and who will conduct preconstruction desert tortoise surveys in areas where unavoidable impacts to tortoise habitat would occur. If feasible, the preconstruction desert tortoise surveys would coincide with one of the two peak periods of desert tortoise activity (i.e., if feasible, the surveys should be conducted in either the period from April through May, or from September through October). The preconstruction surveys shall be in full accordance with the substantive requirements of	This action will not likely have a direct effect upon the Sonoran desert tortoise based on the implementation of the minimization measures identified in the PBA and in this table, including pre-construction surveys by a biologist. Additionally, USFWS protocol surveys were performed from 2004 through 2009 that resulted in no recent evidence of species presence within the Action Area including Arizona. The habitat within the Action Area is considered marginal, and any loss would be minor and well below the 8-acre upload threshold requested in the PBA. Therefore, this action will have minimal indirect effects upon this species that are covered within the PBA.

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
		USFWS protocols. ***Construction Measures*** Before the initiation of project elements that could result in disturbance of desert tortoises or desert tortoise habitat, a USFWS-authorized desert tortoise biologist shall be consulted to identify appropriate measures to minimize adverse impacts. Minimization measures are likely to include micro-siting structures, pipelines, and access roads in previously disturbed areas or in areas with sparse scrub vegetation, conducting worker awareness	
32	EIR MMRP	**BIO-2c Disturbance of Special-Status Species and Loss of Habitat Caused by Decommissioning.** To avoid impacts on special-status species that may occur within the project area as a result of decommissioning activities, an avoidance and minimization plan shall be developed and implemented through consultation with DFG, BLM, and USFWS. These measures shall be based on surveys conducted prior to decommissioning, and during the breeding season (as previously defined in this EIR for each species or suite of species). 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, BLM, and USFWS that is agreeable to these agencies. 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.	Any proposed freshwater source well decommissioning activities would avoid impacts to special-status species including the Sonoran desert tortoise and nesting birds protected under the MBTA. An avoidance and minimization plan to protect special-status species along with a restoration plan would be developed and implemented through consultation with BLM, USFWS, and HNWR..
33	EIR MMRP	**BIO-3a Potential Impacts to Aquatic Habitat Related to Turbidity, Erosion, Sedimentation, and Overall Water Quality during Construction of the Intake Structure.** Hydrology & Water Quality Mitigation Measure HYDRO-1 shall be implemented in order to reduce water quality impacts related to erosion and pollutant runoff through implementation of BMPs. In addition, installing the cofferdam and dewatering a portion of the proposed intake structure site during fish screen construction may result in fish stranding. PG&E and its contractor shall coordinate with a qualified fisheries biologist to develop and implement a fish rescue plan. The fish rescue effort would be implemented during the dewatering of the area behind the cofferdam and would involve capturing those fish and returning them to suitable habitat within the river. The fish rescue plan shall identify and describe the following items: collection permits needed, fish capture zones, staffing, staging areas, fish collection and transport methods, species prioritization, resource agency contacts, fish handling protocols, fish relocation zones, site layout and progression of dewatering and fish rescue, and records and data. To ensure compliance, a fisheries biologist shall be present on-site during initial pumping (dewatering) activities and to oversee the fish rescue operation.	An intake structure will not be constructed as part of the planned activities.
34	EIR MMRP	**BIO-3b Potential Loss or Degradation of Aquatic Habitat.** To restore, replace, or rehabilitate habitat impacted by the intake structure, PG&E shall implement the measures described below. Unless as provided below, PG&E shall confer with DFG regarding potential disturbance to fish habitat and shall obtain a streambed alteration agreement, pursuant to Section 1602 of the California Fish and Game Code, for construction work associated with intake structure construction; PG&E shall also confer with DFG pursuant to the CESA regarding potential impacts related to the loss of habitat or other operational impacts on state-listed fish species, respectively. PG&E shall comply with all requirements of the streambed alteration agreement and any CESA permits to protect fish or fish habitat or to restore, replace, or rehabilitate any important habitat on a “no-net-loss” basis. Alternatively, if DFG declines to assert jurisdiction because it determines that CERCLA Section 121(e)(1) applies, the project proponent shall consult with DFG regarding potential disturbance to fish habitat and shall meet the substantive policies of a streambed alteration agreement and of the CESA for construction work associated with intake structure construction and operations. PG&E shall comply with all substantive requirements of the streambed alteration agreement and CESA to protect fish and fish habitat or to restore, replace, or rehabilitate any important habitat on a “no-net-loss” basis and to operate the facility in accordance with CESA to ensure no net loss of habitat function. Additionally, PG&E shall consult with USACE regarding the need to obtain permits under section 404 of the CWA and section 10 of the Rivers and Harbors Act. In conjunction with these permitting activities, the USACE must initiate consultation with USFWS under Section 7 of the Federal ESA regarding potential impacts of the proposed project on federally listed fish species due to the loss of habitat on federally listed fish species. PG&E shall implement any additional measures developed through the ESA Section 7 processes, or its equivalent, to ensure “no-netloss” of habitat function. Alternatively, if USACE and/or USFWS decline to assert jurisdiction because it determines that CERCLA Section 121(e)(1) applies, PG&E shall confer with USFWS regarding potential disturbance to federally listed fish species and federally listed fish species habitat and shall meet the substantive mandates under Section 7 of the Federal ESA regarding potential impacts to fish or to habitat of federally listed fish species. PG&E shall implement any additional measures developed through that processes, including compliance with the substantive requirements of all of what would be permit conditions if not exempt pursuant to CERCLA, and to ensure “no-net-loss” of habitat function. Because the type and extent of habitat potentially affected is unknown, PG&E shall have an instream habitat typing survey conducted in the area potentially affected by the intake construction. Further, cooperation with USFWS and other fisheries biologists shall determine suitable and acceptable location(s) for the intake structure(s) to avoid the spawning habitat of special-status fish species. PG&E shall avoid habitat modifications, especially to habitat that is preferred by native fishes for spawning or rearing including side channels, cobble or gravel bars, and shallow backwaters. If these habitat types cannot be avoided, any disturbed habitat will be restored or replaced to achieve “no-net-loss” of habitat types and values as described above.	An intake structure will not be constructed as part of the planned activities.

Table B-2
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Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
35	EIR MMRP	**BIO-3c Potential Fish Entrainment and Impingement during Operation of the Intake Structure.** Both screened and unscreened diversions can entrain larval life stages of fish. For example, adverse effects to early life stages of fish could occur if diversions coincide with planktonic larval life stages that occur during summer months, a period of high entrainment vulnerability. Prior to operation of the intake structure, PG&E shall consult with USFWS and DFG to determine the most vulnerable time of the year for entrainment or impingement of razorback sucker and bonytail chub eggs or larvae. PG&E shall install a state-of-the-art positive-barrier fish screen that would minimize fish entrainment and impingement at the intake structure. The fish screen shall be designed in accordance with DFG and the National Marine Fisheries Service criteria, with specific consideration given to minimizing harm to fish eggs and other early life stages. To ensure that the fish screen operates as intended and reduce the risk of impacts, long-term monitoring of the operations and maintenance of the positive-barrier screen shall be conducted. Monitoring at the onset of diversions through the intake shall include approach velocity measurements immediately after the positive-barrier screen operations begin, with fine-tuning of velocity control baffles or other modifications as necessary, to achieve uniform velocities in conformance with the screen criteria established by regulatory agencies.	An intake structure will not be constructed as part of the planned activities.
36	EIR MMRP	**CUL-1a During Design, Construction, O&M, and Decommissioning Implement Measures to Avoid, Minimize, or Mitigate Impacts on Cultural Resources.** Establishment of a cultural impact mitigation program and a Corrective Measures Implementation Workplan (CMI Workplan), with specific activities stipulated for each phase of the project, will reduce the potential for impacts on historical resources within the project area, and will help preserve the values of and access to the Topock Cultural Area for local tribal users. As detailed below, measures will be implemented to avoid known resources, re-use existing disturbed areas to the extent feasible, allow for tribal input to the final design and maintain access for tribal users during design, construction, operation, and decommissioning activities, as appropriate. During construction, a Worker Education Program and regular archaeological and tribal monitoring will be implemented, and measures intended to reduce the potential for incursion by outside parties will be strengthened. This measure does not apply to the activities included as part of the East Ravine Revised Addendum, Groundwater Investigation (dated December 31, 2010).	Prior to work, the approved work areas will be defined in the field by the PG&E cultural resources monitor and workers will be instructed to not conduct work outside of the defined area. The work area boundary was established to avoid resources identified during previous cultural resource surveys. Prior to work, all field workers will participate in PG&E's Site Sensitivity Training program, which will inform them of the cultural significance of the project area, and define the rules of working within the project area.
37	EIR MMRP	**CUL-1a-1:** During development of the final design and the construction, operation, and decommissioning phases of the project, PG&E shall carry out and require all subcontractors to carry out all investigative, testing, and remediation activities, including all supporting operations and maintenance activities, in ways that avoid, minimize, and mitigate significant adverse effects to historically significant cultural and historic resources, consistent with the CEQA Guidelines, and including the Topock Cultural Area, to the maximum extent feasible as determined by DTSC. [1]"Interested Tribes" means, for purposes of this EIR and the mitigation measures contained herein, the six tribes that have substantially participated in the various administrative processes surrounding remediation of the site with DTSC, PG&E, and DOI, including throughout development of the final remedy. Interested tribes include the Chemehuevi Indian Tribe, Cocopah Indian Tribe, Colorado River Indian Tribes, Fort Mojave Indian Tribe, Fort Yuma-Quechan Indian Tribe, and Hualapai Indian Tribe.	See CUL-1a.
38	EIR MMRP	**CUL-1a-2:** As part of the CMI Workplan, PG&E shall develop a written access plan to preserve tribal members' access to, and use of, the project area for religious, spiritual, or other cultural purposes. This plan will allow access to the extent PG&E has the authority to facilitate such access, and be consistent with existing laws, regulations, and agreements governing property within the project area. The access plan may place restrictions on access into certain areas, such as the Compressor Station and the existing evaporation ponds, subject to DTSC review with regard to health and safety concerns and to ensure noninterference with approved remediation activities. This access plan may be developed in coordination with the federal agencies with land management responsibilities in the project area (e.g., BLM and USFWS) in accordance with the related stipulation (General Principle I.C) contained in the Programmatic Agreement (Appendix PA). PG&E shall demonstrate a good faith effort to coordinate with Interested Tribes 1 by including communication logs as part of the CMI Workplan.	As with previous well installation programs associated with the Topock Remediation Project, PG&E will provide the agencies and interested stakeholders with periodic schedule updates as mobilization dates are finalized and as work progresses such that the tribal monitors can plan to oversee the work. Tribal members will be provided contact information for Curt Russell, Chris Smith, and the PG&E cultural resources monitor to coordinate site access, as necessary.
39	EIR MMRP	**CUL-1a-3:** PG&E shall enhance existing measures to prevent and reduce incursions from recreational and/or other outside users from affecting unique archeological and historically significant resources, including resources within the Topock Cultural Area, by: a. Retaining a Qualified Cultural Resource Consultant to implement the Mitigation Monitoring and Reporting Program (MMRP) and conducting yearly inspections (or less frequently upon approval by DTSC) of identified historical resources, including inspections of the Topock Cultural Area, to determine if substantial adverse changes have occurred relative to the condition of the historical resources during the past year or prior to the implementation of the proposed project. PG&E shall offer to retain a tribal monitor at historic rates of compensation or tribal representatives designated by the Tribal Council or chairperson, if so requested, to accompany the Qualified Cultural Resources Consultant during the inspections. The Qualified Cultural Resource Consultant shall be a person who is acceptable to DTSC and who is also a qualified archaeologist with a graduate degree in archaeology, anthropology or closely related field, plus at least 3 years of full-time professional experience in general North American archaeological research and fieldwork, with expertise/experience in the Southwest preferred. b. Developing a site security plan as part of the CMI Workplan. The site security plan shall include, but not be limited to, instructions for PG&E personnel to inspect the project site routinely during construction and report any human-caused disturbance to project facilities and the surrounding environment to DTSC and the appropriate landowner, such as BLM, USFWS, or FMIT, as appropriate, depending on the ownership of the property involved in the incursion. Notification shall be within a specified period, as established in the site security plan for the event, and shall also be summarized as part of the periodic implementation status report,	This measure applies to the remedy project, and will be implemented in connection with the remedy project. All gated access routes will be maintained closed during working hours. Based on site experience communicated by HNWR during the January 3, 2013 comment resolution meeting, PG&E will plan to have a security detail present at all work sites during non-working hours to manage the potential for unauthorized trespass. If unauthorized trespass is detected, PG&E will notify the landowner as soon as possible. Moabi Regional Park is outside the project area for this work. PG&E will work with the landowner prior to work to determine if signage in addition to that already in place is required.

