Final Revised Implementation Plan for Repair of Monitoring Wells MW-38S and MW-38D and Old Well/Pipe Reconnaissance

PREPARED FOR:

Pacific Gas and Electric Company

February 11, 2011

PREPARED BY: CH2M HILL

DATE:



On June 2, 2010, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) directed Pacific Gas and Electric Company (PG&E) to provide a schedule and plan for the rehabilitation of monitoring well MW-38S (DTSC, 2010a). In compliance with DTSC's directive, PG&E submitted an implementation schedule to both the DTSC and the United States Department of the Interior (DOI) on June 21, 2010. In a July 13, 2010 letter, DOI provided concurrence with both the direction provided by DTSC on June 2 and the implementation schedule provided by PG&E and directed PG&E to move forward with the development of the implementation plan (DOI, 2010). The MW-38 cluster (MW-38S and MW-38D) is part of the existing monitoring network for the groundwater plume at the Topock site. The cluster was installed in April 2004 as part the Resource Conservation and Recovery Act facility investigation/Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedial investigation effort at the site.

This implementation plan was originally submitted to DTSC on July 19, 2010. PG&E received comments on the implementation plan from DTSC in a July 21, 2010 letter (DTSC, 2010b) and subsequently discussed the comments with DTSC. A summary of the discussion of responses to comments including the agreed-upon resolution for each comment is provided in Attachment A. The revised implementation plan was submitted to the agencies on September 8, 2010. PG&E received comments on the revised implementation plan from DTSC in a September 28, 2010 email and subsequently discussed the comments with DTSC and DOI. This plan includes those revisions resulting from DTSC's comments. For reference, DTSC's comments and the comments that DTSC received from Fort Mojave Indian Tribe dated October 18, 2010 and Hualapai Tribe dated October 15, 2010, and DTSC's response to the Tribe's comments dated October 29, 2010 and November 1, 2010, respectively, are included in Attachment A. The estimated implementation schedule has been revised to account for changes to the plan (Figure 1).

This technical memorandum presents the implementation plan for the reconstruction of monitoring well MW-38S as directed by DTSC. Additionally, this technical memorandum includes repair of monitoring well MW-38D surface completion. These two wells comprising the MW-38 cluster, shown in Figure 2, were damaged in the storm events the week of January 18, 2010. The MW-38S surface completion was completely destroyed during the storms, and the well casing was inundated with stormwater and sediments such that the well casing is now blocked at a depth of approximately 33 feet below ground surface. The plastic tubing used for groundwater sample collection and a pressure

transducer with communication cable remains in the well. It is believed that the lower portions of the cable and tubing are buried in sediments, as they could not be pulled free by hand. Therefore, it was not possible to use an in-well video camera to further diagnose the condition of the well¹. The MW-38D surface completion was damaged such that the aboveground well casing was bent; however, the well was not inundated with stormwater or sediments. As directed by DTSC, this revised plan also includes implementation details for reconnaissance activities to evaluate the possible existence of an old well/pipe in the bottom of Bat Cave Wash (BCW) that was reported in the 2007 RFI/RI Volume 1 (CH2M HILL, 2007b).

This technical memorandum provides a description of the following implementation details related to the reconstruction of MW-38S, the repair of MW-38D, and the location of geophysical anomalies in an area of Bat Cave Wash:

- Planning and Field Implementation
- Permitting and Approvals
- Schedule and Reporting

Planning and Field Implementation

This section presents the planning and implementation details associated with the two scope of work elements: MW-38 well repairs and reconnaissance in BCW to evaluate the possible existence of an abandoned well/pipe.

Pre-mobilization field activities will include:

- Work Area Demarcation. The immediate work areas, staging areas, and associated access routes, shown in Figure 2, will be marked in the field to facilitate the biological resources survey and utility survey and for discussion during the project initiation meeting with project stakeholders, as discussed below. In addition to the staging areas identified in Figure 2, the area within the Topock Compressor Station fence line may also be used for staging of equipment and materials.
- Archaeological and Historical Resource Survey. An archaeological and historical resource survey was previously conducted as part of Applied Earthwork's investigation of the expanded APE (Applied Earthworks, 2007). No resources were noted during that survey. Per standard best practice for the Remediation Project, the immediate work area and all associated access routes were reexamined in August 2010. Again, no resources were observed during the reexamination.
- **Biological Resource Survey**. A biological resource survey will be conducted for the immediate work areas and all associated access routes prior to well repair activities in accordance with the programmatic biological assessment (PBA) (CH2M HILL, 2007b). Once well repair and BCW reconnaissance activities are complete, a second survey will be conducted to document changes in site condition.

¹ The depth of the blockage was determined by lowering a water level tape into the well. However, the presence of equipment in the well is a variable that adds uncertainly to the permanence and cause of the blockage. Therefore, the approach to well repair includes an initial step to further evaluate the blockage prior to the initiation of well reconstruction.

- Utility Survey and Surface Geophysical Evaluation. A survey of aboveground and underground utilities will be conducted for the work area prior to beginning intrusive repair and BCW reconnaissance activities. At a minimum, this survey will include site-specific reconnaissance, notification to Underground Service Alert or "Dig Alert," and geophysical surveys to identify underground features. The surface geophysical survey that will be conducted to evaluate the possible existence of an abandoned well/pipe in Bat Cave Wash will be conducted as part of this utility survey. The target area for this survey is indicated on Figure 2. The geophysical methods that may be used, as determined appropriate in the field, include electromagnetic locators, radio frequency locators, magnetic locators, metal detection, and ground-penetrating radar.
- **Project Initiation Meeting with Project Stakeholders**. Consistent with other field projects conducted at the Topock site, PG&E will invite agency representatives, representatives of Native American tribes involved with the Topock project, and other stakeholders to the site for a project initiation meeting. This meeting will be scheduled to occur immediately prior to the start of intrusive work. During this meeting, all site workers will receive cultural and biological resources sensitivity training. In addition, project health and safety protocols will be presented to all attendees such that site workers, work monitors, and site visitors are familiar with scope of work and associated safety protocols including work area demarcation, work observation areas, personal protection equipment, and site communication protocols.

MW-38 well evaluation/reconstruction/repair activities will begin following the completion of the pre-mobilization activities. Implementation details associated with the evaluation and potential reconstruction of MW-38S, the repair of MW-38D, and the evaluation of the possible existence of an abandoned well/pipe in BCW are presented below.

MW-38S - Monitoring well MW-38S will be reconstructed using the following procedure:

- Evaluation of Blockage in the Well Casing. Prior to initiation of reconstruction activities, attempts will be made to clear the blockage. Activities that may be required to clear the block include the following:
 - The use of a winch or other mechanical means to forcefully remove the sample tubing and water level measuring equipment currently in the well. Attempts to remove the equipment by hand were not successful.
 - The use of commercially available drilling/well servicing tools such as a split-spoon soil sampler, a bailer, or equivalent to remove sediments from the well.

If the blockage material cannot be removed such that the well is restored to its original operational condition, then the reconstruction activities will begin, as detailed in the following bullets. If the blockage is successfully removed, then well development activities will be conducted.

• **Removal of Existing Well Materials**. The damaged and sediment-filled MW-38S well casing and associated annular materials will be removed via over-drilling. The existing 2-inch polyvinyl chloride (PVC) well was constructed within a 6-inch-diameter borehole that was installed using the rotosonic drilling method. The MW-38S well completion log

is attached as Figure 3. A rotosonic drilling rig with 10-inch-diameter drilling tools will be used to remove these well materials.

