



**United States Department of the Interior
California Department of Toxic Substances Control**



ELECTRONIC SUBMISSION

October 19, 2015

Ms. Yvonne Meeks
Portfolio Manager – Site Remediation
Pacific Gas and Electric Company
4325 South Higuera Street
San Luis Obispo, CA 93401

Subject: Final Design Directives on Topock Groundwater Remediation Project

Dear Ms. Meeks,

Since the various groundwater treatment alternatives were proposed in the Corrective Measures Study/ Feasibility Study (CMS/FS) in 2009, the United States Department of the Interior (DOI) and the California Department of Toxic Substances Control (DTSC), collectively “the Agencies”, have been working with Pacific Gas and Electric Company (PG&E) and with input from stakeholders and Tribes to select and design a groundwater remedy for the hexavalent chromium contamination at the Topock Compressor Station site. The 2011 selection of PG&E’s In-situ Treatment with Freshwater Flushing technology as the final remedy occurred as a result of input from governing bodies and Tribal representatives, meetings with leaderships of interested Tribes and key stakeholders, as well as open communication with the general public through the preparation and certification of an Environmental Impact Report in accordance with the California Environmental Quality Act. DOI received additional input on the remedy during the public comment process, Section 106 consultation and government-to-government consultation activities on the DOI Proposed Plan.

Since January 2011, the Agencies, PG&E, key stakeholders and the Tribes, as part of the Consultative Workgroup (CWG), have worked diligently to advance the selected design through the preliminary (30%), intermediary (60%) and the pre-final (90%) design stages. To accommodate diverse CWG member concerns, the design was scrutinized by the CWG through a review and comment period before advancing to the next design stage. Up until the pre-final design, each CWG member comment on the design was carefully reviewed and responded to by the Agencies and PG&E, then deliberated openly with CWG members in striving for comment resolution. Additionally, DOI and the Bureau of Land Management (BLM) have engaged with the nine-federally-recognized Native American tribes with ancestral ties to the area. Protection

of historic properties and cultural resources, in particular those that are listed, or eligible for listing, in the National Register of Historic Places, requires that DOI, in consultation with State Historic Preservation Offices, the Advisory Council on Historic Preservation, the tribes, and other consulting parties, identify adverse effects associated with remedial action at the Site and seek ways to avoid, minimize, or mitigate such effects. The BLM, on behalf of itself, DOI, US Fish and Wildlife Service, and the US Bureau of Reclamation, is the lead federal agency for historic and cultural issues at the Site. Substantive mitigation measures adopted by the BLM as a result of consultation during remedy selection and design will be satisfied during implementation of the remedy at the Site.

The history and summary of the review process was documented in Handout 15A that was shared during the July 22, 2015 CWG meeting. That handout with slight updates is attached to this letter (Exhibit 1). The traditional review process that occurred at the end of the 30% and 60% design stages was lengthy and resource intensive for all parties as shown in the enclosed exhibit. For the Pre-final design, the review and response process was revised through the recommendations of the Clearinghouse Taskforce, a smaller coalition of CWG members (i.e., Tribes, Agencies, PG&E, and Metropolitan Water District) charged with evaluation and recommendations for process improvement of the project. The revised comment and response process protocol was followed for the 90% Basis of Design. This process successfully reduced the duration of the review and response timeframe; however, within the Response to Comment (RTC) matrix table (to be finalized separately), there are outstanding salient issues that the Agencies must provide direction so that the final design can be produced by PG&E for approval consideration. Below are directions by the Agencies on outstanding issues that are germane to the design that must be incorporated into the final submission. The Agencies; however, acknowledge that there are concerns raised by the Tribes in the enclosed response matrix that will require continued communication that may extend beyond the design documentations. The Agencies are committed to maintaining open dialogue with the Tribes.

Monitoring Wells in Arizona at locations MW-X and Y

PG&E's numeric groundwater flow models and fundamentals of groundwater hydraulics indicate that remedy operation will cause groundwater to flow beyond the California shoreline of the Colorado River. Moreover, because the floodplain area is part of the treatment zone, it is within an area subject to geochemical changes. Although existing and new monitoring wells on the floodplain will be used to continue tracking groundwater flow and chemistry of hexavalent chromium, Total Organic Compounds, and treatment byproducts, the Agencies must verify that there are no adverse impacts outside of the treatment zone by the use of downgradient sentry wells.

Ideally, multiple sentry wells installed down-gradient of the contaminant plume would work together to track chemistry and water levels to determine groundwater flow direction and potential chemical changes that could be related to the remedy. The area on the floodplain area along the California side includes multiple monitoring wells. These wells, however, are within the plume boundary or capture zone. Conventional wells cannot be placed within the Colorado River. Furthermore, the area beneath the river will be under the hydraulic influence of the treatment system based on PG&E's current groundwater model. Therefore, the first available land appropriate for monitoring well installation, outside of the treatment zone, and at the

anticipated edge of the capture zone is directly east of the Colorado River on the Arizona peninsula.

On the peninsula, one monitoring well cluster currently exists (MW-54) at the general depth horizon as the hexavalent chromium contamination detected below the California shoreline. That well was proposed and installed in 2007-2008 during the investigation phase to locate the eastern boundary of the hexavalent chromium plume and to ensure that contamination was not impacting groundwater in Arizona. Because the interim measure is designed to pull the chromium contaminated groundwater away from the Colorado River to the west towards California, only one well was needed to ascertain the location of the chromium plume. On the contrary, the selected groundwater remedy is designed to push potentially contaminated groundwater to the east towards Arizona through a linear treatment zone; therefore, a single well would not be sufficient to provide the necessary information to determine the long term protectiveness of the remedy. Three monitoring well locations spaced in a triangular formation would be necessary to determine the flow direction as the remedy is operated. Sampling of the wells from multiple depths would provide the necessary chemistry to detect potential migration of contaminated groundwater into Arizona. MW-X and MW-Y, in conjunction with the existing MW-54, would provide the minimum information needed by the Agencies to ensure the protectiveness and effectiveness of the remedy.

