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June 10, 2022

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**Subject: May 2022 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup, PG&E Topock Compressor Station, Needles, California**  
(Document ID: TPK\_Monthly\_Progress\_Rpt\_May\_2022\_20220610)

Dear Ms. Innis and Mr. Yue:

In compliance with the *1996 Corrective Action Consent Agreement (CACA)* (Attachment 6, Part E, Section 9a and Attachment 7) and the *2013 Remedial Design/Remedial Action Consent Decree (CD)* (Paragraph 32 and Appendix C, Section 5), and pursuant to the *Construction/Remedial Action Work Plan (C/RAWP)* (Section 2.6.3.1), this monthly report describes activities taken at Pacific Gas and Electric Company's (PG&E's) Topock Compressor Station in May 2022, as well as activities planned for the next six weeks (June 5 to July 16, 2022), and presents available results from sampling and testing performed in the reporting period.

This report also discusses material deviations from the approved design documents and/or the C/RAWP, if any, that PG&E has proposed to DTSC and DOI, or that have been approved by DTSC and DOI. This report highlights key personnel changes, if any, and summarizes activities performed and activities planned in support of DOI's 2012 Community Involvement Plan and DTSC's 2019 Community Outreach Plan, as well as contacts with the local community, representatives of the press, and/or public interest groups, if any. This report also includes data from samples collected as part of the sitewide groundwater monitoring program within 60 days of sample collection, as required by the Condition of Approval # xi in DTSC's approval letter dated August 24, 2018.

Please note that since activities conducted to comply with the project's Applicable or Relevant and Appropriate Requirement (ARARs) and the Subsequent Environmental Impact Report (SEIR) mitigation measures are currently reported in separate compliance reports, this information is not repeated in the monthly reports. Monthly progress reports will be submitted to DTSC and DOI by the 10<sup>th</sup> day of the following month during construction and start-up of the groundwater remedy at the Topock Compressor Station which officially began on October 2, 2018. This is the 44<sup>th</sup> monthly progress report. Please contact me at (760) 791-5884 if you have any questions or comments regarding this submittal.

Sincerely,

A handwritten signature in black ink that reads 'C Russell'.

Curt Russell  
Topock Project Manager

# Topock Project Executive Abstract

<p>Document Title: <i>May 2022 Monthly Progress Report for the Groundwater Remedy Construction and Startup, PG&amp;E Topock Compressor Station, Needles, California</i></p> <p>Submitting Agency: DOI, DTSC</p> <p>Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Date of Document: 06/10/2022</p> <p>Who Created this Document?: (i.e. PG&amp;E, DTSC, DOI, Other) PG&amp;E</p>
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<p>What does this information pertain to?</p> <p><input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)</p> <p><input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)</p> <p><input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS)</p> <p><input checked="" type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action (RA)</p> <p><input type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)</p> <p><input type="checkbox"/> Interim Measures</p> <p><input type="checkbox"/> Other / Explain:</p>	<p>Is this a Regulatory Requirement?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>If no, why is the document needed?</p>
<p>What is the consequence of NOT doing this item? What is the consequence of DOING this item?</p> <p>The consequence for not doing this item is PG&amp;E will be out of compliance with the 1996 Corrective Action Consent Agreement (CACA) and the 2013 Remedial Design/Remedial Action Consent Decree (CD), as well as the Construction/Remedial Action Work Plan (C/RAWP).</p>	<p>Other Justification/s:</p> <p><input type="checkbox"/> Permit <input type="checkbox"/> Other / Explain:</p>
<p>Brief Summary of attached document:</p> <p>This monthly report describes activities taken in May 2022 as well as activities planned for the next six weeks (June 5 to July 16, 2022) and presents available results from sampling and testing in the reporting period. In addition, this report discusses material deviations from the approved design documents and/or the <i>Construction/ Remedial Action Work Plan (C/RAWP)</i>, if any, that PG&amp;E has proposed to the California Department of Toxic Substances Control (DTSC) and the U.S. Department of the Interior (DOI) or that have been approved by DTSC and DOI. This report also highlights key personnel changes, if any, and summarizes activities performed and activities planned at the Topock Compressor Station in support of DOI's 2012 Community Involvement Plan and DTSC's 2019 Community Outreach Plan, as well as contacts with local community, representatives of the press, and/or public interest groups, if any.</p> <p>Written by: Pacific Gas and Electric Company</p>	
<p>Recommendations:</p> <p>Provide input to PG&amp;E.</p>	
<p>How is this information related to the Final Remedy or Regulatory Requirements:</p> <p>This submittal is required in compliance with the CACA, CD, and pursuant to the C/RAWP.</p>	
<p>Other requirements of this information?</p> <p>None.</p>	



**May 2022**  
**Monthly Progress Report for the**  
**Final Groundwater Remedy Construction and Startup**

**PG&E Topock Compressor Station**  
**Needles, California**

**Document ID: TPK\_Monthly\_Progress\_Rpt\_May\_20220610**

**June 2022**

*Prepared for*  
U.S. Department of the Interior and California Department of Toxic Substances Control

*On Behalf of*  
Pacific Gas and Electric Company



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## Acronyms and Abbreviations

Acronym	Definition
µg/m <sup>3</sup>	microgram(s) per cubic meter
AOC	Area of Concern
ARAR	applicable or relevant and appropriate requirement
BLM	U.S. Bureau of Land Management
BMP	best management practice
CACA	Corrective Action Consent Agreement
C/RAWP	Construction/Remedial Action Work Plan
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CH2M	CH2M HILL, Inc.
CHQ	Construction Headquarters
COC	Constituents of Concern
CRWQCB	California Regional Water Quality Control Board, Colorado River Basin Region
DOI	United States Department of the Interior
DTSC	California Department of Toxic Substances Control
ERTC	Environmental Release to Construct
FCR	field contact representative
IM-3	Interim Measure No. 3
IRZ	in-situ reactive zone
LOC	level of concern
NTH	National Trails Highway
PG&E	Pacific Gas and Electric Company
RCRA	Resource Conservation and Recovery Act
RPWC	Remedy-Produced Water Conditioning
SEIR	Subsequent Environmental Impact Report
SMP	Soil Management Plan
SPY	Soil Processing Yard
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCS	Topock Compressor Station
TRC	Technical Review Committee
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WEAT	Worker Environmental Awareness Training
WVR	Work Variance Request

## 1. Introduction

Pacific Gas and Electric Company (PG&E) is implementing the final groundwater remedy to address chromium in groundwater near the PG&E Topock Compressor Station (TCS), located in eastern San Bernardino County 15 miles southeast of the city of Needles, California. The U.S. Department of the Interior (DOI) is the lead federal agency overseeing remedial actions at the TCS. PG&E and the United States executed a Remedial Design/Remedial Action Consent Decree (CD), on behalf of the DOI, under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 2012, which was approved by the U.S. District Court for the Central District of California in November 2013 (DOI, 2013). Paragraph 32 and Appendix C (Section 5) of the CD requires PG&E to submit to DOI monthly electronic progress reports during construction of the remedial action, and to submit progress reports on a quarterly basis after the selected remedy has been implemented and demonstrated to be operating as intended.

The California Department of Toxic Substances Control (DTSC) is the lead state agency overseeing corrective actions at the TCS. Remedial activities are being performed in conformance with the requirements of the Resource Conservation and Recovery Act (RCRA) Corrective Action pursuant to a Corrective Action Consent Agreement (CACA) entered into by PG&E and the DTSC in February 1996 (DTSC, 1996). Attachment 6, Part E, Section 9a and Attachment 7 of the CACA require PG&E to provide certain information in monthly progress reports during construction of the corrective action.

In compliance with the CACA and CD requirements, PG&E proposed a template for the monthly progress reports in Exhibit 2.6-2 of the Construction/Remedial Action Work Plan (C/RAWP) (CH2M HILL, Inc. [CH2M], 2015b). The C/RAWP was approved by DOI on April 3, 2018 (DOI, 2018) and DTSC on April 24, 2018 (DTSC, 2018a).

This is the 44<sup>th</sup> of the monthly progress reports that will be submitted to DOI and DTSC for the duration of the remedy construction and startup. This monthly progress report documents activities during May 2022, and follows the content and format described in Exhibit 2.6-2 of the approved C/RAWP. The report is organized as follows:

- Sections 2.1 through 2.7 describe completed construction activities; data collected, generated or received; nature and volume of waste generated; waste handling/disposal; issues encountered; actions taken to rectify problems/issues; personnel changes; and Work Variance Requests (WVRs; i.e., material deviations from the design documents, the C/RAWP, or other approved work plans), if any, as well as agencies' actions on those requests, and potential schedule impacts.
- Sections 2.8 through 2.9 summarize key project personnel changes, if any, contacts with representatives of the press, local community, or public interest groups during the reporting period, other activities provided to assist DTSC and/or DOI in support of the Community Outreach Plan (DTSC, 2019) and/or Community Involvement Plan (DOI, 2012), respectively, and anticipated near-term (approximately next six weeks) activities in support of the Community Outreach and Community Involvement Plans.
- Section 2.10 provides information relating to the construction schedule progress, sequencing of activities, information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule, and a description of efforts made to mitigate those delays or anticipated delays, if any.
- Section 2.11 presents validated data from samples collected as part of the sitewide groundwater monitoring program within 60 days of sample collection, as required by the Condition of Approval # xi in DTSC's approval letter dated August 24, 2018 (DTSC, 2018a).
- Section 3 lists the references cited in this report.

Please note that since activities conducted to comply with the project's Applicable or Relevant and Appropriate Requirement (ARARs) and the Subsequent Environmental Impact Report (SEIR) (DTSC, 2018b) mitigation measures are currently reported in separate compliance reports, the same information is not repeated in the monthly reports.

## 2. Monthly Update

### 2.1 Work Completed

Phase 1 remedy construction, which began on October 2, 2018, includes the National Trail Highway (NTH) In-situ Reactive Zone (IRZ) with 22 remediation wells (for injection and/or extraction) and a robust network of 75 monitoring wells (for measuring water levels and quality), as well as a network of over 74,000 linear feet of water conveyance piping and 41,000 feet of electrical conduits that connect the remediation wells to the power supply system, the carbon amendment building, and the Remedy-Produced Water Conditioning (RPWC) system.

Phase 1 systems and components have been integrated and tested to make sure they function properly. On December 22, 2021, PG&E initiated injection of ethanol into the groundwater at select NTH IRZ wells using temporary power (i.e., portable generator). On March 24, 2022, the permanent power system (from TCS) was fully operational. As of May 31, 2022, the RPWC system inside TCS is anticipated to be in full operation in June 2022.

Concurrently, after receipt of DTSC's and DOI's approvals, PG&E turned off the IM-3 extraction wells (TW-2D and TW-3D) on December 21, 2021 and started to prepare IM-3 for layup. The preparation for lay-up was completed on March 21, 2022. PG&E notified the agencies that IM-3 is in lay-up mode on March 22, 2022. When the IM-3 system is in a lay-up condition, the system will be left in a safe, secure, and preserved state and will not operate again until agency approval is received for decommissioning and removal of the system.

Starting in February 2022, PG&E initiated the planning for Phase 2 remedy construction. An online Phase 2 Construction Project Initiation Meeting was conducted on February 23, 2022 with representatives from PG&E, PG&E contractors, agencies, and other stakeholders. A second version of the Phase 2 Construction Project Initiation Meeting was scheduled for March 2, 2022 as a face-to-face onsite meeting. Phase 2 includes additional wells (located in Bat Cave Wash/East Ravine/TCS, on the Transwestern Bench, and along historic route 66), and pipelines connecting some of the additional wells as well as a pipeline connecting the previously installed Riverbank (RB) wells.

Additional highlights of key activities related to the continued construction of the groundwater remedy completed during the reporting period include the following (in chronological order):

- On July 13, 2018, PG&E sent via email the first weekly six-week look-ahead schedule for the remedy construction field work. The weekly emails provide highlights of field activities in the previous week, field activities scheduled for the next week, and planned activities for the next six weeks. Recipients of the weekly emails are DOI, DTSC, the U.S. Fish and Wildlife Service (USFWS), the California Regional Water Quality Control Board, Colorado River Basin Region (CRWQCB), the Metropolitan Water District of Southern California, Tribes, and the Technical Review Committee (TRC). PG&E continues to send these weekly emails to date. As of May 31, 2022, a total of 201 six-week look-ahead schedule emails have been sent. Of those, five six-week look-ahead schedule emails were sent in May 2022 (on May 1, 8, 15, 22, and 29).
- On August 10, 2018, PG&E issued the first Environmental Release to Construct (ERTC) to contractors. As of May 31, 2022, a total of 91 ERTCs were issued for mobilization, construction, site restoration, and revegetation/mitigation planting activities. The ERTCs are listed in Tables 2-1a and 2-1b. No new ERTCs or amendments to existing ERTCs were issued in May 2022.
- Starting on October 4, 2018, PG&E has published a daily construction activities list and discussed the list at the morning tailboards with Tribes and agency representatives. This daily list is intended to

inform and facilitate observation by Tribes and agency representatives on site on that day. PG&E continues to publish these daily lists and discuss the list at the daily morning tailboards to date. In May 2022, a total of 25 daily construction activities lists were published and discussed at the morning tailboards.

- In May 2022, PG&E performed the following construction activities (note that Figures 2-1 and 2-2 show the locations of key areas and wells, and Table 2-2 presents the changes in well nomenclature):
  - **Attachment A** includes select photos of activities during this reporting period.
  - **Attachment B** presents all water analytical results from Phase 2A well drilling. Groundwater sampling to establish baseline concentrations at those wells is ongoing and their results are reported **Attachment G** of this report.
  - May 1 to 7 activities:
    - Continued construction of pipelines within the TCS.
    - Continued IRZ circulation and ethanol injection O&M activities.
    - Continued stormwater improvement project for Pipeline B area.
    - Continued irrigation system improvements.
    - Installed wellhead completion at ER-1.
    - Continued reaming 10" at ER-2 to 145'.
    - Conducted well development at MW-70BR.
    - Removed well pumps at TW-01 and PGE-07BR.
    - Completed well pad construction at TWB-3A site.
    - Commenced drilling pilot borehole at TWB-3A site to 87'.
    - Commenced repair of stairs from MW-20 Bench to floodplain.
  - May 8 to 14 activities:
    - Continued construction of pipelines within the TCS.
    - Continued IRZ circulation and ethanol injection O&M activities
    - Continued stormwater improvement project for Pipeline B area.
    - Continued irrigation system improvements.
    - Conducted well development at MW-70BR.
    - Completed well construction at ER-2.
    - Completed drilling pilot borehole at TWB-3A site to 87'. Backfilled and demobilized.
    - Continued repair of stairs from MW-20 Bench to floodplain.
    - Commenced removing TW-01 test pipeline.
  - May 15 to 21 activities:
    - Continued construction of pipelines within the TCS.
    - Continued IRZ circulation and ethanol injection O&M activities
    - Conducted well development at ER-1.
    - Conducted site prep activities at TCS-2 site.
    - Continued repair of floodplain stairs.
    - Conducted erosion repair work alongside the access road to Bat Cave Wash.