- **Reconstruction of MW-38S**. Once the existing well materials have been removed, the well will be reconstructed in the same borehole within the rotosonic casing.
 - Well Design. The well will be reconstructed to the same specifications as the original damaged well, with the exception of surface completion. Special care will be taken to replicate the depth to the top and bottom of the well screen, depth of the filter pack interval, and depth of the sealed interval as shown on the original well construction log, to the extent practicable. Please note that if the existing well materials cannot be sufficiently recovered, the borehole will be grouted in accordance with all applicable regulations, and the well will be reconstructed in a new, adjacent borehole approximately 5 to 10 feet away.
 - Borehole and Well Decommissioning. If it is not possible to construct a new well in • the existing borehole, the MW38S borehole/well will be decommissioned. The procedures and specifications for borehole/well decommissioning included in the Well PGE-6 Revised Decommissioning Plan (CH2M HILL, 2006) will be modified and applied as appropriate for the specifics of this project. MW-38S is a monitoring well located in an area of known groundwater contamination. In accordance with Section 23 of the California Department of Water Resources Water Well Standards, Bulletin 74-90, Part III of Monitoring Well Standards (DWR, 1991). Per this guidance, and assuming the well must be removed via over-drill because the blockage in the casing could not be removed, the remaining borehole will be backfilled from depth to the ground surface with Type II/V Portland cement grout mixed with up to 6% bentonite powder by weight of cement used. All grout will be pumped into place using a tremie pipe in one continuous operation beginning at the bottom, and the end of the tremie pipe will be kept at least 2 feet below the surface of the grout during emplacement.
- **Installation of Modified Wellhead Protection**. A modified design will be used to minimize the risk of damage during future storm events. The new design substitutes the former flat pad and shallow monument casing with a steel casing and cylindrical concrete re-enforcement, which extends several feet below ground surface, as practicable. The proposed modified wellhead protection design is provided on Figure 4.
- Well Development. Development of the reconstructed MW-38S well will be conducted in accordance with the methods and procedures defined in the *Sampling, Analysis, and Field Procedures Manual, PG&E Topock Program, Revision 1, Topock Compressor Station, Needles, California* (CH2M HILL, 2005). A groundwater sample will not be collected after development activities for laboratory analysis.

MW-38D - The wellhead protection for MW-38D will be repaired using the following procedure:

• **Preparation of MW-38D Wellhead**. In preparation for the installation of the modified wellhead protection, materials associated with the previous surface completion (i.e., remaining concrete pad and damaged protective bollards) will be removed. This work will be conducted using a backhoe and hand tools. During this work, special care will be

taken to maintain the integrity of the 2-inch PVC well casing. However, should the well casing become damaged, the well will be repaired, or replaced using the procedures detailed above, as determined appropriate.

- **Repair of Aboveground Well Casing**. The existing, bent section of PVC well casing will be cut, and a new section of straight PVC pipe will be coupled to the existing subsurface well casing to comprise an adequate aboveground stick-up.
- **Installation of Modified Wellhead Protection.** Using the same general design discussed above for MW-38S, a modified surface completion will be installed for MW-38D.

Evaluation of the Possible Existence of an Abandoned Well/Pipe in BCW - Intrusive reconnaissance activities in BCW will be conducted, as determined appropriate, based on the analysis of the surface geophysical data collected during the utility survey and surface geophysical survey (discussed above) to evaluate the possible existence of an abandoned well/pipe. The additional activities will be conducted in two steps:

- **Evaluation of Geophysical Anomalies.** The anomalies identified during the surface geophysical survey will be investigated to determine if the possible well/pipe is beneath the ground surface at that location. The use of both hand tools and machines (e.g., backhoe or small excavator) will be used to dig at each anomaly location. Excavations will be advanced until the source of the anomaly is determined.
- Evaluation of the Buried Well/Pipe. If a buried well/pipe is found, activities will be conducted to determine the construction of the feature such that, if appropriate, a plan can be developed to properly decommission the feature in accordance with all applicable regulations. If the feature is determined to be a well, the plan will be developed for decommissioning in accordance with minimum well standards identified in the Department of Water Resources, California Well Standards Bulletin 74-90. Evaluation of the feature will be conducted as follows:
 - Access to the inside of the well/pipe will be gained by excavating around the feature as determined necessary for workers to safely remove any cap that may exist and prevent material from falling into the well/pipe.
 - The inside of the well/pipe will be evaluated to determine details such as total depth, well/pipe diameter, and casing material and condition. This evaluation will be conducted using borehole geophysical logging tools including, but not limited to, caliper logging, borehole televiewer/camera logging, and cement bond logging.
 - Once the borehole geophysical logging is complete, the well head will be secured such that surface water cannot enter the well/pipe and any remaining excavation around the well/pipe is backfilled using the originally removed material.

Post-Construction Activities - Following the implementation of all well reconstruction/repair and BCW reconnaissance activities, the following post-mobilization field activities will be conducted:

• **Biological Resource Survey**. A follow-on, post-construction biological resource survey will be completed to document changes in site condition in accordance with the PBA (CH2M HILL, 2007).

• **Geospatial Survey**. The newly completed MW-38S and MW-38D monitoring wells will be surveyed for well datum elevation and location.

Permitting and Approvals

Implementation of this plan will require prior approval from DTSC and DOI. With DOI's direction for well rehabilitation, the field activity is exempt from obtaining any federal, state, or local permits or complying with other administrative requirements, pursuant to CERCLA Section 121(e). A review of permitting requirements associated with California Department of Water Resources, San Bernardino County, the PBA, and PG&E Programmatic Streambed Alteration Agreement will be conducted, and substantive permitting requirements will be identified and complied with. The rehabilitation activities will be conducted in a manner consistent with the PBA (CH2M HILL, 2007) and is therefore in compliance with Endangered Species Act requirements.

Schedule and Reporting

In accordance with the June 2, 2010 DTSC directive, an implementation schedule was provided to DTSC and DOI on June 21, 2010. The schedule has been revised based on subsequent discussion with the agencies and is attached as Figure 1. Following DTSC and DOI approval of this implementation plan, PG&E will proceed with the pre-mobilization field activities as described above. It is estimated that 2-3 weeks will be required to complete all well repair and BCW reconnaissance activities.

Following implementation activities, an email summarizing the well repairs, BCW reconnaissance, and associated tasks will be prepared and submitted to DTSC and DOI.

References

Applied Earthworks. 2007. Archaeological and Historical Investigations, Third Addendum: Survey of the Original and Expanded APTE: Topock Compressor Station Site Vicinity, San Bernardino County, California. Report prepared for Pacific Gas and Electric Company, San Francisco.

California Department of Water Resources (DWR). 1991. California Well Standards. Bulletin 74-90, Part III Destruction of Monitoring Wells. June.

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). 2010a. *Rehabilitation / Replacement of Monitoring Well MW-38S, Pacific Gas and Electric Company (PG&E), Topock Compressor Station, Needles, California (EPA ID No. CAT 080011729).* May 17.

_____. 2010b. Repair and Replacement Plan for Wells MW-38S and MW-38D, Pacific Gas and Electric Company (PG&E), Topock Compressor Station, Needles, California (EPA ID No. CAT 080011729). July 21.

