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February 9, 2019

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Subject: **January 2019 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup, PG&E Topock Compressor Station, Needles, California**
(Document ID: TPK_Monthly Progress Report_January 2019)

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) (¶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 during January 2019 as well as activities planned for the next six weeks (February 4 to March 16, 2019), and presents available results from sampling and testing performed in January 2019.

In addition, this report discusses material deviations from the approved design documents and/or the C/RAWP, if any, that PG&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 in support of DOI's 2012 Community Involvement Plan and DTSC's 2013 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 10th 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 fourth monthly progress report. Please contact me at (760) 791-5884 if you have any questions or comments regarding this submittal.

Sincerely,

Curt Russell
Topock Project Manager

Topock Project Executive Abstract

Document Title: *January 2019 Monthly Progress Report for the Groundwater Remedy Construction and Startup, PG&E Topock Compressor Station, Needles, California*

Submitting Agency: DOI, DTSC

Final Document? ☒ Yes ☐ No

Date of Document: 2/10/2019

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

Priority Status: ☐ HIGH ☒ MED ☐ LOW

Is this time critical? ☐ Yes ☒ No

Type of Document:

☐ Draft ☒ Report ☐ Letter ☐ Memo

☐ Other / Explain:

Action Required:

☒ Information Only ☐ Review & Input

☐ Other / Explain:

What does this information pertain to?

- ☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)
- ☐ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)
- ☐ Corrective Measures Study (CMS)/Feasibility Study (FS)
- ☒ Corrective Measures Implementation (CMI)/ Remedial Action(RA)
- ☐ California Environmental Quality Act (CEQA)/ Environmental Impact Report (EIR)
- ☐ Interim Measures
- ☐ Other / Explain:

Is this a Regulatory Requirement?

- ☒ Yes
- ☐ No

If no, why is the document needed?

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

The consequence for not doing this item is PG&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).

Other Justification/s:

☐ Permit ☐ Other / Explain:

Brief Summary of attached document:

This monthly report describes activities taken during January 2019 and activities planned for the next six weeks (February 4 to March 16, 2019) and presents available results from sampling and testing in January 2019. In addition, this report discusses material deviations from the approved design documents and/or the *Construction/ Remedial Action Work Plan* (C/RAWP), if any, that PG&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 2013 Community Outreach Plan, as well as contacts with local community, representatives of the press, and/or public interest groups, if any.

Written by: Pacific Gas and Electric Company

Recommendations:

Provide input to PG&E.

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

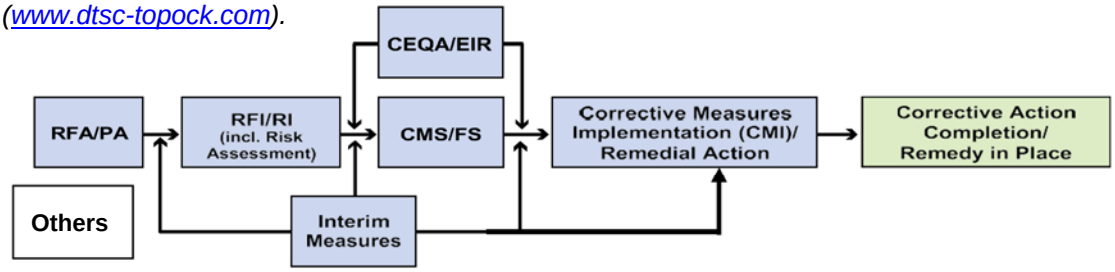
This submittal is required in compliance with the CACA, CD, and pursuant to the C/RAWP.

Other requirements of this information?

None.

Related Reports and Documents:

Click any boxes in the Regulatory Road Map (below) to be linked to the Documents Library on the DTSC Topock Web Site (www.dtsc-topock.com).



Legend
RFA/PA – RCRA Facility Assessment/Preliminary Assessment
RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment)
CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study

January 2019
Monthly Progress Report for the Final Groundwater Remedy Construction and Startup

PG&E Topock Compressor Station
Needles, California

Document ID: TPK_Monthly Progress Report_January 2019

February 2019

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

µg/m^3	micrograms per cubic meter
AOC	Area of Concern
APE	Area of Potential Effect
ARAR	applicable or relevant and appropriate requirement
bgs	below ground surface
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
DOI	United States Department of the Interior
DTSC	California Department of Toxic Substances Control
ERTC	Environmental Release to Construct
FCR	field contact representative
LOC	level of concern
NTH	National Trails Highway
PBA	Programmatic Biological Agreement
PG&E	Pacific Gas and Electric Company
RCRA	Resource Conservation and Recovery Act
SEIR	Subsequent Environmental Impact Report
SPY	Soil Processing Yard
SWPPP	Stormwater Pollution Prevention Plan
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 electronic progress reports during construction of the remedial action and 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 above 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 fourth of the monthly progress reports that will be submitted to DOI and DOI for the duration of the remedy construction and startup. This monthly progress report documents activities during January 2019, and follows the content and format described in Exhibit 2.6-2 of the approved C/RAWP. The report is organized as follows:

- **Section 2.1** describes 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.
- **Section 2.2** summarizes 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, 2013) 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 2.3** describes the planned activities for the next six weeks (construction activities, sampling and monitoring events, etc.).
- **Section 2.4** 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 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 Description of Activities and Work Completed

2.1.1 Work Completed

Highlights of key activities related to the construction of the groundwater remedy completed during January 2019 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), Tribes, and the Technical Review Committee (TRC). PG&E continues to send these weekly emails to date. As of January 31, 2019, a total of 28 six-week look-ahead schedule emails have been sent. **Of those, four six-week look-ahead schedule emails were sent in January 2019 (on January 2, 6, 13, and 16, 2019)**.
  - On January 16, 2019, PG&E announced that the project will be temporarily shut down for two weeks; therefore, no construction fieldwork occurred between January 16 and 31, 2019.
- On August 10, 2018, PG&E issued the first Environmental Release to Construct (ERTC) to contractors. As of January 31, 2019, a total of 29 ERTCs were issued for mobilization and construction activities (see Table 2-1). **Of those, four ERTCs were issued in January 2019.**
- 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 January 2019, a total of 13 daily construction activities lists were published and discussed at the morning tailboards.**
- In January 2019, PG&E completed the following construction activities (see Figures 2-1 and 2-2 for locations of key areas and wells, as well as select photos in **Attachment A**):
  - Installed compliant night-time lighting at the Soil Processing Yard (SPY) to allow for early morning biological clearance and work in the yard, and to delineate the front parking area.
  - Removed form board from concrete at the Construction Headquarters (CHQ) access road.
  - Installed conduit and concrete cap in the CHQ access road area.
  - Installed handrail for walking path from MW-20 Bench to the floodplain.
  - Participated in a site walk to MW-X and MW-Y' locations at the invitation of the U.S. Bureau of Land Management (BLM).
  - **Pilot Boring/Well Installation Activities (Rotosonic drilling):**
    a) Completed backfilling pilot borehole at IRZ-9 in the floodplain.
    b) Completed drilling and began installation of well MW-F on January 9, 2019 (drilled to 131 feet and reamed to 122 feet).
    c) See **Attachment B** for available information such as boring logs and water analytical results.
  - **Baseline/Opportunistic Soil Sampling Activities:**
    - No baseline or opportunistic soil sampling occurred in January 2019.
    - See **Attachment C** for information about soil sampling locations and soil analytical results that are available at this time.

- **Perimeter Air Sampling Activities:**
  a) Dust monitoring was conducted through January 16, 2019 at the perimeter of select work areas.
  b) 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. No perimeter air sampling was conducted in January 2019.
  c) See **Attachment D** for information about previous air sampling locations and air analytical results.
- **Noise Monitoring Activities:**
  a) Noise monitoring is conducted at pre-approved locations closest to the construction activities. Through January 31, 2019, noise monitoring was conducted at the following pre-approved locations:
     - Location west of the mobile home park at Moabi Regional Park,
     - Location Maze B Combined Area 1/2, and
     - Location Maze C Area 1.
  b) See **Attachment E** for information about pre-approved noise monitoring locations and a summary of noise monitoring data available to date.

2.1.2 Work Already Underway and During Implementation

As of January 31, 2019, PG&E has started and will continue to perform the following activities:

- Continue site preparation, potholing, and vegetation clearance along Pipeline C segments C1 to C6.
- Continue non-intrusive site preparation work for the Brine Tanks containment upgrade at the MW-20 Bench.
- Continue drilling at MW-B in the floodplain.
- Continue drilling at MW-N in the upland.
- Continue well development at MW-L in the upland.
- Continue welding of the water service pipes for wells in the floodplain.
- Complete well installation at MW-F along NTH.
- Continue weekly watering of the transplanted plants at the approved location off NTH (except when it rains).
- Continue to conduct noise and dust monitoring and inspection of Stormwater Pollution Prevention Plan (SWPPP) Best Management Practices (BMPs).
- Continue to track and manage waste generated.
- Continue to manage displaced soil per the approved Soil Management Plan (Appendix L of the C/RAWP).

2.1.3 Freshwater Usage, Waste Generation and Management

As of January 31, 2019, the volumes of freshwater used for remedy construction and waste streams generated from remedy construction (starting on October 2, 2018) are as follows:

- Approximately 619,000 gallons of freshwater was used, of which an approximate 2 percent was for pilot boring/well installation and general construction activities (e.g., CHQ access road work) and 98 percent was for fugitive dust suppression.

- Approximately 45.1 cubic yards of drill cuttings were generated from well drilling and geotechnical investigation. Of those, approximately 1.3 cubic yards are clay. Drill cuttings are stored in 55-gallon drums or roll-off bins with closed tops. Samples are collected for characterization and analyzed in accordance with the Soil Management Plan.
  - Three 55-gallon drums containing drill cuttings from the Pipeline F geotechnical investigation; two soil bins containing drill cuttings from MW-L; one soil bin containing drill cuttings from pilot borings at IRZ-20, IRZ-23, and MW-E; and one soil bin containing drill cuttings from MW-N were sampled and classified as clean soil. The clean soil will be stockpiled at the SPY for reuse onsite.
  - Five 55-gallon drums containing clay collected from the Pipeline F geotechnical investigation were also sampled and classified as clean soil. The clay drums are stored at the SPY, separate from the other clean soil. PG&E is awaiting DOI's direction on the management of clay.
  - There has been no off-site disposal of displaced soil to date.
- Approximately 37,434 gallons of wastewater were generated from drilling operations. At each drilling location, the wastewater is initially stored in a 3,000-gallon holding tank in the primary work zone, and is transferred from the primary work zone, as needed, to 20,000-gallon frac tanks located at the MW-20 Bench. Each transfer load is tracked. Once a frac tank is full, its contents will be characterized and managed in accordance with the approved Waste Management Plan (Appendix R of the C/RAWP) and the final disposition will be reported in the monthly progress reports.
  - One wastewater frac tank was sampled in December 2018. Analytical results indicated that the wastewater is of acceptable quality for disposal at the Compressor Station evaporation pond #4. Target discharge date is early February 2019.
- Approximately 78 cubic yards of general construction waste and 24 cubic yards of recyclables were generated and transported to Republic Services in Lake Havasu City for disposal and management.
- Sanitary waste in portable toilets that is hauled offsite as needed.

2.1.4 Worker Training and Education

- PG&E continues to provide the mandatory Site Health and Safety Training for its employees and contractors on a daily basis. As of January 31, 2019, a total of 48 health and safety training sessions were held and 218 employees and contractors received the training. **Of those, in January 2019, three sessions were conducted and eight employees/contractors 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 training is offered regularly on Mondays and Thursdays, and more frequently as needed. As of January 31, 2019, a total of 47 WEAT sessions were conducted and 252 employees and contractors received the training. **Of those, in January 2019, five sessions were conducted and nine employees/ contractors were trained**. 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 classroom training. After the training, the attendees signed the training roster.
- 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 January 31, 2019, a total of 7 FCR training sessions were conducted and 33 employees and contractors received the training. **No FCR training sessions were conducted in January 2019**.
- Training records are kept electronically and at the temporary construction trailers at the SPY. The records are available upon request.

2.1.5 Status of Work Variance Requests

There was no request for work variance in January 2019. See Table 2-2 for information regarding activities related to previously proposed WVRs (i.e., material deviations from the design documents, the C/RAWP, or other approved work plans), and agencies' actions on those requests.

2.1.6 Use of Future Activity Allowance

There was no proposed use of Future Activity Allowance (FAA) to date.

2.1.7 Issues Encountered and Actions Taken to Rectify Issues/Problems

- As reported in the December 2018 monthly progress report, the available space within the current maximum construction footprint is not adequate for construction activities in several locations. These locations include Pipeline C along segments C1-C3 and just south of the BNSF railroad bridge, Pipeline C jack-and-bore pit locations on the east and west side of National Trails Highway (NTH), an area east of MW-G, the transition between Bat Cave Wash and the access road up to MW-M, and the area just south of the rip-rap inside the jurisdictional wash. Pursuant to the General Management Measure # 16 of the Programmatic Biological Agreement (PBA) (CH2M, 2014), PG&E is currently seeking approvals from BLM, USFWS, and CDFW for work outside of the designated work area (i.e., the designated maximum construction footprint). Note that all construction work is still being conducted inside the Area of Potential Effects (APE) and the SEIR Project Area.
- On January 10, 2019, a Remedial Transportation Services (RTS) truck driver was attempting to load an empty 40-cubic-yard roll-off bin. Upon setting up to lift the roll-off bin onto the truck rails, a 1-inch hydraulic hose ruptured at the rear of the truck, resulting in approximately ½ pint of oil contacting surface soil. The operator stopped the loading activity, placed a drip pan/visqueen underneath the leak, and called his supervisor. The spilled material was cleaned up in about 10 minutes, and approximately 1 ½ gallons of affected soil was placed into a 5-gallon bucket. Absorbent pads were placed into a plastic trash bag. The affected soil and absorbent pads will be disposed of off-site.
  - **Corrective action to prevent recurrence –** RTS crews will inspect equipment more regularly.
- The drill rig at MW-B (floodplain) experienced extended downtime (from January 4 through 9) due to a battery issue. Replacement parts were installed, and the drill rig was returned to service.
- The remedy construction project has been temporarily shut down since January 16, 2019 due to PG&E's filing for bankruptcy. Updates will be provided by PG&E to the agencies, Tribes, and stakeholders as to the project status.

2.1.8 Key Personnel Changes

PG&E added Kristina Bonnett to the PG&E onsite team in January 2019.

2.2 Communication with the Public

PG&E does not have any key communications with the public that occurred in January 2019.

2.3 Planned Activities for Next Six Weeks

The planned activities for next six weeks (February 4 to March 16, 2019) include the following:

- Remobilization to site during the week of February 4, 2019.
- Well installation activities:
  - Complete installation of wells MW-N, MW-F, MW-B, MW-G, and MW-D.
  - Start drilling at MW-W.
  - Complete site preparation at MW-M and IRZ-27.

  - Complete well installation at IRZ-20 and IRZ-27.
- Non-well construction activities:
  - Complete access road to the CHQ.
  - Perform clearance and grading at the CHQ.
  - Install perimeter fence at the SPY.
  - Conduct pre-characterization of soil along planned pipeline alignment and in infrastructure location within AOCs.
  - Continue grubbing and clearing along Pipeline C alignment (C1, C2, C3, C4, C5, C7, C8, C9, C10, C17).
  - Continue to conduct noise and dust monitoring and inspection of SWPPP BMPs.
  - Continue to log and manage waste generated.
  - Continue to manage displaced soil per the approved Soil Management Plan.

Attachment F 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).

2.4 Construction Schedule Review

Phase 1 of the groundwater remedy construction started on October 2, 2018. Table 2-3 presents a summary of the percent completeness for key construction activities as of January 31, 2019. PG&E will continue to look for opportunities to optimize the construction workflow and schedule.

2.5 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 report (see **Attachment G**).

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). 2013. *Community Outreach Plan, Pacific Gas and Electric Company's Topock Compressor Station, Needles, California.* http://dtsc-topock.com/sites/default/files/2013-01-11_FinalCOP_Web.pdf. January.

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.

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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 2-1 Summary of Environmental Release-To-Constructions (ERTCs) Issued to Contractors

January 2019 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	Issue Date
Non-Well ERTCs		
1	Initial mobilization activities at the Construction Headquarters (CHQ), Soil Processing Yard (SPY), and three staging areas (#9 Parking area off I-40, #18 MW-20 Bench, and #23 Transwestern Bench). Scope included installation of temporary construction trailers, portable generators, SWPPP BMPs, construction signages, and temporary construction fencing, as well as equipment staging and truck inspections.	August 10, 2018
Addendum 1 to ERTC #1	Scope included setup of wastewater and freshwater storage tanks at MW-20 Bench, improvement of the access road at the CHQ, installation of perimeter fence at the SPY, and grading at SPY.	September 21, 2018
Addendum 2 to ERTC #1	Scope included grading for drill rig setup at IRZ-20.	October 4, 2018
Addendum 3 to ERTC #1	Scope included geotechnical investigation in the footprint of the future Carbon Amendment building at the MW-20 Bench.	October 9, 2018
Addendum 4 to ERTC #1	Scope included the installation of a temporary handrail along the walkway from the MW-20 Bench to the floodplain.	December 28, 2018
2	Scope included the installation of the temporary construction water system and construction water tanks at Area #25 Route 66 Welcome Sign.	September 28, 2018
3	Scope included the installation of the Public Information Trailer, a fugitive dust sign, an information kiosk, and a construction delivery sign at the northwest corner of Park Moabi Road and National Trails Highway (NTH).	September 4, 2018
4	Scope included the installation of a truck containment pad at the TCS evaporation ponds and maintenance of the access road to the ponds.	September 24, 2018
6	Scope included the geotechnical investigation along Pipeline F alignment (on the Compressor Station entrance road).	October 3, 2018
7	Scope included the installation of traffic control along the southern end of NTH per the Traffic Control Plan.	September 17, 2018
9	Scope included the transplantation and planting of sensitive plants.	November 9, 2018
11	Scope included preparation of temporary staging areas, vegetation clearance, placement of stabilization mats, potholing in select locations, and installation of Pipeline C segments C1 through C6 in the floodplain.	January 3, 2019
12	Scope included non-intrusive site preparation work for the brine tanks containment upgrade on the MW-20 Bench (per Work Variance Request #1, see Table 2-2). A forthcoming addendum to this ERTC will be issued to include the actual upgrade activities.	January 10, 2019
Well ERTCs		
5a	Scope included the site setup, drilling, testing, and demobilization at MW-L.	September 27, 2018
5b	Scope included the placement of soil stabilization mats in the floodplain, setup of a temporary staging area near the north end of the access route in the floodplain, rig setup, installation of snow fence to protect plants, drilling, testing, and demobilization at IRZ-15.	October 12, 2018
5c	Scope included the site setup, drilling, testing, and demobilization at IRZ-20 on the MW-20 Bench.	October 15, 2018
5d	Scope included the site setup, drilling, testing, and demobilization at MW-E on the MW-20 Bench.	October 29, 2018
5e	Scope included the site setup, drilling, testing, and demobilization at MW-N in the upland.	November 15, 2018
5f	Scope included the site setup, drilling, testing, and demobilization at IRZ-13 in the floodplain.	November 7, 2018
5g	Scope included the site setup, drilling, testing, and demobilization at IRZ-23 on the MW-20 Bench.	November 8, 2018
5h	Scope included the site setup, drilling, testing, and demobilization at MW-M in the upland.	January 15, 2019 *Note that an ERTC walk with Tribes/agencies*

Table 2-1 Summary of Environmental Release-To-Constructions (ERTCs) Issued to Contractors

January 2019 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	Issue Date
		occurred on December 20, 2018
5i	Scope included the site setup, drilling, testing, and demobilization at IRZ-9 in the floodplain.	November 28, 2018
5j	Scope included the site setup, drilling, testing, and demobilization at IRZ-25 on the MW-20 Bench.	December 3, 2018
5k	Scope included the site setup, drilling, testing, and demobilization at IRZ-21 on the MW-20 Bench.	December 9, 2018
5l	Scope included the site setup, drilling, testing, and demobilization at MW-B in the floodplain.	December 10, 2018
Addendum to ERTC #5l	Scope included the setup of an additional temporary equipment and material staging area in the floodplain.	December 13, 2018
5m	Scope included the site setup, drilling, testing, and demobilization at MW-F along NTH.	December 17, 2018
5n	Scope included the site setup, drilling, testing, and demobilization at IRZ-11 in the floodplain.	December 17, 2018
5p	Scope included the site setup, drilling, testing, and demobilization at MW-G along NTH.	January 14, 2019

Note:
ERTC 8 (Wastewater Management), ERTC 10 (Potholing to pre-characterize soil along select pipelines), and ERTC 5o (Installation of MW-X/Y') are under development.

Table 2-2 Summary of Work Variance Requests (WVRs)

January 2019 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	This WVR addressed PG&E's proposed modification to the brine tanks containment for use by the remedy, specifically: • **Upgrade the existing lined containment to concrete** - The original synthetic liner material has degraded from exposure to UV light, heat, and abrasion and must be replaced. PG&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 (see Appendix E of the Final Basis of Design Report (CH2M, 2015a),* Section 033 00, Cast-In-Place Concrete). • **Shorten the length of the containment** - 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.	DOI approved WVR #1 on June 22, 2018 DTSC approved WVR #1 on July 5, 2018
2	PG&E proposed to relocate the tie-in point for remedy construction water to an aboveground location inside 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&E Gas Operations control of the Station's water supply. The WVR addressed this relocation, specifically: • **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&E proposed to move the tie-in point to an aboveground valve manifold, located below the TCS Water Storage Tanks in the boneyard area. • **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.	DOI/DTSC approved WVR #2 on August 29, 2018
3	PG&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: • **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. • **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. • **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. • **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.	DOI/DTSC approved WVR #3 on January 4, 2019

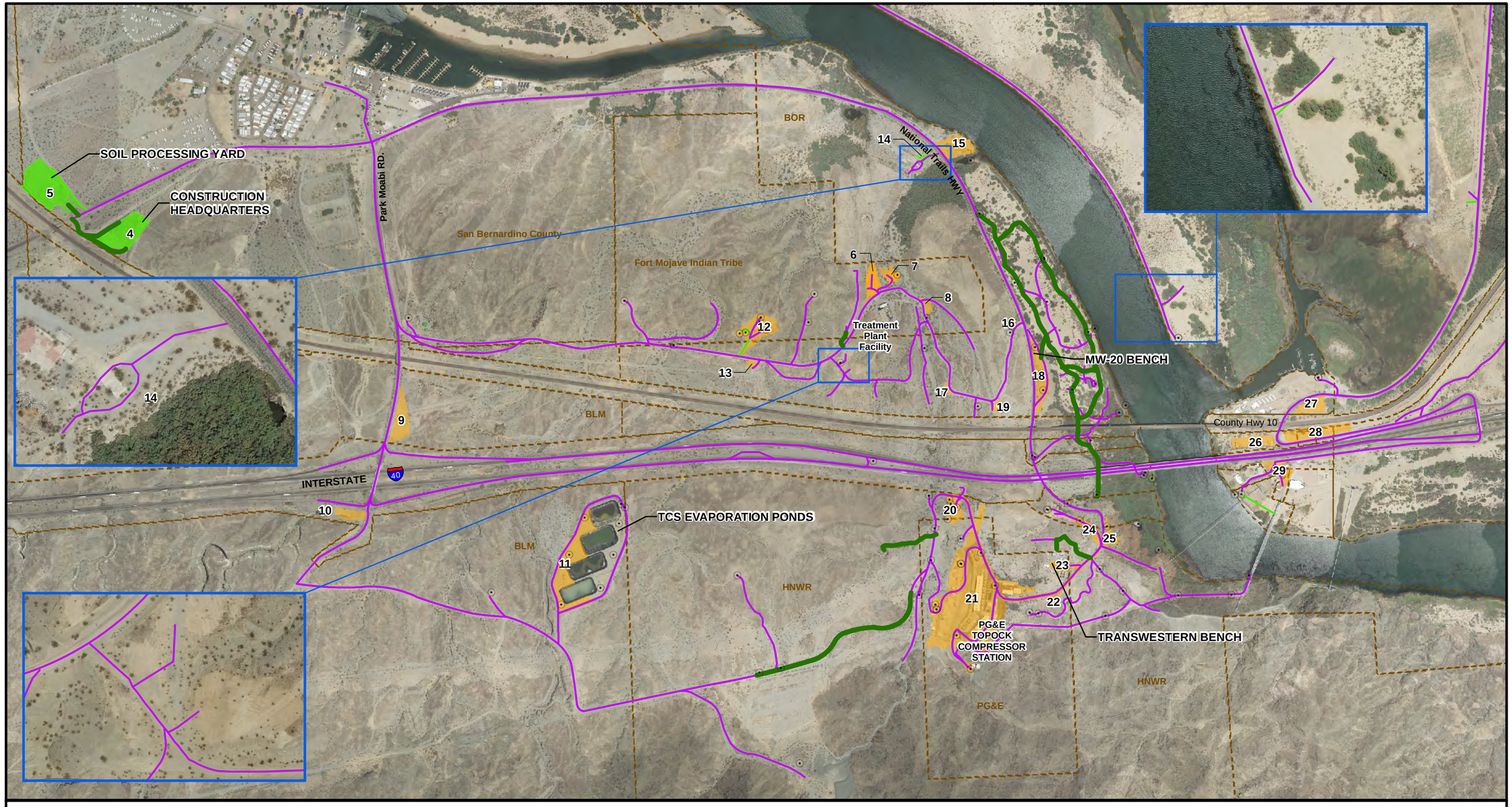
Note:
* CH2M HILL, Inc. (CH2M). 2015a. *Basis of Design Report/Final (100%) Design Submittal for the Final Groundwater Remedy, PG&E Topock Compressor Station, Needles, California*. November 18.