- Commenced removal of TW-01 pipeline.
- May 22 to 28 activities:
  - Continued construction of pipelines within the TCS.
  - Continued IRZ circulation and ethanol injection O&M activities
  - Continued well development at ER-1.
  - Conducted site prep activities at TCS-1 and TCS-2 site.
  - Continued removal of TW-01 pipeline.
  - Commenced fence improvements at PGE-9N and PGE-9S.
  - Conducted surveying at various locations.
  - Backfilled soil at location of diesel release near the northern jack-and-bore.
- Remedy Baseline/Opportunistic Soil Sampling in May 2022:
  - Pursuant to the Baseline Soil Sampling and Analysis Plan (Appendix A of the Soil Management Plan [SMP] [which is Appendix L of the C/RAWP]), the following baseline soil samples were collected:
    - On May 3, 2022, one opportunistic sample (TCS-OPP-AOC4) was collected of stained soil (orange) encountered during excavation into the bone yard, for installation of remedy pipeline south of TCS.
    - A total of two baseline soil samples was collected along Pipeline I1 (formerly I3) inside TCS at 1 foot bgs on May 4, 2022 and at the bottom of the trench on May 11, 2022.
    - A total of two baseline soil samples was collected along Pipeline M2 inside TCS at 1 foot bgs on May 6, 2022 and at the bottom of the trench on May 19, 2022.
    - On May 11, 2022, samples of red clay tile encountered during trenching for Pipeline M6 (formerly M4) and samples of old concrete blocks from TW Bench were collected and tested for asbestos for disposal purposes.
    - On May 18, 2022, one opportunistic sample of white powder (TCS-OPP-CLAYPIPE1) was collected inside a clay pipe encountered during trenching of Pipeline I1 (formerly I3), near the hazardous materials/waste shed, inside TCS.
    - On May 20, 2022, an opportunistic sample (SWMU5E-OPP-WHT) was collected of stained material (white) encountered during trenching of Pipeline I2, just outside the TCS fence.
    - On May 24, 2022, an old concrete catch basin was encountered during trenching for installation of Pipeline I1 (formerly I3). Two samples of the concrete was collected and tested for asbestos for disposal purposes.
  - **Attachment C** includes a figure showing all soil and opportunistic sampling locations (since the start of remedy construction) and an excel spreadsheet with validated analytical results available to date.
- Fugitive Dust Monitoring/Perimeter Air Sampling in May 2022 (below are highlights, details are in Attachment D):
  - In May 2022, 61 real time dust observation/monitoring events were conducted at the perimeter of the work areas (outside of the exclusion zone). No exceedance of the action level for fugitive dust monitoring ( $100 \mu\text{g}/\text{m}^3$ ) was observed in May 2022.
  - Ten air sampling events occurred in May 2022. Of which, one event was conducted at the SPY on May 5, 2022, one air sampling event was conducted in the East Ravine during the re-establishment of the access route after the March storm event, and seven air sampling

events during trenching for installation of Pipelines M2, M6 (formerly M4), and I1 (formerly I3) inside TCS.

- For brevity, starting with the March 2022 Monthly Progress Report, Tables D-1a and D-1b of **Attachment D** present all analytical results from air sampling events conducted during Phase 2 remedy construction available at this time. Analytical results from air sampling events conducted during Phase 1 remedy construction are available in the February 2022 Monthly Progress Report.
- Noise Monitoring in May 2022 (below are highlights, details are in **Attachment E**):

In May 2022, the following monitoring events were conducted:

- Nine events at a location west of the mobile home park at Moabi Regional Park. Construction activities closest to this monitoring location include activities at the SPY and CHQ, as well as construction traffic on NTH. The sound level typically varied between 39 and 49 dBA, with an average and median of 43 dBA.
- Fourteen events at a location in the Upland just off the IM-3 access road, and near the top of the hill closest to the NTH and MW-20 Bench. Construction activities closest to this monitoring location include activities at the MW-20 Bench and traffic on the IM-3 access road. The sound level varied between 44 and 54 dBA, with an average and median of 51 dBA.
- Twelve events at the old restaurant location west of NTH. Construction activities closest to this monitoring location include construction traffic on NTH and along the northern entrance to the floodplain. The sound level varied between 39 and 56 dBA, with an average and median of 47-48 dBA.
- Fourteen one events at a location on a bluff below TCS, just south of I-40 and east of the Topock Maze. Construction activities closest to this monitoring location are associated with drilling of FW-02 well in Bat Cave Wash, drilling of TCS-1 and TCS-2 wells in TCS, and remedy pipeline installation in TCS. The sound level typically varied between 52 and 56 dBA, with an average and median of 52-54 dBA.

## 2.2 Freshwater Usage, Waste Generation, and Management

As of May 31, 2022, the volumes of freshwater used for remedy construction and waste streams generated from remedy construction (starting on October 2, 2018), IRZ start-up and initial operation (starting on December 22, 2021), and revegetation/mitigation planting (starting with site preparation on December 20, 2021) are as follows:

### 2.2.1 Freshwater and Wastewater

- As of May 31, 2022, an approximate total of 9,482,312 gallons (29.1 acre-feet) of freshwater have been used, of which approximately 26 percent was for pilot boring/well installation/well testing and general construction, 5.8 percent was for hydrostatic testing of pipeline and piping/mechanical components inside well vaults, 58 percent was for fugitive dust suppression, and 10.2 percent for revegetation. Of this amount, approximately 231,830 gallons was used in May 2022 (44,880 gallons was for revegetation, 178,500 gallons was for fugitive dust control, and 8,450 gallons was for well drilling and general construction).
- As of May 31, 2022, an approximate total of 112,325 gallons of hydrostatic testing water has been discharged to land (used for dust control). All water discharged to land was in compliance with the substantive requirements of State Water Resources Control Board (SWRCB) Water Quality Order 2003-0003-DWQ.

No hydrostatic testing activity occurred in May 2022, therefore, there was no discharge to land from hydrostatic testing.

- As of May 2022, approximately 154,893 gallons of injectivity testing water has been discharged to land. No injection testing was conducted in May 2022.



- IM-3 treated an approximate total of 22,241,409 gallons of remedy wastewater (generated from drilling operations, well testing, aquifer testing) up to December 28, 2021. The treatment at IM-3 was terminated on December 28, 2021. IM-3 has been in lay-up mode since March 21, 2022.
- As of May 31, 2022, an approximate total of 1,387,952 gallons of wastewater generated from drilling operations were discharged to Compressor Station evaporation pond #4. Between November 2020 and the week of July 19, 2021, no remedy wastewater was transported to Pond #4 as PG&E prepared for and removed sludge from the pond. After sludge was removed from the pond, during the week of July 26, 2021, PG&E disposed of approximately 14,000 gallons of wastewater generated from PGE-9 wells (part of SEIR Hydro-6 wells) to Pond #4. No remedy wastewater has been discharged to TCS ponds since August 2021.

To date, Phase 2A well drilling generated about 15,375 gallons of wastewater. This wastewater is stored in storage tanks located at the Transwestern Bench and drill sites. The wastewater is sampled and managed accordingly.

- As of May 31, 2022, an approximate 100,717 gallons of remedy-produced water (e.g., IRZ backwash water, well sampling purge water, and water pumped from vaults/secondary containment) was generated. Of which, an approximate 20,268 gallons of remedy-produced water (19,569 gallons backwash water and 699 gallons well sampling purge water) was generated in May 2022.

Backwash water was stored in the frac tanks at the MW-20 Bench. While commissioning of the Remedy-produced Water Conditioning system at the TCS is being finalized, the IRZ backwash water is filtered at the MW-20 Bench, through the same filter as in the final design. The filtered water is stored in the conditioned water frac tank at the MW-20 Bench and per the remedy O&M contractor, the filter water is sampled in accordance with the approved sampling plan in the O&M Plan.

To date, about 85,962 gallons (or 85.35%) of the remedy-produced water (after filtration) was reinjected into the aquifer. Analytical data for remedy-produced water is included in Attachment G (see page 7 of 25).

### **2.2.2 Displaced Materials/Soils/Clay**

- As of May 31, 2022, approximately 14,167 cubic yards of displaced materials/excess soils were generated from remedy construction activities. Of those, 1,033 cubic yards of excess soil were generated from trenching for remedy pipeline installation at TCS and 15 cubic yards of spoils were generated from drilling activities in May 2022. Excess soil from trenching was hauled to the SPY. Drilling spoils will be brought back to the SPY when the bins are near full and will be sampled and analyzed in accordance with the Soil Management Plan.
- Clean materials are often processed to remove rocks/boulders and plastics prior to reuse. For Phase 1 construction, approximately 82% was fine materials and 18% was rocks/boulders.
- During the sorting of soil piles at the SPY (starting in October 2021), approximately 3 cubic yards of clay from Soil Pile #139 were identified, recovered, and stockpiled in the vicinity of the existing clay pile. In addition, approximately 1 cubic yard of clay from Soil Pile #140 was also recovered and stockpiled. Soil sorting and processing at the SPY was temporarily paused when the vegetation and debris cleanup started for the revegetation project. The recovered clay was sampled after the completion of sorting of Soil Pile #139 in accordance with the Soil Management Plan.
- It is noted that during the soil processing/screening activities at the SPY, concrete debris was removed and separated from the processed soil. Encased, non-friable transite pipes are present inside several concrete chunks. Therefore, the concrete debris was properly profiled and was disposed of in accordance with the profile approved by PG&E and US Ecology in Beatty, Nevada. See Section 2.2.3 for details.

### **2.2.3 General Construction Waste, Sanitary Waste, and Recyclables**

- As of May 31, 2022, approximately 2,065 cubic yards or 1,859 tons of general construction waste (assume density of 1800 pounds (0.9 tons) per cubic yard for dump debris, wetted for dust suppression), 329 tons of construction debris (including concrete, empty pipes, etc.), 68 cubic yards

of asphalt, 2,062 tons of green waste, and 276 cubic yards of recyclables were generated from remedy construction activities. Of which, 14 tons of construction debris (empty pipes), 30 cubic yards of asphalt, 20 cubic yards of concrete (38 tons), and 1 cubic yard of clay pipe were generated in May 2022.

- Two 55 gallons drums of asphalt slurry from saw cutting were generated in April 2022. No asphalt slurry was generated in May 2022.
- In May 2022, 1 cubic yard of coke breeze was generated from trenching for pipeline installation inside TCS.
- In March 2022, approximately 125.17 tons of broken concrete with encased non-friable pipe and milled asphalt were hauled offsite to US Ecology in Beatty, Nevada.
- In April 2021, approximately 40 cubic yards of asphalt was sent offsite for recycling at Kern Asphalt facility in Bakersfield, California. In September 2021, an approximate 27 cubic yards of old asphalt was removed from paving work along NTH. In addition, an approximate 1 cubic yard of old asphalt was removed from recent stormwater BMPs work at the TWB. These old asphalts were sent offsite for recycling on November 2, 2021.
- A total of nine tires were recovered during construction along Pipeline B/J and disposed of at Mohave Valley landfill in Fort Mohave, Arizona for disposal. No additional tires were encountered since February 2020.
- Sanitary waste from construction trailers/portable toilets is hauled offsite as needed.
- Starting in September 2019, recycling at the site was ceased due to the high costs of local recycling.

## **2.3 Worker Training and Education**

- Starting in March 2022, Covid-19 training is combined with the mandatory Site Health and Safety Training. As of May 31, 2022, a total of 343 health and safety training sessions were held and 940 employees and contractors received the training. Of those, in May 2022, eighteen sessions were conducted and 38 employees/contractors/visitors were trained. After the training, the attendees signed the training roster.
- PG&E continues to provide the mandatory Worker Environmental Awareness Training (WEAT) to its employees and contractors that will be involved in the remedy construction project. The self-administered WEAT (which was formally rolled out on March 1, 2022) is a self-study course and is available 24/7 and can be taken anywhere at any time. After the training, the WEAT attendees took a quiz and signed the WEAT Completion Form. As of May 31, 2022, 1,050 employees and contractors received the training. Of those, in May 2022, 22 employees/ contractors were trained or retrained. Educational brochures are made available to attendees of the training; they are designed to reinforce the key topics and highlight the take-aways discussed during the training.
- PG&E's onsite biologist also trained Field Contact Representatives (FCRs), who will be responsible for compliance with biological avoidance and mitigation measures. As of May 31, 2022, a total of 21 FCR training sessions were conducted. No FCR session was conducted in May 2022.
- Training records are kept electronically and at the temporary construction trailer at the SPY. The records are available upon request.

## **2.4 Status of Work Variance Requests (WVRs)**

There was no proposed WVRs in May 2022. For reference, Table 2-3 includes information regarding activities related to approved and proposed WVRs (i.e., material deviations from the design documents, the C/RAWP, or other approved work plans), and agencies' actions on those requests.



## 2.5 Use of Future Activity Allowance

There was no proposed use of Future Activity Allowance (FAA) in May 2022. To date, the only use of FAA was associated with the TW-01 Aquifer Test, which is documented below.

In May 2021, DTSC prepared and adopted an addendum to the Groundwater Subsequent Environmental Impact Report (SEIR) for the TW-01 aquifer test activities. As part of the approval of the TW-01 aquifer test work plan, DTSC has also determined that the proposed additional water conveyance pipeline and power pole are considered future activities allowance (FAA) considered in the SEIR. DTSC and DOI approved the TW-01 aquifer test work plan on April 8, 2021. DTSC directed PG&E to track and record the additional infrastructures associated with TW-01 aquifer test as required by the SEIR mitigation measure CUL-1a-14. To date, the following additional infrastructures were associated with implementation of the TW-01 aquifer test:

- An approximate 2,090 linear feet (lf) of aboveground and 56 lf of belowground conveyance pipeline were installed. In addition, a trench (50 ft long x 3 ft deep x 3 ft wide) was excavated for piping installation under the access road on the MW-24 bench. A trench (6 ft long x 4.5 ft deep x 4 ft wide) was excavated to connect with the IM-3 spare pipe on the MW-20 bench. One temporary electrical pole was installed by Needles Electrical to provide electrical power needed for the TW-01 aquifer test.

## 2.6 Issues Encountered and Actions Taken to Rectify Issues/Problems

- Based on drilling results, PG&E determined that alluvial aquifer was not present at the FW-02 alternate location. A web meeting was convened on May 6, 2022 to brief agencies and stakeholders of the recent findings and to discuss the path forward. A Technical Work Group (TWG) meeting was held on May 18, 2022 to review findings from drilling at the FW-2 location to date and to identify potential drilling locations for consideration. A field meeting is planned for June 23, 2022 to view the potential locations.
- Development of well ER-2 commenced on June 1. Sediment was observed at the bottom of the well during development. PG&E plans to inspect the well and evaluate the issue. Results from the evaluation will be included in the next monthly report.
- On April 26, 2022, a frac tank holding roughly 4,000 gallons of drilling wastewater leaked onto the tank containment. Some of the water inside the containment leaked onto the ground through a pin hole in the tank containment. The leak from the tank occurred where the outer stairs of the tank are welded to the steel tank. At this weld, a pin hole leak resulted in a slow weep leak. Approximately 3 gallons of wastewater was released to the ground on PG&E's property. A notification was made to DTSC, DOI, and BLM on April 27, 2022. In addition, a sample of the wastewater was collected from the frac tank and analyzed for Title 22 metals and hexavalent chromium. Due to the elevated levels of metals detected in the wastewater, PG&E excavated the impacted soil/gravel and collected two samples (one sample of the excavated soil and confirmation soil sample at the bottom of the excavation). Results for the confirmation soil sample are below soil management screening levels. Results of the excavated soil are pending.
- On May 4, 2022, a hydraulic line came loose or broke during drilling at the ER-2 location (on the HNWR property) and due to high winds at the time, droplets of hydraulic fluid sprayed on nearby field crew, equipment, creosote plants, wooden rails, temporary water line, and the ground. A notification was made to DTSC, DOI, BLM, and the Refuge on the same day, with a suggestion that if possible, representative(s) from the Refuge come onsite to discuss the best course of action. On May 6, 2022, the Refuge Manager inspected the area affected by the release and suggested that PG&E clean/spray the impacted surface of the bluff (located next to the drill rig at the time of the release), the creosote plants on that bluff, the affected temporary construction water pipe, and the gravel road with a biodegradable detergent. The Refuge Manager stated that care should be taken to not overspray during cleaning, because that can cause further erosion of the hillside. In addition, per the Refuge

Manager, removal of the impacted soil/rock on the bluff and cleaning/spraying below the bluff are not necessary (to minimize disturbance).