_____.2010c. DTSC edits to the "Revised Implementation Plan for Repair of Monitoring Wells MW-38S and MW-38D and Old Well/Pipe Reconnaissance". September 29, 2010.

CH2M HILL. 2005. Sampling, Analysis, and Field Procedures Manual, PG&E Topock Program, Revision 1, Topock Compressor Station, Needles, California. March 31.

_____. 2006. Well PGE-6 Revised Decommissioning Work Plan, PG&E Topock Compressor Station, Needles, California. November 10.

_____. 2007a. Programmatic Biological Assessment for Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Action. January.

_____. 2007b. Revised Final RCRA Facility Investigation/Remedial Investigation Report, Volume 1 – Site Background and History.

United States Department of Interior (DOI). 2010. PG&E Topock Compressor Station Remediation Site – Replacement and Repair of Monitoring Well MW-38S, PG&E Topock Compressor Station, Needles, California. May 17.



* The timing and/or duration is estimated pending the completion of other tasks.

FIGURE 1 Estimated Implemenation Schedule Final Revised Implementation Plan for Repair of Monitoring Wells MW-38S and MW-38D PG&E Topock Compressor Station Needles, California





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WELL COMPLETION DIAGRAM

PROJECT NO: 315024.IM.02	PROJECT: PG&E Topock IM In	vestigation (Phase 5 2004)	WELL NO: MW-38S
LOCATION: South Bat Cave Wash Topock, CA Approximately 575' south of I-40. Access by PG&E station northeast gate, or by long road from Park Moabi exit South.			
DRILLING CONTRACTOR: WDC Exploration and Wells, Montclair, CA		DRILLING START DATE: 04/11/2004	
DRILLING METHOD: Rotosonic		DRILLING END DATE: 04/11/2004	
LOGGER: S. Cooper		WELL COMPLETION DATE: 04/12/2004	
TOP OF WELL CASING (NGVD 29): 525.51		NORTHING COORDINATE (CCS DAND 27, ZONE 5): 2101279.65	
GROUND SURFACE ELEVATION (NGVD 29): 522.80		EASTING COORDINATE (CCS NAD 27 ZONE 5): 7614918.75	



Fig3_MW-38S-WellCompletionDiagram.ai 7/7/10 ez

CH2MHILL

PREVIOUS DESIGN



PROPOSED DESIGN

PROFILE VIEW



TOP VIEW



FIGURE 4 Modified Wellhead Protection Schematic PG&E Topock Compressor Station Needles, California

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ATTACHMENT A Summary of Responses to Comments

Resolution to DTSC Comments on the July 19, 2010 Submittal

A summary of the comment/response/discussion on DTSC comments on the July 19 submittal of the *Implementation Plan for Repair of Monitoring Wells MW-38S and MW-38D*, is provided below. The summary of the discussion for each comment is formatted as follows:

COMMENTS provided by DTSC in July 21 letter (no comments from DOI [July 26 email]).

PG&E Position as discussed during July 29 call on these comments

<u>DTSC Response to PG&E Position</u> as discussed during a July 29 call, an August 23 email from DTSC containing comments on the summary of the July 29 call, and an August 30 email from DTSC concurring with PG&E's response to the comments on the July 29 call summary.

COMMENT 1: As part of this work, DTSC is requesting that PG&E locate an old well situated in the bottom of Bat Cave Wash. PG&E describes this well on page 4-5 of the 2007 RFI/RI Volume 1 (third paragraph). The RFI/RI's description indicates that the well has not been properly abandoned according to minimum well standards identified in the Department of Water Resources, California Well Standards Bulletin 74-90. PG&E should locate this well and contact DTSC as soon as this is achieved so that a proper course of action and process can be developed.

<u>PG&E Position</u>: While this work can be conducted as part of this mobilization, it will increase the duration of the field schedule and the size of the work area footprint. PG&E prefers to conduct non-intrusive reconnaissance activities as part of this mobilization, evaluate the data, and conduct decommissioning activities, as appropriate, during a subsequent field mobilization.

DTSC Response to PG&E Position: PG&E should include non-intrusive surface geophysical surveys only as part of this Implementation Plan. Using equipment to intrusively investigate any anomalies that may be found will not be conducted as part of this plan. A separate plan will need to be prepared for additional intrusive work after PG&E conducts geophysical reconnaissance provided potential locations are identified in the study area. If a well is found, PG&E will be required to conduct additional work such that compliance with applicable well standards is achieved. PG&E must provide a schedule for geophysical data evaluation and subsequent field activities, as determined appropriate, for DTSC and DOI approval no later than the end of September 2010.

<u>Discussion During September 2 Call</u>: DTSC and DOI request that PG&E include intrusive data collection associated with the possible well/pipe in BCW in the revised plan. Specifically, PG&E shall plan to investigate geophysical anomalies and, if found, assess the condition and construction details of the well/pipe to the extent practicable.

<u>COMMENT 2</u>: To minimize intrusion into the area, DTSC requests that attempts first be made to rehabilitate well MW-38S. A small diameter auger or other instrument should be utilized to attempt to remove sediments from within well. If successful, the well could then be washed and finally redeveloped. If unsuccessful, then the proposal for over-drilling could be implemented.

<u>PG&E Position:</u> Attempts to clear the material from inside the well will have a very low likelihood for success, and may make the task of re-installation more difficult. Therefore this activity was not included in the original Implementation Memo. The use of an auger within the casing, if an auger this small could be procured, is not advised as it will likely break the PVC casing upon use at the point of obstruction. A bailer could be used to try and remove material from the well, but PG&E believes the likelihood of success is very low. Further, if foreign material currently in the well was successfully removed, subsequent water quality data collected from this well would be suspect as contaminants contained in sediments in BCW that may be difficult to wash from the well, could have been introduced during flooding.

DTSC Response to PG&E Position: DTSC believes that the PG&E's position regarding the questionable nature of water quality data in the event the well is only cleared-out as opposed to re-constructed is speculative and that data obtained from the well will determine if it is usable or if additional well development should be conducted. DTSC understands that an attempt to remove the material may not be successful, but would like to try before over-drilling. The group concurred that a step would be added before over-drilling to try and remove the material using a split-spoon soil sampler, bailer, or equivalent. If this step is determined to be unsuccessful in the field, PG&E will convene a call with DTSC and DOI to gain concurrence before moving on to over-drilling.

Text will be added to the Implementation Plan to reflect this additional step. The implementation schedule will be re-evaluated and updated as needed to reflect this addition.

<u>COMMENT 3:</u> Measures must be established to ensure that the 10-inch over-drill of MW-38S does not drift off the existing well and borehole. To accomplish this, it is suggested that a rod be placed within the well all the way to the bottom. Alternatively, a rod extension could be attached to the drill bit that would fit into the throat of the well and keep the drill string from wondering off course.

<u>PG&E Position</u>: A centering rod will not be effective because it will be blocked by sediments at a depth of approximately 30 feet bgs. Additionally, use of a centering rod will increase the potential for unnecessary breakage the PVC casing during removal. Use of the rotosonic drilling method will provide the greatest opportunity for over-drilling a straight borehole and is generally not prone to wandering off course (borehole deviation).

<u>DTSC Response to PG&E Position</u>: DTSC indicated that it does not necessarily concur with PG&E's position, but is allowing PG&E to conduct the work according to the original proposal. It is DTSC's preference to have assurance that the over-drill, if conducted, wouldn't deviate.