The Agencies, however, acknowledge that the area across the Colorado River is considered a cultural property known to the Fort Mojave Indian Tribe as *Amut ahar*. As such, the Native American Tribes that are part of the CWG unanimously oppose the installation of any wells in this general area. The Tribes have commissioned the Technical Review Committee (TRC), formed as part of the groundwater mitigation measures under the 2011 certified EIR that provides independent technical resources to the Tribes, to further consider this matter.

On July 21, 2015, the Agencies held a consultation meeting with Tribes and the TRC. At that meeting, the TRC provided the Agencies a “white paper” questioning the technical justification for the proposed location of MW-X and MW-Y. The white paper suggested that PG&E’s groundwater modeling has flaws ranging from unrealistic hydraulic properties, inconsistent boundary conditions, to poor presentation of its calibration. TRC’s analysis concluded and recommended that the Agencies conduct additional evaluation prior to siting MW-X and MW-Y. Stating that “the model should not be used to makes these determination before addressing the numerous deficiencies in the area beneath the River and along the river banks...” The TRC white paper provided various recommendations to further test and evaluation the hydraulic properties as well as the refinement of the groundwater model.

Subsequently, PG&E also evaluated the TRC white paper and provided a response on August 14, 2015, with Tribes providing a rebuttal to PG&E on September 18 and 21, 2015. Although the Agencies do not agree with all the arguments and related concerns presented in the TRC white paper and believe that the only resolution to some of the uncertainties is to install more wells in Arizona to verify certain model assumptions, the Agencies do have concerns with the current state of the model and believe attempts should be made to improved its predictive capabilities. Therefore, in the interest of progress and reduce resource spending on further professional debates, the Agencies are directing PG&E to undertake a series of model updates and analysis to be completed by February 2016, while DOI/BLM continue the consultation efforts with the

Tribes and Arizona State Historic Preservation Office on wells in Arizona. Similarly, DTSC will continue to evaluate the potential impacts associated with installation of wells on the peninsula in Arizona in the Subsequent EIR; however, the decision on the installation of wells in Arizona will predicate on the results of the updated modeling analysis as required below.

Major 90% Design Review Modeling Comments and Stipulated Revisions to the Model

Comments raised by the Agencies, Tribes and stakeholders related to improving the reliability of the model projections include the need for more transparency between the local and regional models, additional calibration of the groundwater flow model, a more detailed sensitivity analysis, refinement of hydraulic parameters, more realistic simulation of the groundwater and river interactions, inclusion of density dependence and having the model layers more clearly reflect site geology by revising the model layering to provide more accurate representation of the site hydrostratigraphic units (HSU). Most of these comments can be addressed by making nine revisions to the model as outlined below. With respect to incorporating density dependent flow, DTSC and DOI find that the “equivalent freshwater head” approach is acceptable for meeting the current objectives.

Comments

- Link between regional and local models makes it cumbersome to ensure consistent calibration results.
- Newer, more robust industry-standard codes should be utilized.
- Groundwater pumping effects are reaching model boundary.
- Review of 60% BOD Modflow model input, and 90% BOD PG&E response to comments (#429 and #430, or DOI-49 and DOI-50 and #425 – FMIT) suggests the Sub-Model boundaries are specified as No-Flow.

Required Revisions

1. The MicroFEM components of the model shall be converted to MODFLOW, and all future model updates and calibrations shall be conducted with the single MODFLOW model (Note: Consider using MODFLOW-2005 Riparian ETS, SFR2 packages).
2. The lateral extent of the model domain shall be reassessed to determine proper extents to account for regional and remediation pumping that may influence boundary fluxes

Comments

- Model layers do not follow HSU.
- Newer, more robust industry-standard codes should be utilized.

Required Revision

3. Model layers shall be restructured to eliminate very thin layers along the bedrock contact that can cause instability in the transport model and more accurately represent the HSU in areas where those units have been adequately defined.

Comments

- Model layers do not follow HSU.
- Newer, more robust industry-standard codes should be utilized.
- River cells appear missing in critical areas.

Required Revision

4. The model grid shall be refined to enhance resolution in areas of concern

Comments

- Flows in the vicinity of the River, beneath it and within Arizona are poorly conceptualized.
- Simulated mass balance and head contours appear unrealistic.
- Bedrock depths in the model in Arizona appear inconsistent with other reported depths.
- Subsurface hydrogeological model inputs on the Arizona side appear to be based on very limited data for aquifer hydraulic conductivity, storage parameter distributions, and HSU thicknesses.
- River cells appear missing in critical areas.
- Specification of river cells does not accurately reflect current or future bathymetry or surface water levels in the Topock Marsh.
- Riverbed bathymetry improperly specified.
- The river stage was set to a uniform value for all of Topock Marsh.
- Steady stages in the river and marsh do not allow adequate calibration of the model parameters and do not correctly simulate the actual water conditions within the system, or potential pathways.
- Riverbed conductance is uncertain.
- Results of the model calibration in the vicinity of the River and in Arizona are questionable.

Required Revision

5. Colorado River and Topock Marsh areas and associated parameters shall be refined.

Comments

- Evapotranspiration in the regional model may be too low.
- River-aquifer exchange should reflect natural conditions.
- Recharge input parameters should be more realistic.
- Distribution and magnitudes of hydraulic conductivity beneath river and in Arizona show considerable variations over many orders of magnitude in areas where no data exists – likely due to poorly constrained automatic parameter estimation.
- Specification of recharge cells appears inconsistent with literature on where and how focused recharge occurs in mountain front/stream-bed areas in semi-arid/arid environments.

Required Revision

6. Recharge, evapotranspiration, and hydraulic conductivity distribution and values shall be refined through recalibration.