After the drill rig at ER-2 demobilized, PG&E cleaned and sprayed the affected bluff, creosote plants, and the ground with a biodegradable detergent, and wiped down the affected portion of the temporary construction water pipeline.

- On May 11, 2022, a dump truck hauling soil for the revegetation project made a U-turn near the pipeline C9 North area and bumped into the 12-kV electrical vault. The truck diesel tank leaked and spilled approximately 15 gallons of diesel fuel on the ground and into the electrical vault. A notification was made to DTSC, DOI, BLM, and the Refuge on the same day. About 8 cubic yards of impacted soil was excavated on May 11-12, 2022 and contained in thirty-nine 55-gallon drums. The drums were picked up for off-site disposal by the milk run contractor on June 2, 2022. A confirmation soil sample was collected close to the southeast corner of the 12-kV electrical vault where most of the impacted soil was removed and sent to Asset Laboratory for Total Petroleum Hydrocarbon (TPH) analysis. TPH results received on May 19, 2022 are below soil management screening levels. Based on lab results, the excavated area was backfilled with soil from the SPY.

Once the impacted soil was removed, the inside of the electrical vault was inspected. A diesel sheen was observed on top of water inside the vault. For safety reason, the removal of this water/diesel mixture inside the electrical vault was delayed until the remedy electrical system was deenergized and the engineer was onsite on May 17, 2022. Approximately 200 gallons of water/diesel was removed from the electrical vault and contained in four 55-gallon drums. The drums were picked up for off-site disposal by the milk run contractor on June 2, 2022.

**Corrective action to prevent a re-occurrence:** Traffic delineators and red rope were placed across the road to prevent traffic from trying to turn around at the end of the road. The project team's daily tailboard meetings will continue to include reminders and discussion on designated work areas and egress and regress areas and a description of delineation (wattles, tape, cones, ropes, etc.) for areas not to enter.

- On March 29, 2022, a large storm event occurred at the site and caused damages to the erosion control measures (under construction at the time of the storm event) along Pipeline B access road as well as flooded some well vaults along NTH. Below is a description of key storm water repairs conducted in April:
  - **Pipeline B Access Road Erosion Control Measures:** Secured the aboveground stormwater conveyance piping at key locations with slurry, removed and backfilled the gabion locations, rebuilt the damaged check dams, and added a pre-cast trench drain. As of May 31, 2022, it is anticipated that the contractor will remobilize in July or August 2022 to complete the repair after receipt of long lead-time materials.
  - **Well Vaults:** After water was evacuated from the flooded vaults, several components inside the vaults were found to be damaged by storm water and need to be repaired/replaced. In the short-term, to minimize downtime for the NTH IRZ operations, PG&E replaced the damaged components with undamaged components from well vaults that are not currently in service.

In addition, on May 19 and June 2, 2022, PG&E presented a near term proposal to DTSC and DOI to knock-out sumps in all 12-kV electrical vaults. The reason for this is to allow any water that may get into the vaults (e.g., stormwater run-on, groundwater intrusion as recently observed in the 12-kV electrical vault near C9 north) to percolate and allow for operation and maintenance activities to be conducted inside the vaults without de-energizing the entire system. Per the electrical engineers, electrical conductors sitting in standing water can cause the insulation to break down over time, albeit many years, but for medium voltage any breakdown can be catastrophic. There is no liquid conveyance piping in the electrical vaults. A standard operating procedure (SOP) containing housekeeping procedures will be implemented for all future work inside these electrical vaults after the sumps are knocked out.

Concurrently, PG&E continues to evaluate long-term solutions to prevent future stormwater intrusion into vaults and will consult with the agencies when a solution is formulated as part of the corrective action.

## **2.7 Key Personnel Changes**

There was no change in key PG&E personnel in May 2022.

## **2.8 Communication with the Public**

There was no communication with the public in May 2022.

## **2.9 Planned Activities for Next Six Weeks**

The planned activities for next six weeks (June 5 to July 16, 2022) include the following:

- Commenced weed abatement at the revegetation areas.
- Continue O&M of the irrigation system at the revegetation areas.
- Continue drilling at wells TCS-1 and TCS-2. Start well installation.
- Continue development at well ER-2.
- Conduct step test at ER-6 in the East Ravine.
- Continue installation of Phase 2 pipelines inside TCS.
- Commence installation of Phase 2 pipelines outside TCS.
- Conduct opportunistic soil sampling associated with the repaving project inside TCS.
- Conduct baseline soil sampling in accordance with the approved Groundwater Remedy Baseline Soil Sampling and Analysis Plan.
- Continue to conduct noise and dust monitoring and inspection of SWPPP BMPs, as needed.
- Continue to manage displaced soil per the approved SMP.

Attachment G contains the six-week look-ahead schedule available at this time. Any adjustments to the schedule will occur as needed via the weekly emails (sent at the end of each week) and/or the daily list of construction activities (published daily and discussed with agency and Tribal representatives on site on that day).

## **2.10 Construction Schedule Review**

Tables 2-4a and 2-4b present a summary of the percent completeness for key Phase 1 and Phase 2 construction and site restoration activities, respectively, as of May 31, 2022. In addition, the latest project schedule including remedy construction can be downloaded from the [project website](#).

## **2.11 Available Sitewide Groundwater Monitoring Data (DTSC Condition of Approval xi)**

Pursuant to Condition of Approval # xi in DTSC's approval letter dated August 24, 2018 (DTSC, 2018a), PG&E is required to report data from samples collected as part of the sitewide groundwater monitoring program within 60 days of sample collection. In compliance with this requirement, PG&E submitted validated data to DTSC via monthly emails. For ease of recordkeeping and to minimize the number of ad-hoc compliance reports/emails, PG&E has included validated data in each monthly progress report starting with the November 2018 monthly report. The validated data are included in Attachment G of this report.

## **2.12 IM-3 Shutdown and Preparation for Layup**

On December 20, 2021, pursuant to the 2012 Settlement Agreement between the California Department of Toxic Substances Control (DTSC) and the Fort Mojave Indian Tribe (FMIT), Article 5b of Exhibit A, Additional Settlement Terms – Criteria for Decommissioning of IM-3, PG&E notified the FMIT that the IM-3 system is ready to be turned off since Phase 1 groundwater remedy equipment and facilities are in place, and ready to begin start-up.

Subsequent to the notification to the FMIT, pursuant to Section 7.3.3 (Implementation of Transition Plan) of the approved *Basis of Design Report for the Final Groundwater Remedy*, on December 20, 2021, PG&E requested DTSC's and DOI's approvals for turning off the IM system (also called IM No. 3) as Phase 1 groundwater remedy equipment and systems are in place and ready to begin start-up. PG&E received written approvals from DTSC and DOI on December 20 and 21, respectively.

After receipt of the agencies' approvals, PG&E turned off the IM No. 3 extraction wells (TW-2D and TW-3D) at 2:20 pm pacific standard time on December 21 and started to prepare IM-3 for layup. The treatment at IM3 was terminated on December 28, 2021.

The preparation for lay-up of IM-3 was completed on March 21, 2022 and IM-3 was put on lay-up mode starting March 22, 2022. A report that summarizes activities to prepare IM-3 for lay-up was submitted to DTSC and DOI on June 1, 2022.

## **2.13 Summary of Releases Occurred During Remedy Construction**

At the request of DTSC, a summary of releases (or spills) that occurred outside of containment and onto ground is provided in Table 2-5. The summary provides information about each release include date, location of release, type of material released, amount of material released (if known), and associated cleanup activities.

## **3. References**

California Department of Toxic Substances Control (DTSC). 1996. *Corrective Action Consent Agreement (Revised), Pacific Gas and Electric Company's Topock Compressor Station, Needles, California*. EPA ID No. CAT080011729. February 2.

California Department of Toxic Substances Control (DTSC). 2018a. *Acceptance and Conditional Approval of Groundwater Remedy Design and Corrective Measures Implementation Workplan at Pacific Gas and Electric Company, Topock Compressor Station, Needles, California*. April 24.

California Department of Toxic Substances Control (DTSC). 2018b. *Final Subsequent Environmental Impact Report for the Pacific Gas and Electric Company Topock Compressor Station Final Groundwater Remediation Project*. April 24.

California Department of Toxic Substances Control (DTSC). 2019. [Community Outreach Plan, Pacific Gas and Electric Company's Topock Compressor Station, Needles, California](#). May.

CH2M HILL, Inc. (CH2M). 2014. *Final Programmatic Biological Assessment for Pacific Gas and Electric Topock Compressor Station Final Groundwater Remedy*. April 28.

CH2M HILL, Inc. (CH2M). 2015a. *Basis of Design Report/Final (100%) Design Submittal for the Final Groundwater Remedy, PG&E Topock Compressor Station, Needles, California*. November 18.

CH2M HILL, Inc. (CH2M). 2015b. *Construction/Remedial Action Work Plan for the Final Groundwater Remedy, PG&E Topock Compressor Station, Needles, California*. November 18.

United States Department of the Interior (DOI). 2012. [Community Involvement Plan, Pacific Gas and Electric Topock Compressor Station, Needles, California](#). September.

United States Department of the Interior (DOI). 2013. *Remedial Action/Remedial Design Consent Decree (CD) between the United States of America and Pacific Gas & Electric Company*. Case 5:13-cv-00074-BRO-OP, Document 23. Entered November 21.

United States Department of the Interior (DOI). 2018. *Approval of PG&E Topock Compressor Station Remediation Site – Basis of Design Report/Final (100%) Design Submittal and Construction/Remedial Action Work Plan for the Final Groundwater Remedy and the Supplemental and Errata Information for the Final (100%) Design for the Final Groundwater Remedy, PG&E Topock Compressor Station, Needles, California*. Letter from Pamela Innis/DOI to Curt Russell/PG&E. April 3.

## Tables

**Table 2-1a. Summary of Non-Well Environmental Release-To-Constructions (ERTCs)**  
*May 2022 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup*  
*PG&E Topock Compressor Station, Needles, California*

ERTC No.*	Brief Description of Covered Areas and Scope of Authorized Activities	Original Issue Date
Amendment 1 to ERTC 21**	Scope included fence installation and planting in the revegetation areas in the floodplain.	March 18, 2022
Amendment 1 to ERTC 17	Scope included fence installation and planting in the UHR-1 revegetation area, located right off NTH.	April 4, 2022
ERTC 18	Scope included remedy pipeline installation within TCS.	April 15, 2022

Notes:

\* For brevity and readability, the Non-Well ERTCs issued for Phase 1 construction, revegetation effort, and miscellaneous stormwater erosion control projects (October 2018 thru February 2022) are not listed in this report. For a complete list of those ERTCs, please Table 2-1a of the February 2022 Monthly Progress Report. The monthly progress reports can be accessed via the Project website at [link](#).

\*\* ERTC 21 was issued on December 15, 2021 for site preparation for mitigation planting which involve the removal of tamarisk debris and root balls, off-site disposal of debris, installation of irrigation system, and leaching of soluble salts from the soil.

**Table 2-1b. Summary of Well Environmental Release-To-Constructions (ERTCs)**  
*May 2022 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup*  
*PG&E Topock Compressor Station, Needles, California*

ERTC No.*	Brief Description of Covered Areas and Scope of Authorized Activities	Original Issue Date
5aq	Scope included the site preparation for and drilling of freshwater injection well FW-2 along the access road to Bat Cave Wash.	February 22, 2022
5ar	Scope included the site preparation at the TW Bench for drilling of wells TWB-1 and TWB-2.	February 23, 2022
Amendment No. 1 to ERTC 5ar	Scope included the drilling of extraction wells TWB-1 and TWB-2 on the Transwestern Bench.	March 13, 2022
5as	Scope included the site preparation for and drilling of extraction wells TCS-1 and TCS-2 inside the Compressor Station.	March 18, 2022
5at	Scope included the site preparation for and drilling of extraction wells ER-1 and ER-2 along historic route 66.	March 14, 2022
5au	Scope included the site preparation for and drilling of extraction well TWB-3.	April 21, 2022

\* For brevity and readability, the Well ERTCs issued for Phase 1 construction are not listed in this report. For a complete list of those ERTCs, please Table 2-1a of the February 2022 Monthly Progress Report. The monthly progress reports can be accessed via the Project website at [link](#).



**Table 2-2. Monitoring Wells Nomenclature Changes**

*May 2022 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup  
PG&E Topock Compressor Station, Needles, California*

Previous Well Name	New Monitoring Well Name
MW-10D	MW-10D
MW-11D	MW-11D
MW-70BR-D	MW-70BR-289
MW-B-033	MW-75-033
MW-B-117	MW-75-117
MW-B-202	MW-75-202
MW-B-267R	MW-75-267
MW-B-337	MW-75-337
MW-C-039	MW-76-039
MW-C-156	MW-76-156
MW-C-181	MW-76-181
MW-C-218	MW-76-218
MW-D-046R	MW-77-046
MW-D-102	MW-77-102
MW-D-158	MW-77-158
MW-D-187	MW-77-187
MW-E-072	MW-78-072
MW-E-142	MW-78-142
MW-F-060	MW-79-060
MW-F-104	MW-79-104
MW-G-057	MW-80-057
MW-G-082	MW-80-082
Former IRZ-19	MW-81-43
Former IRZ-19	MW-81-98
MW-H-046	MW-82-046
MW-H-112	MW-82-112
MW-H-168	MW-82-168
MW-H-198	MW-82-198
MW-L-090	MW-83-090
MW-L-180	MW-83-180
MW-L-225	MW-83-225
MW-L-245	MW-83-245
MW-M-057	MW-84-057
MW-M-095	MW-84-095

Previous Well Name	New Monitoring Well Name
MW-M-132	MW-84-132
MW-M-193	MW-84-193
MW-N-129	MW-85-129
MW-N-217	MW-85-217
MW-N-237	MW-85-237
MW-O-030	MW-86-030
MW-O-066	MW-86-066
MW-O-120	MW-86-120
MW-O-140	MW-86-140
MW-R-109	MW-87-109
MW-R-139	MW-87-139
MW-R-192	MW-87-192
MW-R-275	MW-87-275
MW-S-109	MW-88-109
MW-U-183	MW-89-183
MW-U-273	MW-89-273
MW-W-031	MW-90-031
MW-X-045	MW-91-045
MW-X-120	MW-91-120
MW-X-170	MW-91-170
MW-X-320	MW-91-320
MW-Y-037	MW-92-037
MW-Y-072	MW-92-072
MW-Y-102	MW-92-102
MW-Y-122	MW-92-122
MW-Z	MW-93
HYDRO-6 (deep)	MW-94-30
HYDRO-6 (mid)	MW-94-100
HYDRO-6 (shallow)	MW-94-175
MW-V	MW-95-113 MW-95-157
MW-A	MW-96-045 MW-96-217
Former IRZ-11	MW-97-042 MW-97-202
Relocated MW-K	MW-98-055 MW-98-077