Changes to the Implementation Plan are not required because of this comment.

<u>COMMENT 4</u>: Additionally, an alternate drilling technique should be considered, specifically a powerful hollow stem auger rig. This drilling technique may better remove well materials and limit entrainment of pulverized grout. Recall that residual well grout adversely impacted reconstruction of well MW-23.

<u>PG&E Position</u>: The use of the hollow-stem auger drilling method for this work is not recommended given the geologic setting and target over-drilling depth. Further this method is far more prone to borehole deviation, and will *increase* the risk of "pulverizing grout". Although problems with uncured cement were experienced at MW-23, this is not an equivalent comparison to the MW-38 location for the following reasons:

- 1. The MW-23 borehole occurs entirely within fractured bedrock, while MW-38 is entirely within unconsolidated sediments. Unconsolidated sediments are less prone to loss of grout within the borehole.
- 2. Review of MW-23 installation records indicates problems during installation which required the use of relatively large volumes of concrete. Therefore, it is not clear that migration of grout during re-construction is responsible for the current difficulties at MW-23.
- 3. The MW-23 re-build was a nested completion and the MW-38 well is a single completion.

<u>DTSC Response to PG&E Position</u>: DTSC indicated that it does not concur with several items within PG&E's position, but is allowing PG&E to conduct the work according to the original proposal.

Changes to the Implementation Plan are not required because of this comment.

<u>COMMENT 5:</u> The bullet (on Page 2 of the memo) discusses grouting the well should the over-drill drift off the existing well. First, please note the comment above regarding this issue. The memorandum does not contain any details on how grouting will be conducted should the drill stem drift off the well. DTSC recommends utilizing verbiage from previously approved decommissioning work plans (e.g., Well PGE-6).

<u>PG&E Position</u>: Several implementation details were not included in this memo due to the abbreviated format. The plan states that the grouting process will be conducted in accordance with all applicable standards. Additional details regarding the implementation of grouting will be discussed with the agency and added to the plan, as necessary.

<u>DTSC Response to PG&E Position</u>: DTSC appreciates that additional detail will be added regarding the grouting procedure. Grout requirements in section 2.2.3 of the November 2006 Well PGE-6 Revised Decommissioning Work Plan should be included in the MW-38 plan with modifications for the specifics of this project, and to include the curing time requirement communicated in the conditional approval of the November 2006 plan.

Changes to the Implementation Plan will be made as a result of this comment.

<u>COMMENT 6</u>: The design of the wellhead should be developed and included in the memorandum. DTSC desires a compact design and does not wish to approve the memo without first seeing the design.

<u>PG&E Position</u>: A design drawing for the modified well head will be added to the Implementation Memo at the direction of PG&E.

DTSC Response to PG&E Position: DTSC appreciates that the drawing will be added.

Response to DTSC Comments on the September 8, 2010 Submittal

A summary of the DTSC comments on the September 8 submittal of the *Revised Implementation Plan for Repair of Monitoring Wells MW-38S and MW-38D and Old Well/Pipe Reconnaissance* and PG&E response to comments is provided below. The summary of the discussion for each comment is formatted as follows:

<u>COMMENTS</u> provided by DTSC in a September 28, 2010 email (technical comments were not received from DOI).

PG&E Response to Comment detailing changes to the document, as applicable.

Tribal comments were received by DTSC from the Hualapai Tribe and the Fort Mojave Indian Tribe (FMIT) on October 15 and 18, 2010, respectively. DTSC submitted individual responses to FMIT and Hualapai Tribe comments on October 29 and November 1, 2010, respectively. For reference, each of the comment and response to comment letters are attached after the summary of response to DTSC comments, below.

<u>COMMENT 1</u>: The document should be signed by a Professional Geologist or Engineer as this "Technical Memorandum" proposes work that includes geologic interpretation and practice.

<u>PG&E Response:</u> Concur. A California Professional Geologist has stamped the submittal of the Final Revised Technical Memorandum.

<u>COMMENT 2</u>: PG&E needs to be proactive in meeting groundwater monitoring well performance standards in compliance with the water code as oppose to waiting on agency direction prior to initiating correction of monitoring systems. DTSC recommends that PG&E initiate rehabilitation plans for agency review as part of maintenance of damaged wells to ensure corrections are made in a timely manner in the future.

<u>PG&E Response</u>: Comment noted. No modification to the document has been made as a result of this comment.

<u>COMMENT 3</u>: This technical memorandum should properly depict the conditions of the damaged wells. In a recent field reconnaissance of the wells, DTSC observed that a groundwater pump and pressure transducer are still located within the MW-38S well. As a result, DTSC cannot verify PG&E's claim that the well casing is blocked from 33 feet below ground surface. PG&E should make attempts to remove the equipment. If removed, a video camera should be lowered into the well to evaluate its condition.

<u>PG&E Response</u>: The following statement has been added to paragraph 3 of the document: "The plastic tubing used for groundwater sample collection and a pressure transducer with communication cable remains in the well. It is believed that the lower portions of the cable and tubing are buried in sediments, as they could not be pulled free by hand. Therefore, it was not possible to use an in-well video camera to further diagnose the condition of the well." In addition, a footnote has been added to more clearly present the rationale of the approach to repair of MW-38S. As the plan is written, the blockage in the MW-38S well casing will be evaluated prior to the initiation of reconstruction activities. The first bullet under the MW-38S heading has been revised to explicitly state that as part of this evaluation attempts will be made to remove this equipment.

COMMENT 4: See DTSC comment 3.

<u>PG&E Response:</u> See response to DTSC comment 3.

<u>COMMENT 5:</u> The highlighted text incorrectly cites water production well decommissioning standards. The cited text is not applicable to monitoring wells and should be deleted. The appropriate section is found in Part III of DWR's 1991 Monitoring Well Standards.

<u>PG&E Response:</u> Concur. The subject text was included in the Revised Technical Memorandum due to a misunderstanding of a previous technical comment and subsequent discussion during technical conference calls. The text of the Final Revised Plan has been revised to satisfy the requirements for destruction of monitoring wells as specified in Part III of DWR's 1991 Monitoring Well Standards (Bulletin 74-90).



Hualapai Department of Cultural Resources P.O. Box 310 Peach Springs, Arizona 86434 Office: 928.769.2223 FAX: 928.769.2235

Date: October 15, 2010

File: HDCR 10-132

Department of Toxic Substances Control Attention: Aaron Yue P.O. Box 5796 Corporate Ave. Cypress, CA 90630-4732

Subject: Repairs to MW-38S and Location of Old Well/Pipe

Dear Mr. Yue,

The Hualapai Tribe would like to offer comments regarding technical memorandum "*Revised Implementation Plan for Repair of Monitoring Wells MW-38S and MW-38D and Old Well/Pipe Reconnaissance,*" by CH2M HILL, September 8, 2010. The revised technical memorandum describes updated approaches for the repair/replacement of well MW-38S, which was damaged during a flash January 2010 flood.

The revised memorandum describes an approach to locate a subsurface pipe, located in the bottom of Bat Cave Wash, which was described by a former PG&E employee. Whereas previously, non-intrusive geophysical surveys were proposed, the revised memorandum states that intrusive methods will be used, as follows (p. 4):

The use of both hand tools and machines (e.g. backhoe or small excavator) will be used to dig at each anomaly location. Excavations will be advanced until the source of the anomaly is determined.