Comments

- No attempts appear to have been made to update this to well response in the three Arizona monitoring wells.
- Calibration of the model is poorly presented, missing in Arizona, and questionable.
- An adequate demonstration of model calibration performance against years of carefully monitored groundwater flow and fate/transport data in the principle target remediation area in either California (i.e., IM-3 monitoring data) or Arizona has not been performed.
- Steady stages in the river and marsh do not allow adequate calibration of the model parameters and do not correctly simulate the actual water conditions within the system, or potential pathways.
- Data from wells MW-54, MW-55 and MW-56 were never used to calibrate the model.

Required Revision

7. Recent regional and local pumping data shall be incorporated into the model calibration and sensitivity process. (Note: a transient calibration to stream data for the wells in the vicinity of the river similar to the 2005 model calibration should be performed unless adequate justification is provided for why it is not needed).

Comments

- Evapotranspiration in the regional model may be too low.
- River-aquifer exchange should reflect natural conditions.
- A sensitivity evaluation of riverbed conductance does not appear to have been performed.
- Alternative conceptualization of the paleochannel should be considered.

Required Revision

8. The calibrated flow model shall be further assessed using a sensitivity analysis where hydraulic parameters and boundary conditions shall be varied within reasonable ranges to identify parameters that have the greatest influence on remedy design and operation. These parameters and boundary conditions include hydraulic conductivity, leakage/vertical hydraulic conductivity, evapotranspiration, recharge, and riverbed conductance.

Comments

- No results provided for model update after 60% Basis of Design report.
- Calibration targets (i.e., average annual heads, monthly heads at selected wells, or localized well shutdown responses) should be provided and shown to be relevant and adequate for the intended uses of the model (i.e., how well does the model reproduce observed remedy performance metrics like hydraulic gradients, flow directions and concentration values or trends).
- Detailed assumptions, calibration statistics and inputs (i.e., head residuals for all wells, different screened depths, etc.) need to be presented.

- The reports did not discuss subsequent calibration performance and statistics related to Arizona wells.

Required Revision

9. Updates to the model and the recalibration shall be documented and presented to the Agencies. Documentation shall also be made available to stakeholders and Tribes if requested.

Infrastructure Removal

Tribal representatives have consistently stated their preference to locate all remedy features above ground. This preference has been a long standing issue discussed with the Tribes since the initial and intermediate design (see 30% and 60% Basis of Design response to comments). The Agencies ultimately concurred with PG&E based on longevity of Operation and Maintenance needed for the remedy, health and safety of personnel and visitors, as well as biological access and crossing constraints to continue the design with subsurface infrastructures. However, based on Tribal input, the Agencies also directed PG&E in the April 4, 2014 direction letter to “remove all underground utilities and infrastructures to the extent practicable at the time of remedy decommissioning.” This is consistent with Section 5(A) of the Programmatic Agreement which states that “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.” Although the Tribes expressed concerns with the enforceability of the term “extent practicable,” the Fort Mojave Indian Tribe did acknowledge in the RTC matrix that for some situations it “...may not be practicable or may cause more disruption than leaving it in place” even though they believe that to be more of an exception.

The Agencies note that PG&E has included Attachment A to the RTC table to memorialize this directive. However, the Agencies are directing PG&E to also add a statement to Attachment A that PG&E will work with the landowners to incorporate their preference at the time of decommissioning for removal of infrastructures or leave in place, but with preference for removal.

Based on this direction, the Agencies and the Tribes have evaluated PG&E’s proposal to abandon four conduits and a water pipe in the slope by the MW-20 bench during the IM-3 decommissioning as described in the C/RAWP, Appendix F (also discussed in RTC #1151). The Agencies disagree with PG&E’s proposal and direct PG&E to remove these conduits and pipeline as part of the IM-3 decommissioning process and restore the area to preconstruction condition. PG&E shall stabilize the slope to ensure sufficient integrity after the pipe removal, if necessary.

Staging Areas

The Agencies recognize and acknowledge the importance of the Topock area to the Tribes as a significant cultural and historic area that is considered sacred to the Tribes. In recognizing that PG&E must designate and utilize some areas adjacent to the proposed remedy infrastructures, the

Agencies have engaged the Tribes regarding the necessary use of soil staging and support zones for the groundwater remedy since 2013. Through discussions, meetings and consultations over the years (see communication log Exhibit 2 to this letter), the Tribes have provided their perspective regarding preferences for use or avoidance of specific staging areas in comments on the remedy design documents and in letters to the Agencies. These Tribal preferences are distilled into a matrix (Exhibit 3) that was used for consultation and discussion with respect to the use of staging and support areas. Where possible, the Agencies have eliminated sites for use according to Tribal preferences.

In a letter dated August 15, 2013, DOI directed PG&E to abandon the Bureau of Reclamation quarry and the former evaporation pond area as options for staging and soil storage during the groundwater remedy implementation. Furthermore, in the April 4, 2014 letter, as direction to PG&E for the preparation of the pre-final 90% basis of design document, the Agencies further removed staging areas 15, 16 and 19 from consideration for staging, as well as eliminated the eastern half of the operating evaporation ponds (area 11) for staging and storage use. In that same letter, the agencies charged PG&E to consider the minimum number of staging areas necessary to support the project. Although Tribes maintain that several support areas remaining in the design document, including areas 6, 7, 12, 13, and 25 should be eliminated from use, PG&E has analyzed alternatives in lieu of their use in a technical memorandum as Appendix W in the C/RAWP report titled “Proposed Use of Certain Areas for Construction, Staging, and Soil Storage at PG&E Topock Compressor Station” and maintained their preference to use those locations based on space constraints of the existing road, increased public safety, reduced environmental impacts, reduced construction duration as a result of efficiency, and the need for temporary supporting facilities.