Previous Well Name	New Monitoring Well Name
Second HYDRO-6	MW-99-40 MW-99-140

**Table 2-3. Summary of Work Variance Requests (WVRs)**

May 2022 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup

PG&E Topock Compressor Station, Needles, California

WVR No.	Brief Description of Work Variance Request	Approval Dates
1	<p>This WVR addressed PG&amp;E's proposed modification to the brine tanks containment for use by the remedy, specifically:</p> <ul style="list-style-type: none"> <li>• <b>Upgrade the existing lined containment to concrete</b> - The original synthetic liner material has degraded from exposure to UV light, heat, and abrasion and must be replaced. PG&amp;E proposed to replace the synthetic-lined containment (including K-rails) with a concrete containment to support the groundwater remedy. The concrete color will be desert tan, and information on this proposed concrete color will be submitted to the agencies for review. The proposed concrete material will be similar to the material of the truck lane in the final remedy design (refer to Appendix E of the Final Basis of Design Report (CH2M, 2015a),* Section 033 00, Cast-In-Place Concrete).</li> <li>• <b>Shorten the length of the containment</b> - This containment will have the same height as the existing containment, but with a slightly smaller footprint (the length is 5 feet shorter). This smaller footprint still meets the required volume for a secondary containment and allows for more space for remedy construction at the tight MW-20 bench.</li> </ul>	<p>DOI approved WVR #1 on June 22, 2018</p> <p>DTSC approved WVR #1 on July 5, 2018</p>
2	<p>PG&amp;E proposed to relocate the tie-in point for remedy construction water to an aboveground location inside Topock Compressor Station (TCS) and below the TCS Water Storage Tanks. This is to eliminate the risk of damaging the existing pressurized 6-inch water line and to avoid any interference with PG&amp;E Gas Operations control of the Station's water supply. The WVR addressed this relocation, specifically:</p> <ul style="list-style-type: none"> <li>• Relocate the construction water tie-in point to an aboveground location below the TCS Water Storage Tanks, inside TCS – The final design calls for the temporary construction water line to hot-tap into the existing 6-inch steel water line just as the line turns southwest to continue to TCS. PG&amp;E proposed to move the tie-in point to an aboveground valve manifold, located below the TCS Water Storage Tanks in the boneyard area.</li> <li>• Extend the temporary construction water line to the new tie-in point, along Pipeline 300A access road – The planned 4-inch high-density polyethylene (HDPE) temporary construction water line will be extended, following the route of the Pipeline 300A access road, to the new tie-in point inside TCS. This pipeline extension is approximately 1,950 feet and is also made of 4-inch HDPE. The pipe will be laid on ground surface and to the south of the 6-inch water line where possible. At the crossing with the SoCal Gas pipeline access road, the pipeline will be at grade with fill to allow for vehicle crossing.</li> </ul>	<p>DOI/DTSC approved WVR #2 on August 29, 2018</p>
3	<p>PG&amp;E proposed changes within the CHQ fence line to avoid/minimize the overall amount of soil disturbance during construction, reduce the number of truck trips to haul wastewater, and allow for additional working space within the yard. There are no proposed changes to the CHQ footprint nor its fence line. The specifics are described below:</p> <ul style="list-style-type: none"> <li>• Relocate the decontamination pad from the western fence to the northern fence (near the western corner). Based on recent survey data collected during construction, the difference in ground elevation between northern and southern end of the pad is about 4 feet. Moving the pad to the northern fence would eliminate the difference in ground elevation and reduce the amount of soil disturbance by at least 80 cubic yards.</li> <li>• Bring the remedy-produced wastewater tank from belowground to aboveground, increase the tank volume from 1,000 to 2,500 gallons, and place the aboveground, double-walled tank adjacent to the decontamination pad. The change from belowground to aboveground reduces the amount of soil disturbance by at least 50 cubic yards. The change to a bigger tank will reduce the amount of truck trips needed to haul wastewater. The placement of the tank adjacent to the decontamination pad allows for the pad to function as a secondary containment for the haul truck during off-loading of the wastewater.</li> <li>• Defer construction of the underground sewage tanks. Deferral of the underground tanks reduces the overall amount of soil disturbance by at least 800 cubic yards. All sanitary wastes will be managed in aboveground sewage tanks (similar to the ones currently used for the SPY trailers) or portable toilets.</li> <li>• Swap the location of the construction trailers and the sunshade and change the configuration of the sunshade from a rectangle to a square. This change will allow for more working space within the CHQ. All functions that would occur in the Workshop/Sampling Processing building will be conducted in the construction trailers.</li> </ul>	<p>DOI/DTSC approved WVR #3 on January 4, 2019</p>

WVR No.	Brief Description of Work Variance Request	Approval Dates
4	PG&E proposed to revise a segment of Pipeline C near the I-40 bridge, to meet the permit requirement in Caltrans Encroachment Permit No. 08-18-6-MW-0533. The revision involves relocating a small segment of Pipeline C to within National Trails Highway to meet a minimum distance of 10 feet from current and future I-40 bridge footings. The treatment measure specified for Segment X of National Trails Highway in the Cultural and Historic Property Management Plan will be implemented during installation of this pipeline segment.	DOI/DTSC approved WVR #4 on May 14, 2019
5	PG&E proposed to phase the remedy produced water conditioning system within the approved footprint inside TCS.	DOI and DTSC approved WVR #5 on July 19 and July 22, 2019, respectively.
6	<p>In early October 2018, PG&amp;E conducted a geotechnical investigation along the Pipeline F alignment on the entrance road to the TCS and the adjacent hill side. Based on the geotechnical results, the construction contractor (PIVOX) indicated that soldier piles and lagging would be required for temporary shoring. Over 40 soldier piles would be installed by drilling using a 330-sized excavator or larger. A 330-sized excavator has a general width of 11 feet, and counter weight clearance of approximately 4 feet. During operation, this rig would occupy a minimum 15 to 16 feet width of the TCS entrance road for about 12 days. The paved width of the road is between 22 to 24 feet in the area of shoring (per review of the location via Google Earth).</p> <p>Assuming a minimum clearance of 1 foot (which is still less than the recommended clearance) from any operating equipment, there will be approximately 5 to 8 feet of available lane width for access by TCS traffic. Large vehicles (tractor-trailers, delivery trucks, construction equipment) will likely not be able to pass by the active operation, and passenger vehicles may also not be able to pass the active operation in locations where the road narrows. Also, the excavator cannot be repositioned while soldier piles are being drilled. In sum, access to TCS will be severely restricted for about 12 days. This is not acceptable for Compressor Station operations.</p> <p>Therefore, PG&amp;E proposed to realign Pipeline F (starting from segment F3) along the approved alignment of Pipelines B and J. Construction of Pipelines F, B, and J would occur in the same alignment and at the same time.</p>	DOI and DTSC approved WVR #6 on May 21 and May 22, 2019, respectively.
7	<p>This WVR proposed the following changes to remedy infrastructure at the CHQ and SPY.</p> <ul style="list-style-type: none"> <li>a) Locate all temporary office and break trailers at the SPY. PG&amp;E proposed to keep the three existing office trailers at their current locations in the SPY and add two additional office trailers and one break trailer for workers. The additional trailers will be equipped with aboveground sewage tanks, similar to the existing trailers. They will also be powered by Needles Electric. This will require the original SPY fence line to be extended south/southwest to encompass these trailers and the original truck entrance from National Trails Highway to the access road east of SPY. Neither changes reduce the overall area available for soil storage.</li> <li>b) Eliminate the workshop/sample processing building at the CHQ. The function planned for this building will be moved to the Carbon Amendment building at the MW-20 Bench. Removal of this building reduces the amount of soil disturbance by approximately 334 cubic yards.</li> <li>c) Eliminate the sunshade at the CHQ. The function for the sunshade will be replaced by the break trailer for the workers. Removal of the sunshade reduces the amount of soil distance (i.e., installation of the footings) by approximately 14 cubic yards.</li> <li>d) Convert the utility pad at the CHQ to a smaller transformer/electrical panel pad. With the relocation of the six trailers to SPY and elimination of the workshop/sample processing building, PG&amp;E proposed to convert the utility pad to smaller pad for a smaller transformer/electrical panel to serve the remaining trailers at the CHQ. This reduces the amount of soil disturbance by approximately 61 cubic yards.</li> </ul>	DOI and DTSC approved WVR #7 on June 14, 2019.
8	On September 12, 2019, PG&E proposed a WVR to change the alignment of pipeline segment C6 on the eastern slope of the MW-20 Bench. The purpose of the WVR is to reduce the amount of soil disturbance, reduce the number of plants to be removed, reduce the safety risks associated with construction atop the MW-20 bench, and reduce the hazards associated with operation at the MW-20 bench during construction.	DTSC and DOI approved WVR #8 on October 4 and 8, 2019, respectively.
9	On March 20, 2020 and at DTSC's direction, PG&E submitted a WVR to relocate MW-A and convert IRZ-11 to a monitoring well.	DTSC and DOI approved WVR #9 on April 24, 2020.
10	<p>On December 1, 2021, PG&amp;E proposed a WVR to revise the following pipeline alignments for constructability and safety during Phase 2A construction, as well as future O&amp;M:</p> <ol style="list-style-type: none"> <li>1. Outside the Compressor Station</li> </ol>	DTSC and DOI approved WVR #10

WVR No.	Brief Description of Work Variance Request	Approval Dates
	<ul style="list-style-type: none"> <li>i. Realign Pipeline C18 in East Ravine.</li> <li>ii. Realign Pipeline I1 in Bat Cave Wash.</li> <li>2. Inside the Compressor Station <ul style="list-style-type: none"> <li>i. Consolidate piping/conduits (L1/L2/D1/D2) in the southern area of TCS into a common utility corridor</li> <li>ii. Realign Pipeline L3 to connect to Pipeline K.</li> </ul> </li> </ul>	on January 6 and 7, 2022, respectively.
11	On January 11, 2022, PG&E proposed a WVR for new mitigation planting areas in the floodplain. The purpose of the WVR is to propose new mitigation planting areas that are better suited for the mitigation plantings than some earlier identified areas.	DOI and DTSC approved WVR #11 on January 14 and 19, 2022, respectively.

Note:

\* CH2M HILL, Inc. (CH2M), 2015a. Basis of Design Report/Final (100%) Design Submittal for the Final Groundwater Remedy, PG&E Topock Compressor Station, Needles, California. November 18.

**Table 2-4a. Summary of Cumulative Percent Completeness of Key Phase 1 Construction Activities**  
May 2022 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup  
PG&E Topock Compressor Station, Needles, California

Activity	% Complete	Cumulative Status of Phase 1 Construction Activities (as of May 31, 2022)
Project signage & Public Information Office	100%	Complete.
Staging Areas 9, 18, and 23 set-up	100%	Complete.
Temporary construction offices at Soil Processing Yard	100%	Complete.
Soil Processing Yard including security fence	100%	Complete.
National Trails Highway lane closure and traffic control installation	100%	Complete.
Temporary construction water line	100%	Complete.
TCS Ponds concrete containment pad	100%	Complete.
Construction Headquarters (CHQ) access road and security fence	100%	Complete.
Brine Tanks containment upgrade	100%	Complete.
MW-L, N, E, W, O, R, M, U, 10D, 11D, B, C, D, H, S, Hydro-6, X, Y, G, F, V, and Z, and MW-99.	100%	Complete.
MW-70BR (damaged)	100%	Bentonite grout had entered the well casing. The conductor casing was damaged and the well was repaired in June 2020. The repair consisted of cleaning out the borehole to approximately 246 feet bgs, set a 4-inch PVC sleeve to approximately 240 feet, and cement to approximately 230 feet. Well development was completed in July 2020. Well surface completion was completed in October 2020.
MW-97 (former IRZ-11 MW)	100%	Complete.
MW-96 (relocated MW-A)	100%	Complete.
Pilot borings for wells RB-5, RB-4, RB-3, RB-2, IRZ-9, 13, 15, 16, 17, 18, 21, 23, 25, 27, 29, 31, 35, 37, and 39.	100%	Complete.
RB-2, RB-3, RB-4, and RB-5	100%	Complete.
IRZ-9, IRZ-13S/D, IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-21, IRZ-23, IRZ-25, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, IRZ-37, and IRZ-39	100%	Complete.
Pipeline B Access Road Erosion Control Measures	70%	Pipeline Complete. Installation of permanent erosion control measures started on February 22, 2022. On March 29, 2022, the storm erosion control measures were severely damaged by a large storm event.  Repairs of storm damage are underway including rebuilding the damaged gabions with added riprap, securing the aboveground stormwater conveyance piping in key places with slurry, etc. The contractor will remobilize in July or August 2022 after receipt of long lead-time materials.
Pipeline C Floodplain Segments C3, C4, C5, C6, C7, C8, C8-Alt, C14 including aggregate-based access road in floodplain	100%	Complete with the exception of C8-Alt. On November 2-4, 2021, additional soil cover was added to meet Caltrans permit requirement of 42 inches above the concrete pipe encasement. On November 11, 2021, FMIT tribal monitors notified PG&E of concerns about the presence of asphalt debris in the new soil cover at C8-Alt. Various field inspections and discussions occurred to address the FMIT monitors' concern. In late November 2021, PG&E informed FMIT Project Manager that the soil cover will be replaced with different soil materials. PG&E removed the soil cover on December 14, 2021, and rebuilt the soil cover with new fill in February 2022 (see description in Phase 1 Work Site Closeout line item below).

Activity	% Complete	Cumulative Status of Phase 1 Construction Activities (as of May 31, 2022)
Pipeline C NTH Segments C13, C15, C16, C19, C20	100%	Complete.
Pipeline C9, C10, C17	100%	Complete.
Pipeline F	100%	Complete.
Pipeline J Segments J1 and J2	100%	Asphalt paving complete.
Pipeline J Segments J3 and J4	100%	Complete.
Pipeline M2-M6 (inside TCS)	100%	Complete.
Pipeline/Conduit F8/M1/X (inside TCS)	100%	Complete.
Phase 1 Remedy-produced water conditioning system and associated facilities (TCS)	100%	Substantially complete.
MW-20 Bench carbon amendment facility and associated piping	100%	Building structure, mechanical work, fencing and site earthwork, HVAC, and final electrical complete.
Remediation well vaults and well buildout	100%	Substantially complete.
Underground electrical and controls cable installation	100%	Substantially complete.
Electrical installation at transformer nodes 99 (TCS), 2 (south floodplain), 3 (MW-20 Bench), and 4 (north floodplain)	100%	All Node electrical installation complete. In mid-March, some electrical components in Nodes 2 and 4 were identified as needing repairs. Repair was completed in March.  The groundwater remedy received permanent power from TCS on March 24, 2022.
Controls installation and programming at Phase 1 Remedy-Produced water conditioning facility (TCS)	100%	Work completed in April 2022.
Controls installation and programming at MW-20 Bench carbon amendment facility	100%	Substantially complete.
System Integration, Functional Testing, and Startup	95%	IRZ functional testing and startup ongoing. RPWC system functional testing and Full system (including Remedy power system and RPWC system) startup to be completed in June 2022.
Site preparation for revegetation including fencing	100%	Irrigation system installation complete. Irrigation operation to leach soluble salts from soils complete. Spring planting complete. Remaining tasks include planting in the Fall, watering stake installs, installing 2 ft pedestrian gate, building dirt ramps over piping, adding posts and secure fencing, and adjusting water lines.
Phase 1 Work Site Closeout (Exclude Pipeline B stormwater erosion control measures)	98%	A walk down of Phase 1 pipelines and TWB/CHQ stormwater erosion control measures with agencies and Tribes on March 1. Completion of punch list items target mid-June 2022. As of May 31, 2022, the outstanding punch list items are:  1. Placement of rocks in the eroded areas along the eastern slope of the C14 access road to protect the pull boxes and Electrical Node 4.  2. Suggestion to raise the orange pipe that contains Frontier line at the County drainage (just south of I-40 bridge) so that water from NTH can flow down the drainage. This item is being coordinated with Frontier.