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
		as approved by DTSC for remedy implementation. This measure does not impose any obligation on PG&E to perform law-enforcement duties on federal or private lands, but is intended to provide increased observation of potential intrusions into the project area during construction and operation of the final remedy that may impact significant cultural resources. PG&E staff, or assigned agents, should be instructed to report any outside disturbance to the environment personally observed over the course of the working day. Information shall be reported within a specific period, as established in the site security plan, to DTSC and the appropriate landowners, such as BLM, USFWS, or FMIT, depending on the ownership of the property intruded upon. The site security plan may also include the use of PG&E security cameras at major ingress/egress gates into the project site. Finally, if requested by the FMIT the plan may include the use of private security personnel to patrol the FMIT-owned parcel within the project area to prevent outside incursions. c. Coordinating with BLM and San Bernardino County to facilitate an outreach effort to the staff at Moabi Regional Park, requesting that they communicate to visitors the parts of the project area that are off limits to off-road vehicle usage because of health and safety concerns, public lands management plans, or landowner requests. PG&E shall make a good faith effort to involve the surrounding tribes in this outreach effort, providing Interested Tribes with the opportunity to comment on outreach materials or provide a tribal cultural resources specialist the opportunity to participate in the outreach activities. As part of this outreach effort, PG&E shall work with Park Moabi and offer to design, develop, and fund the installation of an informational kiosk within Park Moabi that informs visitors of the work being done at the project site. PG&E shall involve the tribes to the maximum extent feasible, as determined by DTSC, in the design and development of the informational kiosk. d. Posting signage to indicate those parts of the project area that are off limits to off-road vehicle usage due to possible health and safety concerns and to reduce potential damage to environmental resources. If agreed to by land owners and/or local, state, or federal management entities within the project area, PG&E shall work with the relevant land owner or land management entity to develop, design, and fund the installation of easily visible and clear signage. This may include coordination with BLM to install signage noting the designation of the area as an Area of Critical Environmental Concern owing to its biological and cultural resources, while ensuring that signs are placed in a way that does not draw unwanted attention to specific resources.	
40	EIR MMRP	**CUL-1a-4:** PG&E shall work with representative members of the Interested Tribes to convene and retain a multidisciplinary panel of independent scientific and engineering experts as part of a Technical Review Committee (TRC). The TRC shall be made up of not more than five multidisciplinary experts who will be on call to review project-related documents, participate in project-related meetings, and advise interested tribal members on technical matters relating to the final design and remedy. The TRC shall include only persons with technical expertise, including but not limited to geology, hydrology, water quality, engineering, paleontology, toxicology, chemistry, biology, or botany. Before July 1, 2011, PG&E shall post an open grant or Request for Qualifications (RFQ) and retain members of the TRC at rates comparable to those paid historically to tribal experts by PG&E for the remediation project. TRC members shall be selected by majority vote of one representative from each participating Interested Tribe. PG&E shall provide Interested Tribes at least 30-days notice of the meeting to select TRC members and to review TRC candidate qualifications. For the purposes of contracting, the grant may be awarded to one tribal government to manage or, alternatively, PG&E may reimburse the tribe or TRC members directly. The entirety of the monies shall be used to fund the scientific and engineering team exclusively, and shall not be used to fund other tribal government expenses or used to support legal counsel. A stipulation of the open grant shall be that the scientific and engineering team shall provide all deliverables and results to all involved tribes, despite a possible contract agreement with only one tribe or with PG&E. Upon conclusion of the construction phase of the project, the necessity and dollar value of the TRC shall be assessed by PG&E and, with the approval of DTSC, shall either be extended, reduced, or terminated under the operations and maintenance phase.	Topock Final Remedy TRC is in place. As with previous well installation programs associated with the Topock Remediation Project, PG&E will provide the agencies and interested stakeholders (including the TRC) with periodic schedule updates as mobilization dates are finalized and as work progresses such that the tribal monitors can plan to oversee the work.
41	EIR MMRP	**CUL-1a-5:** Should any indigenous plants of traditional cultural significance and listed in Appendix PLA of this FEIR be identified within the project area, PG&E shall avoid, protect, and encourage the natural regeneration of the identified plants when developing the remediation design, final restoration plan, and IM-3 decommission plan. In the event that impacts on the identified plants cannot be avoided and such plants will be displaced, PG&E shall retain a qualified botanist who shall prepare a plant transplantation/monitoring plan which can be included as part of the Cultural Impact Mitigation Program (CIMP) referenced in CUL-1a-8 either by (1) transplanting such indigenous plants to an on-site location, or (2) providing a 2:1 ratio replacement to another location decided upon between PG&E and members of the Interested Tribes. Plans to transplant or replace such plants shall be approved by DTSC. In coordination with the qualified botanist, PG&E shall monitor all replanted and replacement plants for at least 3 5 years, and shall ensure at least a 75 percent survivorship during that time. This mitigation measure is not meant to replace or subsume any actions required by state or federal entities with regard to the protection of species listed as rare, threatened, or endangered.	It is anticipated that only existing roads and access pathways requiring minimal access improvements in select areas will be used during the work proposed in the Plan. The removal of vegetation is not expected to be required to gain access for equipment; however, the trimming of vegetation may be required. Trimming, if required, will be focused on non-native species (e.g., tamarisk) and the trimming of native species (e.g., palo verde and mesquite) will be avoided or minimized to the extent practicable. Prior to mobilization, a biologist will identify acceptable access routes, staging areas, and work zones. In addition, a biologist will be on site during all vegetation trimming activities.
42	EIR MMRP	**CUL-1a-6:** All additional phone calls and alarms associated with remediation activities or facilities shall not be routed through PG&E's existing alarm system utilized at the compressor station. The notification system for remediation-related alerts and/or phone calls shall not introduce additional noise to the project area, to the maximum extent feasible, provided there is ongoing compliance with applicable safety regulations or standards of the Federal Energy Regulatory Commission, Occupational Safety and Health Administration, and other agencies. (See Mitigation Measure NOISE-3 for additional mitigation related to the Topock Cultural Area).	The planned activities do not include additional phone calls and alarms. The notification system for remediation-related alerts and/or phone calls that might be related to new supply wells will be addressed on the remedy design documents.
43	EIR MMRP	**CUL-1a-7:** Nighttime construction-related activities shall be limited to work that cannot be disrupted or suspended until the following day, such as, but not limited to, well drilling and development or decommissioning activities. Lighting considerations, including the potential use of solar power for some lighting, shall be included as part of the remedial design plan to be developed with involvement of Interested Tribes and the U.S. Department of the Interior. To minimize	Drilling activities will be conducted during daylight hours only. However, in the case of multiple day aquifer testing, well pumping and groundwater discharge activities may need to be conducted during nighttime hours. In this case, PG&E will plan all nighttime activities closely with HNWR to ensure the light-related impacts are minimize to the

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
		construction and operations-related lighting impacts, the lighting in the remedial design plan shall include, at a minimum: (1) shrouding/shielding for portable lights needed during construction and operational activities; (2) installation of portable lights at the lowest allowable height and in the smallest number feasible to maintain adequate night lighting for safety; (3) shielding and orientation of lights such that off-site visibility of light sources, glare, and light from construction activities is minimized to the extent feasible. No additional permanent poles shall be installed for lighting. This mitigation measure is not meant to replace or subsume any actions required by the County or state or federal entities with regard to lighting required for minimum security and safety purposes.	extent practicable while maintaining a safe work environment.
44	EIR MMRP	**CUL-1a-8:** Prior to commencement of construction, PG&E shall submit as part of the final Remedial Design, a CIMP developed in coordination with Interested Tribes for DTSC's review and approval. The CIMP may be developed in coordination with the federal agencies with land management responsibilities in the project area (e.g., BLM and USFWS) in accordance with the Programmatic Agreement (Appendix PA). The CIMP shall include, at a minimum and to DTSC's satisfaction, the following: a. Protocols for continued communication. Consistent with past practice and the communication processes previously entered into by PG&E with Interested Tribes, the company shall continue to communicate with Interested Tribes during the design, construction, operation, and decommissioning of the project. Prior to implementation of construction, PG&E shall communicate with Interested Tribes that place cultural significance on the Topock Cultural Area. Outreach efforts between the Tribes and PG&E shall be communicated by PG&E to DTSC quarterly during the design and construction phase for review and input, and annually during project operations. b. Protocols for the appropriate treatment of archaeological materials that may be disturbed or discovered during implementation of the final remedy, including protocols for the repatriation of significant items of cultural patrimony that may be recovered during the project, and protocols for the curation of cultural materials recovered during the project. Treatment of archaeological sites may include data recovery or capping. If data recovery is proposed, a Research Design following California Office of Historic Preservation guidelines or federal guidelines, as applicable, shall be prepared and reviewed and approved by DTSC. c. Protocols for the review of cultural resource-related documents throughout the design, construction, and operational phases. d. Protocols for the review of project design documents before the beginning of construction, including reviews of project design documents throughout the design process (e.g., Preliminary [approximately 30% completed], Intermediate [approximately 60% completed] and Pre-final design). e. Protocols for the appropriate methods to be used to restore the environment to its preconstruction condition upon decommissioning of individual groundwater remedy facilities. f. A plan for the decommissioning and removal of the IM-3 Facility and proposed restoration of the site (to be an appendix to the CIMP). g. Protocols for the repatriation of clean soil cuttings generated during construction activities and during drilling associated with repair/replacement activities during operations and maintenance phases. The soil cuttings shall be managed in compliance with applicable laws and regulations on site. h. Protocols for the appropriate methods, consistent with Mitigation Measure NOISE-3, to reduce auditory impacts. i. Protocols for the appropriate methods, consistent with Mitigation Measures AES-1 and AES-2, to reduce visual intrusions. j. Protocols for tribal notification in advance of project-related activities that the Interested Tribes may feel have the potential to cause adverse impacts to sensitive cultural resources. k. Protocols to be followed by project personnel to accommodate, if feasible as determined by DTSC, key tribal ceremonies that involve the Topock Cultural Area. l. Provisions affording sufficient tribal monitors to observe ground-disturbing activities and/or other scientific surveying (e.g., biological surveys) that may occur in preparation for construction activities. Ground-disturbing activities include trenching, excavation, grading, well excavation/drilling, decommissioning of the IM-3 Facility and subsurface pipeline, or other construction-related activities. m. Provisions of reasonable compensation for tribal monitors consistent with historic rates. n. Locations requiring specific protective devices, such as temporary fencing, flagging, or other type of demarcation during construction. o. Protocols for the reporting of discoveries of cultural importance consistent with existing statutes and regulations. Protocols for the inspection of remediation facilities and/or staging areas throughout the construction phase.	Work on the CIMP is ongoing. PG&E has and will continue to discuss with and solicit input from Interested Tribes on various mitigation measures under the CIMP. A draft CIMP will be provided to Interested Tribes for review prior to submittal to DTSC for review and approval. This measure was discussed with Interested Tribes at the monthly meetings on October 25, 2012, November 9, 2012, December 4, 2012, and December 18, 2012. Regardless, the following measures will be taken during the implementation of the Alternative Freshwater Evaluation: a) As with previous well installation programs associated with the Topock Remediation Project, PG&E will provide the agencies and interested stakeholders with periodic schedule updates as mobilization dates are finalized and as work progresses. b) Potential well sites have been surveyed for cultural resources. The potential work area has been established to exclude all known resources. As stated in the Implementation Plan, Applied Earthworks will observe all ground disturbing activities, including aquifer testing, and will have the authority to halt work in the event additional cultural resources are discovered. Also as described in Section 4 of the plan, specific steps to value and safeguard discovered resources will be followed. c) The results of the cultural surveys for the potential work area were submitted to interested tribes on January 10, 2013. d) This process is ongoing. Interested tribes have reviewed and commented on the initial submittal of this Implementation Plan . e) The development of these protocols is ongoing. f) The development of this plan is ongoing. g) Discussion of these protocols is ongoing, and subject to information provided in individual work plans. For this work, it is proposed that the soil cuttings be left on the ground where they were generated. h) See Noise-3. i) See AES-1 and AES-2. j) Interested tribes have the opportunity to comment on the Implementation Plan. k) As with previous field activities associated with the Topock Remediation Project, PG&E will regularly communicate the project schedule, in part, to accommodate key tribal ceremonies should they be requested. l) As with previous field activities associated with the Topock Remediation Project, PG&E will regularly communicate the project schedule, in part, to coordinate tribal monitor participation.. m) As with other activities associated with the Topock Remediation Project, and in accordance with memoranda of understanding, tribal monitors will be invited to monitor work activities. Tribal monitors were present during the cultural resource surveys. n) Prior to work, the approved work areas will be defined in the field by the PG&E cultural resources monitor and the PG&E biologist. Workers will be instructed to not conduct work outside of the defined area. The work area