The Agencies acknowledge the Tribes continued emphasis on the unsuitability of these four areas for use as work/storage areas during construction and appreciates the Tribes response to the 90% RTC that “if such use is allowed to occur, every effort should be made to limit the actual area used, and to minimize impacts on these areas and their surroundings.” In respect to the Fort Mojave’s request, the Agencies are directing PG&E to follow the conditions below for use of each of the five areas.

Staging Area 6:

The area within and adjacent to Staging Area 6 will have a significant amount of construction (e.g., Pipeline A, MW-BB, MW-CC). This staging area will also be used as the primary work zone during construction of wells IRL-1, MW-P, and MW-AA and the associated vaults, piping, and instrumentation. Continued access to these wells will also be necessary throughout remedy implementation. The Agencies understands that this area will also be used for temporary placement of displaced soil not requiring processing that will be used as backfill in the same trench during pipeline construction in the area, and possibly as staging area during IM-3 decommissioning.

Due to the sensitivity of this area to the Tribes, PG&E is to use this area only as necessary during construction of the remedy, and decommissioning of the IM-3 Treatment Plant in the manner described in the C/RAWP Appendix W. However, PG&E shall not place portable toilets within this area. PG&E may also use this area to assess wells; however, this area will not be used for

long-term storage of soil or any other material. PG&E shall minimize the extent of area used at this area and demarcate the area allowable for use.

Staging Area 7:

This area is a key support zone for PG&E during construction. After remedy construction is complete, Area 7 will continue to be used for monitoring, operating, and maintaining the existing MW-41 well cluster. Although PG&E may use this area as a support zone, PG&E cannot locate restroom facilities in this area. PG&E may move the restrooms to the IM-3 Facility area and should preclude other support zone activities that are not critical to the construction as much as possible. This area will only be used for essential staging activities, not as long term storage.

Staging Area 12:

This area will be the primary work zone and staging area for laydown of construction equipment, materials, supplies, and tools, as well as temporary placement of displaced soils during the construction of remediation well FW-1 and associated vaults/piping/conduits. Area 12 will continue to be used for monitoring, operating, and maintaining the new well FW-1, existing monitoring wells located in this area, their associated vaults/piping/conduits, and the continued operation of the IM-3 injection wells until they are decommissioned. PG&E shall also demarcate the area allowable for use and provide specific instructions to workers on the limit of area to be accessed.

Staging Area 13:

This area will serve as a critical vehicle turnaround area for construction traffic and allow for efficient construction. As stated by Mr. Curt Russell of PG&E during the August 2015 response to 90% design comment meeting, a vehicle turn around area is needed if the road is temporarily blocked due to construction. Although a suggestion was provided by the Cocopah Indian Tribes to have trucks pull into the area and then back out instead of a continuous loop, this may not be feasible and is potentially unsafe for larger construction vehicles. Area 13 will also be used as a staging area for laydown of construction equipment, materials, supplies, and tools, as well as temporary placement of displaced soils during remedy construction. After remedy construction is complete, Staging Area 13 will continue to be used for monitoring and O&M of the existing CW-01 well cluster.

Staging Area 25:

This area will be used for temporary staging and dispensing of construction water. It is anticipated that limited staging of construction materials/equipment and temporary parking of construction related vehicles will also occur. Although the Tribes expressed concerns that the use of this area will directly impact a historic site, the location of this area that will be used is adjacent to a non-significant segment of Route 66. PG&E shall avoid any impacts to the Route 66 sign. PG&E shall demarcate all working areas and may use protective barriers to safeguard the Route 66 sign during construction as proposed in Appendix W of the C/RAWP document.

PG&E shall continue to evaluate the use of the staging areas during construction and an effort should be made to limit the actual area used, and to minimize impacts on these areas and their surroundings.

Access by Foot Traffic Only

As part of the comments on the 90% pre-final design, the Tribes requested that PG&E develop and implement a plan to access remedy features and monitoring wells by foot traffic only. It was cited that this procedure would limit impacts by vehicular traffic over the life of the remedy. The Agencies agree that PG&E should limit unnecessary vehicular traffic through the area as much as possible. However, the Agencies are concerned that access by foot traffic only for maintenance and monitoring activities is inefficient and unsafe due to necessity of carrying equipment. This practice can also be seriously dangerous to workers during warm weather days. Foot traffic only also reduces the ability for expeditious egress in the event of emergencies. Due to these concerns the Agencies are not requiring PG&E to implement access by foot traffic only; however, the Agencies agree that work should be conducted in a manner that would minimize impacts from vehicular traffic. Moreover, all vehicles must remain on predetermined routes. PG&E and its contractors for this project shall not travel through areas or on paths that have not been defined in the design documents (including the pre-final Basis of Design Report, the C/RAWP, and O&M Manual). The Agencies recommend PG&E pre-plan all activities to be done to avoid duplicative and unnecessary travel (e.g. needing to drive back and forth due to missing equipment, travel together to minimize number of vehicles used).

Backfill of Pilot Boreholes

In section 3 of the C/RAWP document, PG&E proposed that pilot boreholes used to collect data that may not have a well constructed in that location until a later date be allowed to naturally collapse or be filled with clean granular material. After discussion with PG&E consultants, it is understood that this practice is only being proposed along the IRZ line where select, large diameter, IRZ wells will be installed after a smaller diameter pilot boring has first been completed.

DTSC is not allowing this practice to be used at any monitoring well installations. DTSC believes the need for the proposed practice can be overcome by carefully planning and scheduling of drill rigs or with quick turnaround times for any critical laboratory data. PG&E must first notify the Agencies and obtain prior approval if this backfill method is desired by PG&E at any specific location (e.g., due to unforeseen events such as drill rig failure). This way, the Agencies will be more informed regarding site specific details and understand the entire scope of the proposal at the time it is proposed to be implemented.