**Table 2-4b. Summary of Cumulative Percent Completeness of Key Phase 2 Construction Activities**  
**May 2022 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup**  
**PG&E Topock Compressor Station, Needles, California**

Activity	% Complete	Cumulative Status of Phase 2 Construction Activities (as of May 31, 2022)
Extraction and Injection Well Installation	30%	<ul style="list-style-type: none"> <li>Pilot holes for TWB-1, -2, -3, TCS-1, -2, and FW-02A have been drilled.</li> <li>TWB-2 was not a viable location for extraction and was abandoned.</li> <li>A temporary well was installed at TWB-1 followed by well development and step testing. Results showed that TWB-1 is a viable location for an extraction well. A larger diameter extraction well will be installed in the Third Quarter 2022.</li> <li>No aquifer was present at FW-02 alternate location. Drill casing was left in place at FW-02 alternate. Evaluation of the data was performed and potential alternate locations have been identified and presented to agencies and stakeholders on May 6 and May 18, 2022. A site walk will be scheduled for June 23 to view the identified potential alternate locations.</li> <li>ER-1 was drilled, installed, developed, and tested. ER-2 was drilled and installed. Sediment was observed at the bottom of ER-2 during development in early June.</li> <li>A pilot hole for TWB-3 was drilled. The observed lithology and aquifer thickness showed that TWB-3 is expected to be a viable extraction well.</li> <li>Final well designs are complete for injection/extraction wells TWB-1 &amp; -3 and TCS-1 &amp; -2. Procurement of the well materials is ongoing.</li> <li>Pump for groundwater sampling at PGE-07BR was stuck in the well. The stuck pump retrieved, cleaned, and reset to the appropriate depth needed for sampling. In addition, a drop tube was installed to collect water level measurements without needing to remove the pump.</li> <li>Monitoring well MW-70BR-225 was renamed as ER-6 to function as an extraction well. ER-6 was developed and a step test was conducted to appropriately size the future pump. The step test was unable to be completed due to equipment malfunctions so the completion of the step test is scheduled for end of June/early July.</li> </ul>
Pipeline Installation Inside TCS	15%	<ul style="list-style-type: none"> <li>Pipeline excavation activities have been initiated at pipelines M1/2/2', M6 (formerly M3/M4/M5), I1, K1, and L3.</li> <li>Duct bank reinforcing steel placement has been initiated at pipelines I1 and M1/2 and M6 (formerly M3/M4/M5).</li> <li>Duct bank concrete encasement has been initiated on pipelines M1/2.</li> </ul>

**Table 2-5. Summary of Environmental Releases During Groundwater Remedy Construction**  
**May 2022 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup**  
**PG&E Topock Compressor Station, Needles, California**

Date Release Identified	Release Location	Description of Release	Material Released Outside of Containment	Approx. Volume of Material Released	Cleanup Action	Corrective Action To Prevent Re-Occurrence
10/8/2018	MW-L	Weight of drill mud tub and drilling activity caused the ground to cave in, which formed a void. Shifting ground made the seal weak causing the seal to leak, causing a release onto ground.	Mixture of freshwater and aquifer water	2 gallons	Three 5-gallon buckets of impacted soil was removed and placed into drilling spoil bin.	More thorough inspections of seal on mud tub
10/10/2018	MW-L	Pressure from the drilling activity caused aquifer/ freshwater water to push up, around the casing and the seal causing a release.	Mixture of freshwater and aquifer water	1-2 gallons	About 1/2 gallon of impacted soil was removed and placed into drilling spoil bin.	Moving forward bentonite will be used in the hole created by hand clearing for utilities and a 7-inch conductor casing will be drilled through the bentonite to create a tight seal.
1/10/2019	Access dirt road east of SPY	Hydraulic hose ruptured at the rear of a roll off truck (during a lift), resulting in hydraulic fluid contacting surface soil.	Hydraulic fluid	1/2 pint	About 1.5 gallon of impacted soil was removed and taken to IM3 for pickup by next milk run.	
2/27/2019	Floodplain	Hydraulic hose on a skid steer ruptured, resulting in oil on floodplain sand.	Hydraulic fluid	6-7 ounces	An approximate 2 square shovels with 3/4 full of impacted sand was removed and placed into a 5 gallon bucket. The 5-gallon bucket was taken to IM3 for pick up by next milk run.	Conitnue to do inspection of equipment prior to use.
2/27/2019	MW-N	Shifting ground weakened seal around mud tub, causing the seal to leak and release water onto the ground.	Mixture of freshwater and aquifer water	Not available	Approximately 10 gallons of impacted soil removed and placed into drilling spoil bin.	Site prep to include soil compaction before drilling. Seal will be inspected during each day and upon setup.
4/9/2019	IRZ-20	A "blowout" occurred where water in the borehole discharged out the annular space, and onto ground.	Mixture of freshwater and aquifer water	20 gallons	Cr6 tested at IM3, result was ND. Impacted soil left in place.	Drill methodology changed to avoid another "blowout".
4/11/2019	MW-20 Bench	Wastewater storage frac tank overtopped during water transfer operation.	Drilling wastewater	5-10 gallons	Cr6 tested at IM3, result was ND. Soil left in place.	Better coordination with well construction support team and water level will be measured using water level tube.
5/29/2019	MW-20 Bench	Wastewater from a storage frac tank leaked into the tank containment, and then onto the ground because part of the containment had collapsed.	Drilling wastewater	200 gallons	Cr6 test at IM3, result was 8.1ppb. Impacted soil left in place.	Notified subcontractors that no one is to adjust or remove piping and hose manifolds. Regular inspections to be conducted. A pipe rack will be used for better housekeeping of hoses.

Date Release Identified	Release Location	Description of Release	Material Released Outside of Containment	Approx. Volume of Material Released	Cleanup Action	Corrective Action To Prevent Re-Occurrence
5/31/2019	Floodplain	Hydraulic hose on a backhoe ruptured resulting in oil on the ground.	Hydraulic fluid	12 ounces	Area cleaned with absorbent pads and approximately 0.4 gallons of impacted sand was removed/ placed in bucket. The bucket was taken to IM3 for pick up by next milk run.	Equipment taken out of service and repaired
8/7/2019	RB-4	The metal band that secured the fitting inside a discharge hose leaked onto ground. The hose was part of the wastewater service line for the river bank wells.	A mixture of freshwater and aquifer water	0.5 gallons	Impacted sand left in place.	Installed catch/spill containment to encompass all hose connections and fittings at the connection points. Tee installed to discharge hose to connect at 90 degree angle instead of 180.
8/27/2019	RB-3	Wastewater leaked into containment during water transfer operation. Water released onto ground from a separation between two fiber rolls in the containment wall.	A mixture of freshwater and aquifer water	5 gallons	Impacted sand left in place.	Fiber rolls reinstalled without gap. Stand down with crew to emphasis BMPs and SWPPP refresher.
9/6/2019	Pipeline B	Hydraulic oil leaked from excavator.	Hydraulic oil	2-4 ounces	Impacted soil removed and taken to IM3 for pick up by next milk run.	
9/11/2019	Northern fenceline of CHQ	A loose seal on the hydraulic cylinder that raises/lowers the dump bed caused a hydraulic oil leak onto ground.	Hydraulic oil	3-5 ounces	One 5-gallon of impacted rocks were collected and took to IM3 for pickup by next milk run.	Reviewed BMP with crew in tailboard.
9/20/2019	Floodplain access road from RB-5 to RB-2	Leak from construction truck	Hydraulic oil	3-4 ounces	Approximately 4 cubic feet of impacted sand and absorbent pads were placed in a bucket and taken to IM-3 for pickup in next milk run.	Inspect work area before leaving area.
9/27/2019	Pipeline B	Hydraulic oil leaked from pickup truck.	Hydraulic oil	2 ounces	Impacted soil was removed and taken to IM-3 for pickup in next milk run.	
11/2/2019	MW-Y	Hydraulic line ruptured during placement of stabilizing mats.	Hydraulic oil	Not available	Impacted sand was removed and taken to IM-3.	
12/12/2019	Pipeline C7	Fuel leaked from a fuel cap of a front end loader that was not tightened correctly.	Fuel	Not available	Impacted soil removed and placed in three 55 gallon drums. Drums taken to IM-3 for disposal with milk run.	Retraining of personel on post fueling equipment inspections.
1/9/2020	Pipeline B	Hydraulic oil leaked from hydraulic hammer onto ground.	Hydraulic fluid	3 drops	Cleanup of impacted rocks (6 rocks) performed under TCS direction and given to TCS for disposal.	Reminder of situation awareness that allowed team to catch leak early.

Date Release Identified	Release Location	Description of Release	Material Released Outside of Containment	Approx. Volume of Material Released	Cleanup Action	Corrective Action To Prevent Re-Occurrence
1/9/2020	MW-20 Bench	Wastewater leaked from a valve during transfer operation, and onto ground.	Drilling wastewater	1/4 gallon	Impacted soil removed and placed into drilling spoil bin.	Containment and absorbent pads placed under leaky valve, main valve to tank closed, and the line was pumped off. Valve relocated to within containment and tightened.
2/6/2020	MW-20 Bench	Freshwater released onto ground during a water transfer operation	Freshwater	5 gallons	Impacted soil left in place.	Discussion with team about opening overflow valve and monitor the spill bucket from the overflow valve on the water truck tank as a visual indicator that the tank is full.
2/18/2020	Pipeline B access road	Hydraulic oil leak occurred from the engine bay of a pickup truck.	Hydraulic fluid	Not available	Impacted soil removed and taken to IM-3 for pickup in next milk run.	Discussion with team about proper inspection of site pickup trucks.
2/20/2020	SPY	Antifreeze/water released from a passenger vehicle parked at the SPY.	Antifreeze/water	Not available	Impacted rocks (5-gallon) removed and disposed offsite.	Vehicle removed from project site. PG&E ordered all vehicles to stop for physical inspections.
2/21/2020	Bat Cave Wash access road	Hydraulic oil leaked from vehicle on access road to Bat Cave Wash.	Hydraulic fluid	Several drops	Impacted soil removed and taken to IM-3 for pickup in next milk run.	Truck removed from site. PG&E brought on board 3rd party inspector following week to perform thorough inspections of each heavy duty vehicle on site.
5/15/2020	MW-20 Bench	Antifreeze released from a forklift onto ground.	Antifreeze	2 ounces	Impacted rocks were removed.	Heavy equipment inspection checklist emphasized and reviewed with team.
6/8/2020	MW-20 Bench	Cutting oil inside the electrician's conex box flowed out and dripped to the ground. No containment was present beneath the cutting machine.	Cutting oil	3-4 ounces	About 2 pounds of impacted soil was removed and taken to IM-3 for pickup in next milk run.	Cutting machine placed on containment.
6/16/2020	MW-20 Bench	Fuel leaked from a fuel cap of a construction vehicle, that was not tightened correctly.	Fuel	Not available	Impacted soil was removed/placed in a 5-gallon bucket and taken to IM-3 for pickup in next milk run.	Proper fueling procedures discussed with subcontractor.
7/1/2020	Pipeline J	Concrete washout water leaked from containment and released onto ground.	Concrete wash out water	Not available	About 1/2 cy of impacted soil removed and transported to SPY for classification per SMP.	Use new plastic.
7/11/2020-7/12/2020	C19 staging area	Grease melted from an arm knuckle of a backhoe and onto the ground	Grease	Not available	Less than 10 ounces of impacted soil was removed and taken to IM-3 for pickup in next milk run.	
6/29/2021	National Trails Highway	Diesel fuel leaked from a fuel cap on a water truck while on NTH	Diesel	Not available	Approximately 2 5-gallon buckets of impacted soil was removed and brought to SPY.	Reviewed fueling procedures with crew.

Date Release Identified	Release Location	Description of Release	Material Released Outside of Containment	Approx. Volume of Material Released	Cleanup Action	Corrective Action To Prevent Re-Occurrence
6/22/2021	MW-20 Bench	Antifreeze leak from skid steer	Antifreeze	Not available	Affected soil was removed and placed in buckets and brought to SPY.	
6/14/2021	IRZ-39 well vault	Extracted groundwater from TW-01 released onto ground during startup of the aquifer test.	TW-01	A few hundred gallons	TW-1 data showed 1400ppb of Cr6. Impacted soil was excavated and placed on plastic. Sample submitted for lab.	Test suspended and QC review conducted.
3/23/2022	TWB-2	A hydraulic line broke during the process of retrieving stuck drill casing from the borehole and hydraulic fluid leaked onto the soil hopper, mud tub, and well casing, as well as surrounding ground.	Hydraulic fluid	1/4 cup	Stained gravel removed and fluid in mud tub soaked up with absorbent pads and all placed into 5 gallon bucket. The bucket was taken to IM3 for pickup in next milk run.	
4/26/2022	Transwestern Bench	Drilling wastewater stored in frac tank leaked onto the tank's containment. Water in contained released onto ground through pin holes in the containment.	Drilling wastewater	Three gallons	Impacted soil will be removed when the leaked tank and containment are removed.	Inspection of tanks and liners prior to putting them into service.
5/4/2022	ER-2	A hydraulic line ruptured during drilling at the ER-2 location (on the Refuge) and due to high winds at the time, hydraulic fluid sprayed droplets on field crew, equipment, nearby creosote plants, wooden rails, temporary water line, and the ground	Hydraulic fluid	Unknown	Impacted area (nearby bluff, ground) and creosote plants were decontaminated/ sprayed with Simple Green. Oil spots on the temporary water line was wiped down.	The crew will add a better protective spiral or rubber wrap that fits tighter to the hose. This type of wrap is thicker than the current cloth wrap, will give better protection, and allow for easier visual inspection of normal wear and tear.

Date Release Identified	Release Location	Description of Release	Material Released Outside of Containment	Approx. Volume of Material Released	Cleanup Action	Corrective Action To Prevent Re-Occurrence
5/11/2022	Floodplain at C9 north, near 12-kV electrical vault	A dump truck hauling soil for the revegetation project made a U-turn near the C9 North area and bumped into the 12-kV electrical vault. The truck diesel tank leaked and spilled diesel fuel on the ground and into the electrical vault.	Diesel fuel	15 gallons	<p>About 8 cubic yards of impacted soil was excavated and contained in 39 55-gallon drums. The drums were picked up for off-site disposal. A confirmation soil sample was collected close to the southeast corner of the 12-kv electrical vault where most of the impacted soil was removed for Total Petroleum Hydrocarbon (TPH) analysis. TPH results are below soil management screening levels. Based on lab results, the excavated area was backfilled with soil from the SPY.</p> <p>Once the impacted soil was removed, the inside of the electrical vault was inspected. A diesel sheen was observed on top of existing water inside the vault. An approximate 200 gallons of water/diesel was removed from the electrical vault and contained in four 55-gallon drums. The drums were picked up for off-site disposal.</p>	Traffic delineators and red rope were placed across the road to prevent traffic from trying to turn around at the end of the road. The project team's daily tailboard meetings will continue to include reminders and discussion on designated work areas and egress and regress areas and a description of delineation (wattles, tape, cones, ropes, etc.) for areas not to enter.