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
			boundary was established to avoid resources identified during previous cultural and biological resource surveys. o) The results of the cultural surveys for the potential work area were submitted to interested tribes on January 10, 2013.
45	EIR MMRP	**CUL-1a-9:** During selection of the design and specific locations for physical remediation facilities, PG&E shall, in communication with the Interested Tribes (and subject to their review), and to the maximum extent feasible, as determined by DTSC, give: (1) priority to previously disturbed areas for the placement of new physical improvements; and (2) priority to re-use of existing physical improvements, such as but not limited to wells and pipelines, but not including IM-3 facilities. "Disturbed" areas in this context means those areas outside of documented archaeological site boundaries that have experienced ground disturbance in the last 50 years. PG&E shall produce an aerial map of these disturbed areas to guide project design, and PG&E shall make a good faith effort to provide tribes with an opportunity to review and comment on the information displayed on the map in determining "disturbed" areas.	The potential supply wells are the only physical remediation facilities associated with the Alternative Freshwater Source Evaluation. The location of these wells is based on the results of surface geophysical data, and within the identified target areas, installation work will be focused in areas that have been previously disturbed.
46	EIR MMRP	**CUL-1a-10:** PG&E shall consider the location of Loci A, B, and C of the Topock Maze during the design and approval of the physical facilities necessary for the final remedy and is prohibited from creating any direct physical impact on the Topock Maze, as it is manifested archaeologically. Through the design, PG&E shall prevent all indirect (e.g. noise, aesthetics) impacts on the Topock Maze, to the maximum extent feasible as determined by DTSC.	Work associated with the Alternative Freshwater Source Evaluation is not anticipated to interfere with the areas mentioned, which are on the California side of the Colorado River.
47	EIR MMRP	**CUL-1a-11:** PG&E shall provide an open grant for two part-time cultural resource specialist/project manager positions during the design and construction phases of the remediation project. The positions shall be filled by qualified members of an Interested Tribe as nominated by a majority vote of their Tribal Council(s) and appointed by DTSC's project manager if more than two members are nominated. The award of the grants is for continued involvement in review of project documents and participation in project-related meetings, including TRC meetings, at rates of historic compensation. Additionally, in light of FMIT's ownership of land in the project area and historical involvement in the environmental process, additional funding is guaranteed for one full-time FMIT position upon submission of an application by a qualified FMIT member who shall be appointed by the FMIT council, provided such funding is not duplicative of the services and funding provided by PG&E pursuant to the Settlement Agreement between PG&E and the FMIT in Fort Mojave Indian *Tribe v. Dept. of Toxic Substances Control, et al.*, Case No. 05CS00437 for a position with the FMIT's AhaMakav Culture Society. The payment of grant monies shall be timed to the awarded tribes' fiscal cycles so that the tribes are not forced to front funds for long periods of time. These positions shall act as cultural resources contacts and project managers for interactions between the tribes, PG&E, and DTSC to ensure coordination for review and comment of subsequent project and/or environmental documents related to the design and implementation of the groundwater remediation project to avoid, reduce, or otherwise mitigate impacts on historical resources, as defined by CEQA. This funding is separate from provisions for tribal monitor positions and shall not be used for routine tribal business or legal counsel. For review and approval, PG&E shall provide DTSC with the names of the selected grant recipients and an annual report that summarizes activities associated with the grant program. Upon the conclusion of the construction phase of the project, the necessity and dollar value of the grant program shall be assessed by PG&E and, with the approval of DTSC, shall either be extended or terminated under the operations and maintenance phase.	The first funded position was filled by the Chemehuevi Tribe; the second funded project manager position was filled by the Cocopah Indian Tribe, who is looking to refill their Project Manager position.
48	EIR MMRP	**CUL-1a-12:** PG&E shall provide sufficient opportunity, as determined by DTSC, for Interested Tribes to provide a traditional healing/cleansing ceremony (or ceremonies) before and after ground disturbing construction activities occur.	Please see CUL-1a-8(k).
49	EIR MMRP	**CUL-1a-13:** PG&E shall, in communication with Interested Tribes, develop as part of the CMI Workplan, a worker cultural sensitivity education program. The program shall be implemented before commencement of construction and throughout construction and operations as personnel are added. This program may include information provided directly by tribal entities either in written form or on video, in a manner consistent with Appendix C in the existing BLM Programmatic Agreement. The worker cultural sensitivity education program shall ensure that every person working on the project as an employee or contractor, before participating in design or outdoor activities at the project site, is informed regarding: • the cultural significance of the Topock Cultural Area, • appropriate behavior to use within the Topock Cultural Area, • activities that are to be avoided in the Topock Cultural Area, and • consequences in the event of noncompliance.	PG&E is working collaboratively with Tribes on this measure.
50	EIR MMRP	**CUL-1b and 1c During Design, Construction, O&M, and Decommissioning Consider the Location of Historical Resources and Implement Measures to Avoid Resources to the Extent Feasible** The following actions will reduce the potential for impacts on identified historically significant resources (other than the Topock Cultural Area, which is separately addressed in CUL-1a) within the project area. As detailed below, these actions include consideration of the location of historical resources, preparation of a cultural resources study, and preparation of a treatment plan. Monitoring of ground-disturbing activities during project construction will further protect historically significant resources. Protective actions are also described pertaining to the discovery of any previously unidentified potentially significant cultural resources.	See sub-measures.
51	EIR MMRP	**CUL-1b/c-1:** PG&E shall consider the locations of the identified historic resources described above (Table 4.4-3) during the design of the physical improvements necessary for the proposed project and avoid, minimize, or mitigate impacts on historical and archaeological resources to the maximum extent feasible, as	All work areas and access routes associated with the Alternative Freshwater Source Evaluation have been located away from cultural resources identified by archaeological

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
		determined by DTSC. The final design plans for the project will be submitted to DTSC for review and approval.	surveys conducted from August to November 2012.
52	EIR MMRP	**CUL-1b/c-2:** During preparation of the final design, and consistent with CUL-1 a-3, PG&E shall retain a Qualified Cultural Resources Consultant to prepare a cultural resources study that assesses the potential for the construction, operations, or decommissioning of specific proposed improvements to result in significant impacts on identified historically significant resources described in Impacts CUL-1b and CUL-1c. This may include a geoarchaeological investigation and/or non-destructive remote-sensing surveys of potentially disturbed areas to determine if a potential exists for buried historical and archaeological resources. "Significant impacts" as used here means the potential for construction to demolish or materially alter in an adverse manner those physical characteristics of a resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR. The study will be submitted to DTSC During the design phase for review and evaluation to determine if existing mitigation measures are appropriate.	Preparation of the final design has not yet begun.
53	EIR MMRP	**CUL-1b/c-3:** If the cultural resources study determines that the construction of physical improvements would result in significant impacts on identified historically significant resources described in Impacts CUL-1b and CUL-1c, and avoidance of the resource is not feasible, PG&E shall prepare a treatment plan that identifies measures to reduce these impacts (see above description of the CIMP) for DTSC's review and approval. The treatment plan shall identify which criteria for listing on the CRHR contribute to the affected resource's significance and which aspects of significance would be materially altered by construction, operations, or decommissioning and shall provide for reasonable efforts to be made to permit the resource to be preserved in place or left in an undisturbed state. Methods of accomplishing this may include capping or covering the resource with a layer of soil. To the extent that a resource cannot feasibly be preserved in place or left in an undisturbed state, excavation as mitigation shall be restricted to those parts of the resource that would be damaged or destroyed by the project. Excavation as mitigation shall not be required for a historically significant resource if the treatment plan determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource. The plan shall require communication with all Interested Tribes with regard to their perspectives and wishes for the treatment of the resources.	See CUL-1b/c-2.
54	EIR MMRP	**CUL-1b/c-4:** Consistent with CUL-1a-3a above, PG&E shall retain a Qualified Cultural Resources Consultant to observe ground-disturbing activities and shall be required to request the participation of tribal monitors during those activities, including steps necessary during operations and decommissioning activities to ensure that historically significant resources are avoided to the maximum extent feasible, as determined by DTSC, during actual construction (see the description of the CMI Workplan, above). The Qualified Cultural Resources Consultant shall provide training to construction personnel on the locations of identified resources, values associated with the identified resources, responsibility for reporting suspected historic resources, and procedures for suspension of work in the immediate vicinity of the discovery, and shall use exclusionary fencing, flagging, or other appropriate physical barriers to mark the boundaries of identified resources. The Qualified Cultural Resources Consultant shall invite participation from Interested Tribal members to participate in the training. In the event that previously unidentified potentially significant cultural resources are discovered during ground-disturbing activities, the Qualified Cultural Resources Consultant shall have the authority to divert or temporarily halt ground-disturbing activities in the area of discovery to allow evaluation of the potentially significant cultural resources. If such discoveries occur on land managed by a federal agency, Stipulation IX (Discoveries) of the Programmatic Agreement shall apply and are deemed adequate by DTSC. If a discovery occurs on other lands within the project area, the Qualified Cultural Resources Consultant shall contact the PG&E and DTSC project managers at the time of discovery and, in consultation with DTSC and tribal monitors, shall evaluate the resource before construction activities will be allowed to resume in the affected area. For significant cultural resources, and before construction activities are allowed to resume in the affected area, the resource(s) shall be recovered with coordination of the tribal monitors and DTSC. Recovery may include a Research Design and/or Data Recovery Program submitted to DTSC for review and approval. The Qualified Cultural Resources Consultant (and tribal monitors) shall determine the amount of material to be recovered for an adequate sample for analysis or data recovery. Any concerns or recommendations regarding the ground-disturbing activities or the handling of cultural resources shall be directed to the Qualified Cultural Resources Consultant or PG&E's site supervisor.	As stated in the plan, Applied Earthworks has been retained by PG&E with DTSC approval, and will observe all ground-disturbing activities and planned well testing activities.
55	EIR MMRP	**CUL-2 During Project Design Consider the Location of Unique Archaeological Resources and Avoid Resources to the Maximum extent Feasible.** Cultural resources that qualify as unique archaeological sites in the project area would probably also meet one or more of the criteria for historical resources and would be subject to Mitigation Measures CUL-1b/c-2 and CUL-1b/c-3. The mitigation measures under this identified impact are the same as listed for Impact CUL-1b and CUL-1c. These mitigation measures would reduce the potential for impacts on unique archaeological resources.	All work areas and access routes associated with the Alternative Freshwater Source Evaluation have been located away from cultural resources identified by archaeological surveys conducted from August to November 2012.
56	EIR MMRP	**CUL-3 Conduct Survey and Construction Monitoring.** A paleontological investigation, including a detailed survey of the project area by a qualified paleontologist, shall be conducted to refine the potential impacts on unique paleontological resources within the final design area and determine whether preconstruction recovery of sensitive resources and/or construction monitoring would be warranted. If construction monitoring is determined to be warranted, ground-altering activity would be monitored by a qualified paleontologist to assess, document, and recover unique fossils. Monitoring shall include the inspection of exposed surfaces and microscopic examination of matrix in potential fossil bearing formations. In the event microfossils are discovered, the monitor shall collect matrix for processing. In the event paleontological resources are encountered during earthmoving activities, recovered specimens shall be prepared by the paleontologist to a point of identification and permanent preservation. PG&E shall retain a Qualified Paleontologist to observe ground-disturbing activities where determined necessary based on the results of the paleontological investigation and shall be required to request the participation of tribal monitors during those activities, including steps necessary during operations and decommissioning activities to ensure that historically significant resources are avoided to the maximum extent feasible, as determined by DTSC, during actual construction (see above description of the CMI Workplan).	All work areas and access routes associated with the Alternative Freshwater Source Evaluation have been located away from cultural resources identified by archaeological surveys conducted from August to November 2012.