Table 2-3 Summary of Percent Completeness of Key Construction Activities

January 2019 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup
PG&E Topock Compressor Station, Needles, California

Activity	% Complete	Current Status of Construction Activities (as of January 31, 2018)
Project signage & Public Information Office	100%	Complete.
Staging Area 9 setup	100%	Complete.
Staging Area 23 setup	100%	Complete.
Staging Area 18 setup	100%	Complete.
Temporary construction offices at Soil Processing Yard	100%	Complete.
Soil Processing Yard setup for construction staging	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 access road	85%	Site prep, excavation, conduit installation, subgrade backfill, and concrete placement complete. Available for use after concrete cure period
MW-B	Not Available	Drilling in progress.
MW-E	100%	Complete
MW-F	95%	Well construction complete. Develop in February.
MW-L	95%	Well construction complete. Develop in February.
MW-N	Not Available	Drilling in progress.
IRZ-9 pilot boring	100%	Complete.
IRZ-15 pilot boring	100%	Complete
IRZ-13 pilot boring	100%	Complete
IRZ-20 pilot boring	100%	Complete
IRZ-21 pilot boring	100%	Complete
IRZ-23 pilot boring	100%	Complete
IRZ-25 pilot boring	100%	Complete

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:

1. Decontamination pads will be located in Area #4 (Construction Headquarters), Area #21 (Topock Compressor Station), and Area #23 (Transwestern Bench).
2. 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.
3. 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.
4. Public roadways outside of the EIR project area and the APE can also be used for remedy implementation.

N

0 900
Feet

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

JACOBS

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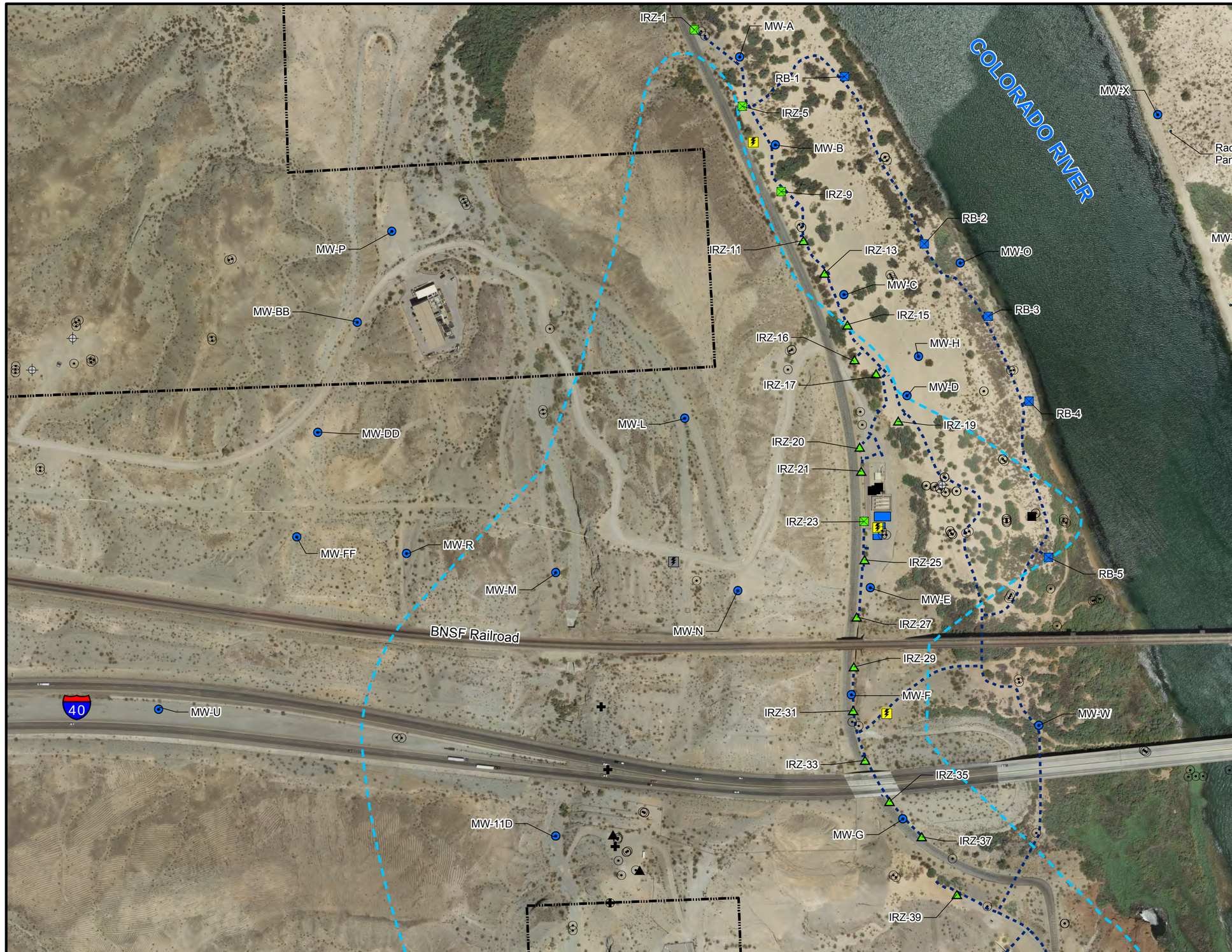

LEGEND

Property Boundaries

Existing Wells:

- Extraction Well
- Injection Well
- Monitoring Well
- Water Supply Well

Planned Wells:

- Extraction, National Trails Highway (NTH) In-situ Reactive Zone (IRZ)
- Extraction, Riverbank
- Injection, NTH IRZ
- Injection, Topock Compressor Station
- Remedy Monitoring Well
- Recirculation Well

Pipeline Corridor for Remedy

- Aboveground Pipe
- Underground Pipe/Conduit

Remedy Facilities

- Planned Transformer
- Future Provisional Transformer
- Proposed Remedy Structure

Approximate extent of hexavalent chromium [Cr(VI)] concentrations exceeding 32 micrograms per liter (µg/L) at any depth ingroundwater based on fourth quarter 2013 sampling events. Dashed where based on limited data.

Note:

1. Note that in compliance with EIR mitigation measure CUL-1a-9, as well as PA and CHPMP mitigation measures, the pipeline along the dirt road west of National Trails Hwy is located in an existing, previously disturbed, access road. In addition, the location of the road and pipeline was field verified and does not create any direct physical impact or effect on the Topock Maze, as it is manifested archaeologically, in compliance with EIR mitigation measure CUL-1a-10, PA, and CHPMP mitigation measures.
2. All well and structure locations are approximate.

N

0 150 300 600

Feet

FIGURE 2-2
WELL AND PIPELINE LOCATIONS

GROUNDWATER REMEDY PHASE 1 CONSTRUCTION
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

JACOBS

Path: R:\ENBG\00_Proj\P\PGE\Topock\MapFiles\2018\CMS\Phase1Construction\Fig2-2_Well_Pipeline_Loc.mxd

Attachment A
Photographs

Site Photos Taken In January 2019

PL01 Photo Log Photo Sheet

Sound Barrier At MW-N (photo taken on 1/9/19)

Pumping Off Wastewater at MW-N (photo taken on 1/10/19)

Potholing in C5 segment (photo taken on 1/14/19)

Vegetation Clearance Along C5 (photo taken on 1/10/19)

Load out vegetation (photo collected on 1/15/19)

Mobilization of equipment onto floodplain (photo taken on 1/08/18)

Placement of electrical conduits near CHQ access road (photo taken on 1/7/19)

Pour slurry concrete at CHQ access road (photo taken on 1/7/19)

MW-F Drilling (photo taken on 1/7/19)

MW-B Drilling (photo taken on 1/9/19)

Attachment B
Available Boring Logs and Groundwater Sample Results from Well Drilling

Table B-1. Groundwater Sampling Results for January 2019

January 2019 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup
PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sample Date	Depth Interval (ft bgs)	Total Dissolved Chromium (µg/L)	Hexavalent Chromium (µg/L)
MW-L	MW-L-VAS-76-81	10/06/18	76 - 81	34	31
MW-L	MW-L-VAS-106-111	10/09/18	106 - 111	0.697 J	0.84
MW-L	MW-L-VAS-141-146	10/10/18	141 - 146	< 0.13 U	< 0.033 U
MW-L	MW-L-VAS-181-186	10/20/18	181 - 186	3.8	3.3
MW-L	MW-L-VAS-218-223	10/21/18	218 - 223	68	66
MW-L	MW-L-VAS-261-266	10/22/18	261 - 266	0.284 J	< 0.17 U
MW-F	MW-F-VAS-52-57	01/06/19	52 - 57	Data not yet available	2500
MW-F	MW-F-VAS-82-87	01/07/19	82 - 87	Data not yet available	110
MW-F	MW-F-VAS-97-102	01/07/19	97 - 102	Data not yet available	1800
MW-F	MW-F-VAS-112-117	01/08/19	112 - 117	Data not yet available	740
MW-E	MW-E-VAS-52-57	11/05/18	52 - 57	7800	7000
MW-E	MW-E-VAS-82-87	11/06/18	82 - 87	190	200
MW-E	MW-E-VAS-112-117	11/06/18	112 - 117	3000	3100
MW-E	MW-E-VAS-137-142	11/07/18	137 - 142	7900	7300
MW-E	MW-E-70-121418	12/14/18	70 (WD)	Data not yet available	3000
MW-E	MW-E-142-121418	12/14/18	142 (WD)	4500	4200
MW-B	MW-B-VAS-27-32	01/06/19	27 - 32	Data not yet available	7.7
MW-B	MW-B-VAS-47-52	01/09/19	47 - 52	Data not yet available	< 0.17 U
MW-B	MW-B-VAS-67-72	01/09/19	67 - 72	Data not yet available	< 0.17 U
MW-B	MW-B-VAS-102-107	01/10/19	102 - 107	Data not yet available	< 0.17 U
MW-B	MW-B-VAS-142-147	01/15/19	142 - 147	Data not yet available	< 0.17 U
IRZ-9	IRZ-9-VAS-27-32	12/03/18	27 □32	120	120
IRZ-9	IRZ-9-VAS-47-52	12/04/18	47 □52	< 0.13 U	< 0.033 U
IRZ-9	IRZ-9-VAS-62-67	12/04/18	62 □67	< 0.13 U	< 0.033 U
IRZ-9	IRZ-9-VAS-182-187	12/11/18	182 □187	< 0.13 U	< 0.17 U
IRZ-9	IRZ-9-VAS-207-212	12/13/18	207 □212	< 0.13 U	< 0.17 U
IRZ-9	IRZ-9-VAS-232-237	12/13/18	232 □237	0.811 J	< 0.17 U
IRZ-9	IRZ-9-VAS-264-269	12/15/18	264 □269	< 0.13 U	< 0.17 U
IRZ-9	IRZ-9-VAS-276-281	12/16/18	276 □281	< 0.13 U	< 0.17 U
IRZ-9	IRZ-9-VAS-292-297	12/18/18	292 □297	< 0.13 U	< 0.17 U
IRZ-13	IRZ-13-VAS-32-37	11/17/18	32 - 37	170	220
IRZ-13	IRZ-13-VAS-57-62	11/18/18	57 - 62	< 0.13 U	< 0.17 U
IRZ-13	IRZ-13-VAS-102-107	11/19/18	102 - 107	< 0.13 U	< 0.17 U
IRZ-13	IRZ-13-VAS-142-147	11/19/18	142 - 147	< 0.13 U	< 0.17 U
IRZ-13	IRZ-13-VAS-180-185	11/27/18	180 - 185	230	190
IRZ-13	IRZ-13-VAS-197-202	11/28/18	197 - 202	< 0.13	< 0.83
IRZ-13	IRZ-13-VAS-224-229	11/28/18	224 - 229	< 0.13	< 0.83
IRZ-13	IRZ-13-VAS-237-242	11/29/18	237 - 242	< 0.13 U	< 0.17 U

Table B-1. Groundwater Sampling Results for January 2019

January 2019 Monthly Progress Report for the Final Groundwater Remedy Construction and Startup
PG&E Topock Compressor Station, Needles, California

Location	Sample ID	Sample Date	Depth Interval (ft bgs)	Total Dissolved Chromium (µg/L)	Hexavalent Chromium (µg/L)
IRZ-15	IRZ-15-VAS-32-37	11/01/18	32 - 37	13	13
IRZ-15	IRZ-15-VAS-62-67	11/02/18	62 - 67	< 0.65 U	0.459 J
IRZ-15	IRZ-15-VAS-102-107	11/03/18	102 - 107	< 0.65 U	< 0.17 U
IRZ-15	IRZ-15-VAS-132-137	11/04/18	132 - 137	0.228 J	< 0.17 U
IRZ-15	IRZ-15-VAS-162-167	11/05/18	162 - 167	3400	3200
IRZ-15	IRZ-15-VAS-182-187	11/06/18	182 - 187	130	140
IRZ-15	IRZ-15-VAS-222-227	11/07/18	222 - 227	< 0.13 U	< 0.17 U
IRZ-20	IRZ-20-VAS-51-56	10/20/18	51 - 56	130	150
IRZ-20	IRZ-20-VAS-82-87	10/21/18	82 - 87	< 0.13 U	< 0.033 U
IRZ-20	IRZ-20-VAS-112-117	10/22/18	112 - 117	< 0.13 U	< 0.17 U
IRZ-20	IRZ-20-VAS-131-136	10/23/18	131 - 136	< 0.13 U	< 0.17 U
IRZ-20	IRZ-20-VAS-173-178	10/24/18	173 - 178	< 0.13 U	< 0.83 U
IRZ-21	IRZ-21-VAS-52-57	12/15/18	52 □ 57	Data not yet available	97
IRZ-21	IRZ-21-VAS-77-82	12/16/18	77 □ 82	Data not yet available	1.1
IRZ-21	IRZ-21-VAS-112-117	12/16/18	112 □ 117	Data not yet available	< 0.17 U
IRZ-21	IRZ-21-VAS-132-137	12/17/18	132 □ 137	Data not yet available	< 0.17 U
IRZ-21	IRZ-21-VAS-147-152	12/18/18	147 □ 152	4000	3600
IRZ-23	IRZ-23-VAS-67-72	12/01/18	67 □ 72	86	85
IRZ-23	IRZ-23-VAS-92-97	12/01/18	92 □ 97	0.453 J	< 0.033 U
IRZ-23	IRZ-23-VAS-122-127	12/02/18	122 □ 127	2100	2000
IRZ-23	IRZ-23-VAS-139-144	12/02/18	139 □ 144	3400	3000
IRZ-25	IRZ-25-VAS-52-57	12/05/18	52 □ 57	4300	3500
IRZ-25	IRZ-25-VAS-67-72	12/05/18	67 □ 72	750	620
IRZ-25	IRZ-25-VAS-92-97	12/06/18	92 □ 97	140	130
IRZ-25	IRZ-25-VAS-112-117	12/11/18	112 □ 117	< 0.13 U	< 0.17 U
IRZ-25	IRZ-25-VAS-147-152	12/11/18	147 □ 152	3800	3600
IRZ-25	IRZ-25-VAS-162-167	12/13/18	162 □ 167	3000	3000

Notes:
µg/L = micrograms per liter
ft bgs = feet below ground surface
J = The analyte was positively identified; however, the associated numerical value is an estimated concentration only
U = The analyte was analyzed for but not detected at the analyte method detection limit indicated
VAS = vertical aquifer sampling
WD = sample from well development, depth noted is from bottom of screen

Boring Log

Boring No.: MW-F

Date Started:	01/03/2019	Surface Elevation:	N/A		
Date Completed:	01/16/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	131 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Steve Vasquez	Borehole Diameter:	6/10 in		Needles CA
Drilling Asst:	L. Amaya/ O. Florez	Depth to First Water:	52 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Overcast/rainy cold to cold	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
1, 2, 3, 4, 5					NR		(0.0 - 5.0') (NR); No recovery airknifed for utility clearance.	(5.0') 12" outer casing depth	
5, 6, 7					GW-GM		(5.0 - 7.5') Well graded gravel with silt and sand (GW-GM); brown (7.5YR 4/3); granules to very large pebbles, angular to subround; some very fine to very coarse grained sand, angular to subangular; little silt; trace cobbles, angular to subround; dry; no odor; no staining		
7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	112.8				SW-SM		(7.5 - 17.0') Well graded sand with silt and gravel (SW-SM); brown (7.5YR 4/3); fine grained to coarse grained, angular to subround; and granules to very large pebbles, angular to subround; trace cobbles, angular to subangular; trace silt; trace clay; dry to moist; no odor; iron oxide staining; areas with some increasing and decreasing gravel and areas with more oxide staining, and areas with no oxide staining. (10.3'); dark brown/ black 1" layer, possibly charcoal, coal or graphite.		(0.0 - 131.0') No water used
17, 18, 19, 20	114				SW-SM		(17.0 - 22.0') Well graded sand with silt and gravel (SW-SM); brown (7.5YR 4/4); fine grained to very coarse grained, angular to subround; some granules to large pebbles, angular to subangular; trace silt; trace clay; trace mica; dry to moist; no odor; iron oxide staining		

Notes: USCS = Unified Soil Classification System, ppb = Parts per Billion.

DRAFT

SOIL BORING LOG_PG&E TOPACK C:\USERS\SMCGRANE\DOCUMENTS\PG&E TOPOCK\DRAFT BORING LOGS\GINT FILES\01.16.19\TOPOCK DATABASE FOR PLOG.GPJ ARCADIS 20180927 PLOG.GDT 02/05/19 13:32

Boring Log

Boring No.: MW-F

Date Started:	01/03/2019	Surface Elevation:	N/A		
Date Completed:	01/16/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	131 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Steve Vasquez	Borehole Diameter:	6/10 in		Needles CA
Drilling Asst:	L. Amaya/ O. Florez	Depth to First Water:	52 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Overcast/rainy cold to cold	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
21					SW-SM				
22									
23	114				SW-SM		(22.0 - 30.5') Well graded sand with silt (SW-SM); brown (7.5YR 4/3); fine grained to very coarse grained, angular to subangular; little granules to large pebbles, angular to subangular; trace silt; trace clay; trace mica; dry to moist; no odor	(21.0 - 31.0') Rough drilling	(0.0 - 131.0') No water used
24									
25									
26									
27									
28									
29									
30									
31					SM		(30.5 - 37.0') Silty sand with gravel (SM); (7.5R 4/3); very fine grained to very coarse grained, angular to subround; some granules to large pebbles, angular to subangular; trace cobbles, angular; trace silt; trace clay; no odor; iron oxide staining		
32	120								
33									
34									
35									
36									
37									
38					SM		(37.0 - 46.0') Silty sand with gravel (SM); (7.5R 4/3); very fine grained to very coarse grained, angular to subangular; and granules to very large pebbles, angular to subangular; little silt; trace cobbles, angular to subangular; trace clay; dry to moist; no odor; weak cementation; no staining		
39	72								
40									

Notes: USCS = Unified Soil Classification System, ppb = Parts per Billion.

DRAFT

SOIL BORING LOG_PG&E TOPACK C:\USERS\SMCGRANE\DOCUMENTS\PG&E TOPOCK\DRAFT BORING LOGS\GINT FILES\01.16.19\TOPOCK DATABASE FOR PLOG.GPJ ARCADIS 20180927 PLOG.GDT 02/05/19 13:32

ARCADIS Design & Consultancy for natural and built assets

Boring Log

Boring No.: MW-F

Date Started:	01/03/2019	Surface Elevation:	N/A		
Date Completed:	01/16/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	131 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Steve Vasquez	Borehole Diameter:	6/10 in		Needles CA
Drilling Asst:	L. Amaya/ O. Florez	Depth to First Water:	52 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Overcast/rainy cold to cold	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
41, 42, 43	72				SM				
44, 45, 46	48							(42.0 - 45.0') Drill rods chattering	
47					SM		(46.0 - 48.5') Silty sand (SM); brown (7.5YR 4/3); fine grained to very coarse grained, angular to round; little granules to large pebbles, angular to subangular; little silt; trace clay; trace mica; moist to wet; no odor		
48, 49, 50, 51		MW-F-SS-47-52			SM		(48.5 - 52.0') Silty sand with gravel (SM); reddish brown (5YR 4/3); very fine grained to very coarse grained, angular to subround; some granules to large pebbles, angular to subangular; some silt; trace clay; trace mica; dry to moist; no odor		(0.0 - 131.0') No water used
52, 53, 54, 55, 56, 57	120	MW-F-SS-52-57	MW-F-VAS-52-57-EB (2500 ppb)		SM		(52.0 - 58.0') Silty sand with gravel (SM); dark reddish brown (5YR 3/3); fine grained to very coarse grained, angular to subround; some silt; little small to large pebbles, angular to subangular; wet; no odor; no staining	(52.0') Approximate depth to water table	
58, 59, 60	60	MW-F-SS-57-62			SM		(58.0 - 61.0') Silty sand with gravel (SM); reddish brown (5YR 4/3); very fine grained to very coarse grained, angular to subround; some silt; little granules to large pebbles, angular to subangular; little clay; trace mica; dry to moist; no odor; weak cementation	(58.0 - 61.0') Core dry	

Notes: USCS = Unified Soil Classification System, ppb = Parts per Billion.

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Boring Log

Boring No.: MW-F

Date Started:	01/03/2019	Surface Elevation:	N/A		
Date Completed:	01/16/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	131 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Steve Vasquez	Borehole Diameter:	6/10 in		Needles CA
Drilling Asst:	L. Amaya/ O. Florez	Depth to First Water:	52 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Overcast/rainy cold to cold	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
61–62	60	MW-F-SS-57-62			SM			(58.0 - 61.0') Core dry	
62–67	60	MW-F-SS-62-67			SM		(61.0 - 69.5') Silty sand with gravel (SM); dark reddish brown (5YR 3/3); very fine grained to very coarse grained, angular to subround; some silt; little granules to very large pebbles, angular to subangular; wet; no odor	(65.0 - 68.0') Drill rods chattering	
67–72	100.8	MW-F-SS-67-72			SM		(69.5 - 82.0') Silty sand with gravel (SM); reddish brown (5YR 4/3); fine grained to very coarse grained, subangular to round; some silt; little granules to large pebbles, angular to subangular; wet; no odor; no staining		(0.0 - 131.0') No water used
72–77		MW-F-SS-72-77			SM		(74'); some granules to very large pebbles, angular to subangular; trace cobbles, angular to subround; no staining; decrease in % sand.		
77–80	60	MW-F-SS-77-82							

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Boring Log

Boring No.: MW-F

Date Started:	01/03/2019	Surface Elevation:	N/A		
Date Completed:	01/16/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	131 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Steve Vasquez	Borehole Diameter:	6/10 in		Needles CA
Drilling Asst:	L. Amaya/ O. Florez	Depth to First Water:	52 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Overcast/rainy cold to cold	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
81–82	60	MW-F-SS-77-82			SM				
82–87	60	MW-F-SS-82-87	MW-F-VAS-82-87-EB (110 ppb)		SW-SM		(82.0 - 87.5') Well graded sand with silt and gravel (SW-SM); reddish brown (5YR 4/3); very fine grained to very coarse grained, angular to round; some granules to large pebbles; little silt; trace cobbles, angular; trace mica; wet; no odor		
87–88	120	MW-F-SS-87-92			SM		(87.5 - 88.0') Silty sand with gravel (SM); reddish brown (5YR 4/3); very fine grained to very coarse grained, angular to subround; some silt; little granules to large pebbles, angular to subangular; little clay; trace mica; wet; no odor; no staining		
88–95					SM		(88.0 - 95.0') Silty sand with gravel (SM); reddish brown (5YR 4/3); very fine grained to very coarse grained, angular to subround; some granules to very large pebbles, angular to subangular; little silt; little clay; trace mica; wet; no odor; no staining	(90.0 - 98.0') Soft drilling	(0.0 - 131.0') No water used
95–99		MW-F-SS-92-97			SM		(95.0 - 99.0') Silty sand with gravel (SM); dark reddish brown (5YR 3/3); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular to subround; little cobbles, angular to subround; little silt; wet; no odor		
99–100	120	MW-F-SS-97-102	MW-F-VAS-102-107 (1800 ppb)		SM		(99.0 - 102.0') Silty sand with gravel (SM); reddish brown (5YR 4/3); very fine grained to very coarse grained, angular to round; some granules to large pebbles, angular to subangular; little silt; trace clay;		

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Boring Log

Boring No.: MW-F

Date Started:	01/03/2019	Surface Elevation:	N/A		
Date Completed:	01/16/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	131 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Steve Vasquez	Borehole Diameter:	6/10 in		Needles CA
Drilling Asst:	L. Amaya/ O. Florez	Depth to First Water:	52 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Overcast/rainy cold to cold	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
101–102		MW-F-SS-97-102	MW-F-VAS-102-107 (1800 ppb)		SM		trace mica; wet to moist; no odor		
103–107	120	MW-F-SS-102-107			SM		(102.0 - 111.0') Silty sand with gravel (SM); dark brown (7.5YR 3/2); very fine grained to coarse grained, angular to round; some silt; little granules to large pebbles, angular to subangular; little clay; dry to moist; moderate cementation	(102.0 - 111.0') Dry	
108–111	48	MW-F-SS-107-112						(107.0 - 111.0') Drill rods chattering	(0.0 - 131.0') No water used
112–117	72	MW-F-SS-112-117	MW-F-VAS-112-117-EB (740 ppb)		ML		(111.0 - 118.0') Sandy silt with gravel (ML); dark reddish brown / moderate brown(5YR 3/4); low plasticity; some very fine to very coarse grained sand, angular to round; little granules to large pebbles, angular to subangular; wet; no odor	(111.0 - 117.0') Soft drilling	
118–120	120	MW-F-SS-117-122			GM		(118.0 - 120.0') Silty gravel with sand (GM); dark reddish brown / moderate brown(5YR 3/4); granules to very large pebbles, subangular to round; some very fine to very coarse grained sand, subangular to round; little silt; trace cobbles, angular to subangular; trace clay; trace mica; wet; no odor		

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Boring Log

Boring No.: MW-F

Date Started:	01/03/2019	Surface Elevation:	N/A		
Date Completed:	01/16/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	131 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Steve Vasquez	Borehole Diameter:	6/10 in		Needles CA
Drilling Asst:	L. Amaya/ O. Florez	Depth to First Water:	52 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Overcast/rainy cold to cold	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
121		MW-F-SS-117-122			SM		(120.0 - 122.0') Silty sand (SM); dark reddish brown (2.5YR 3/4); very fine grained to very coarse grained, subangular to round; some silt; little granules to large pebbles, angular to subangular; trace mica; moist to wet; no odor		
122									
123	120			Topock - Competent Bedrock - conglomerate	SM		(122.0 - 131.0') Topock - Competent Bedrock - conglomerate; Silty sand with gravel (SM); dark reddish brown (2.5YR 3/4); very fine grained to very coarse grained, angular to subround; some granules to very large pebbles, angular to subangular; some silt; little clay; dry; no odor; moderate cementation; portions of core are friable.		
124									
125								(122.0 - 127.0') Drill rods chattering	(0.0 - 131.0') No water used
126									
127								(122.0 - 131.0') Dry	
128									
129	48							(127.0 - 131.0') Drill rods chattering	
130									
131							End of Boring at 131.0 'bgs.		
132									
133									
134									
135									
136									
137									
138									
139									
140									

Notes: USCS = Unified Soil Classification System, ppb = Parts per Billion.