Protection of Wildlife from Open Trenches and Open Boreholes

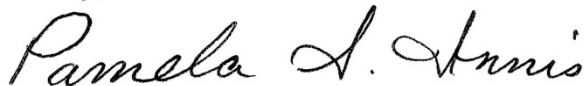
In the C/RAWP, PG&E must document specific measures to be implemented during construction to protect wildlife from open trenches and open boreholes. PG&E may select to limit the size of trenches that could be left open as well as to cover trenches and boreholes to prevent injury/entrapment to fauna from falling in. Possible consideration could be use of metal plate for covers and/or installation of a mesh-fabric fence that is partially buried along the trench.

Another consideration might be to ensure the provision of exit points at all open trenches such as planks or dirt fill at intervals along the trench. Also, open pipe left in the area should be inspected for wildlife prior to resuming work. The Agencies are recommending that a biologist or a qualified designee survey all trenches in the morning before construction resume to avoid injuries or harm to wildlife.

Summary

The agencies believe that PG&E has satisfactorily prepared a detailed pre-final (90%) design for review and comment. The directives stated in this letter in combination with the RTCs matrix should provide sufficient direction for PG&E to proceed with the preparation of the Final Design for Agencies approval. PG&E should incorporate the relevant discussions from the RTCs into the final document where appropriate. The Agencies request that PG&E submit the Final Design within 30 days of receipt of this directive letter. If PG&E needs any additional clarifications on any issues raised within this letter or believe that additional direction on the RTCs is necessary, please feel free to contact us.

Sincerely,



Pamela S. Innis
DOI Topock Remedial Project Manager



Aaron Yue
Project Manager
Department of Toxic Substances Control

Exhibits (3)

cc: PG&E Topock Consultative Workgroup Members – Via e-mail

PG&E Topock Geo/Hydro Technical Workgroup Members – Via e-mail

Tribal Representatives in PG&E Contact List – Via e-mail

EXHIBIT 1

PG&E Topock

Groundwater Remedy Design Review
Summary of Tribal/Stakeholder Outreach

Remedy Design Outreach

30% Design

- Overview of 30% Design Meetings – Consultative Work Group (CWG) 10/19/2011, 1/18/2012; TWG 1/19/2012
- 30% Design comment period 11/21/2011 to 1/27/12
 - 323 comments received from Fort Mojave Indian Tribe (FMIT), Haulapai, Technical Review Committee (TRC), Metropolitan Water District (MWD), DOI and DTSC
 - Site visit to Hinkley – 12/13/11 , TWG on infrastructures - 12/14/11, TWG design walkthrough – 1/19/12; Tribal site walk 1/9/12
- Comment resolution: 2/10 – 5/17/12
 - 2 Technical Work Group (TWGs) Meetings: 4/19/12 and 5/16/12
- Meetings on changes from 30% to 60% Design
 - CWG meeting – 1/16/13
 - TWG meetings – 1/17/13, 3/20/13

Remedy Design Outreach

Alternative Freshwater Source Plan

- Review/Comment Period for Initial Plan: 11/21/12 – 12/17/12
- 57 comments received on initial plan
- DOI met with Tribes to discuss comments: 1/9/13
- PG&E submits revised Freshwater Source Implementation Plan (FWIP) 1/28/13, sustainability metrics to Clearinghouse Task Force (CTF) and agencies on 3/29/13, with expanded evaluation on 4/12/13
- Agencies consultation with Tribes: 3/13/13; Agencies site visit with Tribes: 3/14/13
- March/April 2013 Agencies remove 2 of 3 proposed sites from consideration due to cultural and biological concerns
- PG&E submits RTCs: 5/2/13
- 159 comments received from MWD, FMIT and Hualapai, TRC, Arizona Department of Environmental Quality (ADEQ), DTSC, and DOI
- Comment resolution meetings: 5/14/13 and 5/21/13
- Agencies site visit with Tribes on 6/5/13
- PG&E submits Final FWIP/RTCs: 8/2/13
- FMIT submits comments on FWIP/RTCs: 8/26/13
- RTCs complete: 9/4/13

Remedy Design Outreach

60% Design

- 60% Design Review/Comment Period 4/8/2013 to 8/8/2013
- 60% Design Walk Thru Meetings – CWG 4/17/13; TWG 4/18/13, 5/22/13, 6/19/13, 7/18/2013
- Tribal Consultation with DOI/BLM 5/8/13, 5/23/2013, 7/9/2013, 1/14/2014
- 868 comments from Chemehuevi, Cocopah, Colorado River Indian Tribes (CRIT), FMIT, TRC, Colorado River Board (CRB), MWD, DOI and DTSC
- Comment resolution from 9/3 – 12/19/13
 - 6 Comment Resolution Meetings: 9/17&18/13; 10/16&17/13; 11/5/13; 11/19&20/13; 12/12/13; 12/17&18/13
- Review Complete RTC table: 1/2/14 – 2/11/14
- Agencies Directives to PG&E on Outstanding Issues on Basis of Design 12/23/14

Remedy Design Outreach

- TWG meetings on remaining issues: 1/23/14 and 2/11/14
- Hualapai and Cocopah comments on staging area and pipeline alignments 3/10/14 and 3/13/14
- FMIT and Cocopah comments on groundwater model: 4/7/14 and 4/9/14
- PG&E submitted final 60% Response to Comments (RTC) on 4/18/14
- Pre- 90% Design meetings and Site Walks:
 - TWG's on well locations 5/21/14, 6/18/14, 6/19/14

Remedy Design Outreach

90% design RTC protocol

- Clearinghouse Task Force (CTF-Agencies, Tribes, Stakeholder representatives) Develops 90% Design Response to Comments (RTC) Process Protocol – Feb. 2014 to June 2014
- Present 90% Design RTC Process Protocol to CWG – July 16, 2014
- Revision of Protocol based on CWG input – August 2014
- Minor clarification of Protocol by Agencies - January 2015