This appears similar to an unlimited search for a buried pipe, which is, at this time, based solely on anecdotal information. The potential soil disruption from such exploration could be quite extensive, and could result in the digging of numerous invasive holes and pits. In addition, the digging and trenching could take place in contaminated soils. Surface geophysical surveys need to be conducted to narrow the search to a few sites where further investigations may be performed. However, a separate work plan needs to be developed, and the tribes must be allowed to comment on the work plan. Tribal monitoring must be done for all intrusive digging near the Topock Maze.

Regarding monitoring well MW-38 and Bat Cave Wash, there is a need to determine the discharge of the January 2010 flood event, which can be done using indirect discharge measurement techniques. The recurrence intervals of flood flows capable of causing such damage need to be determined, and a plan needs to be developed to protect the wells and other structures from recurring floods.

A thousand years from now, PG&E and the Topock Compressor Station will be long gone, but the Hualapai Tribe will still be here, and will still have deep connections to the sacred Colorado River landscape and the Topock Maze. Over time, the land will erode down through natural processes, and there will be hundreds of cement plugs sticking up out of the ground due to the decommissioning of PG&E wells using cement grout. If bentonite clay is used, rather than cement grout, the decommissioned wells will erode along with the land surface. If cement grout is used, the plugs sticking up out of the ground will be an eternal reminder of the desecration of Native American land and spiritual values. We encourage PG&E to request an exemption that allows for decommissioned monitoring wells to be sealed with bentonite clay, and not sealed using cement grout. We suggest the agencies open a dialog regarding exemptions or waivers to the California Department of Water Resources or water-well standards requiring that monitoring wells should be sealed using cement grout.

The Hualapai Department of Cultural Resources and the Hualapai Tribe appreciates the efforts by all parties to address our concerns. If you have any questions, please do not hesitate to contact myself, or Dawn Hubbs, Program Manager at (928) 769-2223.

Sincerely,

Voretta Jackson-Kelly, Director Tribal Historic Preservation Officer Hualapai Department of Cultural Resources



HARGIS + ASSOCIATES, INC. Hydrogeology • Engineering

1820 East River Road, Suite 220 Tucson, AZ 85718

Phone: 520.881.7300 Fax: 520.529.2141

October 18, 2010

VIA ELECTRONIC MAIL

Mr. Aaron Yue, Topock Project Manager DEPARTMENT OF TOXIC SUBSTANCES CONTROL 5796 Corporate Avenue Cypress, California 90630

Ms. Pamela S. Innis Topock Remedial Project Manager Office of Environmental Policy and Compliance U.S. DEPARTMENT OF THE INTERIOR P.O. Box 25007 (D-108) Denver, Colorado 80225-007

Re: <u>FMIT comments on "PG&E: Technical Memorandum for Repair of Monitoring Wells MW-</u> <u>38s and MW-38D, Old Well Reconnaissance"</u>

Dear Mr. Yue and Ms. Innis:

Hargis + Associates, Inc. (H+A) is in receipt of your email dated September 28, 2010, requesting comments of the above-referenced Pacific Gas & Electric Company (PG&E) document. On behalf of our client, the Fort Mojave Indian Tribe (the Tribe or FMIT), and with review from its legal counsel, I am hereby providing the following comments.

September 8, 2010 Meeting

As you are aware, the Fort Mojave Indian Tribe (the Tribe or FMIT) participated in a meeting regarding PG&E's September 8, 2010, Technical Memorandum titled, "Revised Implementation Plan for Repair of Monitoring Wells MW-38S and MW-38D and Old Well/Pipe Reconnaissance" (the Memorandum). This meeting was held at the PG&E Topock Compressor Station on September 8, 2010, and included representatives of PG&E, the Bureau of Land Management (BLM), as well as the Hualapai and FMIT. The Department of Toxic Substances Control (DTSC) was not present, presumably because the BLM had represented this meeting as a consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA). The Tribe wishes to express its concern over DTSC's absence at this meeting because of that Agency's integral role in the planning, scoping, and direction of this project.

While the Tribe understands that the reason DTSC's absence was probably related to the meeting's alleged Section 106 purpose, however, the opportunity to further discuss this work scope with DTSC would have assisted the Tribe in understanding the rationale supporting the decision to incorporate the "old well/pipe reconnaissance" into the scope of the monitor well

Other Offices: Mesa, AZ San Diego, CA



Mr. Aaron Yue October 18, 2010 Page 2

rehabilitation. Although the DTSC held a teleconference with the Tribe on August 12, 2010, in regard to PG&E's July 19, 2010, "Implementation Plan for Repair of Monitoring Wells MW-38S and MW-38D," the old well/pipe reconnaissance was not mentioned by DTSC at that time. Considering that the September 8, 2010, meeting with BLM was at a staff-to-staff level and would not have fulfilled the Section 106 consultation requirements in any case, it seems that there was no reason for DTSC's non-participation. FMIT hopes that DTSC will instead choose to participate in all such meetings moving forward.

Well Abandonment Alternatives

As you are also aware, on August 5, 2010, H+A submitted comments to DTSC on the July 19th PG&E document. These comments were discussed during the aforementioned August 12th teleconference. During that discussion, DTSC agreed that the subject of well abandonment alternatives could be discussed among stakeholder representatives in the forum of the project's Technical Working Group (TWG). The Tribe wishes to reiterate its interest in the scheduling of such discussions in forthcoming TWG meetings and requests that DTSC issue notification to the stakeholders of its commitment to initiate these discussions.

Tribal Monitor Participation in Resource Surveys

In reviewing Attachment A, the "Summary of Responses to Comments," attached to the Memorandum, we note that there is no response to comments provided by the Tribe. While the content of those comments was discussed in the aforementioned August 12th teleconference, the discussion was only with DTSC. PG&E was copied on the Tribe's August 5th comment letter. Did DTSC discuss the relevance of the Tribe's comments with PG&E subsequent to the teleconference? In particular, the Tribe appealed for an opportunity for its Tribal Monitors to participate in a cultural resource survey of the affected area prior to commencement of the work and provided rationale as to why this would be appropriate based on the dynamics of fluvial transport. The fact that the old well/pipe reconnaissance has now been added to the scope adds further justification of this need because the impacted area has been further expanded. During the September 8th meeting, a site walk was conducted and PG&E's archaeology contractor (Applied Earthworks or AE) participated. The AE archaeologist was asked whether a cultural resources survey had been performed, and the reply was affirmative. It was further learned that the survey was performed without the participation of the Tribal Monitors and that no report was prepared or forthcoming. Finally, the contractor advised that there were no findings that resulted from the survey.

This situation, ignoring the reasonable requests of the Tribe, is unacceptable and unsupportable. The FMIT and other tribes have repeatedly emphasized the need to:

- (1) Perform comprehensive cultural resource surveys;
- (2) Include Tribal Monitors in the surveys;
- (3) Have Tribal Monitors observe field activities involving earth disturbances or impacts; and
- (4) Properly document and certify the results of surveys performed.



Mr. Aaron Yue October 18, 2010 Page 3

But despite the Tribe's past comments and requests on a variety of projects and the Agency's and PG&E's verbal agreements to accommodate the Tribe's needs, it seems that nothing has changed in terms of integrating FMIT into the actual work. In fact, it seems this integration may be slipping backwards. The Tribe requests that DTSC (and DOI, if deemed necessary) explicitly direct PG&E to instruct AE to be more inclusive of the tribes in performing its field surveys and to properly document its work, as outlined above. PG&E has stated that its intention is to include the Tribal Monitors in any activity they wish to participate. However, this commitment is meaningless unless PG&E and its contractors do not communicate. Among other steps, perhaps PG&E could make a schedule available indicating the dates when AE will be performing its surveys.