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Boring Log

Boring No.: MW-Ls

Date Started:	12/03/2018	Surface Elevation:	N/A		
Date Completed:	12/20/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	184 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Dan O'Mara	Borehole Diameter:	10 in		Needles CA
Drilling Asst:	E. Huellmantel / T. Wolfe	Depth to First Water:	76 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
1							(0.0 - 66.0'); Only the approximate screen intervals were logged see Boring Log MW-Ld for lithology.		
2									
3									
4									
5									
6								(1.0 - 12.0') Drill rods chattering	
7									
8									
9									
10									
11									
12									
13									
14									
15								(12.0 - 18.0') Rough drilling	
16									
17									
18									
19								(18.0 - 26.0') Drill time 51.34 minutes, voids forming.	
20									

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion. Water samples were collected from MW-Ld borehole.

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Boring Log

Boring No.: MW-Ls

Date Started:	12/03/2018	Surface Elevation:	N/A		
Date Completed:	12/20/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	184 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Dan O'Mara	Borehole Diameter:	10 in		Needles CA
Drilling Asst:	E. Huellmantel / T. Wolfe	Depth to First Water:	76 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
21									
22									
23								(18.0 - 26.0') Drill time 51.34 minutes, voids forming.	
24								(24.0') Heavy rig chatter	
25									
26									
27									
28								(28.0') Voids forming, rough drilling 31 to 36 ft bgs.	
29									
30									
31								(26.0 - 36.0') Drill time 10:35 minutes.	
32									
33									
34									
35									
36									
37								(37.0') Rough drilling	
38								(36.0 - 56.0') Drill time ~~73:45 minutes, rough drilling.~~	
39								(38.0 - 40.0') Voids forming	
40									

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion. Water samples were collected from MW-Ld borehole.

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Boring Log

Boring No.: MW-Ls

Date Started:	12/03/2018	Surface Elevation:	N/A		
Date Completed:	12/20/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	184 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Dan O'Mara	Borehole Diameter:	10 in		Needles CA
Drilling Asst:	E. Huellmantel / T. Wolfe	Depth to First Water:	76 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
41									
42									
43								(43.0') Rough drilling	
44									
45									
46									
47									
48								(36.0 - 56.0') Drill time 73:45 minutes, rough drilling.	
49									
50									
51									
52								(45.0 - 65.0') Voids forming	
53									
54									
55									
56									
57									
58									
59									
60								(60.0') Heavy	

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Boring Log

Boring No.: MW-Ls

Date Started:	12/03/2018	Surface Elevation:	N/A		
Date Completed:	12/20/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	184 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Dan O'Mara	Borehole Diameter:	10 in		Needles CA
Drilling Asst:	E. Huellmantel / T. Wolfe	Depth to First Water:	76 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
61, 62, 63, 64, 65, 66								rig chatter; (45.0 - 65.0') Voids forming; (61.0 - 65.0') Rough drilling	
67, 68					SM		(66.0 - 68.0') Silty sand with gravel (SM); brown (10YR 4/3); very fine grained to coarse grained, subangular to subround; some granule to large pebbles, angular to subangular; little silt; little clay; trace cobbles, angular; trace mica; dry to moist; no odor (67') yellowish brown / moderate yellowish brown(10YR 5/4); little granules to very large pebbles, angular to round; little cobbles, angular to round; trace clay; little mica; dry to moist; no odor		
69, 70, 71, 72	72				SW-SM		(68.0 - 72.0') Well graded sand with silt and gravel (SW-SM); dark yellowish brown (10YR 4/4); fine grained to very coarse grained, angular to subround; some granule to large pebble, angular to subangular; some cobbles, angular to round; little silt; trace boulders, subangular to well-rounded; little mica; dry to moist (70.5') brown (10YR 4/3)(2/); little granule to large pebble, angular to round; trace cobbles, angular to round	(66.0 - 70.0') Voids forming	
73, 74, 75, 76	48				SM		(72.0 - 78.5') Silty sand with gravel (SM); brown (10YR 4/3); very fine grained to very coarse grained, subangular to round; some granule to very large pebble, angular to round; some silt; little cobbles, angular to subangular; little clay; little mica; dry to wet (74') angular to round; trace clay	(73.0 - 75.9') Rough drilling, drill rods chattering	(74.0') gal of water used
77, 78	63		MW-L-VAS-76-81 (31 ppb)				(76') dark grayish brown / dark yellowish brown(10YR 4/2); some granule to very large pebble, angular to round; some silt; trace cobbles, subangular to subround; trace clay; trace mica; wet; no odor; increase in granules and very large pebbles, water table. (77'); 6" lens with increase in fines. (78'); 6" lens with increase in fines.	(76.0') Approximate depth to water table; (76.5 - 81.0') Drill rods chattering	
79, 80					GW-GM		(78.5 - 81.3') Well graded gravel with silt and sand (GW-GM); dark grayish brown / dark yellowish brown(10YR 4/2); granules to very large pebbles, angular to round; little cobbles, angular to round; little very fine to medium grained sand, subangular to round; trace boulders, boulder; trace silt; trace clay; wet; no odor		

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion. Water samples were collected from MW-Ld borehole.

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Boring Log

Boring No.: MW-Ls

Date Started:	12/03/2018	Surface Elevation:	N/A		
Date Completed:	12/20/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	184 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Dan O'Mara	Borehole Diameter:	10 in		Needles CA
Drilling Asst:	E. Huellmantel / T. Wolfe	Depth to First Water:	76 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
81			MW-L-VAS-76-81 (31 ppb)		GW-GM			(76.5 - 81.0') Drill rods chattering	
82							(81.3 - 86.0') (NR); Not recovered, boulder at 81.25 jammed up core barrel.	(80.0 - 84.0') Rough drilling	
83	63				NR				
84									
85									
86							(86.0 - 94.5') Sandy silt with gravel (SM); (7.5R 4/3); very fine grained to very coarse grained, subangular to round; some silt; little granule to very large pebble, angular to subangular; trace clay; wet		
87									
88									
89									
90					SM				
91	108							(87.0 - 96.0') Soft drilling	
92									
93									
94									
95					SM		(94.5 - 96.0') Silty sand (SM); brown (7.5YR 4/3); very fine grained to coarse grained, angular to subround; and silt; little clay; trace granules to large pebbles, subangular to round; trace cobbles, angular to subangular; little mica; wet; no odor		
96							(96.0 - 156.0') (NR); iron oxide staining; Only the approximate screen intervals were logged see Boring Log MW-Ld for lithology.		
97									
98					NR			(96.0 - 101.0') Drill rods chattering	
99									
100									

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Boring Log

Boring No.: MW-Ls

Date Started:	12/03/2018	Surface Elevation:	N/A		
Date Completed:	12/20/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	184 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Dan O'Mara	Borehole Diameter:	10 in		Needles CA
Drilling Asst:	E. Huellmantel / T. Wolfe	Depth to First Water:	76 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
101								(96.0 - 101.0') Drill rods chattering	
102									
103									
104									
105									
106			MW-L-VAS-106-111 (0.84 ppb)						
107									
108									
109									
110					NR				
111								(102.0 - 126.0') Soft drilling	
112									
113									
114									
115									
116									
117									
118									
119									
120									

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion. Water samples were collected from MW-Ld borehole.

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Boring Log

Boring No.: MW-Ls

Date Started:	12/03/2018	Surface Elevation:	N/A		
Date Completed:	12/20/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	184 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Dan O'Mara	Borehole Diameter:	10 in		Needles CA
Drilling Asst:	E. Huellmantel / T. Wolfe	Depth to First Water:	76 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
121									
122									
123								(102.0 - 126.0') Soft drilling	
124									
125									
126									
127									
128									
129									
130					NR				
131									
132									
133								(126.0 - 146.0') Soft drilling	
134									
135									
136									
137									
138									
139									
140									

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion. Water samples were collected from MW-Ld borehole.

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Boring Log

Boring No.: MW-Ls

Date Started:	12/03/2018	Surface Elevation:	N/A		
Date Completed:	12/20/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	184 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Dan O'Mara	Borehole Diameter:	10 in		Needles CA
Drilling Asst:	E. Huellmantel / T. Wolfe	Depth to First Water:	76 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
141									
142									
143			MW-L-VAS-141-146 (<0.033 U ppb)					(126.0 - 146.0') Soft drilling	
144									
145									
146									
147									
148					NR				
149									
150								(146.0 - 156.0') Drill rods chattering, 15:05 minutes to drill.	
151									
152									
153									
154									
155									
156							(156.0 - 160.0') Silty gravel with sand (GM); brown (10YR 4/3); granules to very large pebbles, angular to subangular; some very fine to very coarse grained sand, angular to subround; some silt; trace cobbles, angular to subangular; trace clay; wet		
157								(156.0 - 166.0') Soft driling, drill time (25:31) minutes, lost core barrel down hole.	
158	117				GM				
159							(159'); little very fine to very coarse grained sand, subangular to subround; wet; weak cementation; increase granules to very large pebbles.		
160									

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion. Water samples were collected from MW-Ld borehole.

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Boring Log

Boring No.: MW-Ls

Date Started:	12/03/2018	Surface Elevation:	N/A		
Date Completed:	12/20/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	184 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Dan O'Mara	Borehole Diameter:	10 in		Needles CA
Drilling Asst:	E. Huellmantel / T. Wolfe	Depth to First Water:	76 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
161, 162, 163	117				SM		(160.0 - 163.5') Silty sand with gravel (SM); reddish brown (5YR 4/3); very fine grained to very coarse grained, angular to round; little granule to large pebble, angular to subround; little silt; little clay; little mica; wet; no odor; weak cementation	(156.0 - 166.0') Soft driling, drill time (25:31) minutes, lost core barrel down hole.	
164, 165, 166					GM		(163.5 - 167.5') Silty gravel with sand (GM); dark grayish brown / dark yellowish brown(10YR 4/2); granules to large pebbles, angular to subangular; some very fine to very coarse grained sand, angular to subangular; little silt; little clay; wet (166') brown (10YR 4/3); some silt; some mica; wet; strong cementation; decrease in granules to very large pebbles and sand.		
167, 168, 169, 170	198				SM		(167.5 - 170.0') Silty sand with gravel (SM); brown (10YR 4/3); very fine grained to very coarse grained, angular to subrounded; some granules to very large pebbles, angular to subangular; some silt; little clay; trace mica; wet; no odor		
171, 172, 173, 174, 175, 176, 177					GM		(170.0 - 177.5') Silty gravel with sand (GM); brown (10YR 5/3); granules to very large pebbles, angular to subangular; some very fine to very coarse grained sand, angular to subangular; little silt; trace cobbles; trace boulders; trace clay; some mica; wet; strong cementation (174') dark grayish brown / dark yellowish brown(10YR 4/2); some silt; little clay; wet; strong cementation; decrease in granules to very large pebbles and sand. (176') brown (7.5YR 5/3); trace clay; little mica; wet; increase in silt.	(175.0 - 179.0') Rough drilling	
178, 179, 180					SM		(177.5 - 182.0') Silty sand with gravel (SM); brown (7.5YR 5/3); very fine grained to very coarse grained, angular; some small to very large pebbles, angular to subangular; some silt; little clay; little mica; wet; moderate cementation	(179.0 - 184.0') Rough drilling	

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Boring Log

Boring No.: MW-Ls

Date Started:	12/03/2018	Surface Elevation:	N/A		
Date Completed:	12/20/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	184 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Dan O'Mara	Borehole Diameter:	10 in		Needles CA
Drilling Asst:	E. Huellmantel / T. Wolfe	Depth to First Water:	76 ft bgs		
Logger:	Michael Andrews	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☒ Yes ☐ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
181	198				SM			(179.0 - 184.0') Rough drilling (182.4') Drill time 45:40 minutes, large boulder.	
182			MW-L-VAS-181-186 (3.3 ppb)		SM		(182.0 - 182.5') Silty sand (SM); (7.5R 4/3); very fine grained to very coarse grained, subangular to subround; and silt; trace granules to medium pebbles, angular to subangular; little mica; wet; no odor		
183					NR		(182.5 - 184.0') (NR); No Recovery		
184									

End of Boring at 184.0 'bgs.

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
1, 2, 3, 4	0				SP-SM		(0.0 - 9.5') Poorly graded sand with silt (SP-SM); pale yellow (2.5Y 8/3); very fine grained to fine grained, subangular to subround; little silt; dry; no staining	(7.0') loss of core sample during recovery due to very loose sediment	(0.0 - 281.0') No water used
5, 6, 7	6								
8, 9, 10, 11, 12	54				SM		(9.5 - 12.0') Silty sand with gravel (SM); dark brown (7.5YR 3/4); very fine grained to fine grained, angular to subround; some granule to small pebbles, subangular to subround; dry; no staining		
13, 14, 15, 16, 17	42				SM		(12.0 - 19.0') Silty sand with gravel (SM); strong brown (7.5YR 4/6); very fine grained to coarse grained, subangular to subround; some granule to small pebbles, subangular to subround; dry to moist; no staining		
18, 19, 20	96				SM		(19.0 - 25.0') Silty sand with gravel (SM); strong brown (7.5YR 4/6); fine grained to very coarse grained, angular to subround; some small to large pebbles, subangular to subround; moist; no staining		

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion.

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
21, 22, 23, 24, 25	96	IRZ-9-SS-22-27			SM			(25.0') Approximate depth of water table	
25, 26, 27, 28, 29, 30, 31, 32	60	IRZ-9-SS-27-32	IRZ-9-VAS-27-32 (120 ppb)		SM		(25.0 - 34.0') Silty sand with gravel (SM); brown (7.5YR 5/4); fine grained to very coarse grained, subangular to subround; little granule to small pebbles, subangular to subround; wet; no staining	(32.0') drill stem bolts sheared off when commencing drilling after VAScollection from 27-32' bgs.	(0.0 - 281.0') No water used
32, 33, 34, 35, 36, 37, 38, 39, 40	204	IRZ-9-SS-32-37 IRZ-9-SS-37-42			ML		(34.0 - 40.0') Gravelly silt with sand (ML); brown (7.5YR 5/4); low plasticity; some granules to very large pebbles, subangular to subround; little very fine to coarse grained sand, angular to subround; trace cobbles, angular to subangular; moist		

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
41–42		IRZ-9-SS-37-42			SM		(40.0 - 43.0') Silty sand with gravel (SM); light brown (7.5YR 6/4); very fine grained to very coarse grained, subangular to subround; some granule to small pebbles, angular to subround; little silt; wet; no staining		
43–47	204	IRZ-9-SS-42-47			SM		(43.0 - 48.0') Silty sand with gravel (SM); light brown (7.5YR 6/4); fine grained to very coarse grained, angular to subround; some granules to large pebbles, subangular to subround; little silt; moist; no staining		
48–49		IRZ-9-SS-47-52	IRZ-9-VAS-47-52 (<0.033 U ppb)		SM		(48.0 - 50.0') Silty sand with gravel (SM); light brown (7.5YR 6/4); fine grained to very coarse grained, angular to subround; some medium to large pebbles, subangular to subround; little silt; moist to wet; no staining		
50–52					GM		(50.0 - 54.5') Silty gravel with sand (GM); light brown (7.5YR 6/4); granules to very large pebbles, angular to subround; some very fine to very coarse grained sand, angular to subround; some silt; trace cobbles, angular to subround		(0.0 - 281.0') No water used
53–57	54	IRZ-9-SS-52-57			SM		(54.5 - 68.0') Silty sand with gravel (SM); brown (7.5YR 5/4); fine grained to very coarse grained, subangular to subround; little medium to large pebbles, subangular to subround; little silt; moist to wet; no staining		
58–60	102	IRZ-9-SS-57-62							

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
61		IRZ-9-SS-57-62							
62									
63	102								
64		IRZ-9-SS-62-67	IRZ-9-VAS-62-67 (<0.033 U ppb)		SM				
65									
66									
67									
68									
69		IRZ-9-SS-67-72					(68.0 - 77.0') Silty sand with gravel (SM); dark brown (10YR 3/3); very fine grained to coarse grained, subangular to subround; some small to large pebbles, angular to subround; some silt; moist to wet; no staining		
70									(0.0 - 281.0') No water used
71									
72	108				SM				
73									
74		IRZ-9-SS-72-77							
75									
76									
77									
78							(77.0 - 85.0') Silty sand (SM); reddish brown(2.5YR 4/3); medium grained to coarse grained, subangular to subround; little silt; trace granule to small pebbles, subangular to subround; moist to wet; no staining		
79	108	IRZ-9-SS-77-82			SM		(79') reddish brown (2.5YR 4/4); very fine grained to fine grained, subangular to subround; no staining		
80									

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion.

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
81		IRZ-9-SS-77-82							
82									
83					SM				
84	108	IRZ-9-SS-82-87							
85									
					SM		(85.0 - 86.0') Silty sand (SM); light reddish gray(2.5YR 7/1); very fine grained to fine grained, subangular to subround; little silt; dry to moist; no staining		
86									
							(86.0 - 107.0') Silty sand (SM); pinkish gray(5YR 6/2); very fine grained to fine grained, subangular to subround; little silt; trace granule to small pebbles, subangular to subround; moist to wet; no staining		
87									
88									
89		IRZ-9-SS-87-92							
90									(0.0 - 281.0') No water used
91									
92	96						(92') reddish brown (2.5YR 5/4); no staining		
93					SM				
94									
95		IRZ-9-SS-92-97							
96									
97									
98									
99	108	IRZ-9-SS-97-102							
100									

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion.

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
101		IRZ-9-SS-97-102							
102							(102') pale red (2.5YR 6/2); no staining		
103	108				SM				
104		IRZ-9-SS-102-107	IRZ-9-VAS-102-109 (<0.17 U ppb)						
105									
106									
107							(107.0 - 127.0') Silty sand (SM); pinkish gray(5YR 6/2); fine grained to coarse grained, subangular to subround; little silt; trace granule to large pebbles, subangular to subround; moist to wet; no staining; with interbedded gravel seams 3-5" thick sparingly throughout interval.		
108									
109		IRZ-9-SS-107-112							
110									(0.0 - 281.0') No water used
111									
112	102								
113					SM				
114		IRZ-9-SS-112-117							
115									
116									
117									
118									
119	108	IRZ-9-SS-117-122							
120									

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion.

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ARCADIS Design & Consultancy for natural and built assets

Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
121		IRZ-9-SS-117-122							
122									
123	108				SM				
124		IRZ-9-SS-122-127							
125									
126									
127							(127.0 - 147.0') Silty sand (SM); weak red (10R 4/4); medium grained to coarse grained, subangular to subround; little silt; trace granule to medium pebbles, subangular to subround; moist to wet; no staining; with interbedded gravel seams 3-5" thick sparingly through interval.		
128									
129		IRZ-9-SS-127-132							
130									(0.0 - 281.0') No water used
131									
132	102								
133					SM				
134		IRZ-9-SS-132-137							
135									
136									
137									
138									
139	108	IRZ-9-SS-137-142							
140									

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion.

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
141		IRZ-9-SS-137-142							
142									
143									
144	108	IRZ-9-SS-142-147	IRZ-9-VAS-142-147 (<0.17 U ppb)		SM				
145									
146									
147									
148							(147.0 - 182.0') Silty sand (SM); reddish brown(2.5YR 5/3); fine grained to very coarse grained, subangular to subround; some silt; little clay; trace granule to medium pebble, subangular to subround; trace cobbles, subround; moist; no staining	(147.0 - 149.5') No core recovered	
149		IRZ-9-SS-147-152							
150									(0.0 - 281.0') No water used
151									
152									
153									
154	180	IRZ-9-SS-152-157			SM				
155									
156									
157									
158		IRZ-9-SS-157-162							
159									
160									

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
161		IRZ-9-SS-157-162							
162									
163	180								
164		IRZ-9-SS-162-167							
165									
166									
167									
168									
169		IRZ-9-SS-167-172							
170					SM				(0.0 - 281.0') No water used
171									
172	120								
173									
174		IRZ-9-SS-172-177							
175									
176									
177									
178									
179	120	IRZ-9-SS-177-182							
180									

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
181–182		IRZ-9-SS-177-182			SM				
182–187	120	IRZ-9-SS-182-187	IRZ-9-VAS-182-187 (<0.17 U ppb)		SM		(182.0 - 186.0') Silty sand (SM); reddish gray / pale brown(5YR 5/2); fine grained to coarse grained, angular to subround; some silt; trace granule to medium pebble; trace cobbles; trace clay; moist to wet; sand composed of Conglomerate and meta-diorite.		
186–187					SM		(186.0 - 187.0') Silty sand (SM); weak red (10R 4/3); fine grained to very coarse grained, subangular to subround; some silt; little granule to medium pebble, subangular to subround; little clay; trace cobbles, subround; moist; no staining		
187–192	120	IRZ-9-SS-187-192			GM		(187.0 - 196.5') Silty gravel with sand (GM); dark reddish brown(2.5YR 3/3); small pebbles to small cobbles, angular; some small to large pebble, angular; some silt; little very coarse grained sand, angular; trace cobbles, angular; trace clay; moist to dry; moderate cementation; gravel composed of meta-diorite.	(187.0 - 197.0') Drill rods chattering	(0.0 - 281.0') No water used
192–197		IRZ-9-SS-192-197							
196–197					GP		(196.5 - 197.0') Poorly graded gravel (GP); very pale brown (10YR 8/3); granules to very large pebbles, angular; little fine to very coarse grained sand, angular; little silt; trace boulders; dry; Meta-diorite boulder		
197–200	120	IRZ-9-SS-197-202			SM		(197.0 - 207.0') Silty sand (SM); dark reddish brown (2.5YR 3/4); fine grained to very coarse grained, subangular to subround; some silt; trace small to medium pebble, subround; trace clay; moist	(197.0 - 202.0') Rough drilling	

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
201		IRZ-9-SS-197-202						(197.0 - 202.0') Rough drilling	
202									
203	120				SM				
204		IRZ-9-SS-202-207							
205									
206									
207									
208							(207.0 - 213.0') Silty sand with gravel (SM); dark reddish brown(2.5YR 3/3); very fine grained to very coarse grained, angular to subround; some silt; little granule to large pebble, subangular to subround; trace cobbles, subround; trace clay; moist		
209		IRZ-9-SS-207-212	IRZ-9-VAS-207-212 (<0.17 U ppb)						
210					SM				(0.0 - 281.0') No water used
211									
212	120								
213									
214							(213.0 - 220.0') Sandy silt (ML); dark reddish brown (2.5YR 3/4); low plasticity; some very fine to medium grained sand, angular to subround; little granule to medium pebble, subangular to subround; little clay; moist		
215		IRZ-9-SS-212-217							
216					ML				
217									
218									
219	120	IRZ-9-SS-217-222							
220									

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
221, 222	120	IRZ-9-SS-217-222			SM		(220.0 - 234.0') Silty sand (SM); dark reddish brown (2.5YR 2.5/4); fine grained to very coarse grained, angular to subround; and silt; little granule to medium pebble, subround; trace cobbles, subround; trace clay; moist to wet; no odor; gravel composed of mixed lithology.		(0.0 - 281.0') No water used
223, 224, 225, 226, 227		IRZ-9-SS-222-227							
228, 229, 230, 231, 232	120	IRZ-9-SS-227-232							
233, 234, 235, 236, 237		IRZ-9-SS-232-237	IRZ-9-VAS-232-237 (<0.17 U ppb)		ML		(234.0 - 237.0') Sandy silt with gravel (ML); reddish brown(2.5YR 4/3); low plasticity; some very fine to coarse grained sand, angular to subround; little granule to medium pebble, subround; trace clay; moist		
238, 239, 240	120	IRZ-9-SS-237-242			ML		(237.0 - 252.0') Gravelly silt with sand (ML); reddish brown (5YR 4/3); medium plasticity; some granule to large pebble, subangular to subround; little very fine to coarse grained sand, angular to subround; trace clay; moist; gravel composed of mixed lithology.		