Remedy Design Outreach

90% Design

- Meetings on changes from 60% to 90% Design – TWG meetings 4/17/14 (site visit), 5/21/14, 6/18-19/14 (site visit), 7/17/14
- Advanced SOPs and Cultural Impact Mitigation Program (CIMP) for review: 5/1/14, 5/2/14, 5/19/14, 6/27/14
- 90% Design review/comment period 9/9/14 to 3/9/15
 - 90% Design walk-through at TWG: 9/17/14, 10/29/14, 12/10/14, 2/19/15, 3/18/15
 - PG&E submits supplemental 90% Design on 2/2/15
 - DOI/BLM/Tribal Consultation 2/3/15
 - 1211 comments received from Chemehuevi, Cocopah, FMIT, Hualapai, TRC, ADEQ, MWD, DOI and DTSC.
 - Comment clarification meeting 4/22/15
 - 3 TWGs for comment resolution: 7/22&23/15; 8/18&19/15; 8/26&27/15. Specifically discussed MW-X and Y at 7/22&23/15; 8/18/15; 8/26/15 meetings
 - DTSC/DOI consultation with Tribes on MW-X and Y on 7/21/15

Remedy Design Outreach

- Comment resolution for 90% design completed 9/21/15. (based on Step 5A RTC process)
- Following comment resolution meetings Stakeholders and Tribes provided written response to RTC table, if needed, for agencies administrative record (Step 7 of RTC process)
- Agencies provided Response to Comments (RTC) and direction on Final Groundwater Remedy Basis of Design to PG&E on October 19, 2015

Exhibit 2Correspondence/Meeting Log
Groundwater Remedy Soil Storage, Staging and Support Zones Locations

Correspondence/Meeting	Date
DOI/BLM/ Tribal Consultation Meeting	May 23, 2013
Fort Mojave Comments on 60% Design regarding Staging Area 6, Comment #160	Received 8/8/2013
Technical Work Group (TWG) Meeting	September -18, 2013
PG&E transmittal of updated Soil Storage Locations/Construction Staging Area Locations Matrices and Updated Figure 7.6-1 for Tribes' input and feedback	September 27, 2013
TWG Meeting	October 17, 2013
TWG Meeting	November 20, 2013
DOI/BLM/Tribes CHPMP/Consultation Meeting	January 14, 2104
TWG Meeting	January 23,2014
Soils Staging / Construction Areas Tribal Comment Table	February 24,2014
PG&E's responses to Tribes' questions on the four construction staging areas.	March 11, 2014
DOI, BLM, Tribal CHPMP/Consultation Meeting and Site Visit	March 14, 2014
PG&E's Responses to Tribes' Questions about Staging Areas #14, #15, #17, and #19	March 28, 2014
TWG Meeting (Site 7)	September 17, 2014
TWG and site walk of Staging Areas and Well Locations	October 29 & 30, 2014
Fort Mojave Indian Tribe Comment Letter regarding Verification of Staging Areas and Arsenic Monitoring Well Locations w/ updated Staging Area Matrix	December 1, 2014
Hualapai Indian Tribe Comment Letter regarding Verification of Staging Areas and Arsenic Monitoring Well Locations w/ updated Staging Area Matrix	December 1, 2014
Cocopah Indian Tribe Comment Letter regarding Verification of Staging Areas and Arsenic Monitoring Well Locations w/ updated Staging Area Matrix	December 2, 2014
Cocopah request for GIS data	December 2, 2014
TWG Meeting	December 10, 2014
DOI/BLM/ Tribal Consultation Meeting	February 3, 2015
DOI/DTSC Directives on Outstanding Issues on the Basis of Design Report/ Pre-Final Design (90% Design) Supplemental Package for PG&E Topock Compressor Station Remediation Site (with Attachments 1-3 – Final Copy of Soil Staging Matrix (Cocopah ,FMIT, Hualapai)	December 23, 2104
DOI/BLM/Tribal 90% Design Consultation Meeting	February 3, 2015
Fort Mojave Comments on 90% Design regarding Staging Areas, Comment Letter, Individual Comment #s 4, 10, 20,	March 20, 2015
Hualapai Comments on 90% Design regarding Staging Areas, Comment Letter	March 20, 2015
Cocopah Comments on 90% Design regarding Staging Areas, Comment Letter	March 20, 2015
DOI/BLM/ Cocopah Tribal Council Meeting	June 29, 2015
TWG Meeting	July 23, 2015
TWG Meeting	August 18&19, 2015