Expansion of Work Scope

The Memorandum presents a rather significant expansion beyond the original MW-38 work scope, adding reconnaissance for the alleged old well/pipe upstream in Bat Cave Wash from the monitor well MW-38 location. The Tribe wishes to express concern over the potential for significant intrusion and disturbance associated with this expansion. It appears there is a trend of "piggy backing" onto recent work plans, which poses concerns that the DTSC is attempting to sidestep the full review process, which involves Section 106 process. The DTSC should interact with the BLM to develop a more coordinated approach for addressing BLM's Section 106 obligations with the tribes.

Support for Non-Intrusive Exploration

The Tribe supports the decision to first attempt non-intrusive geophysical exploration methods as described under the bullet "Utility Survey and Surface Geophysical Evaluation." It is recognized, however, that such methods applied at that particular location will likely provide information on multiple targets, thereby suggesting a potential for extensive subsurface intrusions. Accordingly, the Tribe would like the opportunity to review the results of the initial exploration whenever they become available.

While this well rehabilitation project may not be a significant part of the overall project, the process in which tribal concerns were - or rather were not - factored into the project is a strong indicator of how the final remedy will be implemented. Additionally, the work attempted on this project may serve as a precedent for future, related activities at the Site. The Tribe wants successful and timely remedy implementation, inclusive of tribal views. Accordingly, the Tribe looks forward to a written response to this letter from both DTSC and DOI.



Mr. Aaron Yue October 18, 2010 Page 4

Sincerely,

HARGIS + ASSOCIATES, INC.

rar

Leo S. Leonhart, PhD, PG, CHg Principal Hydrogeologist

Enclosure: FMIT August 5, 2010, letter

cc w/encl: N. Brown, ACHP C. Coyle M. Donaldson, CA SHPO J. Garrison, AZ SHPO T. King S. McDonald N. McDowell-Antone Y. Meeks, PG&E L. Otero, FMIT Council C. Pease, USFWS M. Sullivan T. Williams, FMIT Chairman

839.07 MW-38 Addendum



HARGIS + ASSOCIATES, INC. Hydrogeology • Engineering

1820 East River Road, Suite 220 Tucson, AZ 85718 Phone: 520.881.7300 Fax: 520.529.2141

August 5, 2010

VIA ELECTRONIC MAIL

Mr. Aaron Yue, Project Manager DEPARTMENT OF TOXIC SUBSTANCES CONTROL 5796 Corporate Avenue Cypress, California 90630

Re: <u>Repair and Replacement Plans for Monitor Wells MW-38S and MW-38D PG&E Topock</u> <u>Compressor Station</u>

Dear Mr. Yue:

Hargis + Associates, Inc. (H+A), on behalf of its client, the Fort Mojave Indian Tribe (the Tribe), is hereby responding to the July 21, 2010, letter by Ms. Karen Baker of the California Department of Toxic Substances Control (DTSC) to Dr. Yvonne Meeks of the Pacific Gas and Electric Company (PG&E) regarding the repair and replacement plans for monitor wells MW-38S and MW-38D. Although the DTSC did not solicit comments on this letter, the Tribe wishes to take this opportunity to express some concerns and offer some further thoughts on the proposed action.

First, the Tribe has noted that this implementation plan calls for a biological resource survey of the immediate work area and all access routes in advance of repair activities. The Tribe agrees with the conduct of this survey, but questions the reason that a cultural resource survey involving Tribal monitors is not also planned. The Tribe understands that PG&E claims to have conducted a "complete and intensive level" cultural resources survey of its property "outside the Compressor Station fence line."¹ However, this survey was done without participation or even prior knowledge of the Tribes and their cultural resource monitors. Additionally, this area is downstream from known archaeological sites. It is conceivable that artifacts were transported downstream from these areas during the various runoff events over the intervening years since any prior archaeological surveys. Accordingly, the Tribal monitors need an opportunity to conduct a survey of the proposed work areas in advance of the field mobilization.

As for the actual well abandonment, repair, and replacement activities, the Tribe is interested in the procedure from the standpoint of future actions that will be necessary for remedy implementation. Considering the large number of existing monitor well added to the number of additional monitor wells that will be constructed in support of the groundwater remedy design, it is expected that similar well abandonment and maintenance will be performed routinely. The same is anticipated for the various wells needed for extraction, injection, and *in situ* reduction

¹ See May 3, 2010, letter from Pamela Innis, DOI, to Leo S. Leonhart, H+A, re "Cultural Resource Surveys."



Mr. Aaron Yue August 5, 2010 Page 2

purposes. Accordingly, the Tribe plans to monitor the proceedings of this action in order to better understand what may be expected in related future actions.

As you are aware, the Tribe believes that the area as a whole, from below the earth to the sky, is sacred. It is a pathway for the spiritual journey of its people once they leave this world and transition into the afterlife. The many intrusions in the area could preclude safe passage of departed spirits. The projected actions now and into the final remedy implementation involving more wells and structural work in the area could cumulatively act to block the journey of the spirit, and thus any additional disruption to the landscape needs to be fully justified and carefully implemented.

The Tribe also wishes to express the following comments and questions:

- Did the siting of MW-38 in a position near the center of Bat Cave Wash make the facility more prone to its being damaged by the 2010 storm and runoff event? Would it be possible to construct the replacement well at a location along the side of the wash and thereby reduce the potential for future washouts?
- If abandoned wells are to be backfilled and plugged according to California rules, the Tribe would prefer the use of natural, site materials for this purpose. Further, it may be possible to pull or destroy casings and allow the formation to collapse. This would potentially require an application for a variance, however, the Tribe would be willing to work with PG&E and DTSC on the supporting justification and suggestions for the design.
- The Tribe would prefer not to have cement plugs visible at the surface. If cement plugs are necessary, cementing should not rise to elevations above three feet below the surface grade. Reduced elevations would be preferred wherever possible.

Thank you for the opportunity to provide these comments. The Tribe looks forward to participation in the study process.

Sincerely,

HARGIS + ASSOCIATES, INC.

to S. flortras

Leo S. Leonhart, PhD, PG, CHG Principal Hydrogeologist

HARGIS + ASSOCIATES, INC.

Mr. Aaron Yue August 5, 2010 Page 3

CC:

- C. Coyle C. Guerre
- P. Innis
- K. Baker
- S. McDonald
- N. McDowell-Antone
- Y. Meeks
- L. Otero

839.07 ERGI Phase II





Linda S. Adams Secretary for Environmental Protection Maziar Movassaghi Acting Director 5796 Corporate Avenue Cypress, California 90630



Arnold Schwarzenegger Governor

Sent Via Email

October 29, 2010

Leo S. Leonhart, PhD, PG, CHG Principal Hydrogeologist Hargis and Associates, Inc. 1820 East River Road, Suite 220 Tucson, AZ 85718

COMMENTS ON TECHNICAL MEMORANDUM FOR REPAIRS OF MONITORING WELLS MW-38S, MW-38D AND OLD WELL RECONNAISSANCE, PACIFIC GAS AND ELECTRIC COMPANY (PG&E), TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA (EPA ID NO. CAT080011729)

Dear Mr. Leonhart,

The Department of Toxic Substances Control (DTSC) has received and reviewed your October 18, 2010 letter submitted on behalf of the Fort Mojave Indian Tribe regarding PG&E's Technical Memorandum to repair two groundwater wells located in Bat Cave Wash in the general vicinity of the Topock Maze and to locate an old water well reported by PG&E to occur in Bat Cave Wash in the vicinity of the well MW-38 cluster. DTSC will forward your letter to PG&E as formal comments to the proposed work plan. However, since some of the comments provided are not specifically addressing the technical aspects of the work plan, DTSC would like to take this opportunity to provide our perspective as a response. We hope that the interaction and communication exchange would enhance understanding for this particular scope of work as well as similar work in the future. DTSC would also like to thank you and Ms. Nora McDowell-Antone for participating on our conference call held on August 12, 2010 to discuss the concerns raised within your August 5, 2010 letter which was also related to the MW-38 repair plan.