## Figures





**LEGEND**

- Existing Access Route (will continue to be used for remedial activities)
- Existing Route (to be used as is for access to remedial activities)
- Roads to be improved or constructed for groundwater remedy
- Soil Processing (Area #5) and Construction Headquarters (Area #4) for Remediation Project
- Staging Areas for Remediation Project
- 5 Area # referenced in the Notes

**Notes:**

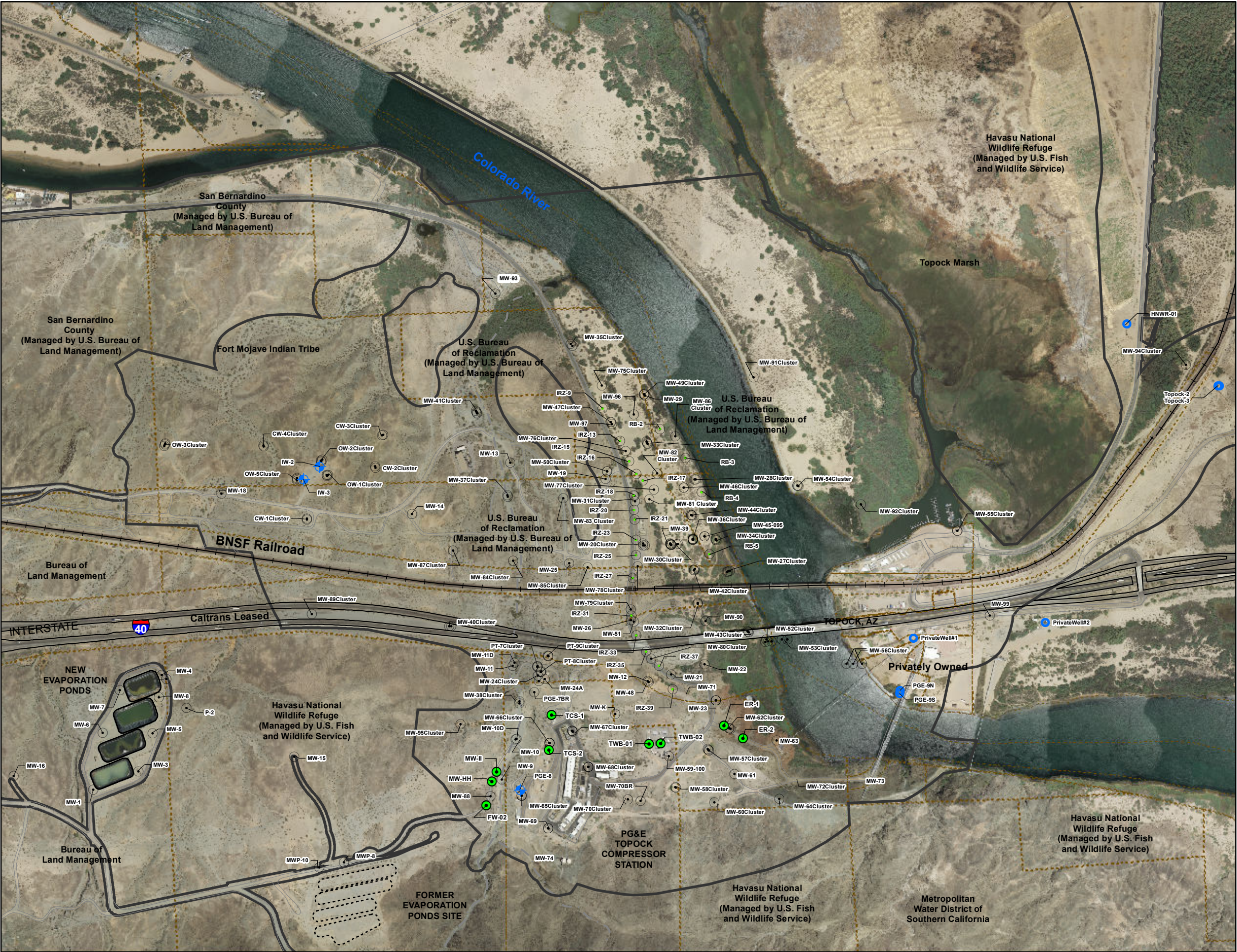
- Decontamination pads will be located in Area #21 (Topock Compressor Station), and Area #23 (Transwestern Bench).
- Areas #15, 16, 17, 19, and 20 will not be used as staging areas. Areas #16, 17, and 19 may be part of the primary work zones for remedy infrastructure along the access road.
- Area #20 may be part of the primary work zone for installation of future provisional well IRL-6 (if determined to be needed in the future) and associated piping/concrete/vault.

- Public roadways outside of the EIR project area and the APE can also be used for remedy implementation.

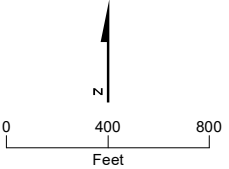


**FIGURE 2-1  
CONSTRUCTION SITE PLAN  
AND ACCESS ROUTES**  
GROUNDWATER REMEDY PHASE 1 CONSTRUCTION  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA





- LEGEND
- Project Area
  - Phase 2A Well (Approximate Location, Drilling program in progress)
  - Injection Well
  - Groundwater Monitoring Well
  - Water Supply Well
  - Remediation Well



**Figure 2-2**  
**Well Locations**  
Groundwater Remedy Construction  
PG&E Topock Compressor Station Needles,  
California



## **Attachment A**

### **Photographs**



Photos showing hand excavation for installation of remedy pipelines I1 (top) and M6 (bottom) inside TCS





**Photos showing hand excavation for  
installation of remedy pipelines  
M1/M2 inside TCS**





Shoring at  
Pipeline M6



Placing rebar  
in trench for  
Pipeline M1



Hand  
Excavation at  
Pipeline K1





Photo showing drill rig set up at TWB-3 borehole



Photos showing pump being pulled at PGE-07BR



Photos showing well development at ER-1

**Attachment B**  
**Available Boring and Well Construction**  
**Logs, Groundwater Sample Results from**  
**Well Drilling, and Well Testing Activities**

(Logs and Well Testing Plans/Results are Presented in  
Separate PDFs)

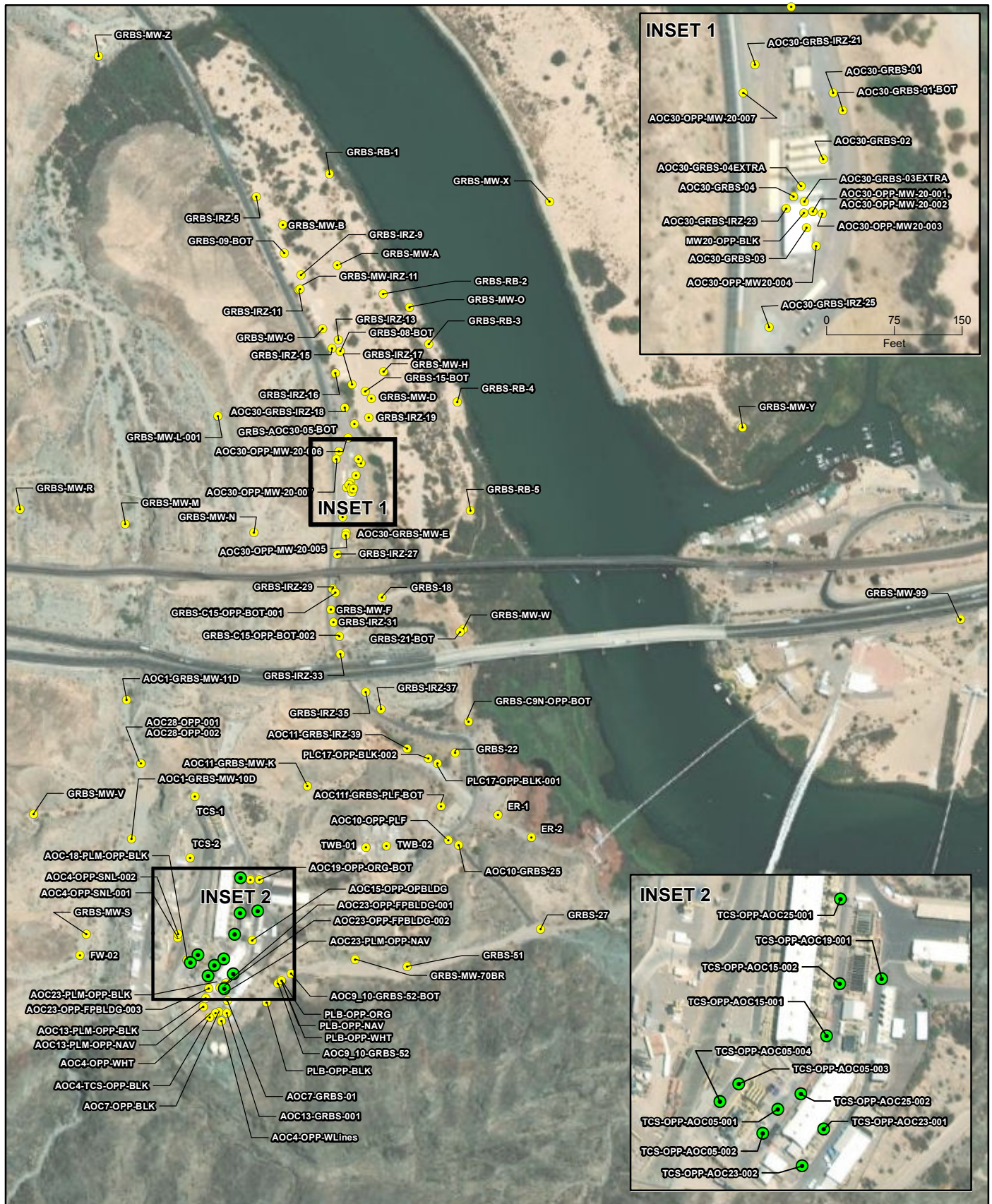


**Table B-1. Groundwater Sampling Results***May 2022 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup**PG&E Topock Compressor Station, Needles, California*

Location*	Sample ID	Sample Date	Sample Depth Interval in feet below ground surface	Total Dissolved Chromium Concentration in microgram per liter	Hexavalent Chromium Concentration in microgram per liter
FW-02A	FW-02A-VAS-117-122	4/22/2022	117-122	Analytical data not available yet	Not detected below reporting limit of 0.2 microgram per liter
FW-02A	FW-02A-VAS-127-132	4/23/2022	127-132	Analytical data not available yet	Not detected below reporting limit of 0.2 microgram per liter
FW-02A	FW-02A-VAS-137-142	4/23/2022	137-142	Analytical data not available yet	Not detected below reporting limit of 0.2 microgram per liter
FW-02A	FW-02A-VAS-147-152	4/24/2022	147-152	Analytical data not available yet	Not detected below reporting limit of 0.2 microgram per liter
FW-02A	FW-02A-VAS-157-162	4/25/2022	157-162	Analytical data not available yet	Not detected below reporting limit of 0.2 microgram per liter
FW-02A	FW-02A-VAS-167-172	4/25/2022	167-172	Analytical data not available yet	Not detected below reporting limit of 1 microgram per liter
TCS-01	TCS-1-VAS-164-169	4/3/2022	164-169	1100	1100
TCS-01	TCS-1-VAS-192-197	4/4/2022	192-197	Not detected below reporting limit of 1 microgram per liter	Not detected below reporting limit of 0.2 microgram per liter
TCS-01	TCS-1-VAS-221-226	4/5/2022	221-226	1.8	Not detected below reporting limit of 0.2 microgram per liter
TCS-01	TCS-1-VAS-254-259	4/7/2022	254-259	Not detected below reporting limit of 1 microgram per liter	Not detected below reporting limit of 1 microgram per liter
TCS-01	TCS-1-VAS-266-271	4/13/2022	266-271	Analytical data not available yet	Not detected below reporting limit of 1 microgram per liter
TCS-2	TCS-2-VAS-131-136	4/19/2022	131-136	Analytical data not available yet	4300
TCS-2	TCS-2-VAS-147-152	4/20/2022	147-152	Analytical data not available yet	Not detected below reporting limit of 0.2 microgram per liter
TCS-2	TCS-2-VAS-161.5-166.5	4/21/2022	161.5-166.5	Analytical data not available yet	Not detected below reporting limit of 0.2 microgram per liter
TCS-2	TCS-2-VAS-181-186	4/21/2022	181-186	Analytical data not available yet	Not detected below reporting limit of 0.2 microgram per liter
TCS-2	TCS-2-VAS-202-207	4/22/2022	202-207	Analytical data not available yet	2300
TCS-2	TCS-2-VAS-211.5-216.5	4/23/2022	211.5-216.5	Analytical data not available yet	120
TCS-2	TCS-2-VAS-220-225	4/23/2022	220-225	Analytical data not available yet	Not detected below reporting limit of 1 microgram per liter
TWB-01	TWB-1-VAS-82-87	3/18/2022	82-87	1600	870
TWB-01	TWB-1-VAS-87-92	3/20/2022	87-92	Not detected below reporting limit of 1 microgram per liter	Not detected below reporting limit of 0.2 microgram per liter
TWB-01	DUP-1-VAS-032022	3/20/2022	87-92	Not detected below reporting limit of 1 microgram per liter	Not detected below reporting limit of 0.2 microgram per liter
TWB-01	TWB-1-VAS-97-102	3/20/2022	97-102	1100	1200
TWB-01	TWB-1-VAS-110-115	3/21/2022	110-115	4300	4300

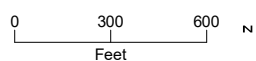
Location*	Sample ID	Sample Date	Sample Depth Interval in feet below ground surface	Total Dissolved Chromium Concentration in microgram per liter	Hexavalent Chromium Concentration in microgram per liter
TWB-01	TWB-1-VAS-122-127	3/21/2022	122-127	1600	1700
TWB-02	TWB-2-VAS-97-102	3/29/2022	97-102	Not detected below reporting limit of 1 microgram per liter	Not detected below reporting limit of 0.2 microgram per liter
TWB-03	TWB-3-VAS-47-52	5/6/2022	47-52	Not detected below reporting limit of 1 microgram per liter	Not detected below reporting limit of 0.2 microgram per liter
TWB-03	TWB-3-VAS-57-62	5/6/2022	57-62	2.6	6.6
TWB-03	TWB-3-VAS-67-72	5/6/2022	67-72	Not detected below reporting limit of 1 microgram per liter	Not detected below reporting limit of 0.2 microgram per liter
TWB-03	TWB-3-VAS-76-81	5/6/2022	76-81	Not detected below reporting limit of 1 microgram per liter	Not detected below reporting limit of 1 microgram per liter
<p>* For brevity and readability, VAS data collected during Phase 1 well drilling and installation are not included in this report. For a complete listing of those data, see Table B-1 of the February 2022 Monthly Progress Report. The monthly progress reports can be accessed via the Project website at <a href="#">Link</a>.</p>					

**Attachment C**  
**Soil Sampling Locations and Available Soil**  
**Analytical Results**  
(Soil Data Presented in Excel File)



## LEGEND

- Sample Collected from This Location in April 2022
- Soil Sample Location



## Baseline and Opportunistic Soil Sampling Locations

Monthly Progress Report  
Groundwater Remedy Construction  
PG&E Topock Compressor Station, Needles, California

**JACOBS**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

\\DC1VS01\GIS\PROJ\PG&E\TOPOCK\MAPFILES\2022\CM\SOILSAMPLELOCATIONS\_ALL\_MAY2022.MXD CLARKE 6/6/2022 9:31:21 AM



**Table C-1. Summary of Opportunistic Samples Collected During Phase 2\* Groundwater Remedy Construction**

*May 2022 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup  
PG&E Topock Compressor Station, Needles, California*

Sample ID	Sample Date	Sample Location (as shown in Attachment C figure of this report)	Sample Description
TCS-1-CLAY-001	4/4/2022	Injection Well TCS-1 inside TCS	Clay encountered TCS-1 and managed in accordance with the Clay Handling Protocol.
TCS-OPP-AOC25-001	4/4/2022	East of the Compressor Building, north end	Opportunistic soil sample collected at repaving areas, just below the asphalt layer.
TCS-OPP-AOC25-002	4/4/2022	East of Cooling Tower A West of the Auxiliary Building, middle	Opportunistic soil sample collected at repaving areas, just below the asphalt layer.
TCS-OPP-AOC15-001	4/4/2022	East of the Compressor Building, south end West of the Auxiliary Jacket Water Cooling Pumps	Opportunistic soil sample collected at repaving areas, just below the asphalt layer.
TCS-OPP-AOC15-002	4/4/2022	East of the Compressor Building, middle West of the Auxiliary Jacket Water Cooling Pumps	Opportunistic soil sample collected at repaving areas, just below the asphalt layer.
TCS-OPP-AOC5-001 through 004	4/4/2022	East, west, and south of Cooling Tower A	Opportunistic soil sample collected at repaving areas, just below the asphalt layer.
TCS-OPP-AOC23-001 and 002	4/4/2022	South and east of the Former Water Conditioning Building	Opportunistic soil sample collected at repaving areas, just below the asphalt layer.
TCS-OPP-AOC19-001	4/13/2022	East of the Former Cooling Liquid Mixing Area.	Opportunistic soil sample collected at repaving areas, just below the asphalt layer.
TCS-OPP-AOC4**	5/3/2022	TCS Bone Yard (south of TCS)	Stained soil (orange) encountered during excavation into the bone yard, for installation of remedy pipeline south of TCS.
TCS-OPP-CLAYPIPE1**	5/18/2022	Inside a clay pipe encountered during trenching of Pipeline I1 (formerly I3), near the hazardous materials/waste shed, inside TCS.	White powder sample was collected inside a clay pipe.
SWMU5E-OPP-WHT**	5/20/2022	In Pipeline I2 trench, just outside the TCS fence.	Stained material (white) encountered during trenching of Pipeline I2.