Exhibit 3

Item	Area ID/Name	USE (STORAGE OR STAGING)	ACREAGE	LOCATIONS & NOTES	Tribes' Final Position / Conditions with specific conditions to each area *Unacceptable with specific conditions to each area	*Acceptable STATUS AT 90% BOD
Soils Storage	1-5	Soils Storage	11.1	All in Park Moabi Area	Acceptable (1/14/14) - areas 2,3, and 4 are within the ACEC - request that management plan be updated as part of the remedy, want to see property management plan considering these are both within and without and ACEC and APE area - How will rehabilitation be handled in the final design for this specific area? As we have not received any information we will reserve any comments until information is received- CEQA document will need to be amended - inconsistencies in map (4.2.3 and 4.5-1 in the C/RAWP) - areas have never been culturally and archaeologically surveyed	3, 4, 5 on C/RAWP Fig. 4.2-3
	6	Soils Storage	0.67	Across from IM-3 WTP	Unacceptable for soils storage (1/14/14) - No Storing, Construction or Staging , only access to MW AA and MW P	Listed on C/RAWP Fig. 4.2-3
	7	Soils Storage	0.28	East of # 6	Unacceptable: NO SOILS STAGING OR CONSTRUCTION IN THIS AREA limited access only to MW-41 as mapped by tribes.	Listed on C/RAWP Fig. 4.2-3
	8	Soils Storage	0.17	Southeast of #7	Acceptable as soils storage (6/4/14) - Existing waddies must be left in place to contain activities. Areas outside of TCVA .	Listed on C/RAWP Fig. 4.2-3
	13	Soils Storage	0.15		Unacceptable for soils storage area (1/14/14)-Tribes proposed allowable access only to CW-01 as provided map	Listed on C/RAWP Fig. 4.2-3
Construction/ Staging	9	Construction/ Staging	1		Acceptable as construction/staging (1/14/14) Need exact acreage for this area. Not to exceed beyond the road to water tanks.	Listed on C/RAWP Fig. 4.2-3
	10	Construction/ Staging	0.51		Acceptable as construction/staging (1/14/14)	Listed on C/RAWP Fig. 4.2-3
	11	Construction/ Staging	5.69		Unacceptable as construction/staging area on the east side (1/14/14) - Acceptable only on the west side inside fenced area. Roadway to the Ponds is becoming fragile - tortoise habitat in the area obvious now (they are there now more often) Need monitoring for tortoise - more traffic will degrade area - road restoration plan prior to construction - monitoring plan for biological sensitivity once a month - plan needed for road rehab for the duration of the final remedy plan	Listed on C/RAWP Fig. 4.2-3
	12	Construction/ Staging	1.53		Unacceptable for construction/staging (1/14/14) - Only allowable access to existing wells as mapped by Tribes - Site Boundary and cultural clearance should be extended to area mapped by Tribes - Tribes proposed new location for FW 1 - See Map attached	Listed on C/RAWP Fig. 4.2-3
	14	Construction/ Staging	0.28	This is CA-SBR-11862H. BLM is the agency responsible for any determinations of eligibility, contrary to PG&E (2013) report (p.22-25). Maze features are visible slightly southwest of the boundary of CA-SBR-11862H (see p. 25 map).	Eastern side acceptable for construction/staging (6/4/14) Acceptable as long as K rails are in place along SW edge to protect concrete pad - When this area is specifically demarcated with the Tribal Monitors, the temporary use area should NOT extend any farther westward than approximately 20' east of the existing historic concrete pad, to protect the historic site and the existing vegetation.	Listed on C/RAWP Fig. 4.2-3
	15	Construction/ Staging	1.11	On the map, this site is across the ONTH along the River, and at the end of Bat Cave Wash, there is cressote present. Wildlife get water at the outlet. There is a rock-lined walkway and a small beach during low River stages.	Unacceptable for construction/staging (3/14/14) - This area was been eliminated from the project by DOI on March 14 at the CHPMP meeting in Lake Havasu. Re-stated the direction provided to PGE in the April 2014 DOI/DTSC letter, eliminating 15 16 and 19 from further consideration. It is no longer in 90% design	Listed on C/RAWP Fig. 4.2-3
	16	Construction/ Staging	0.06		Unacceptable for construction/staging - too close to loci B Unacceptable for construction/staging (3/14/14) - This area was been eliminated from the project by DOI on March 14 at the CHPMP meeting in Lake Havasu. Re-stated the direction provided to PGE in the April 2014 DOI/DTSC letter, eliminating 15 16 and 19 from further consideration. It is no longer in 90% design	
	17	Construction/ Staging	0.1		Acceptable for construction/staging with J-rails (3-14-14)	Listed on C/RAWP Fig. 4.2-3
	18	Construction/ Staging	1.28		Acceptable for construction/staging (1-14-14) on MW 20 Bench - part of IM 2 - Determined under IM2 by the agencies without tribal consultation.	
	19	Construction/ Staging	0.15	Located across from the southern tip of CA-SBR-219 Maze Locus B. Downslope to the west, there is a better, large and level location with a well (MW-25). Proposed IRL-7 is nearby, as well as N(?)	Unacceptable for construction/staging (3/14/14) - This area was been eliminated from the project by DOI on March 14 at the CHPMP meeting in Lake Havasu. Re-stated the direction provided to PGE in the April 2014 DOI/DTSC letter, eliminating 15 16 and 19 from further consideration. It is no longer in 90% design	Listed on C/RAWP Fig. 4.2-3
	20	Construction/ Staging	0.1		Unacceptable for construction/staging (3/14/14) - PG&E does not want to use this area - Can see Maze from this location. Direction provided to PGE in the April 2014 DOI/DTSC letter, eliminating this area from further consideration. Tribes concur with this decision.	Listed on C/RAWP Fig. 4.2-3
	21	Construction/ Staging	11.57	Compressor station area.	Acceptable for construction/staging (1/14/14)	Listed on C/RAWP Fig. 4.2-3
	22	Construction/ Staging	0.58		Acceptable for construction/staging (1/14/14)	Listed on C/RAWP Fig. 4.2-3