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
		Paleontological resources of scientific value shall be identified and curated into an established, accredited, professional museum repository in the region with permanent retrievable paleontological storage. This measure does not apply to the activities included as part of the East Ravine Revised Addendum, Groundwater Investigation.	
57	EIR MMRP	**CUL-4 With Discovery of Human Remains or Burials Suspend Work, Protect Remains, and Comply with Local, State, and Federal Laws Regarding Discoveries During Ground-Disturbing Activities.** Ground-disturbing activities may disturb as-yet undiscovered human remains or Native American burials and associated grave goods. PG&E shall retain a Qualified Cultural Resource Consultant and request designated tribal monitor(s) to train construction personnel in the identification of human remains so that they may aid in the identification of such resources (see above description of the CIMP). A Qualified Cultural Resource Consultant and tribal monitor(s) shall be in place to adequately oversee all ground-disturbing activities. In the event human remains are uncovered over the course of project construction, operation and maintenance, and/or decommissioning activities, the following procedures shall be followed to ensure compliance with all applicable local, state, and federal laws. f) The construction contractor shall immediately suspend work within the vicinity of the discovery and determine if the remains discovered are human or nonhuman. This determination shall be made by the Qualified Cultural Resources Consultant, a qualified archaeologist and/or physical anthropologist with expert skill in the identification of human osteological (bone) remains. g) The Qualified Cultural Resources Consultant (and tribal monitor), or construction contractor, shall protect discovered human remains and/or burial goods remaining in the ground from additional disturbance. h) The Qualified Cultural Resources Consultant, archaeologist, or construction site supervisor shall contact the San Bernardino County Coroner, and the PG&E and DTSC project managers immediately. In California, all subsequent action shall conform to the protocols established in the Health and Safety Code and regulations. In Arizona, the Qualified Cultural Resources Consultant or PG&E construction site supervisor will follow Arizona laws and the implementing regulations. Human remains found on federal land would require the notification of the BLM Havasu City field office and compliance with applicable federal laws and regulations, including the Native American Graves Protection and Repatriation Act if the remains are determined to be of Native American origin. The Qualified Cultural Resources Consultant shall coordinate the interaction between Interested Tribes, PG&E, the County, and DTSC to determine proper treatment and disposition of any remains. i) The San Bernardino County Coroner will determine if the remains are of recent origin and if an investigation of the cause of death is required (California Health and Safety Code Section 7050.5). If the coroner determines that the human remains are not Native American and not evidence of a crime, project personnel shall coordinate with the Qualified Cultural Resources Consultant (s) to develop an appropriate treatment plan. This may include contacting the next-of kin to solicit input on subsequent disposition of the remains. If there is no next-of-kin, or recommendations by the next-of-kin are considered unacceptable by the landowner, the landowner will reinter the remains with appropriate dignity in a location outside the project area and where they would be unlikely to be disturbed in the future. j) In the event that the San Bernardino County Coroner determines that the human remains are Native American and not evidence of a crime, project personnel shall contact the NAHC so that a most likely descendent (MLD) can be identified as required under California Public Resources Code Section 5097.98. k) The MLD (s) shall inspect the area in which the human remains were found and provide treatment recommendations to the landowner and PG&E site manager in accordance with the provisions of PRC Section 5097.98. The treatment may include reburial, scientific removal of the discovered human remains and relinquishment to the MLD(s), nondestructive analysis of human remains and/or other culturally appropriate treatment. If the MLD(s) so requests, the landowner would reinter the remains with the appropriate dignity in a location outside the area of disturbance in a location unlikely to be disturbed in the future. l) To the maximum extent feasible, Mitigation Measure CUL-4 shall be implemented in a manner that is consistent with mitigation required by local, state, and federal requirements.	The onsite cultural resource monitor will observe all ground-disturbing activities. In the event human remains are uncovered, the procedures identified in the MM will be followed as appropriate for work conducted in Arizona. Specifically, all ground-disturbing activities will occur on federal land and thus the Native American Graves Protection and Repatriation Act will be followed.
58	EIR MMRP	**GEO-1a Construction, Operation and Maintenance, and Decommissioning Impacts Related to Erosion of Soils.** a) A DTSC-approved grading and erosion control plan, prepared by a California Registered Civil Engineer, shall be completed prior to implementation of any grading in areas of the site where there is a potential for substantial erosion or loss of top soils. The plan shall outline specific procedures for controlling erosion or loss of topsoil during construction, operation and maintenance, and decommissioning. b) To ensure soils do not directly or indirectly discharge sediments into surface waters as a result of construction, operation and maintenance, or decommission activities, PG&E shall develop a SWPPP as discussed in mitigation measure HYDRO-1 of the "Hydrology and Water Quality" section of this EIR. The SWPPP shall identify best management practices (BMPs) that would be used to protect stormwater runoff and minimize erosion during construction. PG&E shall prepare plans to control erosion and sediment, prepare preliminary and final grading plans, and shall prepare plans to control urban runoff from the project site during construction, consistent with the substantive requirements of the San Bernardino County Building and Land Use Services Department for erosion control. c) During road preparation activities, loose sediment shall be uniformly compacted consistent with the substantive San Bernardino County Building and Land Use Services Department requirements to aid in reducing wind erosion. Ongoing road maintenance including visual inspection to identify areas of erosion and performing localized road repair and regrading, installation and maintenance of erosion control features such as berms, silt fences, or straw wattles, and grading for road smoothness shall be performed as needed to reduce potential for erosion.	Grading will not be conducted as part of the planned activities. Minor stabilization improvements along existing access pathways at Site A are anticipated. The access pathway for Site B will be established along a previously disturbed, flat area. Based on the pre-construction state, this area will require stabilization (e.g. with gravel) as opposed to grading for use as an access route. Therefore, grading and erosion control plans will not be required. Since ground disturbance is anticipated to be less than an acre a project-specific SWPPP is not required. Nonetheless project activities will defer to best management practices that have been developed by PG&E to prevent storm water pollution.. See item a. It is presumed that soils are not contaminated in the planned action area. All work is being conducted outside areas of concern associated with the Topock Remediation Project.

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
		d) Regarding the potential for contaminated soils to be eroded and contribute contamination into receiving waters, Mitigation Measures GEO-2 and HAZ-2 shall be implemented. Mitigation Measure GEO-2 provides the provisions for mitigating erosion through BMPs which shall be implemented. Mitigation Measure HAZ-2 provides the provisions for safe work practices and handling of contaminated soils as investigation derived wastes.	
59	EIR MMRP	**GEO-1b Construction, Operation and Maintenance, and Decommissioning Impacts Related to Differential Compaction of Soils.** a) BMPs shall be implemented during construction, operation and maintenance, and decommissioning activities to minimize impacts on the affected areas. Such BMPs could include, but would not be limited to, the following: uniform compaction of roadways created for accessing the project area as per San Bernardino County Building and Land Use Services Department requirements, returning areas adversely affected by differential compaction to preexisting conditions when these areas are no longer needed, and continuing maintenance of access roads, wellhead areas, and the treatment facility areas. b) Work area footprints shall be minimized to the greatest extent feasible to limit the areas exposed to differential compaction. Where possible, existing unpaved access roads and staging/working areas shall be reused and maintained for different stages of the construction. New graded areas for staging or for access roads shall be compacted to a uniform specification, typically on the order of 90 to 95% compaction and consistent with substantive San Bernardino County Building and Land Use Services Department requirements to reduce differential compaction and subsequent erosion of site soils. c) After the completion of the operation and maintenance phase, the disturbed areas which result in increased potential for compaction shall be returned to their respective preexisting condition by regarding consistent with the preconstruction slopes as documented through surveys that may include topographic surveys or photo surveys. The areas will be returned to the surrounding natural surface topography and compacted consistent with unaltered areas near the access roads or staging areas in question. The habitat restoration plan outlined in mitigation measure BIO-1 shall include restoration of native vegetation or other erosion control measures where revegetation would be infeasible or inadequate, for purposes of soil stabilization and erosion control of the project area.	The following BMPs will be used to minimize impacts of differential compaction: Existing access routes will be utilized for all access unless an existing route is not available. If a new route is required (Site B), it will be established in a previously disturbed area. Access routes and work area dimensions will be minimized to only what is required to complete the planned activities. Vehicle traffic will be limited to only those vehicles critical to complete the planned activities. The number of trips along access pathways will be minimized to the extent practicable. See item a. New areas will not be graded. The access pathway for Site B will be established along a previously disturbed, flat area. Based on the pre-construction state, this area will require stabilization (e.g., with gravel) as opposed to grading for use as an access route. After the completion of the planned activities disturbed areas resulting in increased potential for compaction will be evaluated with the land owner (BLM) and returned to the respective preexisting condition as determined necessary.
60	EIR MMRP	**HAZ-1a Spills or Releases of Contaminants during Operation and Maintenance Activities.** a) PG&E shall store, handle, and transport hazardous material in compliance with applicable local, state, and federal laws. b) All chemical storage and loading areas shall be equipped with proper containment and spill response equipment. BMPs to be implemented may include, but are not limited to, use of secondary containment in mixing and storage areas; availability of spill kits and spill containment booms, and appropriate storage containers for containment of the materials generated during the spill response. c) A project-specific HMBP, chemical standard operating procedure (SOP) protocols and contingency plans shall be developed to ensure that proper response procedures would be implemented in the event of spills or releases. Specifically, the HMBP and SOPs shall describe the procedures for properly storing and handling fuel on-site, the required equipment and procedures for spill containment, required personal protective equipment, and the measures to be used to reduce the likelihood of releases or spills during fueling or vehicle maintenance activities. BMPs to be implemented may include, but are not limited to, use of secondary containment in mixing and storage areas; availability of spill kits and spill containment booms, and appropriate storage containers for containment of the materials generated during the spill response. The field manager in charge of operations and maintenance activities shall be responsible for ensuring that these procedures are followed at all times.	Applies. Action required: a) Hazardous material (e.g. fuel) will be stored and transported in compliance with applicable local, state, and federal laws. b) Chemicals will not be stored/loaded as part of the planned activities. c) Standard site protocols included in the Topock Compressor Station HMBP will be followed. Standards protocols require the placement of spill kits, splash containment, and berms around stored hazards liquids, such as fuels, (when present). The SOP for remote vehicle/equipment fueling will be followed.
61	EIR MMRP	**HAZ-1b Spill or Release of Contaminants during Construction and Decommissioning Activities.** a) Fueling areas and maintenance areas would be supplied with proper secondary containment and spill response equipment. b) PG&E shall develop fueling SOP protocols and a contingency plan that would be implemented at all fueling areas on-site. The SOPs shall describe the procedures for properly storing and handling fuel on-site, the required equipment and procedures for spill containment, required PPE, and the measures to be used to reduce the likelihood of releases or spills during fueling or vehicle maintenance activities. Potential measures include but are not limited to, fuel storage in bermed areas, performing vehicle maintenance in paved and bermed areas, and availability of spill kits for containment and cleanup of petroleum releases. The field manager in charge of construction and decommissioning activities shall be responsible for ensuring that these procedures are followed at all times. c) PG&E shall comply with local, state, and federal regulations related to the bulk storage and management of fuels.	While most fueling will be conducted off-site, the SOP for remote fueling will be followed when fueling on-site (see bullet b). Equipment will only be fueled on-site if it cannot be moved due to ongoing operation. Equipment will not be fueled while in active operation. All remote fueling activities will comply with the SOP including spill preparation and response. Fuels will not be stored in bulk as part of the planned activities.
62	EIR MMRP	**HAZ-2 Reasonably Foreseeable Releases of Chemicals from Excavated or Disturbed Soil.** Before initiating ground-disturbing operations, a health and safety plan shall be developed and implemented by qualified environmental professionals to ensure health and safety precautions are being met. It is not possible to prepare the health and safety plan at this stage of the planning process because final construction plans and other design documents have not been finalized in sufficient detail. However, at a minimum, the health and safety plan shall include procedures to mitigate potential hazards, and such procedures shall include the use of PPE, measures that provide protection from physical hazards, measures that provide protection from chemical hazards that may be present at the site, decontamination procedures, and worker and health and safety monitoring criteria to be implemented during construction. The worker health and safety plan shall include protective measures and PPE that are specific to the conditions of concern and meet the requirements of the U.S. Occupational Safety and Health Administration's (OSHA's) construction safety requirements and Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120). In accordance with OSHA requirements, appropriate training and recordkeeping shall also be a part of the	This project will utilize the same health and safety plan that DTSC has approved for prior Topock projects with similar activities. Upon mobilization for ground disturbing activities, the field crew will review/be trained regarding all aspects of the HSP and provide written acknowledgement of the training by signing the HSP signature sheet. Drilling sites are not in areas of suspected soil contamination. Nonetheless, appropriate PPE will be donned at all times in accordance with the HSP. a) There are no in the project area where contaminated soils are known to be present.