\* Phase 2 started on March 2, 2022.

\*\* These opportunistic samples will be shown in Attachment C figure of the next monthly report.

**Attachment D**  
**Perimeter Air Sampling Analytical Results**

## Attachment D. Perimeter Air Sampling Analytical Results

In conformance with the approved *Construction/Remedial Action Work Plan for the Final Groundwater Remedy, PG&E Topock Compressor Station, Needles, California* (CH2M, 2015), air monitoring has been conducted during construction to evaluate the ongoing effectiveness of the dust control program, to guide modifications to field activities and engineering control measures, if necessary, and to document that construction activities do not result in the migration of soil contaminants beyond the work area boundaries.

Perimeter air monitoring has been performed if construction activities have the potential to generate visible dust. The air monitoring program consists of both real-time fugitive dust monitoring and perimeter air sampling for select soil contaminants. Locations to be monitored and sampled are as follows:

- Real-time fugitive dust monitoring is performed at the perimeter of the work areas (outside of the exclusion zone) that have the potential to generate visible dust, including the Construction Headquarters (CHQ) and the Soil Processing Yard (SPY).
- Perimeter air sampling for hexavalent chromium is performed at the perimeter of the work areas (outside of the exclusion zone) that are inside Areas of Concern (AOCs) within the construction footprint where hexavalent chromium concentrations in soil have been historically reported. Air sampling for hexavalent chromium in the SPY will be performed when soil from AOCs with reported concentrations of hexavalent chromium is actively being processed. Air sampling may also be performed at other work areas at the site based on hexavalent chromium concentrations reported from new soil data or based on field observations during construction activities.
- Air sampling for asbestos will be limited to work areas where asbestos-containing material (ACM) has been observed in prior field investigations, including two areas in AOC 12 and one area in AOC 4. Perimeter air monitoring may also be performed at other work areas at the site if ACM is discovered during construction activities.

Project-specific levels of concern (LOCs) and action levels were developed as an indicator to determine whether additional dust control measures, as presented in the project's Dust Control Plan required by the Mojave Desert Air Quality Management District (MDAQMD), are necessary.

- The LOCs, which represent conservative concentrations of compounds that receptors outside the work area could be safely exposed to during construction, have been evaluated for all compounds that have been detected in soil samples collected at the site in the prior investigations. The LOCs were developed using standard U.S. Environmental Protection Agency (USEPA) and California Environmental Protection Agency risk assessment methodology, toxicology data, and exposure assumptions (USEPA, 2009, 2017; California Department of Toxic Substances Control [DTSC], 2018). Both cancer and noncancer health effects were considered. For each type of health effect, the LOC was back-calculated from an established target or from acceptable cancer risk or noncancer hazard where USEPA or DTSC toxicity values are available. The LOCs for cancer effects are based on a target excess cancer risk of one in a million ( $1 \times 10^{-6}$ ). The LOCs for noncancer effects are based on a target hazard quotient of 1. The LOCs were developed using these assumptions:
  - Receptors are present outside the perimeter of the work areas
  - Exposure via inhalation is 10 hours per day for a 10 days on/4 days off schedule
  - Duration of Phase 1 of the final groundwater remedy construction is 20 months
- The action level for fugitive dust monitoring is 100 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) for a net (downwind minus upwind) dust concentration. This action level is based on MDAQMD Rule 403, Part C. A 10-hour time-weighted average of readings collected throughout the work day will be used to document compliance with MDAQMD Rule 403.
- For analytes detected in soil, the following equation was used to calculate maximum allowable airborne particulate concentrations for receptor exposure outside the work area (based on the approach presented by Marlowe (1999):

$$AL = \frac{LOC \times 1,000,000 \text{ mg/kg}}{CS}$$

Where:

AL = action level for airborne particulates ( $\mu\text{g}/\text{m}^3$ )

LOC = Project specific risk-based level of concern ( $\mu\text{g}/\text{m}^3$ )

CS = maximum detected concentration of compound in site soil (milligrams per kilogram [ $\text{mg}/\text{kg}$ ])

Action levels were determined as follows:

- Soil data from prior investigations were gathered for the entire site.
- Sample locations within the maximum construction footprint were evaluated. Some sample locations were removed from evaluation as they were within the compressor station in locations where no construction activities will actually occur.
- The maximum reported soil concentration for each compound was determined and then used to calculate an airborne particulate action level.
- All compounds had allowable airborne particulate action levels greater than  $100 \mu\text{g}/\text{m}^3$  except for hexavalent chromium at a few locations.
- Lead does not have USEPA or DTSC toxicity values; however, an action level was calculated using the DTSC (2011) LeadSpread 8 model. This is based on the maximum reported soil concentration for lead of  $1,400 \text{ mg}/\text{kg}$  from samples collected within the construction footprint and a blood level of concern through inhalation of 1 microgram per deciliter. The resulting action level for lead is  $548 \mu\text{g}/\text{m}^3$ .
- Therefore, keeping fugitive dust below the action level  $100 \mu\text{g}/\text{m}^3$  will result in airborne particulate concentrations of contaminants (other than hexavalent chromium) remaining below their respective LOCs.
- Fugitive dust monitoring will be used to evaluate airborne contaminants in dust for all compounds except for hexavalent chromium.

In May 2022, 61 real time dust observation/monitoring events were conducted at the perimeter of the work areas (outside of the exclusion zone). No exceedance of the action level for fugitive dust monitoring ( $100 \mu\text{g}/\text{m}^3$ ) was observed in May 2022.

Nine air sampling events occurred in May 2022. Of which, one event was conducted at the SPY on May 5, 2022, one air sampling event was conducted in the East Ravine during the re-establishment of the access route after the March storm event, and seven air sampling events during trenching for installation of Pipelines M2, M4, and I3 inside TCS.

Tables D-1a and D-1b of **Attachment D** present all analytical results from air sampling events conducted during Phase 2 remedy construction available at this time. All results are below the project level of concern (LOC) for hexavalent chromium which is  $0.00094 \mu\text{g}/\text{m}^3$ .

#### References Cited:

California Department of Toxic Substances Control (DTSC). 2011. [LeadSpread8](#).

California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment Note 3 – DTSC-Modified Screening Levels (DTSC-SLs), California Department of Toxic Substances Control, Human and Ecological Risk Office (HERO). January.

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Marlowe, C. 1999. *Safety Now! Controlling Chemical Exposures at Hazardous Waste Sites with Real-Time Measurements*. Fairfax, Va.: American Industrial Hygiene Association Press.

U.S. Environmental Protection Agency (USEPA). 2009. *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment)*. Final. OSWER 9285.7-82. January.

U.S. Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs)—Generic Tables. November.

**Table D-1. Perimeter Air Sampling Results – Hexavalent Chromium**

May 2022 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup  
PG&E Topock Compressor Station, Needles, California

Location ID	Location	Sampling Date	Hexavalent Chromium Concentration in micrograms per cubic meter
GRAM-SPY-U1-Cr6-20220318	SPY Upwind	3/18/2022	Not detected at a reporting limit of 0.000137 microgram per cubic meter
GRAM-SPY-D1-Cr6-20220318	SPY Downwind 1- West	3/18/2022	Not detected at a reporting limit of 0.000135 microgram per cubic meter
GRAM-SPY-D2-Cr6-20220318	SPY Downwind 2- East	3/18/2022	Not detected at a reporting limit of 0.000135 microgram per cubic meter
GRAM-SPY-U1-Cr6-20220322	SPY Upwind	3/22/2022	Not detected at a reporting limit of 0.000129 microgram per cubic meter
GRAM-SPY-D1-Cr6-20220322	SPY Downwind 1- West	3/22/2022	Not detected at a reporting limit of 0.000131 microgram per cubic meter
GRAM-SPY-D2-Cr6-20220322	SPY Downwind 2- East	3/22/2022	Not detected at a reporting limit of 0.000130 microgram per cubic meter
GRAM-SPY-U1-Cr6-20220401	SPY Upwind	4/1/2022	Not detected at a reporting limit of 0.000121 microgram per cubic meter
GRAM-SPY-D1-Cr6-20220401	SPY Downwind 1- West	4/1/2022	Not detected at a reporting limit of 0.000120 microgram per cubic meter
GRAM-SPY-D2-Cr6-20220401	SPY Downwind 2- East	4/1/2022	Not detected at a reporting limit of 0.000118 microgram per cubic meter
GRAM-SPY-D1-Cr6-20220401-Dup	SPY Downwind 1- West	4/1/2022	Not detected at a reporting limit of 0.000120 microgram per cubic meter
GRAM-AOC10-U1-Cr6-20220504	EAST RAVINE- Upwind	5/4/2022	Not detected at a reporting limit of 0.000112 microgram per cubic meter
GRAM-AOC10-D1-Cr6-20220504	EAST RAVINE- Downwind 1	5/4/2022	Not detected at a reporting limit of 0.000115 microgram per cubic meter
GRAM-AOC10-D2-Cr6-20220504	EAST RAVINE- Downwind 2	5/4/2022	Not detected at a reporting limit of 0.000115 microgram per cubic meter
GRAM-AOC10-D1-Cr6-20220504-Dup	EAST RAVINE- Downwind 1	5/4/2022	Not detected at a reporting limit of 0.000115 microgram per cubic meter
GRAM-SPY-U1-Cr6-20220505	SPY- Upwind	5/5/2022	Detect of 0.0000241 microgram per cubic meter. Detection limit is 0.0000229 microgram per cubic meter.
GRAM-SPY-D1-Cr6-20220505	SPY- Downwind 1- West	5/5/2022	Not detected at a reporting limit of 0.000124 microgram per cubic meter
GRAM-SPY-D2-Cr6-20220505	SPY- Downwind 2- East	5/5/2022	Not detected at a reporting limit of 0.000112 microgram per cubic meter
GRAM-AOC13-U1-Cr6-20220506	TCS/PLI3- Upwind	5/6/2022	Not detected at a reporting limit of 0.000120 microgram per cubic meter
GRAM-AOC13-D1-Cr6-20220506	TCS/PLI3- Downwind 1	5/6/2022	Not detected at a reporting limit of 0.000121 microgram per cubic meter
GRAM-AOC13-D2-Cr6-20220506	TCS/PLI3- Downwind 2	5/6/2022	Not detected at a reporting limit of 0.000121 microgram per cubic meter
GRAM-AOC04-U1-Cr6-20220510	TCS/PLM2- Upwind	5/10/2022	Detect of 0.0000261 microgram per cubic meter. Value is above the detection limit but below the quantitation limit.

Location ID	Location	Sampling Date	Hexavalent Chromium Concentration in micrograms per cubic meter
GRAM-AOC04-D1-Cr6-20220510	TCS/PLM2- Downwind 1	5/10/2022	Not detected at a reporting limit of 0.000121 microgram per cubic meter
GRAM-AOC04-D2-Cr6-20220510	TCS/PLM2- Downwind 2	5/10/2022	Detect of 0.0000334 microgram per cubic meter. Value is above the detection limit but below the quantitation limit.
GRAM-AOC13-U1-Cr6-20220511	TCS/PLI3- Upwind	5/11/2022	Not detected at a reporting limit of 0.000111 microgram per cubic meter
GRAM-AOC13-D1-Cr6-20220511	TCS/PLI3- Downwind 1	5/11/2022	Not detected at a reporting limit of 0.000112 microgram per cubic meter
GRAM-AOC13-D1-Cr6-20220511-Dup	TCS/PLI3- Downwind 1	5/11/2022	Not detected at a reporting limit of 0.000112 microgram per cubic meter
GRAM-AOC13-D2-Cr6-20220511	TCS/PLI3- Downwind 2	5/11/2022	Not detected at a reporting limit of 0.000112 microgram per cubic meter
GRAM-AOC13-U1-Cr6-20220516	TCS/PLM4- Upwind	5/16/2022	Not detected at a reporting limit of 0.000127 microgram per cubic meter
GRAM-AOC13-D1-Cr6-20220516	TCS/PLM4- Downwind 1	5/16/2022	Not detected at a reporting limit of 0.000126 microgram per cubic meter
GRAM-AOC13-D1-Cr6-20220516-Dup	TCS/PLM4- Downwind 1	5/16/2022	Not detected at a reporting limit of 0.000127 microgram per cubic meter
GRAM-AOC13-D2-Cr6-20220516	TCS/PLM4- Downwind 2	5/16/2022	Detect of 0.0000305 microgram per cubic meter. Value is above the detection limit but below the quantitation limit.
GRAM-AOC04-U1-Cr6-20220517	TCS/PLM2- Upwind	5/17/2022	Not detected at a reporting limit of 0.000127 microgram per cubic meter
GRAM-AOC04-D1-Cr6-20220517	TCS/PLM2- Downwind 1	5/17/2022	Not detected at a reporting limit of 0.000133 microgram per cubic meter
GRAM-AOC04-D2-Cr6-20220517	TCS/PLM2- Downwind 2	5/17/2022	Detect of 0.0000294 microgram per cubic meter. Value is above the detection limit but below the quantitation limit.
GRAM-AOC13-U1-Cr6-20220517	TCS/PLM4- Upwind	5/17/2022	Not detected at a reporting limit of 0.000134 microgram per cubic meter
GRAM-AOC13-D1-Cr6-20220517	TCS/PLM4- Downwind 1	5/17/2022	Detect of 0.0000311 microgram per cubic meter. Value is above the detection limit but below the quantitation limit.
GRAM-AOC13-D2-Cr6-20220517	TCS/PLM4- Downwind 2	5/17/2022	Not detected at a reporting limit of 0.000135 microgram per cubic meter
GRAM-AOC13-U1-Cr6-20220519	TCS/PLM4- Upwind	5/19/2022	Not detected at a reporting limit of 0.000111 microgram per cubic meter
GRAM-AOC13-D1-Cr6-20220519	TCS/PLM4- Downwind 1	5/19/2022	Not detected at a reporting limit of 0.000111 microgram per cubic meter
GRAM-AOC13-D2-Cr6-20220519	TCS/PLM4- Downwind 2	5/19/2022	Detect of 0.0000232 microgram per cubic meter. Value is above the detection limit but below the quantitation limit.