DTSC also appreciates your emphatic support for continued dialogue with DTSC regarding the work plan prepared by PG&E and notes your expressed regret of our absence during the September 8, 2010 meeting with BLM and PG&E. Although DTSC had anticipated attendance at the previously scheduled project initiation meeting on September 8, 2010, DTSC noted that the initiation meeting was cancelled by PG&E via email on September 3, 2010. In its place, BLM held a federal Section 106 consultation

Leo S. Leonhart, PhD, PG, CHG October 29, 2010 Page 2 of 5

meeting and field site visit. Since DTSC has been traditionally excluded from Section 106 meetings between federal agencies and tribes, we felt it would have been disrespectful for us to attend this meeting without an explicit invitation. Regardless, of most importance is that communication continues regarding Tribal concerns irrespective of any particular scheduled meeting.

DTSC, however, is troubled by your accusation that we are trying to "sidestep the full review process" for locating an abandoned well as stated in your letter. On the contrary, DTSC expressed concerns on September 1, 2010 when we found out that BLM would be conducting a federal 106 consultation on the well repair project and geophysics for the abandoned well without mention of intrusive site work. DTSC understands from past Tribal comments that the full extent of any known site activities need to be disclosed up front. Furthermore, in a letter from the Tribe dated July 19, 2010 commenting on the EIR, the Tribe did question which wells could be abandoned in the near future.

Originally, DTSC understood from BLM that the MW-38 well repair activities would not undergo full Section 106 consultation since the activities were for maintenance of existing wells; therefore, a previous version of the work plan had limited the old abandoned well investigation to non-intrusive geophysical surveys, with site disturbance work to identify the anomalies to be considered under a separate consultation package. However, after BLM concluded that consultation would be required, the agencies felt it appropriate to include the potential soil disturbance/ anomalies verification step for consultation. This portion of the scope of work was added specifically in a revised addendum so that tribes would have full access and understanding of the work at hand. Finally, if an old well is located, a decommissioning plan would be prepared that would be subject to additional tribal review and federal Section 106 consultation.

Your letter of August 5, 2010 questions if the location of well MW-38 in an active wash makes it prone to damage and, therefore, if it should be relocated out of the wash. Well MW-38S is an important well that DTSC desires to retain as it yields some of the highest contaminant concentrations along Bat Cave Wash and defines the western boundary of the hexavalent chromium plume. Therefore, the well is needed to monitor the existing condition of the plume as well as to assess clean up progress during remedy implementation. As PG&E is proposing to enhance protection of the well with an alternative well head design and as the type of damaged witnessed at well cluster MW-38 is an isolated occurrence that had never occurred at any other well at the Topock site (PG&E 2010, personal communication), DTSC believes PG&E's proposal is adequate and does not believe additional undertakings are required at this time.

At this point, to accommodate concerns regarding the extent of potential soil disturbance, DTSC will direct PG&E to hold a meeting with concerned tribes, agencies, and stakeholders to review the results of the geophysical surveys of the area and through discussion, identify the anomalies that will be further investigated by potholeing

Leo S. Leonhart, PhD, PG, CHG October 29, 2010 Page 3 of 5

or digging. This approach, which is similar to past well screen location telephone conference calls, will maintain communication and offers project efficiency.

Regarding the well decommissioning process, your letter of August 5, 2010 indicates a preference to use natural, site materials or to allow the well cavity to collapse instead of a conventional cement grout seal. As clarified during our August 12, 2010 phone call, allowing a borehole to simply collapse is not an alternative allowed by the California Well Standards for monitoring wells. The standards were developed to minimize the potential for an unsealed borehole to act a conduit for potential contaminant migration or to act a physical hazard to humans or animals. The standards specify that neat cement, sand-cement, or bentonite clay be used for sealing wells during the abandonment process (see Part III. Destruction of Monitoring Wells at http://www.dpla.water.ca.gov/sd/groundwater/california well standards/well standards. html). The standards also require removal of well materials from near the surface and would not allow for cement plugs to be visible at the surface. DTSC and PG&E must abide by the law and follow the California Well Standards. However, it is understood that the well standards do allow for variances under certain conditions that would provide similar or better protection of the groundwater. As agreed on August 12, 2010 DTSC will convene a technical meeting among interested parties to further assess the potential for different decommissioning methods/strategies. While this forum would not address the current MW-38 work plan, it would evaluate potential decommissioning alternatives in the long term.

Also discussed during our telephone conference on August 12, 2010 was the Tribes preference to conduct a cultural reconnaissance survey of the MW-38 area prior to field activities. DTSC communicated this tribal request to PG&E immediately after the conference call with FMIT. This request to conduct a site walk with interested tribes prior to the project kick-off meeting was memorialized in an email to the Hualapai and PG&E representatives along with a copy to Ms. McDowell-Antone on August 16, 2010. As a result, Mr. Glenn Caruso did commit to discussing this matter with Ms. Nora McDowell-Antone during the scheduled archaeological/ biological survey kick-off meeting on August 25, 2010. Subsequently, Mr. Glenn Caruso did notified DTSC via email on August 25, 2010 that he had communicated with Ms. McDowell-Antone and committed to conduct a site walk of the MW-38 project area with Tribal monitor from FMIT on the following week.

Leo S. Leonhart, PhD, PG, CHG October 29, 2010 Page 4 of 5

We hope that this letter provided some clarification of issues raised and responded to some of your concerns indicated in your August 5, 2010 and October 18, 2010 letters. In closing, we hope the Tribe recognizes that tribal concerns are being considered and incorporated into this proposed work and as part of future interactions between the Tribe and agencies. If you have any further questions regarding this matter, please feel free to contact me at (714) 484-5423. We look forward to discussing potential alternatives for groundwater well decommissioning with you in the near future.