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion.

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
241		IRZ-9-SS-237-242							
242									
243	120								
244		IRZ-9-SS-242-247							
245									
246					ML				
247									
248									
249		IRZ-9-SS-247-252							
250									(0.0 - 281.0') No water used
251	86.4								
252							(252.0 - 266.0') Silty gravel with sand (GM); reddish brown / moderate brown(5YR 4/4); granules to very large pebbles, angular to subround; some silt; little cobbles, angular; little very fine to very coarse grained sand, angular to subround; trace clay; moist to dry; moderate cementation; gravel composed of mixed lithology		
253									
254		IRZ-9-SS-252-257							
255									
256					GM				
257	78							(254.5 - 261.0') Rough drilling	
258		IRZ-9-SS-257-262							
259									
260									

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
261	78	IRZ-9-SS-257-262			GM		(261'); some silt; little clay; moist to dry; strong cementation; decrease in %sand. Gravel composed of mixed lithology, large cobbles of meta-diorite.	(254.5 - 261.0') Rough drilling	
262	60							(261.0 - 266.0') Rough drilling	
263									
264		IRZ-9-SS-262-267							
265									
266			IRZ-9-VAS-264-269-EB (<0.17 U ppb)		ML/MH		(266.0 - 268.0') Gravelly elastic silt with sand (ML/MH); reddish brown (5YR 5/4); medium plasticity; some granule to medium pebble, angular to subround; little very fine to medium grained sand, subangular to subround; moist; moderate cementation		
267									
268	72	IRZ-9-SS-267-272			GM		(268.0 - 273.0') Silty gravel with sand (GM); reddish brown / moderate brown(5YR 4/4); granules to very large pebbles, angular to subround; some silt; little cobbles, angular; little very fine to medium grained sand, subangular to subround; little clay; moist to dry; strong cementation; gravel composed of mixed lithology, large cobbles of meta-diorite	(267.0 - 273.0') Rough drilling	(0.0 - 281.0') No water used
269									
270									
271									
272									
273									
274	96	IRZ-9-SS-272-277			ML		(273.0 - 277.0') Gravelly silt with sand (ML); reddish brown (2.5YR 5/4); some granule to large pebble, subangular to subround; little fine to medium grained sand, subangular to subround; trace cobbles; trace clay; moist to dry	(273.0 - 281.0') Rough drilling	
275									
276									
277									
278		IRZ-9-SS-277-282	IRZ-9-VAS-276-281 (<0.17 U ppb)		GM		(277.0 - 281.0') Silty gravel with sand (GM); reddish brown (2.5YR 4/4); granules to very large pebbles, angular to subround; some very fine to very coarse grained sand, angular to subround; some silt; trace cobbles, angular to subround; trace clay; dry; strong cementation		
279									
280									

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
281	96	IRZ-9-SS-277-282	IRZ-9-VAS-276-281 (<0.17 U ppb)		GM			(273.0 - 281.0') Rough drilling	(0.0 - 281.0') No water used
282	18	IRZ-9-SS-282-287			NR		(281.0 - 285.5') (NR); 281-285.5 drilled with water, no recovery	(281.0 - 287.0') Attempted to drill using water this run to collect rock core.	(281.0 - 287.0') 50 gal of water used
283									
284									
285									
286					GM		(285.5 - 287.0') Silty gravel with sand (GM); reddish brown (2.5YR 4/4); granules to large pebbles, angular to subround; some very fine to very coarse grained sand, angular to subround; little silt; wet; iron oxide staining; 281-287 drilled with water. 1.5' of recovery.		
287									
288	120	IRZ-9-SS-287-292			ML		(287.0 - 293.5') Gravelly silt with sand (ML); reddish brown(2.5YR 4/3); medium plasticity; some granule to large pebble, subangular to subround; little very fine to medium grained sand, subangular to subround; trace clay; moist		(287.0 - 317.0') No water used
289									
290									
291									
292									
293									
294		IRZ-9-SS-292-297	IRZ-9-VAS-292-297 (<0.17 U ppb)		GM		(293.5 - 297.0') Silty gravel with sand (GM); reddish brown(2.5YR 4/3); granules to large pebbles, angular to subround; some very fine to coarse grained sand, angular to subround; some silt; trace cobbles, angular to subround; trace clay; moist		
295									
296									
297									
298	120			Topock - Weathered Bedrock - conglomerate	GM		(297.0 - 307.0') Topock - Weathered Bedrock - conglomerate; Silty gravel with sand (GM); reddish brown(2.5YR 4/3); granules to very large pebbles, angular to round; some silt; little very fine to medium grained sand, angular to subround; trace cobbles, angular to round; trace clay; moist; strong cementation; iron oxide staining; gravel composed of mixed litholgy, some gravels have red staining on them.	(297.0 - 307.0') Drill rods chattering	
299									
300									

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Boring Log

Boring No.: IRZ-9 Pilot

Date Started:	12/02/2018	Surface Elevation:	N/A		
Date Completed:	01/03/2019	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	317 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Alymer/ J. Candelaria	Depth to First Water:	25 ft bgs		
Logger:	A. Garcia / G. Willford	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Sunny cool to warm	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
301									
302									
303									
304	120			Topock - Weathered Bedrock - conglomerate	GM			(297.0 - 307.0') Drill rods chattering	
305									
306									
307									
308									
309				Topock - Weathered Bedrock - conglomerate	MH		(307.0 - 311.0') Topock - Weathered Bedrock - conglomerate; Gravelly elastic silt (MH); reddish brown (2.5YR 4/4)(5YR); high plasticity; some granule to large pebble, subangular to subround; little very fine to medium grained sand, angular to subround; trace clay; moist; moderate cementation; gravel composed of mixed litholgy.		(287.0 - 317.0') No water used
310									
311									
312	120								
313									
314				Topock - Weathered Bedrock - conglomerate	GM		(311.0 - 317.0') Topock - Weathered Bedrock - conglomerate; Silty gravel with sand (GM); reddish brown(2.5YR 4/3); granules to very large pebbles, subangular to round; some fine to very coarse grained sand, angular to subround; some silt; trace cobbles, subangular to round; trace clay; moist; strong cementation; iron oxide staining; gravel composed of mixed litholgy, some red iron staining on gravels.		
315									
316									
317									
318							End of Boring at 317.0 'bgs.		
319									
320									

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion.

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Boring Log

Boring No.: IRZ-13 Pilot

Date Started:	11/17/2018	Surface Elevation:	N/A		
Date Completed:	12/05/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	243 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Aylmer/J. Candelaria	Depth to First Water:	24.5 ft bgs		
Logger:	A. Garcia / J Gantt	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Partly Cloudy 46 to 74 F	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
1	24				SP		(0.0 - 16.5') Poorly graded sand with silt (SP); dark yellowish brown (10YR 4/4); very fine grained to fine grained, subangular to round; trace granule to small pebbles, subangular to round; trace silt; dry; no odor; no staining		(0.0 - 243.0') No water used
2									
3	24								
4									
5									
6	27								
7									
8									
9									
10									
11									
12	102								
13									
14									
15									
16									
17					SM		(16.5 - 24.5') Silty sand (SM); strong brown (7.5YR 4/6); very fine grained to fine grained, subangular to round; and silt; little granule to small pebbles, subangular to round; moist; no odor; no staining		
18	108								
19									
20									

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Boring Log

Boring No.: IRZ-13 Pilot

Date Started:	11/17/2018	Surface Elevation:	N/A		
Date Completed:	12/05/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	243 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Aylmer/J. Candelaria	Depth to First Water:	24.5 ft bgs		
Logger:	A. Garcia / J Gantt	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Partly Cloudy 46 to 74 F	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
21									
22					SM				
23	108								
24									
25							(24.5 - 27.0') Silty sand with gravel (SM); pale red (10R 6/2); very fine grained to very coarse grained, subangular; and silt; little granule to small pebbles, subangular to round; wet; no odor; no staining		
26					SM				
27							(27.0 - 44.5') Silty sand (SM); pale brown (10YR 6/3); very fine grained to very coarse grained, subangular to round; some silt; little granule to small pebbles, subangular to round; moist; no odor; no staining		
28		IRZ-13-SS-25-30							
29									
30									(0.0 - 243.0') No water used
31									
32	108	IRZ-13-SS-30-35							
33					SM				
34			IRZ-13-VAS-32-37 (220 ppb)						
35									
36									
37									
38		IRZ-13-SS-35-40							
39	120								
40									

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Boring Log

Boring No.: IRZ-13 Pilot

Date Started:	11/17/2018	Surface Elevation:	N/A		
Date Completed:	12/05/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	243 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Aylmer/J. Candelaria	Depth to First Water:	24.5 ft bgs		
Logger:	A. Garcia / J Gantt	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Partly Cloudy 46 to 74 F	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
41, 42, 43, 44	120	IRZ-13-SS-40-45			SM				
45					SM		(44.5 - 46.0') Sandy silt with gravel (SM); brown (10YR 4/3); very fine grained to very coarse grained, subangular to round; some small to large pebbles, subangular; some silt; moist; no odor; no staining		
46					ML		(46.0 - 47.0') Sandy silt (ML); brown (10YR 4/3); and very fine to fine grained sand, subangular; moist; no odor; no staining		
47, 48, 49, 50		IRZ-13-SS-45-50			SM		(47.0 - 53.0') Silty sand with gravel (SM); pink (7.5YR 7/4); very fine grained to very coarse grained, subangular to round; some granule to small pebbles, subangular to round; some silt; wet; no odor; no staining		(0.0 - 243.0') No water used
51, 52, 53		IRZ-13-SS-50-55							
54, 55					SM		(53.0 - 57.0') Silty sand (SM); light red (2.5YR 6/6); very fine grained to very coarse grained, subangular; little silt; trace granule to small pebbles, subangular; moist; no odor; no staining		
56, 57									
58, 59, 60	108	IRZ-13-SS-55-60	IRZ-13-VAS-57-62 (<0.17 U ppb)		SM		(57.0 - 64.5') Silty sand (SM); pinkish gray / grayish orange pink(5YR 7/2); very fine grained to very coarse grained, subangular to round; some silt; trace granule to small pebbles, subangular to round; wet; no odor; no staining		

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Boring Log

Boring No.: IRZ-13 Pilot

Date Started:	11/17/2018	Surface Elevation:	N/A		
Date Completed:	12/05/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	243 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Aylmer/J. Candelaria	Depth to First Water:	24.5 ft bgs		
Logger:	A. Garcia / J Gantt	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Partly Cloudy 46 to 74 F	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
61, 62, 63, 64	108	IRZ-13-SS-60-65	IRZ-13-VAS-57-62 (<0.17 U ppb)		SM				
65, 66, 67		IRZ-13-SS-65-70			SM		(64.5 - 67.0') Silty sand (SM); pale yellow (2.5Y 7/4); very fine grained to very coarse grained, subangular to round; and silt; trace granule to small pebbles, subangular to round; moist; no odor; no staining		
68, 69, 70, 71, 72, 73, 74, 75, 76, 77		IRZ-13-SS-70-75			SM		(67.0 - 77.0') Silty sand (SM); pink (5YR 7/3); very fine grained to very coarse grained, subangular to round; and silt; trace granule to small pebbles, subangular to round; moist; no odor; no staining		(0.0 - 243.0') No water used
78, 79, 80	108	IRZ-13-SS-75-80			SM		(77.0 - 87.5') Silty sand (SM); very pale brown (10YR 7/3); very fine grained to very coarse grained, subangular to round; some silt; trace granule to small pebbles, subangular; moist; no odor; no staining		

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Boring Log

Boring No.: IRZ-13 Pilot

Date Started:	11/17/2018	Surface Elevation:	N/A		
Date Completed:	12/05/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	243 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Aylmer/J. Candelaria	Depth to First Water:	24.5 ft bgs		
Logger:	A. Garcia / J Gantt	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Partly Cloudy 46 to 74 F	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
81, 82, 83, 84, 85	108	IRZ-13-SS-80-85			SM		(87') pink (5YR 7/4); no staining		
86, 87		IRZ-13-SS-85-90							
88, 89, 90, 91, 92, 93, 94, 95, 96, 97	108	IRZ-13-SS-90-95			GM		(87.5 - 97.0') Silty gravel with sand (GM); light reddish brown(2.5YR 7/3); granules to small pebbles, subangular to round; some very fine to very coarse grained sand, subangular; some silt; moist; no odor; no staining		(0.0 - 243.0') No water used
98, 99, 100	120	IRZ-13-SS-95-100			GP-GM		(97.0 - 99.0') Poorly graded gravel with silt (GP-GM); light reddish brown / light brown(5YR 6/4); granules to small pebbles, subangular to round; some very fine to very coarse grained sand, subangular; little silt; moist; no odor; no staining		
					SM		(99.0 - 107.0') Silty sand (SM); light reddish brown / light brown(5YR 6/4); very fine grained to very coarse grained, subangular to round; some silt; trace granule to small pebbles, subangular to round; moist;		

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Boring Log

Boring No.: IRZ-13 Pilot

Date Started:	11/17/2018	Surface Elevation:	N/A		
Date Completed:	12/05/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	243 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Aylmer/J. Candelaria	Depth to First Water:	24.5 ft bgs		
Logger:	A. Garcia / J Gantt	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Partly Cloudy 46 to 74 F	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
101, 102, 103, 104, 105, 106, 107	120	IRZ-13-SS-100-105	IRZ-13-VAS-102-107 (<0.17 U ppb)		SM		no odor; no staining		
107, 108, 109	108	IRZ-13-SS-105-110			ML		(107.0 - 109.5') Sandy silt with gravel (ML); brown (10YR 4/3); low plasticity; some very fine to very coarse grained sand, angular to subangular; little granule to very large pebbles, angular; wet; very stiff; no odor; no staining		
110, 111					SM		(109.5 - 112.0') Silty sand with gravel (SM); dark yellowish brown (10YR 4/4); very fine grained to very coarse grained, subangular to subround; little granule to small pebbles, subangular to round; little silt; wet; no odor; no staining		(0.0 - 243.0') No water used
112, 113		IRZ-13-SS-110-115			GM		(112.0 - 114.0') Silty gravel with sand (GM); olive brown (2.5Y 4/3); granules to large pebbles, subangular to round; some very fine to very coarse grained sand, angular to subangular; some silt; wet; no odor; no staining		
114, 115, 116, 117					SM		(114.0 - 117.0') Silty sand with gravel (SM); reddish brown / moderate brown(5YR 4/4); very fine grained to very coarse grained, angular to subangular; some granule to very large pebbles, angular; little silt; trace cobbles, angular; wet; no odor		
117, 118, 119, 120	108	IRZ-13-SS-115-120			SM		(117.0 - 123.0') Silty sand with gravel (SM); reddish brown (5YR 4/3); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular to subangular; some silt; wet; no odor; weak cementation; no staining; @ (118) 4" lens of green metadiorite.		

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Boring Log

Boring No.: IRZ-13 Pilot

Date Started:	11/17/2018	Surface Elevation:	N/A		
Date Completed:	12/05/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	243 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Aylmer/J. Candelaria	Depth to First Water:	24.5 ft bgs		
Logger:	A. Garcia / J Gantt	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Partly Cloudy 46 to 74 F	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
121, 122, 123	108	IRZ-13-SS-120-125			SM				
123, 124, 125					SM		(123.0 - 126.0') Silty sand with gravel (SM); reddish brown / moderate brown(5YR 4/4); very fine grained to very coarse grained, angular to subangular; and granules to very large pebbles, angular to subangular; little silt; trace mica; wet; no odor; weak cementation; no staining; @ (123) 4" lens of silty gravel with sand.		
125, 126, 127, 128, 129, 130, 131		IRZ-13-SS-125-130			SM		(126.0 - 132.0') Silty sand with gravel (SM); reddish brown / moderate brown(5YR 4/4); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular to subangular; some silt; little mica; wet; no odor; weak cementation; no staining (127'); little silt; no staining (128'); some silt; little granules to very large pebbles, angular to subangular; trace mica; no staining (128.5'); some granules to very large pebbles, angular to subangular; little silt; trace cobbles, angular; no staining		(0.0 - 243.0') No water used
132, 133	108	IRZ-13-SS-130-135			GM		(132.0 - 133.0') Silty gravel with sand (GM); reddish brown / moderate brown(5YR 4/4); granules to very large pebbles, angular to subround; some very fine to very coarse grained sand, angular to subround; some silt; trace mica; wet; no odor; no staining		
133, 134, 135, 136, 137					SM		(133.0 - 137.0') Silty sand with gravel (SM); reddish brown / moderate brown(5YR 4/4); very fine grained to very coarse grained, angular to subround; some granules to very large pebbles, angular to subangular; little silt; trace caliche; wet; no odor; no staining		
137, 138, 139, 140	108	IRZ-13-SS-135-140			ML		(137.0 - 142.5') Sandy silt with gravel (ML); reddish brown / moderate brown(5YR 4/4); medium plasticity; some medium to large pebbles, angular; some very fine to very coarse grained sand, angular to subround; trace clay; moist; hard; no odor; moderate cementation; no staining		

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Boring Log

Boring No.: IRZ-13 Pilot

Date Started:	11/17/2018	Surface Elevation:	N/A		
Date Completed:	12/05/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	243 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Aylmer/J. Candelaria	Depth to First Water:	24.5 ft bgs		
Logger:	A. Garcia / J Gantt	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Partly Cloudy 46 to 74 F	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
141					ML				
142		IRZ-13-SS-140-145							
143	108		IRZ-13-VAS-142-147 (<0.17 U ppb)		SM		(142.5 - 147.0') Silty sand with gravel (SM); reddish brown / moderate brown(5YR 4/4); very fine grained to very coarse grained, subangular to subround; some granules to very large pebbles, angular to subangular; some silt; trace caliche; wet; no odor; no staining		
144									
145									
146							(146'); little silt; no staining; increase in gravel.		
147									
148		IRZ-13-SS-145-150			GM		(147.0 - 149.0') Silty gravel with sand (GM); reddish brown / moderate brown(5YR 4/4); granules to medium pebbles, angular to subangular; some very fine to very coarse grained sand, angular to subround; some silt; trace large to very large pebbles, angular to subangular; wet		
149					ML		(149.0 - 150.0') Sandy silt with gravel (ML); reddish brown / moderate brown(5YR 4/4); medium plasticity; some very fine to very coarse grained sand, angular to subangular; little granule to very large pebbles, angular; moist; hard; weak cementation		
150									(0.0 - 243.0') No water used
151					SM		(150.0 - 152.0') Silty sand with gravel (SM); reddish brown / moderate brown(5YR 4/4); very fine grained to very coarse grained, angular to subround; some granules to very large pebbles, angular to subangular; some silt; wet; no odor; no staining		
152	108	IRZ-13-SS-150-155							
153					GM		(152.0 - 155.0') Silty gravel with sand (GM); reddish brown / moderate brown(5YR 4/4); granules to very large pebbles, subangular; some very fine to very coarse grained sand, angular to subround; some silt		
154									
155									
156					SM		(155.0 - 161.0') Silty sand with gravel (SM); reddish brown / moderate brown(5YR 4/4); very fine grained to very coarse grained, angular to subround; some granules to very large pebbles, angular to subangular; some silt; trace mica; moist; no odor; no staining		
157		IRZ-13-SS-155-160							
158	108								
159									
160									

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Boring Log

Boring No.: IRZ-13 Pilot

Date Started:	11/17/2018	Surface Elevation:	N/A		
Date Completed:	12/05/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	243 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Aylmer/J. Candelaria	Depth to First Water:	24.5 ft bgs		
Logger:	A. Garcia / J Gantt	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Partly Cloudy 46 to 74 F	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
161					SM				
162		IRZ-13-SS-160-165					(161.0 - 171.0') Sandy silt with gravel (ML); reddish brown / moderate brown(5YR 4/4); low plasticity; some granules to very large pebbles, angular to subangular; some very fine to very coarse grained sand, angular to subround; moist; no odor; no staining		
163	108								
164									
165									
166					ML				
167		IRZ-13-SS-165-170							
168									
169									
170									(0.0 - 243.0') No water used
171									
172	108	IRZ-13-SS-170-175					(171.0 - 176.0') Silty sand with gravel (SM); yellowish red / light brown(5YR 5/6); very fine grained to very coarse grained, angular to subround; some granules to very large pebbles, subangular to subround; some silt; moist; no odor; no staining		
173									
174					SM				
175									
176									
177		IRZ-13-SS-175-180					(176.0 - 187.0') Silty sand with gravel (SM); yellowish red / light brown(5YR 5/6); very fine grained to very coarse grained, angular to subround; some granules to very large pebbles, angular to subangular; some silt; moist; no odor; no staining; @ (176) gravel layer 6" thick.		
178					SM				
179	108								
180									

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion.

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Boring Log

Boring No.: IRZ-13 Pilot

Date Started:	11/17/2018	Surface Elevation:	N/A		
Date Completed:	12/05/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	243 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Aylmer/J. Candelaria	Depth to First Water:	24.5 ft bgs		
Logger:	A. Garcia / J Gantt	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Partly Cloudy 46 to 74 F	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
181, 182, 183, 184, 185, 186, 187	108	IRZ-13-SS-180-185	IRZ-13-VAS-180-185 (190 ppb)		SM		(181'); little granules to very large pebbles, angular to subangular; no staining; increase in %sand.		
188, 189, 190, 191, 192, 193, 194, 195, 196, 197	108	IRZ-13-SS-185-190; IRZ-13-SS-190-195			SM		(187.0 - 197.0') Silty sand with gravel (SM); reddish brown / moderate brown(5YR 4/4); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, subangular to subround; some silt; moist; no odor; no staining (190'); and granules to very large pebbles, angular to subangular; little silt; no staining; increase in % sand. (193'); some granules to very large pebbles, angular to subangular; little silt; little mica; no staining; increase in % sand.		(0.0 - 243.0') No water used
198, 199, 200	108	IRZ-13-SS-195-200	IRZ-13-VAS-197-202 (<0.83 ppb)		SM		(197.0 - 202.0') Silty sand with gravel (SM); weak red / pale reddish brown(10R 5/4); very fine grained to coarse grained, angular to subround; some granule to small pebbles, subangular to subround; some silt; trace boulders; trace mica; coarser clast composed of conglomerate; moist; no odor; no staining		

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion.

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Boring Log

Boring No.: IRZ-13 Pilot

Date Started:	11/17/2018	Surface Elevation:	N/A		
Date Completed:	12/05/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	243 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Aylmer/J. Candelaria	Depth to First Water:	24.5 ft bgs		
Logger:	A. Garcia / J Gantt	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Partly Cloudy 46 to 74 F	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
201, 202			IRZ-13-VAS-197-202 (<0.83 ppb)		SM		(200'); conglomerate boulder. (201'); 6" gravel layer.		
203, 204, 205, 206, 207	108	IRZ-13-SS-200-205			SM		(202.0 - 209.5') Silty sand with gravel (SM); light reddish brown / light brown(5YR 6/4); very fine grained to very coarse grained, angular to subangular; some silt; little granules to medium pebbles, angular to subangular; trace mica; moist; no odor; no staining		
208, 209, 210, 211, 212, 213, 214, 215, 216, 217	108	IRZ-13-SS-205-210 IRZ-13-SS-210-215			SM		(209.5 - 224.5') Silty sand with gravel (SM); red (2.5YR 4/8); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular to subangular; some silt; trace cobbles, angular; little mica; moist; no odor; weak cementation; no staining (216'); 6" layer of metadiorite gravel.		(0.0 - 243.0') No water used
218, 219, 220	108	IRZ-13-SS-215-220							

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion.

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Boring Log

Boring No.: IRZ-13 Pilot

Date Started:	11/17/2018	Surface Elevation:	N/A		
Date Completed:	12/05/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	243 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Aylmer/J. Candelaria	Depth to First Water:	24.5 ft bgs		
Logger:	A. Garcia / J Gantt	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Partly Cloudy 46 to 74 F	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
221, 222, 223, 224	108	IRZ-13-SS-220-225			SM		(223'); 12" layer of metadiorite gravel.		
225, 226, 227			IRZ-13-VAS-224-229 (<0.83 ppb)		SM		(224.5 - 227.0') Silty sand with gravel (SM); red (2.5YR 4/6); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular to subangular; some silt; trace cobbles, angular to subangular; little mica; wet; no odor; weak cementation		
228, 229, 230, 231, 232, 233, 234, 235, 236, 237	108	IRZ-13-SS-225-230		Topock - Weathered Bedrock - conglomerate	ML		(227.0 - 237.0') Topock - Weathered Bedrock - conglomerate; Sandy silt with gravel (ML); red (2.5YR 5/8); low plasticity; some very fine to very coarse grained sand, angular to subangular; little granules to large pebbles, angular to subangular; dry to moist; no odor; weak cementation; no staining		(0.0 - 243.0') No water used
238, 239, 240	72		IRZ-13-VAS-237-242 (<0.17 U ppb)	Topock - Weathered Bedrock - conglomerate	SM		(237.0 - 242.0') Topock - Weathered Bedrock - conglomerate; Silty sand with gravel (SM); red (2.5YR 4/8); very fine grained to very coarse grained, angular to subangular; some silt; little granules to very large pebbles, angular to subangular; little mica; moist; no odor; no staining		

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion.