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
		health and safety program. The worker health and safety plan shall be certified by a Certified Industrial Hygienist in accordance with OSHA regulations. The worker health and safety plan shall be explained to the construction workers and all workers shall be required to sign the plan, which will be kept on the construction site at all times. Worker safety training shall occur prior to initiation of ground disturbing activities. Training shall include the review of all health and safety measures and procedures. All workers and engineering inspectors at the site shall provide written acknowledgement that the soils management plan (discussed below), worker health and safety plan, and community health and safety plan were reviewed and training was received prior to commencement of construction activities. d. In the event that drilling sites must be located within areas of suspected soil contamination, the appropriate PPE shall be worn by all personnel working in these areas and methods specified in the health and safety plan used to control the generation of dust. When working in these areas. The following are specific elements and directives that shall be included in the health and safety plan and implemented by PG&E during construction, operation and maintenance, and decommissioning of this project: a. Vehicles traveling on unpaved roadways or surfaces would be directed to avoid traveling in areas where contaminated soils are known to be present; vehicle speeds shall be controlled (e.g., limited to 15 mph or slower) to limit generation of dust; measures, such as wetting of surfaces, will be employed to prevent dust generation by vehicular traffic or other dust-generating work activities. b. Pre-mobilization planning shall occur during which the likelihood of encountering contaminated soils shall be reviewed along with the HMBP, site-specific health and safety plan, and SOPs so that the procedures are followed and the contingencies for handling contaminated soils are in-place prior to implementing the field operations. c. Should evidence of contaminated soil be identified during ground disturbing activities (e.g., noxious odors, discolored soil), work in this area will immediately cease until soil samples can be collected and analyzed for the presence of contaminants by the site supervisor or the site safety officer. Contaminated soil shall be managed and disposed of in accordance with a project-specific health and safety plan and soil management plan. The health and safety plan and soil management plan shall be approved by DTSC before beginning any ground disturbing activities. While the project is exempt from the requirements of the San Bernardino County Division of Environmental Health, the health and safety plan and soil management plan shall be prepared in general accordance with the substantive requirements of this agency. d. In the event that drilling sites must be located within areas of suspected soil contamination, the appropriate PPE shall be worn by all personnel shall be required to follow all guidance presented in the site-specific health and safety plan and soil management plan. The site-specific health and safety plan shall include provisions for site control such as, but not limited to, delineation of the exclusion, contaminant reduction and support zones for each work area, decontamination procedures, and procedures for the handling of contaminated soils and other investigation derived wastes. Soil that is excavated shall be loaded directly into containers such as roll-off bins; dust suppression methods shall be used prior to and during loading of soils into the bins. Suspected contaminated soils shall be segregated from suspected uncontaminated soils. e. Personnel working at the site shall be trained in Hazardous Waste Operations. f. All soil excavated and placed in roll-off bins or trucks for transportation off-site shall be covered with a tarp or rigid closure before transporting, and personnel working in the area shall be positioned upwind of the loading location.	b) See bullet a. c) Should evidence of contaminated soil be identified during ground disturbing activities (e.g., noxious odors, discolored soil), work will be immediately halted in this area until soil samples can be collected and analyzed for the presence of contaminants. d) Work areas are not in areas of suspected soil contamination. e) Training in hazardous waste operations is not required by OSHA for the planned activities. This work is being conducted outside of the boundaries of any known contamination associated with the Topock Remediation Project, and therefore, there is no reasonable expectation for exposure to hazardous waste. f) Soil excavation or transport off site is not part of the planned activities.
63	EIR MMRP	**HYDRO-1 Exceedance of Water Quality Standards.** The project shall implement BMPs to meet the substantive criteria of NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWQ NPDES No. CAS000002 (General Permit) (SWRCB 2009) as well as all other applicable federal, state, and local permit and regulatory requirements, even if a permit is not required pursuant to CERCLA, for purposes of ensuring the protection of receiving water quality. As such, a BMP plan shall be prepared and implemented for the project prior to construction and decommissioning phase activities. Impacts on water quality from pollutants, including soils from erosion, shall be controlled through use of the following types of BMPs, which shall be incorporated into the appropriate project-specific BMP plan. The General Permit requirements include specific BMPs as well as numeric effluent levels (NELs) and numeric action levels (NALs) to achieve the water quality standards (SWRCB 2009:3). Types of BMPs cited in the General Permit (SWRCB 2009:Attachment A:7) include: a) Scheduling of Activities; b) Prohibitions of Practices; c) Maintenance Procedures; d) Other Management Practices to Prevent or Reduce Discharge of Pollutants to Waters of the United States; e) Treatment Requirements; and f) Operating Procedures and Practice to Control Site Runoff, Spillage or Leaks, Sludge or Waste Disposal, or Drainage from Raw Materials Storage. Visual inspections and monitoring and sampling are required under the General Permit to evaluate the effectiveness of the BMPs and to determine whether modifying BMPs or implementing additional BMPs is required. The BMP designations cited below are based on those used by the *California Stormwater Quality Association Construction BMP Handbook* (California Stormwater Quality Association 2003) and are consistent with the types of BMPs referenced in the General Permit: g) Scheduling (SS-1): Proper scheduling assists in identifying ways to minimize disturbed areas, which allows for a reduction in the active project area requiring	Activities associated with the planned activities will be conducted without creating an exceedance of water quality standards. Drill cuttings and purged groundwater will be discharged in accordance with the Arizona General Aquifer Protection Permit. BMPs to be followed during work include: • Drill cuttings will be deposited on the ground in the immediate work areas, which are located outside of jurisdictional waterways. • Purged groundwater will be discharged to the ground outside of jurisdictional waterways, and will not be allowed to runoff to jurisdictional waterways. Personnel will remain on site during the duration of discharge activities to monitor for persistent ponding and runoff. Water will be discharged to these areas in a manner that minimizes ponding and limits the potential for runoff. During discharge, if persistent ponding or runoff towards a jurisdictional channel, the Colorado River, or Arizona County Highway 10 is observed, corrective action (e.g., modification of sprinkler layout, change in discharge rate, or using hand tools to control disperse ponding/control runoff) will be taken. If it is determined that persistent ponding or runoff cannot be easily corrected, then discharge will be discontinued. If rainfall occurs during discharge to the extent that the runoff of discharged water cannot be effectively monitored, then the discharge will be discontinued. It is impossible to predict the infiltration rate of the discharge areas. Therefore, the degree of infiltration and runoff will be closely monitored at all times during discharge.

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
		protection and also minimizes the length of time disturbed soils are exposed to erosive processes. h) Preservation of Existing Vegetation (SS-2): Preserving existing vegetation to the maximum extent practicable facilitates protection of surfaces from erosion and can also help to control sediments. Sensitive areas should also be clearly identified and protected. i) Hydraulic Mulch (S S-3), Straw Mulch (S S-6), and Wood Mulching (SS- 8): Using various mulches is a method for temporarily stabilizing soil and can be used on surfaces with little or no slope. j) Geotextiles, Plastic Covers, and Erosion Control Blankets/Mats (S S-7): These erosion control methods can be used on flat or, usually, sloped surfaces, channels, and stockpiles. k) Stabilized Construction Entrance/Exit (TC-1): A graveled area or pad located at points where vehicles enter and leave a construction site can be built. This BMP provides a buffer area where vehicles can drop their mud and sediment to avoid transporting it onto public roads, to control erosion from surface runoff, and to help control dust. l) Runoff Control Measures (SS-9, SS-10, and SC-10): These include graded surfaces to redirect sheet flow, diversion dikes or berms that force sheet flow around a protected area, and stormwater conveyances (swales, channels, gutters, drains, sewers) that intercept, collect, and redirect runoff. Diversions can be either temporary or permanent. Temporary diversions include excavation of a channel along with placement of the spoil in a dike on the downgradient side of the channel, and placement of gravel in a ridge below an excavated swale. Permanent diversions are used to divide a site into specific drainage areas, should be sized to capture and carry a specific magnitude of storm event, and should be constructed of more permanent materials. A water bar is a specific kind of runoff diversion that is constructed diagonally at intervals across a linear sloping surface such as a road or right- of-way that is subject to erosion. Water bars are meant to interrupt accumulation of erosive volumes of water through their periodic placement down the slope, and divert the resulting segments of flow into adjacent undisturbed areas for dissipation. m) Silt Fence (SC-1): A temporary sediment barrier consisting of fabric is designed to retain sediment from small disturbed areas by reducing the velocity of sheet flows. n) Gravel Bag Berm (SC-6) and Sand/Gravel Bag Barrier (SC-8): A temporary sediment barrier consisting of gravel-filled fabric bags is designed to retain sediment from small disturbed areas by reducing the velocity of sheet flows. o) Desilting Basin (SC-2) and Sediment Trap (SC-3): Constructing temporary detention structures facilitates the removal of sediment from waters. The devices provide time for sediment particles to settle out of the water before runoff is discharged. Secondary concerns include potential pollutants from inappropriate material storage and handling procedures and nonstormwater discharges. These will be addressed through the following types of BMPs, which shall be incorporated into the stormwater BMP plan: p) Material Delivery and Storage (WM-1): Provide covered storage for materials, especially toxic or hazardous materials, to prevent exposure to stormwater. Store and transfer toxic or hazardous materials on impervious surfaces that will provide secondary containment for spills. Park vehicles and equipment used for material delivery and storage, as well as contractor vehicles, in designated areas. q) Spill Prevention and Control (WM-4): Ensure that spills and releases of materials are cleaned up immediately and thoroughly. Ensure that appropriate spill response equipment, preferably spill kits preloaded with absorbents in an overpack drum, is provided at convenient locations throughout the site. Spent absorbent material must be managed and disposed of in accordance with applicable regulations. In particular, absorbents used to clean up spills of hazardous materials or waste must be managed as hazardous waste unless characterized as nonhazardous. r) Solid Waste Management (WM-5): Provide a sufficient number of conveniently located trash and scrap receptacles to promote proper disposal of solid wastes. Ensure that the receptacles are provided with lids or covers to prevent windblown litter. s) Hazardous Waste Management (WM-6): Provide a sufficient number of proper receptacles to promote proper disposal of hazardous wastes. t) Concrete Waste Management (WM-8): Dispose of excess concrete in specific concrete washout facilities. u) Sanitary/Septic Waste Management (WM-9): Locate sanitary and septic waste facilities away from drainage courses and traffic areas. Maintain the facilities regularly. v) Vehicle and Equipment Cleaning (NS-8): Clean vehicles and equipment that regularly enter and leave the construction site. w) Vehicle and Equipment Fueling (NS-9): Fuel vehicles and equipment off- site whenever possible. If off-site fueling is not practical, establish a designated on-site fueling area with proper containment and spill cleanup materials. x) Vehicle and Equipment Maintenance (NS-10): Use off-site maintenance facilities whenever possible. Any on-site maintenance areas must be protected from stormwater runoff and on-site flooding. In addition to BMPs implemented to avoid or reduce impacts from the construction and decommissioning phases, BMPs shall also be implemented to avoid or reduce impacts from the operations and maintenance phases. To address potential violation of water quality standards caused by insufficient treatment, system failure at concentrations in excess of water quality standards, proper design shall include contingency measures such as safeguards to shut down the extraction wells in case of pipeline failure or malfunction. In addition, operation of the proposed project will be governed by and follow an operations and maintenance plan.	The discharge will be stopped if it is determined that persistent ponding and runoff towards a jurisdictional channel, the Colorado River, or Arizona County Highway 10 cannot be effectively controlled.

Table B-2
Summary of Compliance Approach for Requirements Not Identified as ARARs for the Topock Groundwater Remedy That Are Pertinent to the Alternative Freshwater Source Evaluation
Revised Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area,
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
		PG&E will comply with all applicable water quality standards, the General Permit, and any SWRCB or RWQCB resolutions identified as ARAR, as well as a corrective action monitoring program. Under the corrective action monitoring program, data will be collected to measure performance of the remedy, compliance with standards, and progress of the remedial action as a part of the project description. In addition, the project will be operated to continually assess performance issues and to modify the type, method, and configuration of the treatment delivery systems to enhance performance of the remedy to attain the cleanup goals and to respond to site conditions and performance issues as described in the project description. A SWPPP will also be prepared for the proposed project, which will contain BMPs related to industrial activities (industrial SWPPP). The BMPs are designed to reduce pollutants in discharges that may affect receiving water quality during operations and maintenance of the proposed project. As noted above, BMP designations are based on those used by the *California Stormwater Quality Association Construction BMP Handbook* (California Stormwater Quality Association 2003) and those referenced in the General Permit The SWPPP will incorporate BMPs such as the following: y)Good Housekeeping: Maintain facility in a clean manner and train facility personnel to contribute to a safe, clean, and orderly environment by properly disposing of trash in designated containers, storing materials in appropriate locations, and keeping equipment clean and in good working condition. z)Preventative Maintenance: Prevent or minimize release of pollutants. Develop Standard Operating Procedures for operation and maintenance of facility components and train employees to follow the procedures. aa) Non-Stormwater Discharges (SC-10): Ensure that used oil, used antifreeze, and hazardous chemical recycling programs are being implemented. Conduct regular inspections of high priority areas. bb) Spill Prevention, Control, and Cleanup (SC-1 1): Store materials properly to prevent spills from entering the storm drain system or surface waters. Ensure that spill cleanup materials are located on-site and are easily accessible. Clean up leaks and spills immediately using proper absorbent materials. Absorbents used to clean up hazardous materials must be disposed of as hazardous waste. Educate employees about spill prevention and cleanup. cc) Vehicle and Equipment Fueling (SC-20): Maintain clean fuel-dispensing areas using dry cleanup methods, such as sweeping or using rags and absorbents for leaks and spills. Cover the fueling area to prevent contact with stormwater. Train personnel in pollution prevention, focusing on containment of spills and leaks. dd) Outdoor Loading/Unloading (SC-30): Load and unload chemicals during dry weather, if possible, and load and unload in designated areas. Check equipment regularly for leaks. ee) Outdoor Liquid Container Storage (SC-3 1): Cover the storage area with a roof and provide secondary containment. Inspect storage areas regularly for leaks or spills. ff) Outdoor Equipment Operations (SC-32): Perform activities during dry weather, cover the work area with a roof, and use secondary containment. Train employees in proper techniques for spill containment and cleanup. gg) Waste Handling and Disposal (SC-34): Cover storage containers with leak-proof lids, check for leaks weekly, and clean storage areas regularly. Ensure that wastes are disposed of properly. hh) Tank Design System: Ensure that tank systems have sufficient strength to avoid collapse, rupture, or failure and that they are protected against physical damage and excessive stress. Provide adequate secondary containment. In conformance with the substantive requirements of General Permit (Order No. 2009-0009-DWQ, a monitoring and reporting program will be implemented to assess the effectiveness of BMPs and to modify BMPs and revise the SWPPP, if necessary, to continue to reduce pollutants and impacts on receiving waters. The monitoring program shall include the following minimum elements as per the General Permit: ii) quarterly, nonstormwater visual inspections, jj) storm-related visual inspections within 2 business days of a qualifying rain event (producing precipitation of one-half inch or more of discharge), kk) visual inspection after a storm event, ll) monitoring of nonvisual pollutants based on the calculated risk level for the project, with Risk Level 2 and 3 requiring a minimum of three samples per day during qualifying rain events (SWRCB 2009:Tables 5 and 6, 22–27), and mm) monitoring and reporting for linear projects as per Attachment A of the General Permit Results of this monitoring shall be reported annually to DTSC and to the Storm Water Multi-Application Reporting and Tracking System (SMARTS). The annual report shall include a summary and evaluation of all sampling and analysis results, original laboratory reports, and chain of custody forms; a summary of all corrective actions taken during the compliance year; and identification of any compliance activities or corrective actions that were not implemented. NEL Violation Reports and/or NAL Violation Reports are required for Risk Level 3 and linear underground/overhead project (LUP) Type 3 Discharges. Should the project meet these criteria, the respective reports shall be submitted within 5 days of the end of the storm event, as per General Permit requirements, and provide the required information identified (SWRCB 2009:26–27 and Attachment A). The implementation of stormwater plans shall include an education component to train workers on water quality concerns and proper BMP implementation, maintenance, and repair, in addition to stormwater management program training on the construction BMP plan and industrial SWPPP.	