Legend

Soil Storage

Construction Staging

Wells

Other

	23	Construction/ Staging	0.4		Acceptable for construction/staging (1/14/14)	Listed on C/RAWP Fig. 4.2-3
	24	Construction/ Staging	0.55		Acceptable for construction/staging (1/14/14)	Listed on C/RAWP Fig. 4.2-3
	25	Construction/ Staging	0.25		Unacceptable for construction/staging (1/14/14) - Direct impact to historic site	Listed on C/RAWP Fig. 4.2-3
	26	Construction/ Staging	0.74		Acceptable for construction/staging provided that tribes be provided authorization that Agencies have permission from property owners to use this land. (1/14/14)	Listed on C/RAWP Fig. 4.2-3
	27	Construction/ Staging	0.61		Acceptable for construction/staging provided that tribes be provided authorization that Agencies have permission from property owners to use this land. (1/14/14)	Listed on C/RAWP Fig. 4.2-3
	28	Construction/ Staging	1.2		Acceptable for construction/staging provided that tribes be provided authorization that Agencies have permission from property owners to use this land. (1/14/14)	Listed on C/RAWP Fig. 4.2-3
	29	Construction/ Staging	0.63		Acceptable for construction/staging provided that tribes be provided authorization that Agencies have permission from property owners to use this land. (1/14/14)	Listed on C/RAWP Fig. 4.2-3
Wells						
	CW-01				Move road to well CW-01 on west side of cleared area (10' road) - only used as access route to well - road must go straight to well and back out.	
	MW AA	Monitoring Well		150' Arsenic Well for IRL 1	Tribes proposed new location for IRL 1. Shifted south. See map provided *see comments for soil storage area 6	SECTION 3 DESIGN BASIS AND ASSUMPTIONS TABLE 3.6-1 Preliminary Construction of Proposed Groundwater Monitoring Wells
	MW BB and MW CC	Monitoring Well		located within Rt 66 - well will be in the road - some cut and fill necessary for drill rig - PGE meeting with SW Gas about locations - PGE should notify Tribes of SW Gas decision	Waiting on SW Gas decision - need to be informed of decision regardless of the decision - Tribes prefer both to be in the road - No alts.	SECTION 3 DESIGN BASIS AND ASSUMPTIONS TABLE 3.6-1 Preliminary Construction of Proposed Groundwater Monitoring Wells
	MW BB alt. and MW CC alt.	Monitoring Well			Both locations are unacceptable. The MW-CC-alt location would require cut and fill of a slope to allow rig stabilization for MW installation. Special care would be needed and require a cultural clearance as possible artifacts, may have washed down slope into the wash adjacent to the road.	
	MW DD and MW DD alt.	Monitoring Well			Both of these locations are acceptable, however they are in close proximity to sensitive cultural areas and require a cultural clearance and Tribal Monitors during delineation of the work area for the installation of either of these proposed well locations. Any access to work area should be constrained to the existing access route.	MW DD - SECTION 3 DESIGN BASIS AND ASSUMPTIONS TABLE 3.6-1 Preliminary Construction of Proposed Groundwater Monitoring Wells
	MW EE and MW EE alt.	Monitoring Well		Nov. 7th: Tribal visit IRL3. GPS taken for access route in and out. CA-SBR 11938 reviewed and surveyed north edge of wash to polygon site area. Expanded boundaries to include wash. Will request and require BLM to amend DPR site record.	Tribes would prefer NO well installed on the IRL-3 225' circle; as this area is extremely sensitive. MW-EE is an unacceptable, culturally sensitive area. MW-EE-alt - may be acceptable as provisional location for the outer ring arsenic well, but would only be installed if groundwater data indicates the provisional well must be installed per SWQCB. This location should be shown in the 90 % supplement with TWO PROVISIONS: 1) following system startup and operation, data under operational condition can be collected, and used to evaluate the actual flow lines for an operating IRL-3. Based on operational data, the provisional location for the outer As well can be re-evaluated to see if there is a better provisional location for this well. This re-evaluation of the provisional location should be done with consultation with the Tribes. 2) If groundwater data from inner-ring arsenic monitoring wells indicates the provisional well must be installed per SWQCB, THEN protective engineering measures such as protective textile, mats, etc. will be used to protect the natural desert surface during installation, and along the access route. MWEE wash is unacceptable and tribes propose an alternative MWEE location. (reference maps to be provided by tribes) - MW DD alt place mats where work will take place - Tribes prepared an alternative MWEE well location - MW DD wash not preferred by Tribes - Area will be severely impacted and require Fish and Game have to consent.	MW EE- SECTION 3 DESIGN BASIS AND ASSUMPTIONS TABLE 3.6-1 Preliminary Construction of Proposed Groundwater Monitoring Wells

	MW DD wash and MW EE wash	Monitoring Well			Both MWEE Wash and MW DD Wash are unacceptable and should be eliminated from consideration - Tribes prepared an alternative MWEE well location (reference maps to be provided by tribes)	
	MW V			Southern end of BCW across from TCS	Proposed location of the well is in a culturally and environmentally sensitive area. If MW-V is required, tribal preference is to locate the well in the middle of the lowered berm. Proposed activity in the area would require biological monitoring.	TABLE ES-2B Estimated Borehole Count Associated with Well Construction: Count Details
	MW X and Y			senry wells across the river, on peninsula along Topock Marsh to monitor WQ and hydraulics	Not acceptable. These areas were considered in 2007 for MWs, and the FMIT raised objections to any wells in this area based on Identified areas of cultural significance. This was discussed in AZ SHPO to ADEQ letter. Copy of the letter was provided by Dr. Leonhart for FMIT and forwarded on to DTSC.	TABLE ES-2B Estimated Borehole Count Associated with Well Construction: Count Details
	MW Z			also staging area 14 North side of mouth of BCW, area of former road house	Well location MW-Z is acceptable providing that they stay within the foot print laid out in staging area 14. K-ralls should be put in place along west edge to protect the concrete pad and should NOT extend any farther westward than approximately 20' of the historic concrete pad.	TABLE ES-2B Estimated Borehole Count Associated with Well Construction: Count Details
	MW S9 cluster TW 05 MW 19 IRL 1			Across from IM 3 plant	All OK - in wash area below LocI B - could be moved into the road	
	MW P			Across from IM 3 plant	Tribes proposed new well location - moved south into road	TABLE ES-2B Estimated Borehole Count Associated with Well Construction: Count Details
	MW P			Across from IM 3 plant	Tribes proposed new well location - moved east to keep in alignment with IRL 1 and MW AA - only allow limited access into this area - unac *see comments for soil storage area 6	TABLE ES-2B Estimated Borehole Count Associated with Well Construction: Count Details
Other	MW-41	TBD	TBD		Acceptable (6/4/14) only for access to existing MW 41 monitoring wells - Tribes GPSed acceptable new access route. Map with new access route points proposed by the tribes is attached. Eastern side unacceptable; western side acceptable (3/14/14) (reference maps to be provided by tribes)	
				All areas would need to have a defined cultural clearance through consultation with the Tribes.	There will be areas within this matrix that will require additional consultation under the EIR / CEQA and Impacts must be addressed and additional mitigation will be explored	