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Boring Log

Boring No.: IRZ-13 Pilot

Date Started:	11/17/2018	Surface Elevation:	N/A		
Date Completed:	12/05/2018	Northing (NAD83):	N/A		
Drilling Co.:	Cascade	Easting (NAD83):	N/A	Client:	PG&E Topock
Drilling Method:	Sonic Drilling	Total Depth:	243 ft bgs	Location:	Groundwater Remedy Phase I
Driller Name:	Nick Petrone	Borehole Diameter:	6 in		Needles CA
Drilling Asst:	T. Aylmer/J. Candelaria	Depth to First Water:	24.5 ft bgs		
Logger:	A. Garcia / J Gantt	Sampling Method:	10 ft Core Barrel	Project Number:	RC000753.0051
Editor:	Sean McGrane	Sampling Interval:	Continuous		
Weather:	Partly Cloudy 46 to 74 F	Converted to Well:	☐ Yes ☒ No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Description	Drilling Notes	Drilling Fluid
241	72		IRZ-13-VAS-237-242 (<0.17 U ppb)	Topock - Weathered Bedrock - conglomerate	SM				(0.0 - 243.0') No water used
242				Topock - Competent Bedrock - conglomerate			(242.0 - 243.0') Topock - Competent Bedrock - conglomerate; red (10R 5/8); dry		
243							End of Boring at 243.0 'bgs.		
244									
245									
246									
247									
248									
249									
250									
251									
252									
253									
254									
255									
256									
257									
258									
259									
260									

Notes: USCS = Unified Soil Classification System, U = not detected above the laboratory reporting limit, ppb = Parts per Billion.

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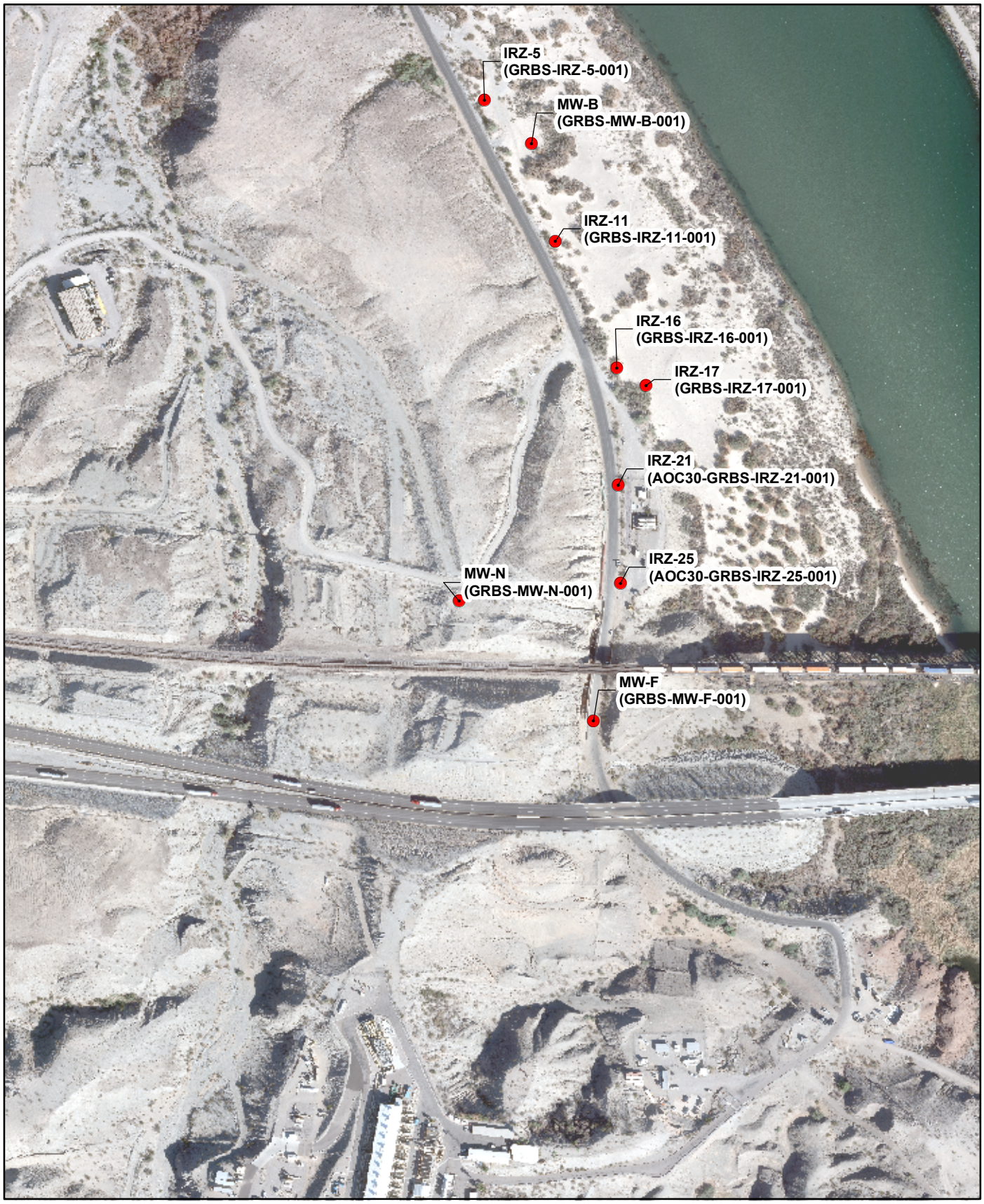
Attachment C
Soil Sampling Locations and Available Soil Analytical Results

(Soil Data Presented in Excel File)



LEGEND

- Soil Sample Location

0 100 200
Feet

N

Baseline and Opportunistic Soil Sampling Locations

January 2019 Monthly Progress Report
Groundwater Remedy Phase 1 Construction
PG&E Topock Compressor Station, Needles, California

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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 (LOC) 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 (1×10^{-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 ($\mu g/m^3$) 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):

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

Where:

AL = action level for airborne particulates (µg/m^3)

LOC = Project specific risk-based level of concern (µg/m^3)

CS = maximum detected concentration of compound in site soil (milligrams per kilogram [mg/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 µg/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 mg/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 µg/m^3.
- Therefore, keeping fugitive dust below the action level 100 µg/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 January 2019, eight real time dust monitoring events were conducted at the perimeter of the work areas (outside of the exclusion zone). There was no temporary exceedance of the action level for fugitive dust monitoring (100 µg/m3).

No perimeter air sampling for hexavalent chromium was conducted in January 2019.

References Cited:

California Department of Toxic Substances Control (DTSC). 2011. LeadSpread 8. https://www.dtsc.ca.gov/AssessingRisk/LeadSpread8.cfm.

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.

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

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.

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

Attachment E. Noise Monitoring Results

In conformance with the 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 (refer to Figures 1, 2 and 3). 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.

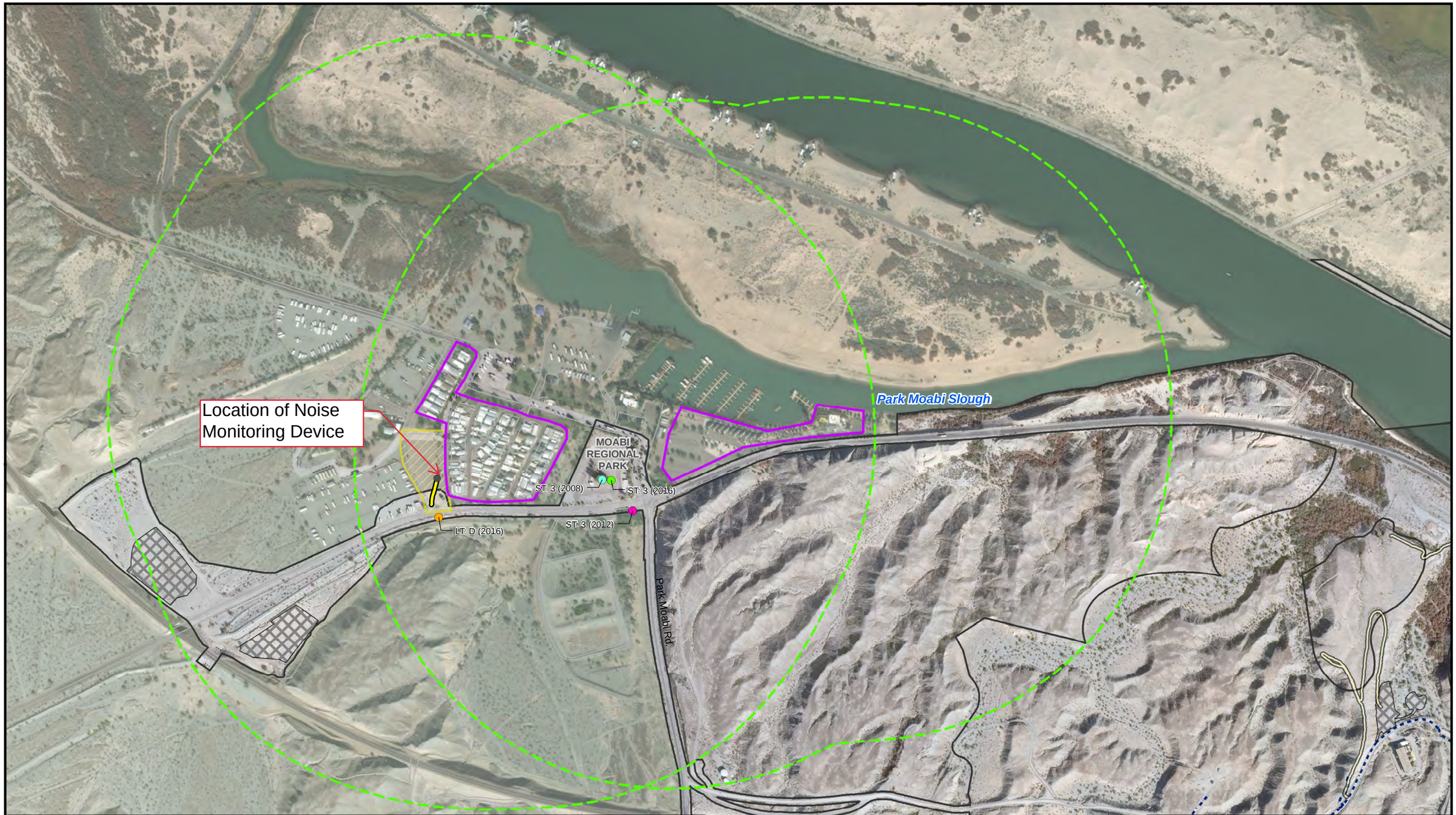
The attended monitoring events document the A-weighted L_{eq} sound level at periodic intervals (e.g., 5, 10, 15, 20, 30, 40, 50 and 60 minutes). The trend of the data at these intervals is evaluated in the field to assess the stability in the sound level to determine the duration of the monitoring event. When this interval data is 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 in terms of the 24-hour average 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 during the nighttime hours (10 p.m. to 7 a.m.).

In January 2019, over 15 monitoring events have been conducted at the Park Moabi monitoring location (Figure 1). The sound level typically varied between 41 and 57 dBA.

In January 2019, over 20 monitoring events have been conducted at Maze B-Combined Area 1/2 (Figure 2). Construction activities closest to this monitoring location include drilling activities at MW-N in the upland, drilling at MW-F along NTH, and activities on the MW-20 Bench. On two days (January 7 and 9), measurements at this location indicated sound levels up to 68 dBA. Sound barrier was installed around the MW-N drilling activities (see Attachment A Photographs). Outside of these two days, sound levels varied between 49 and 64 dBA.

In January 2019, 10 monitoring events have been conducted at Maze C-Area 1 (Figure 2). Construction activities closest to this monitoring location include drilling activities at MW-B and IRZ-9, vegetation clearance, as well as other activities in the northern end of the floodplain. One measurement resulted in 65 dBA while the water truck was in the vicinity and the remainder were lower.

There have been no complaints resulting from project construction-related noise. Noise monitoring conducted in January 2019 identified a short-term exceedance of the noise standard on two days (January 7 and 9). The exceedance was due to drilling activities at MW-N. Temporary acoustical barriers installed as directed in SEIR mitigation measure NOISE-2. Monitoring will continue as work progresses and moves into new areas to identify when an acoustical barrier needs to be considered.



LEGEND

- Aboveground Pipe
- Underground Pipe/Conduit
- 1,850' Noise Monitoring Buffer for Construction Activities conducted between 7AM and 10PM
- Noise Sensitive Receptor (per Final SEIR)

Area/Access Route for Noise Monitoring (Agreed to by concensus during 5/10/18 Site Walk)

- Area
- Access Routes
- Area for Noise Monitoring (Proposed by PG&E prior to 5/10/18 Site Walk)

- Moabi Regional Park Facilities
- EIR Boundary

0 275 550 1,100 Feet

N

FIGURE 1
NOISE MONITORING AREA - MOABI REGIONAL PARK
GROUNDWATER REMEDY CONSTRUCTION/
PHASE 1 CONSTRUCTION
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

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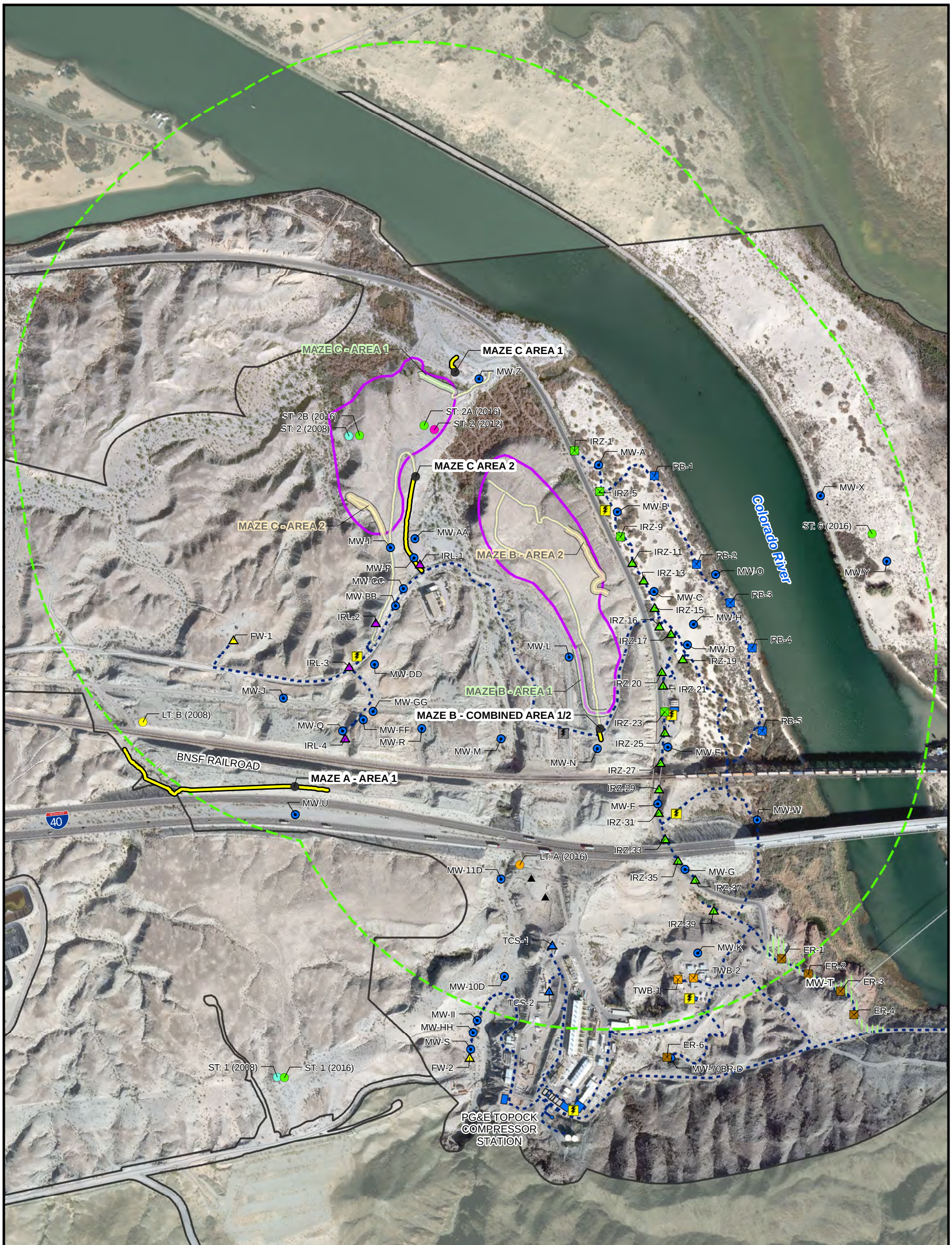

LEGEND

Planned Wells:

- Extraction, East Ravine
- Extraction, NTH IRZ
- Extraction, Riverbank
- Extraction, Transwestern Bench
- Injection, Freshwater
- Injection, Inner Recirculation Loop
- Injection, NTH IRZ
- Injection, Topock Compressor Station
- Remedy Monitoring Well
- Recirculation Well
- Area for Monitoring Well MW-T

Pipeline Corridor for Remedy

- Underground Pipe/Conduit

Remedy Facilities

- Planned Transformer
- Future Provisional Transformer
- Proposed Remedy Structure
- Contingent Freshwater Pre-injection Treatment System
- 1,850' Noise Monitoring Buffer for Construction Activities conducted between 7AM and 10PM
- Noise Sensitive Receptor (per Final SEIR)
- EIR Boundary

Areas/Access Routes for Noise Monitoring (Agreed to by concensus during 5/10/18 Site Walk)

- Area
- Access Route

Areas for Noise Monitoring (Proposed by PG&E Prior to 5/10/18 Site Walk)

- Area 1
- Area 2
- Access Route

N

0 275 550 1,100
Feet

FIGURE 2
NOISE MONITORING AREAS-NORTH OF I-40
GROUNDWATER REMEDY CONSTRUCTION/ PHASE 1 CONSTRUCTION
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

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Attachment F
Six-Week Look-Ahead Schedule
(February 6 through March 16, 2019)

Topock Final Groundwater Remedy Construction
Field Work Look-ahead Schedule

PG&E Topock Final Groundwater Remedy	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Primary Planned Activities	**2/3/2019**	**2/4/2019**	**2/5/2019**	**2/6/2019**	**2/7/2019**	**2/8/2019**	**2/9/2019**
	No Work	No Work	No Work	Mobilization Activities	Mobilization Activities	Mobilization Activities	
Primary Planned Activities	**2/10/2019**	**2/11/2019**	**2/12/2019**	**2/13/2019**	**2/14/2019**	**2/15/2019**	**2/16/2019**
Start Time (PST)		7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM
Construction Headquarters E1		CHQ conduit installation	CHQ conduit installation				
Soil Processing Yard (D1)			Perimeter Fence Install	Perimeter Fence Install	Perimeter Fence Install	Perimeter Fence Install	
Pipeline alignment grubbing, clearing & potholing E5, F5, G5, F6		Pending ERTC Pipeline C8, C9, C10, C14, C17	Pending ERTC Pipeline C8, C9, C10, C14, C17	Pending ERTC Pipeline C8, C9, C10, C14, C17	Pending ERTC Pipeline C8, C9, C10, C14, C17	Pending ERTC Pipeline C8, C9, C10, C14, C17	
IM3 Brine Tank Upgrade (E5)						Continued brine tank upgrades - tasks TBD	Continued brine tank upgrades - tasks TBD
Primary Planned Activities	**2/17/2019**	**2/18/2019**	**2/19/2019**	**2/20/2019**	**2/21/2019**	**2/22/2019**	**2/23/2019**
Start Time (PST)	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM
Soil Processing Yard (D1)		Perimeter Fence Install	Perimeter Fence Install	Perimeter Fence Install	Perimeter Fence Install	Perimeter Fence Install	
Construction Headquarters E1		Site-wide clearing & grading	Site-wide clearing & grading	Site-wide clearing & grading	Site-wide clearing & grading	Site-wide clearing & grading	
Pipeline alignment grubbing, clearing & potholing E5, F5, G5, F6		Pending ERTC Pipeline C8, C9, C10, C14, C17	Pending ERTC Pipeline C8, C9, C10, C14, C17	Pending ERTC Pipeline C8, C9, C10, C14, C17	Pending ERTC Pipeline C8, C9, C10, C14, C17	Pending ERTC Pipeline C8, C9, C10, C14, C17	
Well Installation		--	MW-N (F5), MW-G (F5), MW-B (E5)	MW-N (F5), MW-G (F5), MW-B (E5)	MW-N (F5), MW-G (F5), MW-B (E5)	MW-N (F5), MW-G (F5), MW-B (E5)	MW-N (F5), MW-G (F5), MW-B (E5)
IM3 Brine Tank Upgrade (E5)	Continued brine tank upgrades - tasks TBD					Continued brine tank upgrades - tasks TBD	Continued brine tank upgrades - tasks TBD
Primary Planned Activities	**2/24/2019**	**2/25/2019**	**2/26/2019**	**2/27/2019**	**2/28/2019**	**3/1/2019**	**3/2/2019**
Start Time (PST)	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	
Soil Processing Yard (D1)		Perimeter Fence Install					
Construction Headquarters E1		Rip rap installation	Rip rap installation	Rip rap installation	Rip rap installation	Rip rap installation	
Subsurface Clearance Potholing E5, F5		Pipeline C1 - C6	Pipeline C1 - C6	Pipeline C1 - C6	Pipeline C1 - C6	Pipeline C1 - C6	
Pipeline alignment grubbing, clearing & potholing F5		Pending ERTC Pipeline C5, C7	Pending ERTC Pipeline C5, C7	Pending ERTC Pipeline C5, C7	Pending ERTC Pipeline C5, C7	Pending ERTC Pipeline C5, C7	
Pre-Trenching/Excavation Potholling and Characterization (F5)		Pending ERTC Potholing, Air-vac @ MW-20 Bench	Pending ERTC Potholing, Air-vac @ MW-20 Bench	Pending ERTC Potholing, Air-vac @ MW-20 Bench	Pending ERTC Potholing, Air-vac @ MW-20 Bench	Pending ERTC Potholing, Air-vac @ MW-20 Bench	
Well Installation	MW-N (F5), MW-G (F5), MW-B (E5)	MW-N (F5), MW-G (F5), MW-B (E5)	MW-N (F5), MW-G (F5), MW-B (E5)	MW-N (F5), MW-G (F5), MW-B (E5)	MW-N (F5), MW-G (F5), MW-B (E5)	--	
IM3 Brine Tank Upgrade (E5)	Continued brine tank upgrades - tasks TBD					Continued brine tank upgrades - tasks TBD	Continued brine tank upgrades - tasks TBD
Primary Planned Activities	**3/3/2019**	**3/4/2019**	**3/5/2019**	**3/6/2019**	**3/7/2019**	**3/8/2019**	**3/9/2019**
Start Time (PST)		7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM
Pre-Trenching/Excavation Potholling and Characterization (F5), (G5)		Pending ERTC Potholing, Air-vac @ C6, C9, C13 & C17	Pending ERTC Potholing, Air-vac @ C6, C9, C13 & C17	Pending ERTC Potholing, Air-vac @ C6, C9, C13 & C17	Pending ERTC Potholing, Air-vac @ C6, C9, C13 & C17	Pending ERTC Potholing, Air-vac @ C6, C9, C13 & C17	
Pipeline C Installation E5		Pipeline C4	Pipeline C4	Pipeline C4	Pipeline C4	Pipeline C4	
Well Installation		--	MW-N (F5), IRZ-27 (F5), MW-B (E5), IRZ-20 (F5)	MW-N (F5), IRZ-27 (F5), MW-B (E5), IRZ-20 (F5)	MW-N (F5), IRZ-27 (F5), MW-B (E5), IRZ-20 (F5)	MW-N (F5), IRZ-27 (F5), MW-B (E5), IRZ-20 (F5)	MW-N (F5), IRZ-27 (F5), MW-B (E5), IRZ-20 (F5)
IM3 Brine Tank Upgrade (E5)	Continued brine tank upgrades - tasks TBD					Continued brine tank upgrades - tasks TBD	Continued brine tank upgrades - tasks TBD
Primary Planned Activities	**3/10/2019**	**3/11/2019**	**3/12/2019**	**3/13/2019**	**3/14/2019**	**3/15/2019**	**3/16/2019**
Start Time (PST)	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	No Work
Pre-Trenching/Excavation Potholling and Characterization (F5), (G5)		Pending ERTC Potholing, Air-vac @ C6, C9, C13 & C17	Pending ERTC Potholing, Air-vac @ C6, C9, C13 & C17	Pending ERTC Potholing, Air-vac @ C6, C9, C13 & C17	Pending ERTC Potholing, Air-vac @ C6, C9, C13 & C17	Pending ERTC Potholing, Air-vac @ C6, C9, C13 & C17	
Pipeline C Installation E5, F5		Pipeline install at C4, Stabilization matting install at C7	Pipeline install at C4, Stabilization matting install at C7	Pipeline install at C4, Stabilization matting install at C7	Pipeline install at C4, Stabilization matting install at C7	Pipeline install at C4, Stabilization matting install at C7	
Well Installation	MW-N (F5), IRZ-27 (F5), MW-D (E5), IRZ-20 (F5)	MW-N (F5), MW-W (F5), MW-D (E5), IRZ-20 (F5)	MW-N (F5), MW-W (F5), MW-D (E5), IRZ-20 (F5)	MW-N (F5), MW-W (F5), MW-D (E5), IRZ-20 (F5)	MW-N (F5), MW-W (F5), MW-D (E5), IRZ-25 (F5)	--	
IM3 Brine Tank Upgrade (E5)	Continued brine tank upgrades - tasks TBD					Continued brine tank upgrades - tasks TBD	Continued brine tank upgrades - tasks TBD

Note - The timing of field activities are 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.