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
64	EIR MMRP	**HYDRO-2 Exceedance of Water Quality Standards and/or Waste Discharge Requirements.** Implement Mitigation Measure HYDRO-1. Implementation of appropriate BMPs defined in Mitigation Measure HYDRO-1 would minimize impacts on water quality by controlling erosion and siltation. Consequently, any impacts associated with erosion and siltation resulting from alterations of drainage and hydrology and water quality during construction, operation and maintenance, and decommissioning.	See HYDRO-1.
65	EIR MMRP	**HYDRO-3 Exceedance of Water Quality Standards and/or Waste Discharge Requirements.** Implement Mitigation Measure HYDRO-1. Mitigation Measure HYDRO- 1 shall be implemented. Implementation of appropriate BMPs defined in Mitigation Measure HYDRO-1 would minimize impacts on water quality by controlling potential pollutants, including sediment, and runoff discharges from the project area. Consequently, any impacts associated with pollutants resulting from alterations of drainage and water quality during construction, operation and maintenance, and decommissioning.	See HYDRO-1.
66	EIR MMRP	**Noise-1 Short-Term Groundborne Noise and Vibration Levels Caused by Construction Activities near Sensitive Receptors.** a) Construct new wells a minimum of 45 feet from vibration-sensitive receptors. Avoid constructing wells within 30 feet of vibration- sensitive land uses located in California and 275 feet of vibration- sensitive land uses located in Arizona; b) A disturbance coordinator will be designated by the project applicant, which will post contact information in a conspicuous location near the entrance so that it is clearly visible to nearby receivers most likely to be disturbed. The coordinator will manage complaints resulting from the construction vibration. Reoccurring disturbances will be evaluated by a qualified acoustical consultant retained by the project applicant to ensure compliance with applicable standards. The disturbance coordinator will contact nearby vibration-sensitive receptors, advising them of the construction schedule.	Planned activities are a minimum of 45 feet from vibration-sensitive receptors, 30 feet of vibration- sensitive land uses located in California, and 275 feet of vibration- sensitive land uses located in Arizona. A disturbance coordinator will be designated for the planned activities, and contact information and a construction schedule will be posted at a location to be determined based on discussion with the land owner.
67	EIR MMRP	**Noise-2 Project-Generated Construction-Related Noise Levels.** a) Construction equipment shall be properly maintained per manufacturer specifications and fitted with the best available noise suppression devices (e.g., mufflers, silencers, wraps). All impact tools shall be shrouded or shielded, and all intake and exhaust ports on power equipment shall be muffled or shielded. b) Construction equipment shall not idle for extended periods of time (more than 15 minutes) when not being utilized during construction activities. c) Construction activities shall include the use of berms, stockpiles, dumpsters, and or bins to shield the nearest noise-sensitive receptor adjacent to construction activities to within acceptable non-transportation noise level standards. When construction activities are conducted within the distances outlined above (i.e., 1,850 feet and 5,830 feet from California receptors and 330 feet and 735 feet from Arizona receptors for daytime and nighttime noise, respectively) relative to noise-sensitive uses in the project area, noise measurements shall be conducted by a qualified acoustical consultant at the nearest noise-sensitive land use relative to the construction activities with a sound level meter that meets the standards of the American National Standards Institute (ANSI Section S14 1979, Type 1 of Type 2) to ensure that construction noise associated with the project component complies with applicable daytime and nighttime noise standards. If noise levels are still determined to exceed noise standards, temporary barriers shall be erected as close to the construction activities as feasible, breaking the line of sight between the source and receptor where noise levels exceed applicable standards. All acoustical barriers shall be constructed with material having a minimum surface weight of 2 pounds per square foot or greater and a demonstrated Sound Transmission Class (STC) rating of 25 or greater as defined by the American Society for Testing and Materials' Test Method E90. Placement, orientation, size, and density of acoustical barriers shall be specified by a qualified acoustical consultant. d) A disturbance coordinator will be designated by the project applicant, which will post contact information in a conspicuous location near construction areas so that it is clearly visible to nearby receivers most likely to be disturbed. In addition, mailing of the same information will be sent to nearby receptors and all tribes. The coordinator will manage complaints resulting from the construction noise. Reoccurring disturbances will be evaluated by a qualified acoustical consultant retained by the project applicant to ensure compliance with applicable standards. The disturbance coordinator will contact nearby noise- sensitive receptors, advising them of the construction schedule.	Equipment will be inspected upon mobilization confirm that it is properly maintained and fitted with noise suppression devices. Equipment will not be allowed to idle for more than 15 minutes when not being utilized is prohibited. Work is not planned within 330 feet and 735 feet from Arizona receptors for daytime and nighttime noise, respectively See Noise-1(b).
68	EIR MMRP	**NOISE-3 Land Use Compatibility of Future Project Noise Levels with Places of Worship and the Topock Cultural Area.** Provided that the proposed project would be required to achieve the normally acceptable exterior noise level standard for places of worship, the following mitigation measure shall be incorporated in the project design: a) Implement all of the mitigation measures outlined for Impact NOISE-1 and Impact NOISE-2; b) Upon completion of detailed project design, the determination of remediation activities and the schedule established to achieve these activities shall be communicated to Native American tribes. PG&E shall maintain a liaison with requesting Tribes to alert them to project activities that would generate new noise in the Topock Cultural Area on at least an annual basis.	Implement mitigation measures in NOISE-1 and NOISE-2 (see above). The project schedule will be communicated to Native American tribes and periodic schedule updates will be provided in accordance with existing communication protocols associated with the project.

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
69	EIR MMRP	**WATER-1 Depletion of Groundwater.** To mitigate potentially significant effects on local groundwater levels associated with the freshwater extraction wells, in the event that freshwater is to be supplied from wells rather than from a surface intake, a hydrologic analysis shall be conducted during the design phase of the project to evaluate the proposed pumping rates for extraction, the potential cone of depression, and the extraction effect on any existing wells in proximity. Proximity shall be defined by the cone of depression boundary of any well to be used in the extraction process. Extraction well location and/or extraction rates shall be adjusted during project design based on this analysis to ensure that extraction does not substantially adversely affect the production rates of existing nearby wells (e.g., adversely affect well production such that existing land uses would not be supported). It shall be demonstrated using computer simulations or other appropriate hydrologic analysis that production rates of existing nearby wells will not be substantially affected before the installation of any new freshwater extraction wells.	Initial assessments using an existing groundwater model indicated that there would be no adverse effect from continuous operation of the HNWR-1 on the nearest pumping wells (Topock 2 and 3), which are located less than 0.2 mile from HNWR-1. During the revegetation pilot project, HNWR-1 was routinely pumped at rates of approximately 1,000 gpm for periods of up to 12 hours per day with no reported adverse effects on any nearby wells. The proposed new well locations are approximately ¾ mile from the Topock 2 and 3 wells so pumping from these locations would have even less effect than pumping from HNWR-1. The Golden Shores wells are approximately 2.5 miles away, well beyond the radius where pumping at the proposed new well locations would be expected to have measureable effects. Further evaluations of the effects of pumping from the new well will be made during the design process, using estimates of hydraulic properties of the aquifer developed through testing of the new well.
70	Programmatic Agreement (PA)	Stipulation I(A) The Federal Agencies, in consultation with the Tribes, SHPOs, ACHP, PG&E, and other interested parties, agree to select and implement, or cause to be implemented, an alternative or combination of alternatives to remediate the groundwater and soil contamination in a manner that fulfills the requirements of CERCLA and the CERCLA Records of Decision (RODs) and protects the Colorado River, human populations, and the natural environment to the maximum extent practicable.	PG&E is implementing the groundwater remedy selected by DOI and DTSC. This Fresh Water Implementation Plan (FWIP) is part of Fresh Water Supply which is a component of the groundwater remedy.
71	PA	Stipulation I(B) The Federal Agencies, in consultation with the Tribes, SHPOs, ACHP, PG&E, and other interested parties, agree to Subject to I(A) above, carry out, and require others under their jurisdiction to carry out, all investigative, testing and remediation activities, including all supporting operations and maintenance activities, in ways that avoid, minimize, or mitigate adverse effects to cultural and historic properties within the APE, to the maximum extent practicable.	The two areas subject to activities described in the FWIP, were included in archaeological surveys conducted from August to November 2012, during which tribal monitors were invited to observe, and monitors of some tribes were present for portions of the survey. Three archaeological and historical sites were located within these two areas. All archaeological and historical sites will be avoided during plan implementation to the maximum extent practicable. Tribal and Archaeological Monitors will be invited to monitor all ground disturbing field activities. Applied Earthworks, a professional cultural resources consulting firm, was retained by PG&E with DTSC approval. Applied Earthworks will observe ground-disturbing activities and will have the authority to temporarily divert or halt any activities in the event that previously unidentified potentially significant cultural resources are discovered. In addition, the FWIP includes avoidance and minimization measures and emphasizes use of existing facilities to protect cultural and historic properties, to the maximum extent practicable. For example, it is anticipated that only existing roads and access pathways requiring minimal access improvements in select areas will be used during the work proposed in the FWIP. Further, in execution of the field work, granular materials will be used rather than grout to backfill the majority of the exploratory boreholes, which allows the future option of later reaming the same borehole to construct a supply well, thereby minimizing the number of boreholes drilled.
72	PA	Stipulation I(C) The BLM, USFWS, USBR and PG&E shall consult with the Tribes that attach cultural significance to the TCP within the APE to develop a plan to ensure Tribal access to areas within the APE for religious, cultural, or spiritual purposes. Access shall be consistent with applicable laws, regulations and agreements governing property within the APE and may not impede the Topock Remediation Project, may not create health and safety concerns, and shall exclude the Topock Compressor Station and related facilities.	The Tribal Access Plan authored by BLM was finalized and published in November 2011.
73	PA	Stipulation I(D) The Federal Agencies, in consultation with the Tribes, SHPOs, ACHP, PG&E, and other interested parties, agree to ensure that PG&E shall to the extent practicable restore the areas affected by the Topock Remediation Project within the APE, including, but not limited to, the site of the existing treatment plant and related facilities but excluding the Topock Compressor Station and related facilities, to the conditions existing prior to the construction of the PG&E investigation and remediation related appurtenances and facilities.	A habitat restoration plan for areas potentially affected by the groundwater remedy will be prepared and submitted for review/comment and consultation outside of the scope of this FWIP. PG&E is collaborating with Tribes on a similar measure related to restoration under the CIMP (CUL 1a-8e); initial discussion regarding this plan occurred at the monthly Topock update meeting on January 15, 2013.
74	PA	Stipulation III(B)(1), III(B)(2)(a) - Remediation of GW contamination Should Alt E be selected, the Federal Agencies will ensure that, consistent with the general principals in Stipulation I, existing monitoring wells and related facilities shall be used to the maximum extent practicable.	See Response to Item No. 71.