Sincerely,

Karen Bake

Karen Baker, CEG, CHG Supervising Engineering Geologist Office of Geology

kb:101002B

cc: Chairman Timothy Williams Fort Mojave Indian Tribe 500 Merriman Avenue Needles, CA 92363

> Ms. Nora McDowell-Antone Project Manager Fort Mojave Indian Tribe P.O. Box 5990 Mohave Valley, Arizona 86440

Ms. Linda D. Otero Director Aha Makav Cultrual Society Fort Mojave Indian Tribe P.O. Box 5990 Mohave Valley, Arizona 86440

Mr. Aaron Yue Project Manager Office of Geology Department of Toxic Substances Control 5796 Corporate Avenue Cypress, CA 90630 Leo S. Leonhart, PhD, PG, CHG October 29, 2010 Page 5 of 5

> Mr. Christopher Guerre Office of Geology Department of Toxic Substances Control 5796 Corporate Avenue Cypress, CA 90630

Ms. Yvonne J. Meeks Site Remediation Manager Pacific Gas and Electric Company 4325 South Hiquera San Luis Obispo, CA 93401

Ms. Pamela Innis DOI Topock Remedial Project Manager OEPC – Denver Region P.O. Box 25007 (D-108) Denver Federal Center, Bldg 56, Denver, CO 80225-0007





Linda S. Adams Secretary for Environmental Protection Maziar Movassaghi Acting Director 5796 Corporate Avenue Cypress, California 90630



Arnold Schwarzenegger Governor

Sent Via Email

November 1, 2010

Loretta Jackson-Kelly, Director Tribal Historic Preservation Officer Hualapai Department of Cultural Resources P.O. Box 310 Peach Springs, AZ 86434

COMMENTS ON TECHNICAL MEMORANDUM FOR REPAIRS OF MONITORING WELLS MW-38S, MW-38D AND OLD WELL RECONNAISSANCE, PACIFIC GAS AND ELECTRIC COMPANY (PG&E), TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA (EPA ID NO. CAT080011729)

Dear Ms. Jackson-Kelly,

The Department of Toxic Substances Control (DTSC) has received and reviewed your October 15, 2010 letter regarding PG&E's Technical Memorandum to repair two groundwater wells located in Bat Cave Wash in the general vicinity of the Topock Maze and to locate an old water well reported by PG&E to occur in Bat Cave Wash in the vicinity of the well MW-38 cluster. DTSC will forward your letter to PG&E as formal comments to the proposed work plan. However, since some of the comments provided are not specifically addressing the technical aspects of the work plan, DTSC would like to take this opportunity to provide our perspective as a response. We hope that the interaction and communication exchange would enhance understanding for this particular scope of work as well as similar work in the future. We are also thankful for the time that Mr. Win Wright provided as a representative of the Hualapai Tribe during a conference call held on August 11, 2010 to discuss the concerns raised within your August 2, 2010 letter which was also related to the MW-38 repair plan.

With respect to the old water well/unknown steel casing documented by PG&E, DTSC originally understood from BLM that the MW-38 well repair activities would not undergo full Section 106 consultation since the activities were for maintenance of existing wells; therefore, a previous version of the work plan had limited the old abandoned well investigation to non-intrusive geophysical surveys, with site disturbance work to identify the anomalies to be considered under a separate consultation package. However,

Ms. Loretta Jackson-Kelly November 1, 2010 Page 2 of 4

after DTSC learned on September 1, 2010, that BLM concluded consultation would be required, the agencies felt it appropriate to include the potential soil disturbance/ anomalies verification step for consultation. This portion of the scope of work was added specifically in a revised addendum so that tribes would have full access and understanding of the work at hand.

Although DTSC supports your position to narrow the search for the old well based on the results of geophysics, it must be noted that digging at or near geophysical anomalies is necessary to positively locate the old well/pipe and verify its condition. Without excavation, the well cannot be observed, borehole geophysics cannot be run, and a realistic decommissioning plan cannot be prepared should observations indicate that an old well does indeed exist. Finally, if an old well is located, a decommissioning plan that would be subject to additional tribal review and federal Section 106 consultation would be prepared.

DTSC would like to emphasize that Well MW-38S is an important well. This well yields some of the highest contaminant concentrations along Bat Cave Wash and defines the western boundary of the plume and, therefore, is needed to monitor the existing condition of the plume as well as to assess clean up during remedy implementation. Your letters identify the location of the MW-38 wells in an active wash as a concern since wells could be damaged in the future and require repair. The letters requested that the wells be relocated out of the wash and that the dynamics of the wash be studied. As PG&E is proposing to enhance protection of the well with an alternative well head design and as the type of damaged witnessed at well cluster MW-38 is an isolated occurrence that had never occurred at any other well at the Topock site (PG&E 2010, personal communication), DTSC believes PG&E's proposal is adequate and does not believe additional undertakings are required at this time.

At this point, to accommodate concerns regarding the extent of potential soil disturbance, DTSC will direct PG&E to hold a meeting with concerned tribes, agencies, and stakeholders to review the results of the geophysical surveys of the area and through discussion, identify the anomalies that will be further investigated by potholing or digging. This approach, which is similar to past well screen location telephone conference calls, will maintain communication and offers project efficiency.

Your letters also commented on the well decommissioning process that might be needed at well MW-38 if rehabilitation of the well is infeasible. DTSC notes that your letter of August 2, 2010 indicates a preference to use natural, site materials or to allow the well cavity to collapse instead of a conventional cement grout seal. As clarified during our August 11, 2010 phone call with Mr. Win Wright, allowing a borehole to simply collapse is not an alternative allowed by the California Well Standards for monitoring wells. The standards were developed to minimize the potential for an unsealed borehole to act as a conduit for potential contaminant migration or to act a physical hazard to humans or animals. The standards specify that neat cement, sand-

Ms. Loretta Jackson-Kelly November 1, 2010 Page 3 of 4

cement, or bentonite clay be used for sealing wells during the abandonment process (see Part III. Destruction of Monitoring Wells at

http://www.dpla.water.ca.gov/sd/groundwater/california well standards/well standards.html). The standards also require removal of well materials from near the surface and would not allow for cement plugs to be visible at the surface. DTSC and PG&E must abide by the law and follow the California Well Standards. However, it is understood that the well standards do allow for variances under certain conditions that would provide similar or better protection of the groundwater. As agreed on August 11, 2010 DTSC will convene a technical meeting among interested parties to further assess the potential for different decommissioning methods/strategies. While this forum would not address the current MW-38 work plan, it would evaluate potential decommissioning alternatives in the long term.

We hope that this letter provided some clarification of issues raised and responded to some of your concerns indicated in your August 2, 2010 and October 15, 2010 letters. In closing, we hope the Tribe recognizes that tribal concerns are being considered and incorporated into this proposed work and as part of future interactions between the Tribe and agencies. If you have any further questions regarding this matter, please feel free to contact me at (714) 484-5423. We look forward to discussing potential alternatives for groundwater well decommissioning with you in the near future.

Sincerely,

Karen Bake

Karen Baker, CEG, CHG Supervising Engineering Geologist, II Office of Geology

kb:101003A

cc: Chairman Wilfred Whatoname, Sr. Hualapai Indian Tribe P.O. Box 310 Peach Springs, AZ 86434

> Ms. Dawn Hubbs Hualapai Department of Cultural Resources P.O. Box 310 Peach Springs, AZ 86434

Ms. Loretta Jackson-Kelly November 1, 2010 Page 4 of 4

cc: Mr. Aaron Yue Project Manager Office of Geology Department of Toxic Substances Control 5796 Corporate Avenue Cypress, CA 90630

> Mr. Christopher Guerre Office of Geology Department of Toxic Substances Control 5796 Corporate Avenue Cypress, CA 90630

Ms. Yvonne J. Meeks Site Remediation Manager Pacific Gas and Electric Company 4325 South Hiquera San Luis Obispo, CA 93401

Ms. Pamela Innis DOI Topock Remedial Project Manager OEPC – Denver Region P.O. Box 25007 (D-108) Denver Federal Center, Bldg 56, Denver, CO 80225-0007