Attachment G
Available Groundwater Monitoring Data
(DTSC Condition of Approval xi)

Attachment G. Available Groundwater Monitoring Data

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 initially 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 since included validated data in each monthly progress report starting with the November 2018 report. The following pages contain the validated data for groundwater samples collected from December 4 to 13, 2018.

ARCADIS Design & Consultancy for natural and built assets

GMP 2018-12 Sampling

					Filtered:	F	N	F	F	F	F	F	F	F	F	F	F	F
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Description:	Hexavalent Chromium	Oxygen and Deuterium Stable Isotopes	Antimony, Dissolved	Arsenic, Dissolved	Barium, Dissolved	Beryllium, Dissolved	Boron, Dissolved	Cadmium, Dissolved	Calcium, Dissolved	Cobalt, Dissolved	Copper, Dissolved	Iron, Dissolved	Lead, Dissolved
					Method:	EPA 218.6	CFIRM	SW 6020	SW 6020	SW 6020	SW 6020	SW 6010B	SW 6020	SW 6010B	SW 6020	SW 6010B	SW 6010B	SW 6020
					Units:	ug/L	0/00	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L
Location ID	**Sample Type**	**Sample ID**	**Parent Sample**	**Matrix**	**Date Collected**													
MW-09	N	MW-09-Q418		GW	12/12/18	140			1.7			0.72		130			69	
MW-10	N	MW-10-Q418		GW	12/12/18	110		ND (0.5)	2.2	49	ND (0.5)	0.78	ND (0.5)	140	ND (0.5)	ND (1.0)	29	ND (1.0)
MW-11	N	MW-11-Q418		GW	12/12/18	47			1.4			0.43		130			ND (20)	
MW-11	FD	MW-903-Q418	MW-11-Q418	GW	12/12/18	47			1.3			0.44		140			ND (20)	
MW-12	N	MW-12-Q418		GW	12/11/18	1,500		ND (0.5)	40	45	ND (2.5)	1.2	ND (0.5)	42	ND (0.5)	ND (1.0)	180	ND (1.0)
MW-13	N	MW-13-Q418		GW	12/04/18	22			2			0.42		120			ND (20)	
MW-14	N	MW-14-Q418		GW	12/11/18	13		ND (0.5)	0.7	180	ND (0.5)	0.34	ND (0.5)	160	ND (0.5)	ND (1.0)	ND (20)	ND (1.0)
MW-15	N	MW-15-Q418		GW	12/11/18	16						0.29		150			ND (20)	
MW-18	N	MW-18-Q418		GW	12/06/18	19						ND (0.19)		80			ND (20)	
MW-19	N	MW-19-Q418		GW	12/10/18	670						0.4		88			120	
MW-20-070	N	MW-20-070-Q418		GW	12/11/18	1,600	-8.17					0.47		63			ND (20)	
MW-20-070	FD	MW-905-Q418	MW-20-070-Q418	GW	12/11/18	1,600	-8.33					0.47		65			ND (20)	
MW-20-100	N	MW-20-100-Q418		GW	12/04/18	1,400	-8.31					0.9		110			ND (20)	
MW-20-130	N	MW-20-130-Q418		GW	12/04/18	5,800	-7.2		4.6			2.3		280			21	
MW-21	N	MW-21-Q418		GW	12/12/18	1.1						4		210			ND (20)	
MW-21	EB	MW-21-EB-Q418		GW	12/11/18	ND (0.2)												
MW-22	N	MW-22-Q418		GW	12/04/18	ND (1.0)	-10.66	ND (2.5)	13	95	ND (2.5)	3.1	ND (2.5)	860	2.3	ND (1.0)	10,000	ND (5.0)
MW-22	FD	MW-906-Q418	MW-22-Q418	GW	12/04/18	ND (1.0)	-10.65	ND (2.5)	15	93	ND (2.5)	3	ND (2.5)	850	2.6	ND (1.0)	11,000	ND (5.0)
MW-23-060	N	MW-23-060-Q418		GW	12/11/18	39			4.6			0.79 J		830			ND (100)	
MW-23-080	N	MW-23-080-Q418		GW	12/11/18	ND (1.0)			5.5			0.85		760			ND (100)	
MW-24A	N	MW-24A-Q418		GW	12/12/18	ND (0.2)		ND (0.5)	0.28	24	ND (0.5)		ND (0.5)		ND (0.5)	ND (1.0)		ND (1.0)
MW-24B	N	MW-24B-Q418		GW	12/12/18	160		ND (0.5)	3.3	69	ND (2.5)		ND (0.5)		ND (0.5)	ND (1.0)		ND (1.0)
MW-24BR	N	MW-24BR-Q418		GW	12/13/18	ND (1.0)			0.41			2.1		110			180	
MW-25	N	MW-25-Q418		GW	12/10/18	100	-8.75		1.2			0.34		120			ND (20)	
MW-25	FD	MW-907-Q418	MW-25-Q418	GW	12/10/18	100	-9.09		1.2			0.33		120			22	
MW-26	N	MW-26-Q418		GW	12/07/18	2,200	-8.21	ND (0.5)	1.8	34	ND (0.5)	1	ND (0.5)	150	ND (0.5)	ND (1.0)	70 J	ND (1.0)
MW-27-020	N	MW-27-020-Q418		GW	12/05/18	ND (0.2)			0.95			ND (0.12)		71			23	
MW-27-020	EB	MW-27-020-EB-Q418		GW	12/05/18	ND (0.2)												
MW-27-060	N	MW-27-060-Q418		GW	12/05/18	ND (0.2)			11			ND (0.14)		82			590	
MW-27-060	EB	MW-27-060-EB-Q418		GW	12/05/18	ND (0.2)												
MW-27-085	N	MW-27-085-Q418		GW	12/05/18	ND (1.0)			1.5			1.1		230			55	
MW-27-085	EB	MW-27-085-EB-Q418		GW	12/05/18	ND (0.2)												
MW-28-025	N	MW-28-025-Q418		GW	12/14/18	ND (0.2)			0.66			ND (0.18)		98			ND (20)	
MW-28-025	EB	MW-28-025-EB-Q418		GW	12/14/18	ND (0.2)												
MW-28-090	N	MW-28-090-Q418		GW	12/14/18	ND (0.2)			3			0.67		170			1,000	
MW-28-090	EB	MW-28-090-EB-Q418		GW	12/14/18	ND (0.2)												
MW-29	N	MW-29-Q418		GW	12/10/18	ND (0.2)			7.8			0.37		88			1,100	
MW-29	EB	MW-29-EB-Q418		GW	12/10/18	ND (0.2)												
MW-30-030	N	MW-30-030-Q418		GW	12/06/18	ND (0.2)			1.6			1.9 J		87			820 J	
MW-30-030	EB	MW-30-030-EB-Q418		GW	12/06/18	ND (0.2)												
MW-30-050	N	MW-30-050-Q418		GW	12/06/18	ND (0.2)	-12.2		2.8			ND (0.17)		79			68 J	
MW-30-050	FD	MW-908-Q418	MW-30-050-Q418	GW	12/06/18	ND (0.2)	-12.5		2.8			ND (0.17)		83			64 J	
MW-31-060	N	MW-31-060-Q418		GW	12/10/18	390	-8.82		1.1			0.49		150			61	
MW-31-135	N	MW-31-135-Q418		GW	12/10/18	14	-9.53		3.6			1.3		340			61	
MW-32-020	N	MW-32-020-Q418		GW	12/04/18	ND (1.0)			2.5			4.9		300			5,200	
MW-32-020	EB	MW-32-020-EB-Q418		GW	12/04/18	ND (0.2)												
MW-32-035	N	MW-32-035-Q418		GW	12/04/18	ND (1.0)	-10.99		19			0.91		400			7,200	

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					Filtered:	F	N	F	F	F	F	F	F	F	F	F	F	F
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Description:	Hexavalent Chromium	Oxygen and Deuterium Stable Isotopes	Antimony, Dissolved	Arsenic, Dissolved	Barium, Dissolved	Beryllium, Dissolved	Boron, Dissolved	Cadmium, Dissolved	Calcium, Dissolved	Cobalt, Dissolved	Copper, Dissolved	Iron, Dissolved	Lead, Dissolved
					Method:	EPA 218.6	CFIRM	SW 6020	SW 6020	SW 6020	SW 6020	SW 6010B	SW 6020	SW 6010B	SW 6020	SW 6010B	SW 6010B	SW 6020
					Units:	ug/L	0/00	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L
Location ID	**Sample Type**	**Sample ID**	**Parent Sample**	**Matrix**	**Date Collected**													
MW-32-035	EB	MW-32-035-EB-Q418		GW	12/04/18	ND (0.2)												
MW-33-040	N	MW-33-040-Q418		GW	12/07/18	ND (1.0)	-9.61		11			3.4		71			ND (100 J)	
MW-33-040	EB	MW-33-040-EB-Q418		GW	12/07/18	ND (0.2)												
MW-33-090	N	MW-33-090-Q418		GW	12/07/18	1.2	-10.05		0.98			1.2		300			110 J	
MW-33-150	N	MW-33-150-Q418		GW	12/07/18	3.9	-10.49		1.4			1.1		360			58 J	
MW-33-210	N	MW-33-210-Q418		GW	12/07/18	6.7	-10.77		1.1			1.6		530			ND (100 J)	
MW-34-055	N	MW-34-055-Q418		GW	12/05/18	ND (0.2)	-12.29		2.2			ND (0.12)		74			54	
MW-34-055	FD	MW-910-Q418	MW-34-055-Q418	GW	12/05/18	ND (0.2)	-12.29		2.2			ND (0.11)		73			57	
MW-34-055	EB	MW-34-055-EB-Q418		GW	12/05/18	ND (0.2)												
MW-34-080	N	MW-34-080-Q418		GW	12/05/18	ND (1.0)	-11.14		1.5			1		280			140	
MW-34-080	EB	MW-34-080-EB-Q418		GW	12/05/18	ND (0.2)												
MW-34-100	N	MW-34-100-Q418		GW	12/05/18	ND (1.0)	-11.24		1.6			1.7		170			83	
MW-35-060	N	MW-35-060-Q418		GW	12/10/18	20	-9.61	ND (0.5)	1.1	73	ND (0.5)	0.72	ND (0.5)	250	ND (0.5)	ND (1.0 J)	71	ND (1.0)
MW-35-135	N	MW-35-135-Q418		GW	12/10/18	25	-10.51	ND (0.5)	0.93	37	ND (2.5)	0.78	ND (0.5)	310	ND (0.5)	ND (1.0)	200	ND (1.0)
MW-36-020	N	MW-36-020-Q418		GW	12/06/18	ND (0.2)			2.2			1.1		79			630 J	
MW-36-040	N	MW-36-040-Q418		GW	12/06/18	ND (0.2)			4.7			0.21		44			400 J	
MW-36-050	N	MW-36-050-Q418		GW	12/06/18	ND (0.2)			5.2			ND (0.16)		81			130 J	
MW-36-070	N	MW-36-070-Q418		GW	12/06/18	ND (0.2)			4.8			ND (0.16)		50			570 J	
MW-36-090	N	MW-36-090-Q418		GW	12/06/18	ND (0.2)	-12.21		3.7			0.58		150			ND (20 J)	
MW-36-090	FD	MW-911-Q418	MW-36-090-Q418	GW	12/06/18	ND (0.2)	-11.93		3.8			0.6		150			24 J	
MW-36-100	N	MW-36-100-Q418		GW	12/06/18	3.3	-12.3		3.4			0.8		160			200 J	
MW-37D	N	MW-37D-Q418		GW	12/06/18	5.1						1.6		330			ND (20)	
MW-37S	N	MW-37S-Q418		GW	12/06/18	12			1.7			0.68		200			ND (20)	
MW-38D	N	MW-38D-Q418		GW	12/12/18	20			7.9			2.8		400			ND (100)	
MW-38D	N	MW-38D-SMT-Q418		GW	12/12/18	21			7.9			2.8		400			ND (100)	
MW-38S	N	MW-38S-Q418		GW	12/12/18	3.9			6.4			0.72		26			ND (20)	
MW-38S	N	MW-38S-SMT-Q418		GW	12/12/18	4.2			6			0.76		28			22	
MW-39-040	N	MW-39-040-Q418		GW	12/06/18	ND (0.2)			17									
MW-39-050	N	MW-39-050-Q418		GW	12/06/18	ND (0.2)			1.9			ND (0.16)		69			ND (20 J)	
MW-39-060	N	MW-39-060-Q418		GW	12/06/18	ND (0.2)			3			ND (0.18)		47			ND (20 J)	
MW-39-070	N	MW-39-070-Q418		GW	12/06/18	ND (0.2)	-12.36					0.26		47			ND (20 J)	
MW-39-070	FD	MW-912-Q418	MW-39-070-Q418	GW	12/06/18	ND (0.2)	-12.53					0.26		47			ND (20 J)	
MW-39-080	N	MW-39-080-Q418		GW	12/06/18	1.2	-11.55					0.64		110			ND (20 J)	
MW-39-100	N	MW-39-100-Q418		GW	12/06/18	63	-11.09		2.4			1.6		260			ND (20 J)	
MW-40D	N	MW-40D-Q418		GW	12/12/18	140			4.8			1.9		410			ND (20)	
MW-40D	N	MW-40D-SMT-Q418		GW	12/12/18	ND (1.0)			4			1.7		380			69	
MW-40S	N	MW-40S-Q418		GW	12/12/18	11			1.9									
MW-40S	N	MW-40S-SMT-Q418		GW	12/12/18	17			3.4									
MW-41D	N	MW-41D-Q418		GW	12/13/18	ND (1.0)			2.3			2		430			ND (100)	
MW-41M	N	MW-41M-Q418		GW	12/11/18	8.4			2.2			1.3		420			38	
MW-41S	N	MW-41S-Q418		GW	12/07/18	9.4			1.6			0.87		180			22 J	
MW-41S	FD	MW-909-Q418	MW-41S-Q418	GW	12/07/18	9.3			1.6			0.87		180			22 J	
MW-42-030	N	MW-42-030-Q418		GW	12/05/18	ND (1.0)	-12.74		2.6									
MW-42-030	FD	MW-913-Q418	MW-42-030-Q418	GW	12/05/18	ND (1.0)	-12.61		2.4									
MW-42-055	N	MW-42-055-Q418		GW	12/05/18	ND (0.2)	-12.95		25			0.19		5.9			43	
MW-42-055	EB	MW-42-055-EB-Q418		GW	12/05/18	ND (0.2)												
MW-42-065	N	MW-42-065-Q418		GW	12/05/18	ND (0.2)	-12.78		8.4			0.36		57			30	

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					Filtered:	F	N	F	F	F	F	F	F	F	F	F	F	F
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Description:	Hexavalent Chromium	Oxygen and Deuterium Stable Isotopes	Antimony, Dissolved	Arsenic, Dissolved	Barium, Dissolved	Beryllium, Dissolved	Boron, Dissolved	Cadmium, Dissolved	Calcium, Dissolved	Cobalt, Dissolved	Copper, Dissolved	Iron, Dissolved	Lead, Dissolved
					Method:	EPA 218.6	CFIRM	SW 6020	SW 6020	SW 6020	SW 6020	SW 6010B	SW 6020	SW 6010B	SW 6020	SW 6010B	SW 6010B	SW 6020
					Units:	ug/L	0/00	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L
Location ID	**Sample Type**	**Sample ID**	**Parent Sample**	**Matrix**	**Date Collected**													
MW-42-065	EB	MW-42-065-EB-Q418		GW	12/05/18	ND (0.2)												
MW-43-025	N	MW-43-025-Q418		GW	12/05/18	ND (0.2)			25			ND (0.12)		120			3,500 J	
MW-43-025	EB	MW-43-025-EB-Q418		GW	12/05/18	ND (0.2)												
MW-43-075	N	MW-43-075-Q418		GW	12/05/18	ND (1.0)			12			1.2		290			5,500	
MW-43-075	EB	MW-43-075-EB-Q418		GW	12/05/18	ND (0.2)												
MW-43-090	N	MW-43-090-Q418		GW	12/05/18	ND (1.0)			3.2			2.5		450			1,800	
MW-43-090	EB	MW-43-090-EB-Q418		GW	12/05/18	ND (0.2)												
MW-44-070	N	MW-44-070-Q418		GW	12/05/18	ND (0.2)	-12		3.3			0.22		63			420	
MW-44-070	EB	MW-44-070-EB-Q418		GW	12/05/18	ND (0.2)												
MW-44-115	N	MW-44-115-Q418		GW	12/05/18	6.4	-10.59		5.2			1.3		97			ND (20)	
MW-44-125	N	MW-44-125-Q418		GW	12/05/18	ND (1.0)	-12		4.5			1.2		81			170	
MW-44-125	FD	MW-914-Q418	MW-44-125-Q418	GW	12/05/18	ND (1.0)	-12.22		4.4			1.1		74			180	
MW-44-125	EB	MW-44-125-EB-Q418		GW	12/05/18	ND (0.2)												
MW-46-175	N	MW-46-175-Q418		GW	12/13/18	8.2	-10.51					2.3		120			ND (100)	
MW-46-205	N	MW-46-205-Q418		GW	12/13/18	ND (1.0)						3.3		100			ND (100)	
MW-47-055	N	MW-47-055-Q418		GW	12/10/18	21	-9.47		1.3			0.48		170			21	
MW-47-115	N	MW-47-115-Q418		GW	12/10/18	15	-10.16					1.1		380			36 J	
MW-47-115	FD	MW-915-Q418	MW-47-115-Q418	GW	12/10/18	15	-10.63					1.2		410			88 J	
MW-48	N	MW-48-Q418		GW	12/13/18	ND (1.0)						1.1		360			ND (100)	
MW-49-135	N	MW-49-135-Q418		GW	12/10/18	2.2	-10.49		2.1			0.84 J		320			28	
MW-49-135	EB	MW-49-135-EB-Q418		GW	12/10/18	ND (0.2)												
MW-49-275	N	MW-49-275-Q418		GW	12/10/18	ND (1.0)	-10.45					2.7		240			150	
MW-49-275	EB	MW-49-275-EB-Q418		GW	12/10/18	ND (0.2)												
MW-49-365	N	MW-49-365-Q418		GW	12/10/18	ND (5.0)	-10.91					4.3		360			410	
MW-49-365	EB	MW-49-365-EB-Q418		GW	12/10/18	ND (0.2)												
MW-50-095	N	MW-50-095-Q418		GW	12/10/18	13						0.78		130			77	
MW-50-200	N	MW-50-200-Q418		GW	12/10/18	3,100						2		490			ND (100)	
MW-51	N	MW-51-Q418		GW	12/10/18	3,300			4			1.6		310			62	
MW-52D	N	MW-52D-Q418		GW	12/04/18	ND (1.0)			2			2.5		280			930	
MW-52M	N	MW-52M-Q418		GW	12/04/18	ND (1.0)			0.41			1.7		410			1,300	
MW-52S	N	MW-52S-Q418		GW	12/04/18	ND (1.0)			0.67			0.73		550			12,000	
MW-53D	N	MW-53D-Q418		GW	12/04/18	ND (1.0)			3.3			3.4		290			330	
MW-53M	N	MW-53M-Q418		GW	12/04/18	ND (1.0)			0.57			2		370			510	
MW-57-070	N	MW-57-070-Q418		GW	12/07/18	410			1.3			ND (0.17)		350			51 J	
MW-57-185	N	MW-57-185-3V-Q418		GW	12/07/18	6.4			9.6			2.5		340			ND (100 J)	
MW-57-185	N	MW-57-185-LF_D-Q418		GW	12/07/18	6.2			6.7			2.4		360			ND (100 J)	
MW-57-185	N	MW-57-185-LF_S-Q418		GW	12/07/18	5.4			4.1			2.5		400			ND (100 J)	
MW-58BR	N	MW-58BR-Q418		GW	12/13/18	10			1.9			1.0 J		530			ND (20)	
MW-59-100	N	MW-59-100-Q418		GW	12/07/18	3,100		ND (0.5)	2	70	ND (2.5)	1.3	ND (0.5)	700	ND (0.5)	ND (1.0)	200 J	ND (1.0)
MW-59-100	FD	MW-926-Q418	MW-59-100-Q418	GW	12/07/18	3,100		ND (0.5)	2	68	ND (2.5)	1.2	ND (0.5)	670	ND (0.5)	ND (1.0)	160 J	ND (1.0)
MW-60-125	N	MW-60-125-Q418		GW	12/06/18	980			1.3			0.74		600			ND (20)	
MW-60BR-245	N	MW-60BR-245-3V-Q418		GW	12/06/18	110			8.2			2.2		420			ND (20 J)	
MW-60BR-245	N	MW-60BR-245-LF_D-Q418		GW	12/06/18	20			7.3			2.2		410			ND (20 J)	
MW-60BR-245	N	MW-60BR-245-LF_S-Q418		GW	12/06/18	17			6.6			2.3		400			ND (100)	
MW-61-110	N	MW-61-110-Q418		GW	12/13/18	430			4			2.3		730			ND (100)	
MW-62-065	N	MW-62-065-Q418		GW	12/07/18	540			1.4			0.68		210			54 J	
MW-62-110	N	MW-62-110-Q418		GW	12/13/18	0.32			31			1.3		170			ND (53)	

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					Filtered:	F	N	F	F	F	F	F	F	F	F	F	F	F
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Description:	Hexavalent Chromium	Oxygen and Deuterium Stable Isotopes	Antimony, Dissolved	Arsenic, Dissolved	Barium, Dissolved	Beryllium, Dissolved	Boron, Dissolved	Cadmium, Dissolved	Calcium, Dissolved	Cobalt, Dissolved	Copper, Dissolved	Iron, Dissolved	Lead, Dissolved
					Method:	EPA 218.6	CFIRM	SW 6020	SW 6020	SW 6020	SW 6020	SW 6010B	SW 6020	SW 6010B	SW 6020	SW 6010B	SW 6010B	SW 6020
					Units:	ug/L	0/00	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L
Location ID	**Sample Type**	**Sample ID**	**Parent Sample**	**Matrix**	**Date Collected**													
MW-62-190	N	MW-62-190-Q418		GW	12/13/18	ND (1.0 J)			8.6 J			2.4		360 J			ND (100)	
MW-62-190	FD	MW-917-Q418	MW-62-190-Q418	GW	12/13/18	460 J			4.0 J			2		660 J			ND (100)	
MW-63-065	N	MW-63-065-Q418		GW	12/12/18	0.95			1.5			0.39		130			ND (20)	
MW-64BR	N	MW-64BR-Q418		GW	12/13/18	ND (1.0)			4			1.6		370			92	
MW-65-160	N	MW-65-160-Q418		GW	12/05/18	160			0.75			0.92		270			250	
MW-65-225	N	MW-65-225-Q418		GW	12/05/18	220			2.6			2.2		460			ND (20)	
MW-66-165	N	MW-66-165-Q418		GW	12/05/18	480			1.3			0.65		250			23	
MW-66-230	N	MW-66-230-Q418		GW	12/05/18	6,100			12			2.3		430			ND (100)	
MW-66BR-270	N	MW-66BR-270-Q418		GW	12/07/18	ND (1.0)			ND (0.1)			1.9		290			660 J	
MW-67-185	N	MW-67-185-Q418		GW	12/05/18	1,800			0.91			0.64		680			ND (20)	
MW-67-225	N	MW-67-225-Q418		GW	12/05/18	2,900			2.9			1.3		120			150	
MW-67-260	N	MW-67-260-Q418		GW	12/05/18	660			8.9			2.8		310			ND (100)	
MW-68-180	N	MW-68-180-Q418		GW	12/07/18	22,000			2.8			0.65		350			ND (20 J)	
MW-68-240	N	MW-68-240-Q418		GW	12/05/18	2,000			1.7			2.2		550			ND (100)	
MW-68BR-280	N	MW-68BR-280-Q418		GW	12/05/18	ND (1.0)			1.4			2.2 J		380 J			150	
MW-69-195	N	MW-69-195-Q418		GW	12/07/18	460			2.1			1.5 J		140			ND (20 J)	
MW-70-105	N	MW-70-105-Q418		GW	12/13/18	120			4.1			0.62		87			34	
MW-70BR-225	N	MW-70BR-225-3V-Q418		GW	12/13/18	1,800			2.1			1.5		660			ND (20)	
MW-70BR-225	N	MW-70BR-225-LF-Q418		GW	12/13/18	1,200			1.5			1.4		620			ND (20)	
MW-71-035	N	MW-71-035-Q418		GW	12/11/18	ND (1.0)			3.4 J			2.5		810			550 J	
MW-71-035	FD	MW-925-Q418	MW-71-035-Q418	GW	12/11/18	ND (1.0)			2.6 J			2.5		820			1,400 J	
MW-72-080	N	MW-72-080-Q418		GW	12/06/18	82			11			1.8		370			38	
MW-72BR-200	N	MW-72BR-200-3V-Q418		GW	12/06/18	4.9			14			1.8		260			29	
MW-72BR-200	N	MW-72BR-200-LF_D-Q418		GW	12/06/18	ND (1.0)			13			2.2		310			ND (100)	
MW-72BR-200	N	MW-72BR-200-LF_S-Q418		GW	12/06/18	ND (1.0)			14			2.4		310			ND (100)	
MW-73-080	N	MW-73-080-Q418		GW	12/06/18	29			1.6			1		520			72	
MW-74-240	N	MW-74-240-Q418		GW	12/07/18	0.33			9			0.23		14			58 J	
OW-03D	N	OW-03D-Q418		GW	12/04/18	7.6						1.3		210			ND (20)	
OW-03M	N	OW-03M-Q418		GW	12/04/18	15						0.97		110			160	
OW-03S	N	OW-03S-Q418		GW	12/04/18	17						0.17		72			31	
PGE-07BR	N	PGE-07BR-Q418		GW	12/13/18	ND (1.0)						2.3		520			50,000	
PGE-08	N	PGE-08-Q418		GW	12/11/18	ND (1.0)						3.5		790			ND (100)	
PM-03	N	PM-03-Q418		GW	12/17/18	9.3						ND (0.19)		85			ND (20)	
PM-04	N	PM-04-Q418		GW	12/17/18	17						0.27		110			ND (20)	
PT2D	N	PT2D-Q418			12/12/18													
PT2M	N	PT2M-Q418			12/12/18													
PT2S	N	PT2S-Q418			12/12/18													
TW-01	N	TW-01-Q418		GW	12/05/18	2,100						1.4		290			ND (20)	
TW-02D	N	TW-02D-Q418		GW	12/04/18	140						0.59		180			42	
TW-02S	N	TW-02S-Q418		GW	12/04/18	81						0.65		180			37	
TW-04	N	TW-04-3V-Q418		GW	12/11/18	8.2												
TW-04	N	TW-04-LF-Q418		GW	12/11/18	4.2												
TW-04	FD	MW-918-Q418	TW-04-3V-Q418	GW	12/11/18	8.4												
TW-05	N	TW-05-3V-Q418		GW	12/04/18	14												
TW-05	N	TW-05-LF-Q418		GW	12/04/18	9.5												