\* For brevity and readability, perimeter air sampling results for hexavalent chromium collected during Phase 1 construction are not included in this report. For those results, please see Table D-1a of the February 2022 Monthly Progress Report. The monthly progress reports can be accessed via the Project website at [link](#).

**Attachment E**  
**Noise Monitoring Results**  
**(SEIR NOISE-2 Requirement)**

## Attachment E. Noise Monitoring Results

In conformance with the Supplemental Environmental Impact Report (SEIR) Mitigation Measure NOISE-2, noise monitoring has been conducted with ANSI S1.4 Type 1, precision sound level meters when construction activities are within the specified distance (e.g., 1,850 feet from sensitive receptors in California) at approved monitoring locations previously determined in coordination with the Tribes and land owners/managers. The goal of the noise monitoring is to identify if noise levels from project construction activities exceed applicable standards of the San Bernardino and Mohave County codes. Exceedance of standards would require coordination with the Tribes and land owners/managers to evaluate the potential constraints and locations for temporary engineered acoustical barriers. Consistent with the request of the Tribes, monitoring equipment is not left at the approved monitoring locations; rather, it is mounted on a tripod for attended representative measurements and removed when the monitoring event is complete.

When a new construction activity is conducted or a previously monitored construction activity is conducted closer to a noise-sensitive area, monitoring is conducted at more frequent intervals to evaluate the potential need for an acoustical barrier. As the activities continue in the same location and multiple attended measurements indicate that the applicable standard has not been exceeded by the construction activity, periodic attending monitoring events are conducted to confirm continued compliance.

The attended monitoring events document the A-weighted equivalent continuous sound level ( $L_{eq}$ ) at periodic intervals (e.g., 5, 10, 15, 20, 30, 40, 50 and 60 minutes). The trend of the data at these intervals is evaluated in the field to assess the stability in the sound level to determine the duration of the monitoring event. When the interval data are relatively stable or clearly below the standard, the attended monitoring event will typically be 15 to 30 minutes in duration. As the applicable standards are expressed in terms of the 24-hour average day-night sound level ( $L_{dn}$ ) which is based on the  $L_{eq}$  metric, the measured  $L_{eq}$  is compared to the applicable  $L_{dn}$  standard for mobile noise sources (i.e., 60 A-weighted decibels [dBA] for Park Moabi, 65 dBA at all other locations). This results in a reasonable and conservative assessment given construction activities are not emitting noise continuously over a 24-hour period, nor are they occurring frequently during the nighttime hours (10 p.m. to 7 a.m.).

In May 2022, the following monitoring events were conducted:

- Nine events at a location west of the mobile home park at Moabi Regional Park. Construction activities closest to this monitoring location include activities at the SPY and CHQ, as well as construction traffic on NTH. The sound level typically varied between 39 and 49 dBA, with an average and median of 43 dBA.
- Fourteen events at a location in the Upland just off the IM-3 access road, and near the top of the hill closest to the NTH and MW-20 Bench. Construction activities closest to this monitoring location include activities at the MW-20 Bench and traffic on the IM-3 access road. The sound level varied between 44 and 54 dBA, with an average and median of 51 dBA.
- Twelve events at the old restaurant location west of NTH. Construction activities closest to this monitoring location include construction traffic on NTH and along the northern entrance to the floodplain. The sound level varied between 39 and 56 dBA, with an average and median of 47-48 dBA.
- Fourteen one events at a location on a bluff below TCS, just south of I-40 and east of the Topock Maze. Construction activities closest to this monitoring location are associated with drilling of FW-02 well in Bat Cave Wash, drilling of TCS-1 and TCS-2 wells in TCS, and remedy pipeline installation in TCS. The sound level typically varied between 52 and 56 dBA, with an average and median of 52-54 dBA.

Sound monitoring will continue as work progresses and moves into new areas to identify when an acoustical barrier needs to be considered.

**Attachment F**  
**Six-Week Look-Ahead Schedule**

**Six-Week Look-Ahead Schedule**  
*PG&E Topock Compressor Station Remedial Activities*

Activity	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Primary Planned Activities	6/5/2022	6/6/2022	6/7/2022	6/8/2022	6/9/2022	6/10/2022	6/11/2022
Start Time (PST)	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM
TCS Pipelines <b>G5*</b>	No Work	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	No Work
Site Wide Groundwater Sampling <b>G3*, F3*, E4*, F4*, G4*, D5*, E5*, F5*, G5*, D6*, E6*, F6*, &amp; G6*</b>	No Work	Transducer downloads Quarterly PCM and RCM sampling	Transducer downloads Quarterly PCM and RCM sampling	Transducer downloads Quarterly PCM and RCM sampling	Transducer downloads Quarterly PCM and RCM sampling	Quarterly PCM and RCM sampling	No Work
Site Wide Revegetation <b>F5*</b>	No Work	^Manual Weed Abatement Irrigation O&M/Watering	^Manual Weed Abatement	^Manual Weed Abatement	^Manual Weed Abatement Irrigation O&M/Watering	No Work	No Work
Site Wide Construction Punchlist <b>G5*, F5*, E5*, E1*, D1*</b>	^Node 2/C14 Slope Protection	^Node 2/C14 Slope Protection	^Node 2/C14 Slope Protection	^Node 2/C14 Slope Protection	^Node 2/C14 Slope Protection	No Work	No Work
Site Wide Electrical & Controls Construction <b>E5*, F5*, G5*</b>	No Work	PSI - Punch List - Tentative	PSI - Punch List - Tentative	PSI - Punch List - Tentative	PSI - Punch List - Tentative	No Work	No Work
Phase 2 Drilling <b>G5*</b>	^Drilling TCS-1; ER-2 Development	^Drilling TCS-1; ER-2 Development	^Drilling TCS-1; ER-2 Development	^Drilling TCS-1; ER-2 Development	^Drilling TCS-1; ER-2 Development	No Work	No Work
Primary Planned Activities	6/12/2022	6/13/2022	6/14/2022	6/15/2022	6/16/2022	6/17/2022	6/18/2022
Start Time (PST)	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM
TCS Pipelines <b>G5*</b>	No Work	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	No Work
Site Wide Groundwater Sampling <b>G3*, F3*, E4*, F4*, G4*, D5*, E5*, F5*, G5*, D6*, E6*, F6*, &amp; G6*</b>	No Work	Monthly PCM Dose response samples, Quarterly PCM and RCM sampling	Monthly PCM Dose response samples, Quarterly PCM and RCM sampling	Monthly PCM Dose response samples, Quarterly PCM and RCM sampling	Monthly PCM Dose response samples, Quarterly PCM and RCM sampling	Monthly PCM Dose response samples, Quarterly PCM and RCM sampling	No Work
Site Wide Revegetation <b>F5*</b>	No Work	^Manual Weed Abatement	^Manual Weed Abatement Irrigation O&M/Watering	^Manual Weed Abatement Soil Sampling	^Manual Weed Abatement Soil sampling	Irrigation O&M/Watering	No Work
Site Wide Construction Punchlist <b>G5*, F5*, E5*, E1*, D1*</b>	No Work	^Frontier Line Location/Relocation	^Frontier Line Location/Relocation	^Frontier Line Location/Relocation	^Frontier Line Location/Relocation	^Frontier Line Location/Relocation	No Work
Site Wide Electrical & Controls Construction <b>E5*, F5*, G5*</b>	No Work	Final Inspections - Tentative	Final Inspections - Tentative	Final Inspections - Tentative	Final Inspections - Tentative	Final Inspections - Tentative	No Work
Phase 2 Drilling <b>G5*</b>	No Work	^TCS-1 Well Installation; ER-2 Development	^TCS-1 Well Installation; ER-2 Development	^TCS-1 Well Installation; ER-2 Development	^TCS-1 Well Installation; ER-2 Development	^TCS-1 Well Installation; ER-2 Development	No Work
Primary Planned Activities	6/19/2022	6/20/2022	6/21/2022	6/22/2022	6/23/2022	6/24/2022	6/25/2022
Start Time (PST)	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM
TCS Pipelines <b>G5*</b>	No Work	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	No Work
Non-TCS Pipelines <b>E5*</b>	No Work	No Work	No Work	No Work	No Work	No Work	No Work
Site Wide Groundwater Sampling <b>G3*, F3*, E4*, F4*, G4*, D5*, E5*, F5*, G5*, D6*, E6*, F6*, &amp; G6*</b>	No Work	No Work	No Work	No Work	No Work	No Work	No Work
Site Wide Revegetation <b>F5*</b>	No Work	Biologist oversight of herbicide treatment	Irrigation O&M/Watering Biologist oversight of herbicide treatment	Biologist oversight of herbicide treatment	Biologist oversight of herbicide treatment	Irrigation O&M/Watering	No Work
Biological Survey	No Work	No Work	No Work	No Work	Yellow-billed cuckoo survey	Yellow-billed cuckoo survey	No Work
Site Wide Construction Punchlist <b>G5*, F5*, E5*, E1*, D1*, G3*</b>	No Work	No Work	^Frontier Line Location ^Pond Road Storm Repair and Grading	^Frontier Line Location ^Pond Road Storm Repair and Grading	^Frontier Line Location ^Pond Road Storm Repair and Grading	^MW-20 Bench Regrading - Tentative ^Pond Road Storm Repair and Grading	^MW-20 Bench Regrading - Tentative
Site Wide Electrical & Controls Construction <b>E5*, F5*, G5*</b>	No Work	No Work	No Work	No Work	No Work	No Work	No Work
Phase 2 Drilling <b>G5*</b>	No Work	No Work	^Drilling TCS-2 ER-2 Development	^Drilling TCS-2 ER-2 Testing	^Drilling TCS-2 ER-2 Alignment	^Drilling TCS-2	^Drilling TCS-2
Primary Planned Activities	6/26/2022	6/27/2022	6/28/2022	6/29/2022	6/30/2022	7/1/2022	7/2/2022
Start Time (PST)	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM
TCS Pipelines <b>G5*</b>	No Work	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	No Work
Non-TCS Pipelines <b>E5*</b>	No Work	^Non-TCS Phase 2A Pipelines - Tentative	^Non-TCS Phase 2A Pipelines - Tentative	^Non-TCS Phase 2A Pipelines - Tentative	^Non-TCS Phase 2A Pipelines - Tentative	^Non-TCS Phase 2A Pipelines - Tentative	No Work
Site Wide Groundwater Sampling <b>G3*, F3*, E4*, F4*, G4*, D5*, E5*, F5*, G5*, D6*, E6*, F6*, &amp; G6*</b>	No Work	No Work	No Work	No Work	No Work	No Work	No Work
Site Wide Revegetation <b>F5*</b>	No Work	Irrigation O&M/Watering	No Work	No Work	Irrigation O&M/Watering	No Work	No Work
Site Wide Construction Punchlist <b>G5*, F5*, E5*, E1*, D1*</b>	No Work	No Work	No Work	No Work	No Work	No Work	No Work

Six-Week Look-Ahead Schedule  
PG&E Topock Compressor Station Remedial Activities

Activity	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Site Wide Electrical & Controls Construction <b>E5*, F5*, G5*</b>	No Work	No Work	No Work	No Work	No Work	No Work	No Work
Phase 2 Drilling <b>G5*</b>	^Drilling TCS-2	^Drilling TCS-2	^Drilling TCS-2	^Drilling TCS-2; Development Rig inspection; ER-6 Step Test	^Drilling TCS-2; ER-6 Step Test	No Work	No Work
Primary Planned Activities	7/3/2022	7/4/2022	7/5/2022	7/6/2022	7/7/2022	7/8/2022	7/9/2022
Start Time (PST)	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM
TCS Pipelines <b>G5*</b>	No Work	No Work	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	No Work
Non-TCS Pipelines <b>E5*</b>	No Work	No Work	No Work	^Non-TCS Phase 2A Pipelines - Tentative	^Non-TCS Phase 2A Pipelines - Tentative	^Non-TCS Phase 2A Pipelines - Tentative	^Non-TCS Phase 2A Pipelines - Tentative
Site Wide Groundwater Sampling <b>G3*, F3*, E4*, F4*, G4*, D5*, E5*, F5*, G5*, D6*, E6*, F6*, &amp; G6*</b>	No Work	No Work	No Work	No Work	No Work	No Work	No Work
Site Wide Revegetation <b>F5*</b>	No Work	No Work	Irrigation O&M/Watering	No Work	No Work	Irrigation O&M/Watering	No Work
Biological Survey	No Work	No Work	No Work	No Work	Yellow-billed cuckoo survey	Yellow-billed cuckoo survey	No Work
Stormwater <b>G5*</b>	No Work	No Work	No Work	^Pipeline B Stormwater	^Pipeline B Stormwater	^Pipeline B Stormwater	^Pipeline B Stormwater
Site Wide Electrical & Controls Construction <b>E5*, F5*, G5*</b>	No Work	No Work	No Work	No Work	No Work	No Work	No Work
Phase 2 Drilling <b>G5*</b>	No Work	No Work	No Work	^TCS-2 Well Installation; TCS-1 well development	^TCS-2 Well Installation; TCS-1 well development	^TCS-2 Well Installation; TCS-1 well development	^TCS-2 Well Installation; TCS-1 well development
Primary Planned Activities	7/10/2022	7/11/2022	7/12/2022	7/13/2022	7/14/2022	7/15/2022	7/16/2022
Start Time (PST)	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM
TCS Pipelines <b>G5*</b>	No Work	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	^TCS Phase 2A Pipelines	No Work
Non-TCS Pipelines <b>E5*</b>	^Non-TCS Phase 2A Pipelines - Tentative	^Non-TCS Phase 2A Pipelines - Tentative	^Non-TCS Phase 2A Pipelines - Tentative	^Non-TCS Phase 2A Pipelines - Tentative	^Non-TCS Phase 2A Pipelines - Tentative	No Work	No Work
Site Wide Groundwater Sampling <b>G3*, F3*, E4*, F4*, G4*, D5*, E5*, F5*, G5*, D6*, E6*, F6*, &amp; G6*</b>	No Work	No Work	No Work	No Work	No Work	No Work	No Work
Site Wide Revegetation <b>F5*</b>	No Work	Irrigation O&M/Watering	No Work	No Work	No Work	Irrigation O&M/Watering	No Work
Biological Survey	No Work	No Work	No Work	No Work	Yellow-billed cuckoo survey	Yellow-billed cuckoo survey	No Work
Stormwater <b>G5*</b>	^Pipeline B Stormwater	^Pipeline B Stormwater	^Pipeline B Stormwater	^Pipeline B Stormwater	^Pipeline B Stormwater	^Pipeline B Stormwater	^Pipeline B Stormwater
Site Wide Electrical & Controls Construction <b>E5*, F5*, G5*</b>	No Work	No Work	No Work	No Work	No Work	No Work	No Work
Phase 2 Drilling <b>G5*</b>	^TCS-2 Well Installation; TCS-1 well development	^TCS-2 Well Installation; TCS-1 well development	^TCS-2 Well Installation; TCS-1 well development	^TCS-2 Well Installation; TCS-1 well development	^TCS-2 Well Installation; TCS-1 well development	No Work	No Work

Notes:

The timing of field activities is estimated and may change day-to-day based on site conditions, field progress, or other factors.

When planning to visit the site to observe a specific activity or area, please contact Curt Russell (760.791.5884) for the latest schedule information.

\* **Bold font** = Work location as described on the Project Grid Map. See Project Grid Map tab for location of grid positions provided on the Look-Ahead.

^ = Intrusive/Ground-Disturbing work activity





Figure showing a grid superimposed on the Topock site map. Each grid position is denoted by an letter followed by a number.

**Attachment G**  
**Validated Groundwater Monitoring Data**  
**(DTSC Condition of Approval xi)**  
(Groundwater Data Presented in Separate PDF)