Table B-2
Summary of Compliance Approach for Requirements Not Identified as ARARs for the Topock Groundwater Remedy That Are Pertinent to the Alternative Freshwater Source Evaluation
Revised Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area,
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
75	PA	Stipulation III(B)(2)(b) - Remediation of GW contamination Should Alt E be selected, the Federal Agencies will ensure that, consistent with the general principals in Stipulation I, the need for and placement of any new facilities or activities will be determined in consultation with the Tribes and the Consulting Parties following the guidelines in Appendix B.	The FWIP presents PG&E's rationale for continuing its work to search for alternative fresh water sources that is of adequate quantity and that does not require treatment, and its plan for evaluation of these alternative sources which include exploratory drilling and potential installation of new water supply wells. BLM has consulted and is continuing to consult with the Tribes regarding the FWIP under the PA's Consultation Protocol.
76	PA	Stipulation III(B)(2)(c) Remediation of GW contamination Should Alt E be selected, the Federal Agencies will ensure that, consistent with the general principals in Stipulation I, that new facilities or activities be placed in areas already disturbed by previous grading or other mechanized activities to the maximum extent practicable, consistent with protecting human health and the environment and achieving cleanup in a timely manner.	The two areas subject to activities described in the FWIP are located within the channels of relatively large desert washes, and are in previously disturbed areas. See Response to Item No. 71.
77	PA	Stipulation III(B)(2)(e) - Remediation of GW contamination The performance of all field activities in support of the remedy shall be executed in such a way as to avoid and/or minimize adverse effects to cultural and historic properties to the maximum extent practicable.	See Response to Item No. 71.
78	PA	Stipulation III(B)(3)(b) - Remediation of GW contamination – Final Design Every effort should be made to avoid and minimize adverse effects in accordance with the general principles set forth in Stipulation I.	See Response to Item No. 71.
79	PA	Stipulation III(B)(3)(c) - Remediation of GW contamination Whatever the selected alternative, the Federal Agencies will consult with all Signatories, Tribes, and Invited Signatories during the design, implementation, and monitoring activities to determine how best to restore the areas affected by the Topock Remediation Project. These areas will include, but not be limited to, the site of the existing treatment plant and related facilities but will exclude the Topock Compressor Station and related facilities. The Federal Agencies will ensure that environmental restoration to the conditions existing prior to the construction of the Project, is planned and conducted to the extent practicable.	A habitat restoration plan for areas potentially affected by the groundwater remedy will be prepared and submitted for review/comment and consultation outside of the scope of this FWIP. PG&E is collaborating with Tribes on a similar measure related to habitat restoration under the CIMP (CUL 1a-8e); initial discussion regarding this plan occurred at the monthly Topock update meeting on January 15, 2013.
80	PA	Stipulation V(A) All facilities and appurtenances related to the Topock Remediation Project are to be removed as soon as practicable upon attainment of cleanup standards and a determination by DOI that removal of such facilities is protective of human health and the environment. All such removal will be planned in consultation with the Signatories, Tribes, and Invited Signatories, following the guidelines in Appendix B [Consultation Protocol).	This stipulation will adhered to in planning for the decommissioning of remedy facilities. A decommissioning plan for the groundwater remedy will be prepared and submitted for review/comment and consultation outside of the scope of this FWIP.
81	PA	Stipulation V(C) The removal of such facilities shall take place along existing graded roads to the maximum extent practicable.	This stipulation will adhered to in planning for the decommissioning of the ground remedy facilities. A decommissioning plan for the groundwater remedy will be prepared and submitted for review/comment and consultation outside of the scope of this FWIP.
82	PA	Stipulation V(D) Prior to decommissioning of any remediation facility, the Federal Agencies will consult with all Signatories, Tribes, and Invited Signatories during the development of the closure plan to determine how to best restore the areas affected by the Topock Remediation Project, including but not limited to, the site of the existing treatment plant and related facilities, but excluding the Topock Compressor Station and related facilities, to ensure that environmental restoration of conditions existing prior to the construction of the Project, is achieved to the extent practicable.	The exploratory boreholes installed as part of this FWIP will be decommissioned in accordance with state regulations. Any supply well installed as part of this FWIP will be decommissioned when it is no longer in use, as part the groundwater remedy. A decommissioning plan for the groundwater remedy and a habitat restoration plan for areas potentially affected by the groundwater remedy will be prepared and submitted for review/comment and consultation outside of the scope of this FWIP.
83	PA	Stipulation IX(A)-(D) If the Undertaking affects a previously unidentified cultural and/or historic resource, including human remains and/or associated funerary objects or graves, or affect such resources in a way not previously anticipated, or have greater adverse effect than previously anticipated, all work in the vicinity of the discovery shall cease. No further action will be taken until the BLM, in consultation with Tribal and Archaeological Monitors and PG&E in the field, has determined the nature of the discovery and delineated an area not to exceed 50 meters from the approximate center point of the discovery (or a smaller or larger areas if warranted by specific circumstances) in which no further work is to take place until treatment of the discovery is resolved. At such point BLM will notify all Signatories, Tribes, and Invited Signatories of the nature and general location of the discovery. The BLM will implement appropriate measures, including stabilization or covering, to protect any discovery (human remains, funerary objects, sacred objects, or objects of cultural patrimony) from further disturbance in accordance with the principles set forth in Stipulation I. Ongoing work not within 50 meters (or a smaller area if determined appropriate by parties in the field) of the discovery may continue. If human remains and/or associated funerary objects compose all or part of the discovery, then BLM shall ensure the stipulations of the POA included in the CHPMP, as described in Stipulation VII (H) hereof, will be completed. Also, if human remains and/or funerary objects are encountered, all activities shall follow the procedures and direction provided in NAGPRA and California Public Resources Code sections 5097.98 and 5097.991. For Arizona, such activities shall follow the procedures and direction provided in NAGPRA and applicable state laws, including the Arizona Antiquities Act of 1927 (ARS § 41-841 to 41-846), Burial Protection Law of 1990 (ARS §41-865), and ARS §41-844 of 1990. If the Tribes, PG&E, and BLM can resolve treatment of the discovery in a manner that does not cause adverse effects to significant cultural and historic properties, BLM shall document the resolution, the activities within the work area may proceed and the AZ SHPO and the CA SHPO shall be notified of the discovery	This stipulation will be adhered to during the field implementation of the FWIP. Tribal monitors will be invited to monitor all ground disturbing activities. Archaeological monitoring will also be conducted during ground disturbing portions of the project. Applied Earthworks, a professional cultural resources consulting firm, was retained by PG&E with DTSC approval. Applied Earthworks will observe ground-disturbing activities and will have the authority to temporarily divert or halt any activities in the event that previously unidentified potentially significant cultural resources are discovered.

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		and resolution. The Tribes, PG&E, and BLM will use their best efforts to resolve treatment as quickly as possible. If there is failure to resolve treatment of the discovery in consultation with the Tribes and PG&E, BLM shall then consult with the AZ SHPO or the CA SHPO to develop a treatment plan that takes into account the effects of the Undertaking on the discovery. Within fifteen (15) days of notification of discovery, BLM shall provide the consulted SHPO(s), via email, a recommendation for resolving the discovery situation that takes into account the potential effects of the Undertaking on the discovery. D. If the CA SHPO or AZ SHPO (as appropriate, depending on the location of the discovery) does not object to BLM‟s recommendation(s) within fifteen (15) days, BLM will implement the recommendation(s). If the consulted SHPO objects to the recommendation, BLM will utilize the dispute resolution process in Stipulation XV of this PA to resolve any objection.	
84	PA	Appendix C Monitoring Protocol Cultural sensitivity training will be required of all staff, workers and contractors engaged in activities in the Topock Remediation Project APE to familiarize them with the sacred nature of the areas so that they will perform their job in a respectful manner. This training will also be given to new personnel before they are allowed to do fieldwork within the APE. This training will be conducted by PG&E with participation by Tribes and Tribal Monitors, Archaeological Monitors, Federal Agency staff, and PG&E supervising staff, as appropriate. Consistent with PG&E's stated policy, PG&E will not tolerate any disrespectful behavior in the field and will remove any staff, workers or contractors who do not comply with this section.	Site orientation and the training on cultural/historical resources sensitivity will be provided at the project initiation meeting, to be held at the Topock Compressor Station. Site orientation will stress that all site activities will be conducted in a respectful manner. Sensitivity training will be provided by PG&E Site Operations Manager, PG&E Remediation Resources Specialist, and PG&E will invite participation from the Tribes, archaeological monitors, and agency staff, as appropriate.
85	PA	Appendix C Monitoring Protocol Prior to execution of the PA for the Undertaking, PG&E sometimes invited the Tribes to be present on site during construction to monitor and observe non-maintenance grading, trenching, or other excavation for any facilities, new roads, or other project components related to the Undertaking which may have had the potential to adversely impact cultural and historic resources. The Tribal and Archaeological Monitors shall both be invited to monitor such field work.	This stipulation will be adhered to during field implementation. Tribal monitors will be invited to monitor all ground disturbing activities. Archaeological monitoring will also be conducted during ground disturbing portions of the project
86	PA	Appendix C Monitoring Protocol This Protocol specifies ways in which the Tribes, BLM, and PG&E may ensure that: 1. Tribes, BLM, and PG&E, each are kept well informed of Undertaking activities and outcomes; 2. Tribal and Archaeological Monitors have the opportunity to alert PG&E's site supervisor (or designee) to potentially sensitive areas or issues that Monitors may be aware of or may become aware of while fieldwork is in progress; 3. PG&E's site supervisor (or designee) notifies BLM of potentially complicated situations. These situations may include discovery of a new cultural or historical resource, damage to a previously recorded cultural or historical resource, or unanticipated effects identified; 4. Tribal concerns regarding work activities are addressed while fieldwork is in progress.	This stipulation will be adhered to during field implementation. Tribal monitors will be invited to monitor all ground disturbing activities. Archaeological monitoring will also be conducted during ground disturbing portions of the project Applied Earthworks, a professional cultural resources consulting firm, was retained by PG&E with DTSC approval. Applied Earthworks will observe ground-disturbing activities and will have the authority to temporarily divert or halt any activities in the event that previously unidentified potentially significant cultural resources are discovered.
87	PA	Appendix C Monitoring Protocol (Work Schedule) Tribal and Archaeological Monitors will be provided with anticipated schedules for Topock Remediation Project work that requires monitoring as early as possible but at least three (3) business days in advance of the initiation of the identified project work, whenever possible. Recognizing that changes to the work schedule may be inevitable, any change in the work schedule will be provided to the Tribal and Archaeological Monitors as soon as possible after the change becomes part of the work schedule. If there is a question regarding need for a monitor, the questioning party shall consult the BLM Project or Field Manager who will make the final determination of need.	This stipulation will be adhered to during field implementation. The PG&E Site Operations Manager or his designee will provide the work schedule and inform the monitors of schedule changes as soon as practicable.
88	PA	Appendix C Monitoring Protocol (Discoveries) If the Undertaking will affect previously unidentified resources, or affect a previously recorded cultural or historical resource in a way not previously anticipated, or have greater or different effects than previously anticipated, all work having potential for adverse affect shall cease within a fifty (50)-meter radius (or a smaller or larger area if determined appropriate by the BLM, the Monitors, and PG&E in the field) of the point of discovery. The Archaeological and Tribal Monitors will work with BLM and PG&E to ensure that the PA requirements of Stipulation VII (CHPMP) and Stipulation IX (Discoveries) are met.	This stipulation will be adhered to during field implementation. Tribal monitors will be invited to monitor all ground disturbing activities. Archaeological monitoring will also be conducted during ground disturbing portions of the project Applied Earthworks, a professional cultural resources consulting firm, was retained by PG&E with DTSC approval. Applied Earthworks will observe ground-disturbing activities and will have the authority to temporarily divert or halt any activities in the event that previously unidentified potentially significant cultural resources are discovered.
89	PA	Appendix C Monitoring Protocol (Human Remains) If the Undertaking affects previously unidentified human remains and/or associated funerary objects or graves, or affects such resources in a way not previously anticipated, or has greater adverse effect than previously anticipated, all work in the vicinity of the discovery shall cease. No further action will be taken until the BLM, in consultation with Tribal and Archeological Monitors and PG&E in the field, has determined the nature of the discovery and delineated an area not to exceed 50 meters from the approximate center point of the discovery (or a smaller or larger area if warranted) in which no further work is to take place until treatment of the discovery is resolved.	This stipulation will be adhered to during field implementation. Tribal monitors will be invited to monitor all ground disturbing activities. Archaeological monitoring will also be conducted during ground disturbing portions of the project. Applied Earthworks, a professional cultural resources consulting firm, was retained by PG&E with DTSC approval. Applied Earthworks will observe ground-disturbing activities and will have the authority to temporarily divert or halt any activities in the event that previously unidentified potentially significant cultural resources are discovered.