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					Filtered:	F	F	F	F	F	F	F	F	F	F	F	F	F
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Description:	Magnesium, Dissolved	Manganese, Dissolved	Mercury, Dissolved	Molybdenum, Dissolved	Nickel, Dissolved	Potassium, Dissolved	Selenium, Dissolved	Silver, Dissolved	Sodium, Dissolved	Thallium, Dissolved	Total Dissolved Chromium	Vanadium, Dissolved	Zinc, Dissolved
					Method:	SW 6020	SW 6020	EPA 7470A	SW 6020	SW 6010B	SW 6010B	SW 6020	SW 6020	SW 6010B	SW 6020	SW 6020	SW 6020	SW 6020
					Units:	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L
Location ID	**Sample Type**	**Sample ID**	**Parent Sample**	**Matrix**	**Date Collected**													
MW-09	N	MW-09-Q418		GW	12/12/18	33	2.1		5.8			5.2		480		150		
MW-10	N	MW-10-Q418		GW	12/12/18	23	1.3	ND (0.2)	18	3.7		6.3	ND (0.5)	400	ND (0.5)	120	16	ND (10)
MW-11	N	MW-11-Q418		GW	12/12/18	23	3.9 J		5.7			5.3		300		48		
MW-11	FD	MW-903-Q418	MW-11-Q418	GW	12/12/18	25	5.0 J		5.6			4.7		320		50		
MW-12	N	MW-12-Q418		GW	12/11/18	7.5	2.1	ND (0.2)	12	ND (1.0)		36	ND (0.5)	1,600	ND (0.5)	1,500	18	ND (10)
MW-13	N	MW-13-Q418		GW	12/04/18	16	32		11			3.1		270		22		
MW-14	N	MW-14-Q418		GW	12/11/18	24	ND (0.5)	ND (0.2)	13	2.3		2.2	ND (0.5)	290	ND (0.5)	15	2.4	ND (10)
MW-15	N	MW-15-Q418		GW	12/11/18	38	ND (0.5)		4			4.1		240		17		
MW-18	N	MW-18-Q418		GW	12/06/18	12	ND (0.5)		6.6			3.5		190		18		
MW-19	N	MW-19-Q418		GW	12/10/18	14	1.1		24			5.6		370		780		
MW-20-070	N	MW-20-070-Q418		GW	12/11/18	16	ND (0.5)		37		5.9	7		320		1,700		
MW-20-070	FD	MW-905-Q418	MW-20-070-Q418	GW	12/11/18	16	ND (0.5)		36		6	7.2		340		1,800		
MW-20-100	N	MW-20-100-Q418		GW	12/04/18	19	ND (0.5)		4.9		6.8	6.3		340		1,500		
MW-20-130	N	MW-20-130-Q418		GW	12/04/18	18	3		39		27	33		2,200		6,100		
MW-21	N	MW-21-Q418		GW	12/12/18	72	17		81			17		2,900		1.2		
MW-21	EB	MW-21-EB-Q418		GW	12/11/18													
MW-22	N	MW-22-Q418		GW	12/04/18	300	5,700	ND (0.2)	31	2.2		ND (2.5)	ND (2.5)	5,700	ND (2.5)	ND (1.0)	ND (1.0)	ND (10)
MW-22	FD	MW-906-Q418	MW-22-Q418	GW	12/04/18	290	6,100	ND (0.2)	31	2.1		ND (2.5)	ND (2.5)	5,400	ND (2.5)	ND (1.0)	ND (1.0)	ND (10)
MW-23-060	N	MW-23-060-Q418		GW	12/11/18	3.4	5.8		25			5.9		3,100		40		
MW-23-080	N	MW-23-080-Q418		GW	12/11/18	ND (0.5)	6.4		46			5.3		3,400		3.2		
MW-24A	N	MW-24A-Q418		GW	12/12/18		31	ND (0.2)	150	1.3		ND (0.5)	ND (0.5)		ND (0.5)	ND (1.0)	ND (1.0)	ND (10)
MW-24B	N	MW-24B-Q418		GW	12/12/18		120	ND (0.2)	62	ND (1.0)		ND (2.5)	ND (0.5)		ND (0.5)	150	3.8	ND (10)
MW-24BR	N	MW-24BR-Q418		GW	12/13/18	2.7	170		57			ND (2.5)		3,200		ND (1.0)		
MW-25	N	MW-25-Q418		GW	12/10/18	26	ND (0.5)		8		8.9	9		230		100		
MW-25	FD	MW-907-Q418	MW-25-Q418	GW	12/10/18	25	ND (0.5)		7.9		8.7	8.2		230		100		
MW-26	N	MW-26-Q418		GW	12/07/18	35	ND (0.5)	ND (0.2)	32	5.5	13	39	ND (0.5)	630	ND (0.5)	2,300	7.8	ND (10)
MW-27-020	N	MW-27-020-Q418		GW	12/05/18	23	18		6.2			ND (0.5)		86		ND (1.0)		
MW-27-020	EB	MW-27-020-EB-Q418		GW	12/05/18													
MW-27-060	N	MW-27-060-Q418		GW	12/05/18	21	310		4.3			ND (0.5)		88		ND (1.0)		
MW-27-060	EB	MW-27-060-EB-Q418		GW	12/05/18													
MW-27-085	N	MW-27-085-Q418		GW	12/05/18	45	63		19			ND (0.5)		2,000		ND (1.0)		
MW-27-085	EB	MW-27-085-EB-Q418		GW	12/05/18													
MW-28-025	N	MW-28-025-Q418		GW	12/14/18	28	2.4		4.5			1.1		100		ND (1.0)		
MW-28-025	EB	MW-28-025-EB-Q418		GW	12/14/18													
MW-28-090	N	MW-28-090-Q418		GW	12/14/18	34	400		23			ND (0.5)		950		ND (1.0)		
MW-28-090	EB	MW-28-090-EB-Q418		GW	12/14/18													
MW-29	N	MW-29-Q418		GW	12/10/18	36	230		13			ND (0.5)		220		ND (1.0)		
MW-29	EB	MW-29-EB-Q418		GW	12/10/18													
MW-30-030	N	MW-30-030-Q418		GW	12/06/18	56 J	330		82			1.7		2,400		ND (1.0)		
MW-30-030	EB	MW-30-030-EB-Q418		GW	12/06/18													
MW-30-050	N	MW-30-050-Q418		GW	12/06/18	17	220		4.4			ND (0.5)		100		2.8		
MW-30-050	FD	MW-908-Q418	MW-30-050-Q418	GW	12/06/18	17	220		4.3			ND (0.5)		100		2.9		
MW-31-060	N	MW-31-060-Q418		GW	12/10/18	26	0.95		18		7.2	2.6		560		400		
MW-31-135	N	MW-31-135-Q418		GW	12/10/18	22	1.5		29			1.1		2,500		13		
MW-32-020	N	MW-32-020-Q418		GW	12/04/18	260	180		200			2.9		5,900		ND (1.0)		
MW-32-020	EB	MW-32-020-EB-Q418		GW	12/04/18													
MW-32-035	N	MW-32-035-Q418		GW	12/04/18	170	880		14		16	ND (0.5)		1,500		ND (1.0)		

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					Filtered:	F	F	F	F	F	F	F	F	F	F	F	F	F
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Description:	Magnesium, Dissolved	Manganese, Dissolved	Mercury, Dissolved	Molybdenum, Dissolved	Nickel, Dissolved	Potassium, Dissolved	Selenium, Dissolved	Silver, Dissolved	Sodium, Dissolved	Thallium, Dissolved	Total Dissolved Chromium	Vanadium, Dissolved	Zinc, Dissolved
					Method:	SW 6020	SW 6020	EPA 7470A	SW 6020	SW 6010B	SW 6010B	SW 6020	SW 6020	SW 6010B	SW 6020	SW 6020	SW 6020	SW 6020
					Units:	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L
Location ID	**Sample Type**	**Sample ID**	**Parent Sample**	**Matrix**	**Date Collected**													
MW-32-035	EB	MW-32-035-EB-Q418		GW	12/04/18													
MW-33-040	N	MW-33-040-Q418		GW	12/07/18	120	ND (0.5)		530			1.5		4,300		ND (1.0)		
MW-33-040	EB	MW-33-040-EB-Q418		GW	12/07/18													
MW-33-090	N	MW-33-090-Q418		GW	12/07/18	24	12		11			ND (0.5)		2,100		1.7		
MW-33-150	N	MW-33-150-Q418		GW	12/07/18	34	3.6		50			0.9		3,100		6.2		
MW-33-210	N	MW-33-210-Q418		GW	12/07/18	58	10		20			ND (2.5)		4,200		10		
MW-34-055	N	MW-34-055-Q418		GW	12/05/18	24	79		5.4		5.1	ND (0.5)		99		ND (1.0)		
MW-34-055	FD	MW-910-Q418	MW-34-055-Q418	GW	12/05/18	23	76		5.1		5.1	ND (0.5)		98		ND (1.0)		
MW-34-055	EB	MW-34-055-EB-Q418		GW	12/05/18													
MW-34-080	N	MW-34-080-Q418		GW	12/05/18	82	62		14		17	ND (0.5)		1,600		ND (1.0)		
MW-34-080	EB	MW-34-080-EB-Q418		GW	12/05/18													
MW-34-100	N	MW-34-100-Q418		GW	12/05/18	27	160		61		24	ND (0.5)		2,400		ND (1.0)		
MW-35-060	N	MW-35-060-Q418		GW	12/10/18	29	ND (0.5)	ND (0.2)	9.8 J	ND (1.0)		1.4	ND (0.5)	1,300	ND (0.5)	20	2.4	ND (10 J)
MW-35-135	N	MW-35-135-Q418		GW	12/10/18	31	7.1	ND (0.2)	24	1.9		1.4	ND (0.5)	2,200	ND (0.5)	25	1.6	ND (10)
MW-36-020	N	MW-36-020-Q418		GW	12/06/18	97	140		29			ND (0.5)		950		ND (1.0)		
MW-36-040	N	MW-36-040-Q418		GW	12/06/18	9.2	110		3.5			ND (0.5)		170		ND (1.0)		
MW-36-050	N	MW-36-050-Q418		GW	12/06/18	18	240		3.6			ND (0.5)		100		ND (1.0)		
MW-36-070	N	MW-36-070-Q418		GW	12/06/18	9.7	1,600		5.2			ND (0.5)		150		ND (1.0)		
MW-36-090	N	MW-36-090-Q418		GW	12/06/18	32	93		12			ND (0.5)		910		ND (1.0)		
MW-36-090	FD	MW-911-Q418	MW-36-090-Q418	GW	12/06/18	33	89		11			ND (0.5)		910		ND (1.0)		
MW-36-100	N	MW-36-100-Q418		GW	12/06/18	32	390		19			ND (0.5)		1,300		6.8		
MW-37D	N	MW-37D-Q418		GW	12/06/18	16	3.8		62			ND (0.5)		2,900		5		
MW-37S	N	MW-37S-Q418		GW	12/06/18	23	ND (0.5)		15			0.76		1,100		11		
MW-38D	N	MW-38D-Q418		GW	12/12/18	7	34		91			ND (0.5)		5,100		20		
MW-38D	N	MW-38D-SMT-Q418		GW	12/12/18	7.3	43		92			ND (0.5)		5,100		21		
MW-38S	N	MW-38S-Q418		GW	12/12/18	5.1	44		31			3.4		310		4.3		
MW-38S	N	MW-38S-SMT-Q418		GW	12/12/18	5.4	40		30			3.3		320		4.7		
MW-39-040	N	MW-39-040-Q418		GW	12/06/18		90									ND (1.0)		
MW-39-050	N	MW-39-050-Q418		GW	12/06/18	17	190		4.2			ND (0.5)		110		ND (1.0)		
MW-39-060	N	MW-39-060-Q418		GW	12/06/18	13	110		5.1			ND (0.5)		160		ND (1.0)		
MW-39-070	N	MW-39-070-Q418		GW	12/06/18	12	3		20			ND (0.5)		330		ND (1.0)		
MW-39-070	FD	MW-912-Q418	MW-39-070-Q418	GW	12/06/18	12	3.3		22			ND (0.5)		340		ND (1.0)		
MW-39-080	N	MW-39-080-Q418		GW	12/06/18	24	2.5		31			ND (0.5)		1,100		1.2		
MW-39-100	N	MW-39-100-Q418		GW	12/06/18	32	9.5		8			ND (0.5)		2,700		70		
MW-40D	N	MW-40D-Q418		GW	12/12/18	39	ND (0.5)		54			2.5		3,400		140		
MW-40D	N	MW-40D-SMT-Q418		GW	12/12/18	41	31		42			ND (0.5)		3,100		ND (1.0)		
MW-40S	N	MW-40S-Q418		GW	12/12/18		ND (0.5)		13			3.4				11		
MW-40S	N	MW-40S-SMT-Q418		GW	12/12/18		5		30			6.6				29		
MW-41D	N	MW-41D-Q418		GW	12/13/18	33	86		84			ND (2.5)		4,700		ND (5.0)		
MW-41M	N	MW-41M-Q418		GW	12/11/18	31	3		27			0.72		3,100		14		
MW-41S	N	MW-41S-Q418		GW	12/07/18	21	ND (0.5)		13			1.7		1,300		9.8		
MW-41S	FD	MW-909-Q418	MW-41S-Q418	GW	12/07/18	21	ND (0.5)		13			1.7		1,400		10		
MW-42-030	N	MW-42-030-Q418		GW	12/05/18		65		29			ND (0.5)				ND (1.0)		
MW-42-030	FD	MW-913-Q418	MW-42-030-Q418	GW	12/05/18		65		29			ND (0.5)				ND (1.0)		
MW-42-055	N	MW-42-055-Q418		GW	12/05/18	1.5	21		3.9			ND (0.5)		220		ND (1.0)		
MW-42-055	EB	MW-42-055-EB-Q418		GW	12/05/18													
MW-42-065	N	MW-42-065-Q418		GW	12/05/18	15	550		9.4			ND (0.5)		530		ND (1.0)		

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Location ID	Sample Type	Sample ID	Parent Sample	Matrix	Date Collected	Magnesium, Dissolved SW 6020 mg/L	Manganese, Dissolved SW 6020 ug/L	Mercury, Dissolved EPA 7470A ug/L	Molybdenum, Dissolved SW 6020 ug/L	Nickel, Dissolved SW 6010B ug/L	Potassium, Dissolved SW 6010B mg/L	Selenium, Dissolved SW 6020 ug/L	Silver, Dissolved SW 6020 ug/L	Sodium, Dissolved SW 6010B mg/L	Thallium, Dissolved SW 6020 ug/L	Total Dissolved Chromium SW 6020 ug/L	Vanadium, Dissolved SW 6020 ug/L	Zinc, Dissolved SW 6020 ug/L
					Filtered:	F	F	F	F	F	F	F	F	F	F	F	F	F
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Method:	SW 6020	SW 6020	EPA 7470A	SW 6020	SW 6010B	SW 6010B	SW 6020	SW 6020	SW 6010B	SW 6020	SW 6020	SW 6020	SW 6020
					Units:	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L
MW-42-065	EB	MW-42-065-EB-Q418		GW	12/05/18													
MW-43-025	N	MW-43-025-Q418		GW	12/05/18	41	340		6.8			ND (0.5)		130		ND (1.0)		
MW-43-025	EB	MW-43-025-EB-Q418		GW	12/05/18													
MW-43-075	N	MW-43-075-Q418		GW	12/05/18	190	730		17			ND (0.5)		2,200		ND (1.0)		
MW-43-075	EB	MW-43-075-EB-Q418		GW	12/05/18													
MW-43-090	N	MW-43-090-Q418		GW	12/05/18	120	670		29			ND (0.5)		3,700		ND (1.0)		
MW-43-090	EB	MW-43-090-EB-Q418		GW	12/05/18													
MW-44-070	N	MW-44-070-Q418		GW	12/05/18	12	170		8.7			ND (0.5)		240		ND (1.0)		
MW-44-070	EB	MW-44-070-EB-Q418		GW	12/05/18													
MW-44-115	N	MW-44-115-Q418		GW	12/05/18	5.7	14		68			ND (0.5)		2,300		5.8		
MW-44-125	N	MW-44-125-Q418		GW	12/05/18	6.4	280		170			ND (0.5)		2,200		ND (1.0)		
MW-44-125	FD	MW-914-Q418	MW-44-125-Q418	GW	12/05/18	6.4	260		170			ND (0.5)		1,800		ND (1.0)		
MW-44-125	EB	MW-44-125-EB-Q418		GW	12/05/18													
MW-46-175	N	MW-46-175-Q418		GW	12/13/18	3.4	25		190			ND (2.5)		4,400		12		
MW-46-205	N	MW-46-205-Q418		GW	12/13/18	2.7	9.8		370			ND (2.5)		5,100		ND (1.0)		
MW-47-055	N	MW-47-055-Q418		GW	12/10/18	27	ND (0.5)		7.4			1.6		580		21		
MW-47-115	N	MW-47-115-Q418		GW	12/10/18	33	12		26			1.3		3,000		15		
MW-47-115	FD	MW-915-Q418	MW-47-115-Q418	GW	12/10/18	34	12		25			1.2		3,100		15		
MW-48	N	MW-48-Q418		GW	12/13/18	32	19		10			ND (2.5)		3,800		ND (5.0)		
MW-49-135	N	MW-49-135-Q418		GW	12/10/18	29	280 J		42			1.3		2,800		2.1		
MW-49-135	EB	MW-49-135-EB-Q418		GW	12/10/18													
MW-49-275	N	MW-49-275-Q418		GW	12/10/18	6.1	430		300			ND (0.5)		5,900		8.7		
MW-49-275	EB	MW-49-275-EB-Q418		GW	12/10/18													
MW-49-365	N	MW-49-365-Q418		GW	12/10/18	8.8	310		220			ND (2.5)		9,100		27		
MW-49-365	EB	MW-49-365-EB-Q418		GW	12/10/18													
MW-50-095	N	MW-50-095-Q418		GW	12/10/18	14	1		17			0.91		1,000		14		
MW-50-200	N	MW-50-200-Q418		GW	12/10/18	31	3.7		48			2.5		4,400		3,700		
MW-51	N	MW-51-Q418		GW	12/10/18	20	2.4		54			15		2,800		3,800		
MW-52D	N	MW-52D-Q418		GW	12/04/18	19	310		69			ND (0.5)		4,500		ND (1.0)		
MW-52M	N	MW-52M-Q418		GW	12/04/18	30	250		27			ND (0.5)		3,300		ND (1.0)		
MW-52S	N	MW-52S-Q418		GW	12/04/18	350	820		8.7			0.86 J		2,000		ND (1.0)		
MW-53D	N	MW-53D-Q418		GW	12/04/18	14	1,400		190			ND (2.5)		5,900		ND (1.0)		
MW-53M	N	MW-53M-Q418		GW	12/04/18	29	470		67			ND (0.5)		4,000		ND (1.0)		
MW-57-070	N	MW-57-070-Q418		GW	12/07/18	22	ND (0.5)		3.4			3.6		96		420		
MW-57-185	N	MW-57-185-3V-Q418		GW	12/07/18	1.6	110		86			ND (0.5)		4,200		5.7		
MW-57-185	N	MW-57-185-LF_D-Q418		GW	12/07/18	0.68	17		87			ND (0.5)		4,100		5.9		
MW-57-185	N	MW-57-185-LF_S-Q418		GW	12/07/18	ND (0.5)	ND (0.5)		88			ND (0.5)		4,200		6		
MW-58BR	N	MW-58BR-Q418		GW	12/13/18	25 J	320		26			2.1		1,400		11		
MW-59-100	N	MW-59-100-Q418		GW	12/07/18	19	24 J	ND (0.2)	6.6	6		4.1	ND (0.5)	1,700	ND (0.5)	3,300	ND (1.0)	ND (10)
MW-59-100	FD	MW-926-Q418	MW-59-100-Q418	GW	12/07/18	18	16 J	ND (0.2)	6.1	5.8		3.7	ND (0.5)	1,600	ND (0.5)	3,100	ND (1.0)	ND (10)
MW-60-125	N	MW-60-125-Q418		GW	12/06/18	24	4.8		19			5.9		1,500		950		
MW-60BR-245	N	MW-60BR-245-3V-Q418		GW	12/06/18	6.1	12		57			2.5		3,600		120		
MW-60BR-245	N	MW-60BR-245-LF_D-Q418		GW	12/06/18	5.3	22		63			2.5		3,800		21		
MW-60BR-245	N	MW-60BR-245-LF_S-Q418		GW	12/06/18	6.8	23		64			2.9 J		3,700		17		
MW-61-110	N	MW-61-110-Q418		GW	12/13/18	24	220		23			ND (2.5)		3,500		460		
MW-62-065	N	MW-62-065-Q418		GW	12/07/18	22	1.3		14			4.4		1,200		610		
MW-62-110	N	MW-62-110-Q418		GW	12/13/18	7.3	250		42			ND (2.5)		2,000		3		