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90	PA	Appendix C Monitoring Protocol (Safety) Tribal and Archeological Monitors will be required to meet with PG&E's site supervisor prior to initiating monitoring activity and will be required to obtain any applicable training required under 29 CFR 1910.120 and 40 CFR 300.150. The PG&E site supervisor will identify the safety and logistical guidelines that are appropriate for the monitoring activity. Tribal and Archaeological Monitors are invited to attend the safety meetings at the start of each workday or new work task. If the Monitors do not attend this meeting, they will be instructed about the safety concerns of the day by a PG&E representative. Tribal and Archaeological Monitors will be expected to wear all personal protective equipment specified by PG&E's site supervisor and required of other similarly situated field workers. Tribal and Archaeological Monitors will be expected to actively participate to enhance the safety of themselves and the other workers onsite by communicating with PG&E's site supervisor if any safety concerns are identified. Due to safety considerations at the Project site, Tribal and Archaeological Monitors will also be prohibited from conducting any monitoring within designated construction exclusion zones, unless otherwise authorized by PG&E. Such zones are to be clearly delineated to the Tribal and Archaeological Monitors by PG&E's site supervisor. In these situations, other efforts to provide alternative methods for accommodating Monitors including, but not limited to, high-powered binoculars, spotting scopes, or other vision enhancement tools or alternative viewing platforms will occur.	During the project initiation meeting or at similar venues (as appropriate), the PG&E Site Operations Manager or his designee will identify the safety and logistical guidelines that are appropriate for the monitoring activity. Tribal and Archaeological Monitors will be invited to attend the safety meetings at the start of each work day or new work task. If they do not attend, they will be instructed of the safety concerns of the day by PG&E.
91	Cultural and Historic Properties Management Plan (CHPMP)	Section 6.2 Measures and principles to avoid, minimize, or resolve adverse effects include the following: • Existing monitoring wells and related facilities shall be used to the maximum extent practicable. • The need for and placement of any new facilities or activities will be determined in consultation with the Tribes and the Consulting Parties following the Guidelines in Appendix B. • New facilities or activities will be placed in areas already disturbed by previous grading and other mechanized activities to the extent practicable, consistent with human health and the environment and achieving cleanup in a timely manner. • The performance of all field activities in support of the remedy shall be executed in such a way as to avoid and/or minimize adverse effects to cultural and historic properties to the maximum extent practicable.	See responses to PA Stipulations I(B), III(B)(1), III(B)(2)(a)-(c) and (e).
92	CHPMP	Section 6.3 "Environmental Restoration" refers to the restoration obligations in the Programmatic Agreement and the Consent Decree, including that PG&E draft a plan for decommissioning, removal, and restoration of the IM-3 facility and a Remedy Decommissioning Plan that will address post-remedy restoration of the site.	See responses to PA Stipulations I(D), III(B)(3)(c), and V(D).
93	CHPMP	Section 6.6.3 "Avoidance Measures/Management Thresholds" provides that: "The primary means for achieving avoidance will be through careful planning and placement of project facilities and installation of temporary barrier fences around significant cultural and historic properties. Metal fence posts and orange mesh all-weather fabric will be used, unless other appropriate materials are identified as preferable, for temporary fencing and will be regularly inspected and maintained. Permanent post-and double cable fencing may be required in high traffic areas. An archaeologist and/or Tribal representative(s) will clearly delineate the sensitive areas to be avoided by construction and supervise fence installation. Project personnel will be notified that fenced locations are to be completely avoided."	See EIR MMRP CUL-1a-8(n). In addition, the "Outer Limit of Potential Work Area" indicated on Figures 1, 2 and 3 was developed based on the results of the cultural resource surveys for Sites A and B conducted from August to November 2012, during which tribal monitors were invited to observe, and monitors of some tribes were present for portions of the survey. This area excludes all cultural resources identified during the surveys. Tribal and Archaeological Monitors will be invited to monitor all ground disturbing field activities. Applied Earthworks, a professional cultural resources consulting firm, was retained by PG&E with DTSC approval. Applied Earthworks will observe ground-disturbing activities and will have the authority to temporarily divert or halt any activities in the event that previously unidentified potentially significant cultural resources are discovered.
94	CHPMP	Section 6.6.4 Construction Monitoring. Monitoring of all earth-disturbing Project activities will be in accordance with Appendix C of the PA (Tribal and Archaeological Monitoring Protocol). Qualified archaeological and Tribal monitors will be notified in advance and invited to be on site during earth-disturbing construction activities (grading, trenching, boring, drilling, or other excavation) for new injection, extraction or monitoring wells, new pipelines, new treatment facilities, new access roads, new staging areas, other new transportation facilities, or other new Project components. Due to safety considerations at the Project site, Tribal and archaeological monitors will comply with all safety requirements.	See responses to PA Appendix C, Monitoring Protocol. See also EIR MMRP CUL-1a-8(l).

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95	CHPMP	Section 6.6.5 Periodic Site Monitoring. Sound management of the archaeological and historical properties requires that any progressive degradation of sites be identified. Additionally, it is recognized that a mechanism is needed to identify any accidental damage that may occur. To accomplish these goals, PG&E will develop a proposal describing a program of periodic site monitoring and condition assessment. BLM, following consultation with the Tribes and other appropriate parties, will approve any monitoring program before implementation by PG&E. The program will include all historic properties within the APE. Any previously unknown properties that may be encountered during the Project also will be included in the monitoring program unless such properties are evaluated as ineligible. During its initial phase, periodic monitoring and condition assessment will consist of annual field visits to monitor site conditions and disturbances	As part of the 2004 (Applied Earthworks) Cultural Resources Management Plan, Applied Earthworks conducted quarterly monitoring the first year and since then (2005 – 2012) annual monitoring and condition assessment.
96	CHPMP	Section 6.8 "Protocols for Tribal and Archaeological Monitoring" states that monitoring for the Project will be performed in accordance with the PA's Appendix C (Tribal and Archaeological Monitoring Protocol).	See responses to PA Appendix C, Monitoring Protocol. See also EIR MMRP CUL-1a-8(l).
97	CHPMP	Section 7.1 2. To the maximum extent practicable, PG&E will avoid all archaeological sites within the APE and protect all historic properties regardless of their NRHP status. The primary means for accomplishing avoidance will be through careful planning and placement of proposed access routes and drilling sites and by the installation of barrier fences around significant historic properties. A pre-project archaeological survey field verification will be conducted prior to any ground-disturbing activities. Consistent with other phases of work conducted at the Topock Remediation Project site, agency representatives and other stakeholders (including representatives of Native American Indian tribes involved with the Project) will be invited to the site for a project initiation meeting to discuss various cultural sensitivities associated with the Project. 3. Ensure that PG&E shall, to the extent practicable, restore the areas affected by the Topock Remediation Project within the APE, including but not limited to the site of the existing treatment plant and related facilities but excluding the Topock Compressor Station and related facilities, to the conditions existing prior to the construction of the PG&E investigation and remediation related appurtenances and facilities per PA Stipulation I.D. 4. Remediation activities that propose the removal or introduction of vegetation on public lands shall be undertaken after coordination with Tribes to assess if culturally significant native plant species are being impacted and if there could be potential visual impacts to the Topock TCP. 5. Existing monitoring wells and related facilities shall be used to the extent practicable per PA Stipulation III.B.2(a). 6. The need for and placement of any new facilities or activities will be determined in consultation with the Tribes and the Consulting Parties following the Guidelines in Appendix B and per PA Stipulation III.B.2(b). 7. New facilities or activities will be placed in areas already disturbed by previous grading and other mechanized activities to the extent practicable, consistent with human health and the environment and achieving cleanup in a timely manner per PA Stipulation III.B.2(c). 8. Clay deposits are an important resource identified by the Hualapai in their creation, and may be important as well to other Tribes. Accordingly, BLM, PG&E, and those Tribes that ascribe importance to clay deposits shall meet to identify the clay deposits that are considered a resource and develop a protocol to be followed if such clay deposits are encountered.	See responses to PA Stipulations I(B), I(D), III(B)(1), III(B)(2)(a)-(c) and (e), III(B)(3)(c), and V(D). See also EIR MMRPs CUL-1a-8(i), AES-1, and AES-2. Regarding Item 4, PG&E does not plan to remove or introduce vegetation on public lands in connection with this plan; instead, only some trimming of vegetation may be required which will be focused on non-native species (e.g., tamarisk). The trimming of native species (e.g., palo verde and mesquite) will be avoided or minimized to the extent practicable. Regarding Item 8, BLM met with the Hualapai Tribe and PG&E in late 2012 and discussed the Clay Monitoring Protocol. The Hualapai representative indicated that the Hualapai would make the initial draft of this protocol and then send it out for BLM and PG&E to review.
98	CHPMP	Section 7.3 Treatment of other cultural, historical, and archaeological properties within the APE "The only properties identified within the APE that are not contributing properties to the Topock TCP are the properties from the historic period (i.e., Route 66, the AT&SF Railroad Grade, and National Old Trails Road). None of these properties has been impacted, to date, by this Undertaking. These properties shall be avoided, to the extent practicable, in the implementation of the Undertaking. These properties are periodically monitored for condition assessment to assure that they are being protected."	See responses to PA Stipulations I(B), III(B)(1), III(B)(2)(a)-(c) and (e).
99	CHPMP	Section 8.1 Discoveries - Steps to be taken if previously unrecorded properties are found	PG&E will follow the procedures specified in Appendix C of the CHPMP (Discovery Plan). See also response to PA Stipulation IX(A)-(D), EIR MMRP CUL-1a-8(b) and -8(o).
100	CHPMP	Section 8.2 Discoveries - Treatment of any human remains, funerary objections, ceremonial objects and items of cultural patrimony	PG&E will follow the procedures specified in Appendix D of the CHPMP (Plan of Action). See also response to PA Stipulation IX(A)-(D), EIR MMRP CUL-1a-8(b) and -8(o).

Table B-2
Summary of Compliance Approach for Requirements Not Identified as ARARs for the Topock Groundwater Remedy That Are Pertinent to the Alternative Freshwater Source Evaluation
Revised Implementation Plan for Evaluation of Alternative Freshwater Sources in the Topock Remediation Project Area,
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

No.	Source Document	Compliance Item, Relevant Excerpt or Section from Document	Action by PG&E (Alternative Freshwater Source Evaluation)
101	CHPMP	Section 8.3 Consultation Procedures Related to Unanticipated Discoveries The BLM will notify all Signatories of the PA, Tribes and Invited Signatories of the nature and general location of any discovery. If the Tribes, PG&E and BLM can resolve treatment of the discovery in a manner that does not cause adverse effects to significant cultural and historic properties, BLM shall document the resolution, the activities within the work area may proceed and the AZ SHPO and the CA SHPO shall be notified of the discovery and resolution. The Tribes, PG&E and BLM will use their best efforts to resolve treatment as quickly as possible. If there is failure to resolve treatment of the discovery in consultation with the Tribes and PG&E, BLM shall then consult with the AZ SHPO or the CA SHPO to develop a treatment plan that takes into account the effects of the Undertaking on the discovery. Within fifteen (15) days of notification of discovery, BLM shall provide the consulted SHPO(s), via email, a recommendation for resolving the discovery situation that takes into account the potential effects of the Undertaking on the discovery. If the CA SHPO or AZ SHPO (as appropriate, depending on the location of the discovery) does not object to BLM's recommendation(s) within fifteen (15) days, BLM will implement the recommendation(s). If the consulted SHPO objects to the recommendation, BLM will utilize the dispute resolution process in Stipulation XV of the PA to resolve any objection.	See response to PA Stipulation IX(A)-(D). See also EIR MMRP CUL-1a-8(b) and -8(o).
102	General Aquifer Protection Permit A.A.C. R18-9-B301(D)	This general aquifer protection permit allows any discharge from a facility that, for water quality sampling, hydrologic parameter testing, well development, redevelopment, or potable water system maintenance and repair purposes, receives water, drilling fluids, or drill cuttings from a well if the discharge is to the same aquifer in approximately the same location from which the water supply was originally withdrawn, or the discharge is under an AZPDES permit.	The general permit is self-implementing and notification to ADEQ is not required. If discharged water flows to a water of the United States, PG&E will comply with the substantive requirements of Arizona general NPDES permit AZG2010-001. However, PG&E anticipates that the discharged water from the freshwater investigation will not flow to waters of the United States.