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					Filtered:	F	F	F	F	F	F	F	F	F	F	F	F	F
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Description:	Magnesium, Dissolved	Manganese, Dissolved	Mercury, Dissolved	Molybdenum, Dissolved	Nickel, Dissolved	Potassium, Dissolved	Selenium, Dissolved	Silver, Dissolved	Sodium, Dissolved	Thallium, Dissolved	Total Dissolved Chromium	Vanadium, Dissolved	Zinc, Dissolved
					Method:	SW 6020	SW 6020	EPA 7470A	SW 6020	SW 6010B	SW 6010B	SW 6020	SW 6020	SW 6010B	SW 6020	SW 6020	SW 6020	SW 6020
					Units:	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L
Location ID	**Sample Type**	**Sample ID**	**Parent Sample**	**Matrix**	**Date Collected**													
MW-62-190	N	MW-62-190-Q418		GW	12/13/18	15 J	1,100 J		36 J			ND (2.5)		4,000		ND (1.0 J)		
MW-62-190	FD	MW-917-Q418	MW-62-190-Q418	GW	12/13/18	22 J	220 J		24 J			ND (2.5)		3,500		470 J		
MW-63-065	N	MW-63-065-Q418		GW	12/12/18	25	10		19			0.78		1,300		1.7		
MW-64BR	N	MW-64BR-Q418		GW	12/13/18	15	980		68			ND (2.5)		2,900		ND (1.0)		
MW-65-160	N	MW-65-160-Q418		GW	12/05/18	32	180		150			11		530		220		
MW-65-225	N	MW-65-225-Q418		GW	12/05/18	21	57		46			3.3		2,800		220		
MW-66-165	N	MW-66-165-Q418		GW	12/05/18	45	ND (0.5)		5.9			24		490		500		
MW-66-230	N	MW-66-230-Q418		GW	12/05/18	6	19		74			9.5		4,300		6,200		
MW-66BR-270	N	MW-66BR-270-Q418		GW	12/07/18	20	300		3.5			ND (0.5)		4,000		ND (1.0)		
MW-67-185	N	MW-67-185-Q418		GW	12/05/18	140	ND (0.5)		9.7			410		940		2,000		
MW-67-225	N	MW-67-225-Q418		GW	12/05/18	5.5	6.6		62			83		1,400		3,000		
MW-67-260	N	MW-67-260-Q418		GW	12/05/18	3.9	120		75 J			ND (2.5)		4,300		710 J		
MW-68-180	N	MW-68-180-Q418		GW	12/07/18	34	ND (0.5)		41			17		650		24,000		
MW-68-240	N	MW-68-240-Q418		GW	12/05/18	23	28		23			3.9		3,700		1,900		
MW-68BR-280	N	MW-68BR-280-Q418		GW	12/05/18	3.7	120		26			ND (2.5)		4,800		ND (1.0)		
MW-69-195	N	MW-69-195-Q418		GW	12/07/18	14	1.7		68			14		600		470		
MW-70-105	N	MW-70-105-Q418		GW	12/13/18	8.4	10		82			5.1		610		130		
MW-70BR-225	N	MW-70BR-225-3V-Q418		GW	12/13/18	26	1.3		19			ND (2.5)		2,500		1,900		
MW-70BR-225	N	MW-70BR-225-LF-Q418		GW	12/13/18	25	12		23			ND (2.5)		2,300		1,400		
MW-71-035	N	MW-71-035-Q418		GW	12/11/18	81	1,600		17			ND (0.5)		3,100 J		ND (1.0)		
MW-71-035	FD	MW-925-Q418	MW-71-035-Q418	GW	12/11/18	82	1,600		16			ND (0.5)		2,400 J		1		
MW-72-080	N	MW-72-080-Q418		GW	12/06/18	7.1	42		84			0.98		3,300		73		
MW-72BR-200	N	MW-72BR-200-3V-Q418		GW	12/06/18	2.2	94		73			ND (0.5)		3,100		3.3		
MW-72BR-200	N	MW-72BR-200-LF_D-Q418		GW	12/06/18	3.3	130		82			ND (0.5)		3,400		ND (1.0)		
MW-72BR-200	N	MW-72BR-200-LF_S-Q418		GW	12/06/18	3.2	83		82			ND (0.5)		3,600		ND (1.0)		
MW-73-080	N	MW-73-080-Q418		GW	12/06/18	31	5.2		29			4.5		2,000		26		
MW-74-240	N	MW-74-240-Q418		GW	12/07/18	1.6	6.5		23			1.9		170		ND (1.0)		
OW-03D	N	OW-03D-Q418		GW	12/04/18	16	8.6		25			0.65 J		1,800		7.9		
OW-03M	N	OW-03M-Q418		GW	12/04/18	9.3	34		16			0.66		1,200		16		
OW-03S	N	OW-03S-Q418		GW	12/04/18	12	1.2		6			6		190		18		
PGE-07BR	N	PGE-07BR-Q418		GW	12/13/18	12	3,600		5.2			ND (2.5)		4,800		ND (5.0)		
PGE-08	N	PGE-08-Q418		GW	12/11/18	20	590		120			ND (0.5)		4,300		ND (1.0)		
PM-03	N	PM-03-Q418		GW	12/17/18	16	ND (0.5)		6.2			1.5		150		10		
PM-04	N	PM-04-Q418		GW	12/17/18	21	ND (0.5)		5.8			1.5		300		19		
PT2D	N	PT2D-Q418			12/12/18													
PT2M	N	PT2M-Q418			12/12/18													
PT2S	N	PT2S-Q418			12/12/18													
TW-01	N	TW-01-Q418		GW	12/05/18	19	ND (0.5)		15			13		1,500 J		2,100		
TW-02D	N	TW-02D-Q418		GW	12/04/18	35	7.1		9.9			2.5		650		110		
TW-02S	N	TW-02S-Q418		GW	12/04/18	35	90		11			2.6		790		86		
TW-04	N	TW-04-3V-Q418		GW	12/11/18		41		75			ND (2.5)				8.1		
TW-04	N	TW-04-LF-Q418		GW	12/11/18		48		120			1.1				5		
TW-04	FD	MW-918-Q418	TW-04-3V-Q418	GW	12/11/18		45		77			1				8.1		
TW-05	N	TW-05-3V-Q418		GW	12/04/18		4.9		28			0.92				14		
TW-05	N	TW-05-LF-Q418		GW	12/04/18		5.5		33			ND (0.5)				9.3		

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					Filtered:	N	N	N	N	N	N	N	N	N	N
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Description:	Alkalinity, Total as CaCO3	Bromide	Chloride	Fluoride	Nitrate/Nitrite as Nitrogen	Specific Conductance	Sulfate	Total Chromium	Total Dissolved Solids	Total Organic Carbon
					Method:	SM 2320 B	EPA 300.0	EPA 300.0	EPA 300.0	SM 4500-NO3 F	EPA 120.1	EPA 300.0	EPA 200.8	SM 2540 C	SM5310C
					Units:	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L	ug/L	mg/L	mg/L
Location ID	**Sample Type**	**Sample ID**	**Parent Sample**	**Matrix**	**Date Collected**										
MW-09	N	MW-09-Q418		GW	12/12/18	120	ND (1.0)	780		1.8	3,100	260		1,800	ND (1.0)
MW-10	N	MW-10-Q418		GW	12/12/18	110	1.1	590		18	2,600	260		1,500	ND (1.0)
MW-11	N	MW-11-Q418		GW	12/12/18	89	ND (1.0)	560		5.6	2,300	180		1,400	ND (1.0)
MW-11	FD	MW-903-Q418	MW-11-Q418	GW	12/12/18	89	ND (1.0)	570		5.4	2,300	190		1,400	ND (1.0)
MW-12	N	MW-12-Q418		GW	12/11/18	120	1.2	1,800		5	6,800	460		3,700	
MW-13	N	MW-13-Q418		GW	12/04/18	72	ND (1.0)	620			2,300	150		1,500	
MW-14	N	MW-14-Q418		GW	12/11/18	64	ND (5.0)	750		3.5	2,700	130		1,600	
MW-15	N	MW-15-Q418		GW	12/11/18	68	ND (2.5)	570			2,300	170		1,400	
MW-18	N	MW-18-Q418		GW	12/06/18	88	ND (0.5)	350			1,500	98		910	
MW-19	N	MW-19-Q418		GW	12/10/18	90	ND (0.5)	520			2,200	180		1,200	
MW-20-070	N	MW-20-070-Q418		GW	12/11/18	100	ND (0.5)	370		2.8	1,900	240		1,100	
MW-20-070	FD	MW-905-Q418	MW-20-070-Q418	GW	12/11/18	100	ND (0.5)	360		4.7	1,900	240		1,100	
MW-20-100	N	MW-20-100-Q418		GW	12/04/18	130	0.66	450		6.4	2,100	240		1,300	
MW-20-130	N	MW-20-130-Q418		GW	12/04/18	85	ND (2.5)	3,000		8.8	11,000	990		6,400	
MW-21	N	MW-21-Q418		GW	12/12/18	630	3.2	2,800		0.22	12,000	1,900		7,600	
MW-21	EB	MW-21-EB-Q418		GW	12/11/18										
MW-22	N	MW-22-Q418		GW	12/04/18	760	ND (5.0)	8,700			26,000	2,300		18,000	
MW-22	FD	MW-906-Q418	MW-22-Q418	GW	12/04/18	750	ND (5.0)	8,900			26,000	2,300		18,000 J	
MW-23-060	N	MW-23-060-Q418		GW	12/11/18	18	ND (5.0)	5,600			17,000	650		9,800	
MW-23-080	N	MW-23-080-Q418		GW	12/11/18	72	ND (5.0)	5,400			18,000	990		10,000	
MW-24A	N	MW-24A-Q418		GW	12/12/18					ND (0.1)	1,500				ND (1.0)
MW-24B	N	MW-24B-Q418		GW	12/12/18					0.96	20,000				ND (1.0)
MW-24BR	N	MW-24BR-Q418		GW	12/13/18	ND (5.0)	ND (1.0)	4,700		ND (0.1)	13,000	480		8,000	
MW-25	N	MW-25-Q418		GW	12/10/18	120	ND (2.5)	380		11	1,900	210		1,100	ND (1.0 J)
MW-25	FD	MW-907-Q418	MW-25-Q418	GW	12/10/18	120	ND (2.5)	370		10	1,900	210		1,100	ND (1.0 J)
MW-26	N	MW-26-Q418		GW	12/07/18	120	ND (2.5)	820		16	3,900	490		2,300	
MW-27-020	N	MW-27-020-Q418		GW	12/05/18	150	ND (1.0)	88		ND (0.1)	970	220		620	ND (1.0)
MW-27-020	EB	MW-27-020-EB-Q418		GW	12/05/18										
MW-27-060	N	MW-27-060-Q418		GW	12/05/18	170	ND (0.5)	88	0.56	ND (0.1)	990	230		650	ND (1.0)
MW-27-060	EB	MW-27-060-EB-Q418		GW	12/05/18										
MW-27-085	N	MW-27-085-Q418		GW	12/05/18	260	ND (2.5)	2,600	1.7	ND (0.1)	9,400	800		5,400	ND (1.0)
MW-27-085	EB	MW-27-085-EB-Q418		GW	12/05/18										
MW-28-025	N	MW-28-025-Q418		GW	12/14/18	220	ND (0.5)	100		ND (0.1)	1,200	260		770	
MW-28-025	EB	MW-28-025-EB-Q418		GW	12/14/18										
MW-28-090	N	MW-28-090-Q418		GW	12/14/18	340	ND (2.5)	1,300	1.8	ND (0.1)	5,400	390		3,000	
MW-28-090	EB	MW-28-090-EB-Q418		GW	12/14/18										
MW-29	N	MW-29-Q418		GW	12/10/18	430	ND (0.5)	180		ND (0.1)	1,600	140		960	
MW-29	EB	MW-29-EB-Q418		GW	12/10/18										
MW-30-030	N	MW-30-030-Q418		GW	12/06/18	1,400	ND (2.5)	1,400		ND (0.1)	9,300	2,000		6,200	
MW-30-030	EB	MW-30-030-EB-Q418		GW	12/06/18										
MW-30-050	N	MW-30-050-Q418		GW	12/06/18	190	ND (0.5)	90		ND (0.1)	980	210		670	
MW-30-050	FD	MW-908-Q418	MW-30-050-Q418	GW	12/06/18	190	ND (0.5)	90		ND (0.1)	960	210		680	
MW-31-060	N	MW-31-060-Q418		GW	12/10/18	89	ND (2.5)	910		3.3	3,500	220		1,900	
MW-31-135	N	MW-31-135-Q418		GW	12/10/18	34	ND (2.5)	3,800			12,000	500		6,400	
MW-32-020	N	MW-32-020-Q418		GW	12/04/18	2,100	2.6	5,300			22,000	4,300		17,000	
MW-32-020	EB	MW-32-020-EB-Q418		GW	12/04/18										
MW-32-035	N	MW-32-035-Q418		GW	12/04/18	570	ND (2.5)	2,200		ND (0.1)	8,400	960		5,500	

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					Filtered:	N	N	N	N	N	N	N	N	N	N
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Description:	Alkalinity, Total as CaCO3	Bromide	Chloride	Fluoride	Nitrate/Nitrite as Nitrogen	Specific Conductance	Sulfate	Total Chromium	Total Dissolved Solids	Total Organic Carbon
					Method:	SM 2320 B	EPA 300.0	EPA 300.0	EPA 300.0	SM 4500-NO3 F	EPA 120.1	EPA 300.0	EPA 200.8	SM 2540 C	SM5310C
					Units:	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L	ug/L	mg/L	mg/L
Location ID	**Sample Type**	**Sample ID**	**Parent Sample**	**Matrix**	**Date Collected**										
MW-32-035	EB	MW-32-035-EB-Q418		GW	12/04/18										
MW-33-040	N	MW-33-040-Q418		GW	12/07/18	500	1.5	4,900	13	0.24	19,000	2,100		10,000 J	ND (10 J)
MW-33-040	EB	MW-33-040-EB-Q418		GW	12/07/18										
MW-33-090	N	MW-33-090-Q418		GW	12/07/18	140	ND (2.5)	2,700	2	0.71	10,000	690		5,300	ND (1.0)
MW-33-150	N	MW-33-150-Q418		GW	12/07/18	56	ND (2.5)	4,500	2.3	0.91	15,000	750		8,000	ND (1.0)
MW-33-210	N	MW-33-210-Q418		GW	12/07/18	52	ND (2.5)	6,000	1.7	1.6	20,000	1,200		12,000 J	ND (1.0)
MW-34-055	N	MW-34-055-Q418		GW	12/05/18	150	ND (0.5)	88		ND (0.1)	970	230		670	
MW-34-055	FD	MW-910-Q418	MW-34-055-Q418	GW	12/05/18	150	ND (0.5)	87		ND (0.1)	970	230		660	
MW-34-055	EB	MW-34-055-EB-Q418		GW	12/05/18										
MW-34-080	N	MW-34-080-Q418		GW	12/05/18	280	ND (2.5)	2,300		ND (0.1)	8,400	640		4,900	
MW-34-080	EB	MW-34-080-EB-Q418		GW	12/05/18										
MW-34-100	N	MW-34-100-Q418		GW	12/05/18	180	ND (1.0)	3,100		ND (0.1)	11,000	950		6,100	
MW-35-060	N	MW-35-060-Q418		GW	12/10/18	79	ND (2.5)	2,100		2.3	7,200	340		4,000	ND (1.0)
MW-35-135	N	MW-35-135-Q418		GW	12/10/18	43	ND (2.5)	3,200		2.3	11,000	820		6,100	ND (1.0)
MW-36-020	N	MW-36-020-Q418		GW	12/06/18	780	ND (1.0)	570			4,500	1,000		3,100	
MW-36-040	N	MW-36-040-Q418		GW	12/06/18	250	ND (1.0)	85		ND (0.1)	1,000	170		670	
MW-36-050	N	MW-36-050-Q418		GW	12/06/18	190	ND (0.5)	90			960	210		670	
MW-36-070	N	MW-36-070-Q418		GW	12/06/18	180	ND (0.5)	88			1,000	210		660	
MW-36-090	N	MW-36-090-Q418		GW	12/06/18	290	ND (0.5)	1,200			5,000	470		2,900	
MW-36-090	FD	MW-911-Q418	MW-36-090-Q418	GW	12/06/18	290	ND (2.5)	1,200			4,900	460		3,000	
MW-36-100	N	MW-36-100-Q418		GW	12/06/18	270	ND (2.5)	1,800		ND (0.1)	6,600	590		4,000	
MW-37D	N	MW-37D-Q418		GW	12/06/18	34	ND (2.5)	4,300		0.48	13,000	630		7,900	
MW-37S	N	MW-37S-Q418		GW	12/06/18	49	ND (2.5)	2,000			6,700	320		3,900	
MW-38D	N	MW-38D-Q418		GW	12/12/18	30	ND (2.5)	7,200		ND (0.1)	21,000	720		13,000	
MW-38D	N	MW-38D-SMT-Q418		GW	12/12/18	29	ND (2.5)	7,200		ND (0.1)	21,000	710		13,000	
MW-38S	N	MW-38S-Q418		GW	12/12/18	150	0.7	310		3.5	1,600	150		920	
MW-38S	N	MW-38S-SMT-Q418		GW	12/12/18	150	0.71	310		0.18	1,600	150		920	
MW-39-040	N	MW-39-040-Q418		GW	12/06/18						1,100				1.5
MW-39-050	N	MW-39-050-Q418		GW	12/06/18	180	ND (0.5)	91			980	210		680	
MW-39-060	N	MW-39-060-Q418		GW	12/06/18	200	ND (1.0)	95		ND (0.1)	1,000	210		690	ND (1.0)
MW-39-070	N	MW-39-070-Q418		GW	12/06/18	210	ND (0.5)	280			1,700	250		1,000	
MW-39-070	FD	MW-912-Q418	MW-39-070-Q418	GW	12/06/18	200	ND (0.5)	290			1,700	250		1,100	
MW-39-080	N	MW-39-080-Q418		GW	12/06/18	270	ND (1.0)	1,400			5,600	490		3,200	ND (1.0)
MW-39-100	N	MW-39-100-Q418		GW	12/06/18	250	ND (2.5)	3,500		ND (0.1)	12,000	970		6,800	
MW-40D	N	MW-40D-Q418		GW	12/12/18	50	ND (2.5)	5,000		10	15,000	700		8,900	
MW-40D	N	MW-40D-SMT-Q418		GW	12/12/18	62	ND (2.5)	4,800		ND (0.1)	15,000	640		8,900	
MW-40S	N	MW-40S-Q418		GW	12/12/18					3.5	2,600				
MW-40S	N	MW-40S-SMT-Q418		GW	12/12/18					8.1	1,700				
MW-41D	N	MW-41D-Q418		GW	12/13/18	40	ND (2.5)	6,900		0.54	20,000	770		13,000	
MW-41M	N	MW-41M-Q418		GW	12/11/18	ND (5.0)	ND (2.5)	4,800		0.52	15,000	580		8,300	
MW-41S	N	MW-41S-Q418		GW	12/07/18	51	ND (2.5)	1,900		2.1	6,700	380		3,600	
MW-41S	FD	MW-909-Q418	MW-41S-Q418	GW	12/07/18	50	ND (2.5)	1,900		2	6,700	380		3,600	
MW-42-030	N	MW-42-030-Q418		GW	12/05/18					ND (0.1)	3,300				
MW-42-030	FD	MW-913-Q418	MW-42-030-Q418	GW	12/05/18					ND (0.1)	3,300				
MW-42-055	N	MW-42-055-Q418		GW	12/05/18	260	ND (1.0)	75			960	120		590	
MW-42-055	EB	MW-42-055-EB-Q418		GW	12/05/18										
MW-42-065	N	MW-42-065-Q418		GW	12/05/18	280	ND (1.0)	490			2,500	280		1,400	

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					Filtered:	N	N	N	N	N	N	N	N	N	N
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Description:	Alkalinity, Total as CaCO3	Bromide	Chloride	Fluoride	Nitrate/Nitrite as Nitrogen	Specific Conductance	Sulfate	Total Chromium	Total Dissolved Solids	Total Organic Carbon
					Method:	SM 2320 B	EPA 300.0	EPA 300.0	EPA 300.0	SM 4500-NO3 F	EPA 120.1	EPA 300.0	EPA 200.8	SM 2540 C	SM5310C
					Units:	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L	ug/L	mg/L	mg/L
Location ID	**Sample Type**	**Sample ID**	**Parent Sample**	**Matrix**	**Date Collected**										
MW-42-065	EB	MW-42-065-EB-Q418		GW	12/05/18										
MW-43-025	N	MW-43-025-Q418		GW	12/05/18	270	ND (1.0)	120			1,400	330		1,000	
MW-43-025	EB	MW-43-025-EB-Q418		GW	12/05/18										
MW-43-075	N	MW-43-075-Q418		GW	12/05/18	500	ND (2.5)	3,000			11,000	1,100		6,300	
MW-43-075	EB	MW-43-075-EB-Q418		GW	12/05/18										
MW-43-090	N	MW-43-090-Q418		GW	12/05/18	200	ND (2.5)	5,500			18,000	1,100		11,000 J	
MW-43-090	EB	MW-43-090-EB-Q418		GW	12/05/18										
MW-44-070	N	MW-44-070-Q418		GW	12/05/18	210	ND (0.5)	230			1,600	230		950	
MW-44-070	EB	MW-44-070-EB-Q418		GW	12/05/18										
MW-44-115	N	MW-44-115-Q418		GW	12/05/18	120	0.61	2,900		ND (0.1)	10,000	830		5,700	
MW-44-125	N	MW-44-125-Q418		GW	12/05/18	180	ND (0.5)	1,600 J		ND (0.1)	5,800 J	390 J		3,400 J	
MW-44-125	FD	MW-914-Q418	MW-44-125-Q418	GW	12/05/18	220	ND (0.5)	530 J		ND (0.1)	2,500 J	260 J		1,500 J	
MW-44-125	EB	MW-44-125-EB-Q418		GW	12/05/18										
MW-46-175	N	MW-46-175-Q418		GW	12/13/18	42	ND (1.0)	5,800		0.91	18,000	890		10,000	
MW-46-205	N	MW-46-205-Q418		GW	12/13/18	49	ND (1.0)	6,800			20,000	900		12,000 J	
MW-47-055	N	MW-47-055-Q418		GW	12/10/18	73	ND (2.5)	1,100			3,900	210		2,200	ND (1.0)
MW-47-115	N	MW-47-115-Q418		GW	12/10/18	56	ND (2.5)	4,400			15,000	780		7,900	ND (1.0)
MW-47-115	FD	MW-915-Q418	MW-47-115-Q418	GW	12/10/18	57	ND (2.5)	4,400			15,000	780		8,000	ND (1.0)
MW-48	N	MW-48-Q418		GW	12/13/18	30	ND (2.5)	5,900			17,000	550		10,000	
MW-49-135	N	MW-49-135-Q418		GW	12/10/18	60	ND (2.5)	4,100			14,000	850		7,100	ND (1.0)
MW-49-135	EB	MW-49-135-EB-Q418		GW	12/10/18										
MW-49-275	N	MW-49-275-Q418		GW	12/10/18	37	ND (2.5)	8,200			26,000	1,400		16,000	ND (1.0)
MW-49-275	EB	MW-49-275-EB-Q418		GW	12/10/18										
MW-49-365	N	MW-49-365-Q418		GW	12/10/18	37	ND (2.5)	13,000			39,000	1,200		23,000	ND (1.0)
MW-49-365	EB	MW-49-365-EB-Q418		GW	12/10/18										
MW-50-095	N	MW-50-095-Q418		GW	12/10/18	56	ND (2.5)	1,600			5,600	280		3,000	ND (1.0)
MW-50-200	N	MW-50-200-Q418		GW	12/10/18	34	ND (2.5)	6,600			21,000	860		12,000	ND (1.0)
MW-51	N	MW-51-Q418		GW	12/10/18	79	ND (2.5)	4,100		6.9	13,000	680		7,300	ND (1.0)
MW-52D	N	MW-52D-Q418		GW	12/04/18	68	ND (2.5)	7,100			21,000	940		13,000	
MW-52M	N	MW-52M-Q418		GW	12/04/18	110	ND (2.5)	5,300			15,000	650		9,500	
MW-52S	N	MW-52S-Q418		GW	12/04/18	1,100	ND (2.5)	2,400			10,000	1,800		6,900	
MW-53D	N	MW-53D-Q418		GW	12/04/18	38	ND (2.5)	8,800			25,000	1,200		15,000	
MW-53M	N	MW-53M-Q418		GW	12/04/18	47	ND (2.5)	6,400			19,000	780		11,000	
MW-57-070	N	MW-57-070-Q418		GW	12/07/18	75	ND (2.5)	730		7.1	2,700	83		1,500	
MW-57-185	N	MW-57-185-3V-Q418		GW	12/07/18	53	ND (2.5)	5,900		0.21	19,000	720		11,000	
MW-57-185	N	MW-57-185-LF_D-Q418		GW	12/07/18	75	ND (2.5)	6,000		ND (0.1)	19,000	720		11,000	
MW-57-185	N	MW-57-185-LF_S-Q418		GW	12/07/18	92	ND (2.5)	5,900		ND (0.1)	19,000	720		10,000	
MW-58BR	N	MW-58BR-Q418		GW	12/13/18	39	ND (2.5)	2,600		0.78	8,100	520		5,100	
MW-59-100	N	MW-59-100-Q418		GW	12/07/18	110	ND (5.0)	3,000		1.4	10,000	600		5,600	
MW-59-100	FD	MW-926-Q418	MW-59-100-Q418	GW	12/07/18	120	ND (5.0)	2,900		1.4	10,000	590		6,000	
MW-60-125	N	MW-60-125-Q418		GW	12/06/18	48	ND (5.0)	2,800		1.8	9,100	490		5,900	
MW-60BR-245	N	MW-60BR-245-3V-Q418		GW	12/06/18	23	ND (2.5)	5,500		0.29	17,000	770		9,900	
MW-60BR-245	N	MW-60BR-245-LF_D-Q418		GW	12/06/18	23	ND (2.5)	5,600		0.17	17,000	770		10,000	
MW-60BR-245	N	MW-60BR-245-LF_S-Q418		GW	12/06/18	24	ND (2.5)	5,600		0.18	17,000	760		10,000 J	
MW-61-110	N	MW-61-110-Q418		GW	12/13/18	46	ND (5.0)	5,300		0.8	16,000	700		9,800	
MW-62-065	N	MW-62-065-Q418		GW	12/07/18	110	ND (2.5)	1,700		4.5	6,600	410		3,600	
MW-62-110	N	MW-62-110-Q418		GW	12/13/18	92	ND (2.5)	2,800		ND (0.1)	9,000	530		5,300	

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					Filtered:	N	N	N	N	N	N	N	N	N	N
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Description:	Alkalinity, Total as CaCO3	Bromide	Chloride	Fluoride	Nitrate/Nitrite as Nitrogen	Specific Conductance	Sulfate	Total Chromium	Total Dissolved Solids	Total Organic Carbon
					Method:	SM 2320 B	EPA 300.0	EPA 300.0	EPA 300.0	SM 4500-NO3 F	EPA 120.1	EPA 300.0	EPA 200.8	SM 2540 C	SM5310C
					Units:	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L	ug/L	mg/L	mg/L
Location ID	**Sample Type**	**Sample ID**	**Parent Sample**	**Matrix**	**Date Collected**										
MW-62-190	N	MW-62-190-Q418		GW	12/13/18	59 J	ND (2.5)	6,000		ND (0.1 J)	17,000	700		10,000	
MW-62-190	FD	MW-917-Q418	MW-62-190-Q418	GW	12/13/18	42 J	ND (5.0)	5,500		0.81 J	16,000	710		9,400	
MW-63-065	N	MW-63-065-Q418		GW	12/12/18	210	ND (2.5)	1,700		1	6,400	570		3,700	
MW-64BR	N	MW-64BR-Q418		GW	12/13/18	69	ND (2.5)	4,400		ND (0.1)	13,000	590		7,800	
MW-65-160	N	MW-65-160-Q418		GW	12/05/18	110	ND (2.5)	890		7.7	3,900	530		2,400	
MW-65-225	N	MW-65-225-Q418		GW	12/05/18	67	ND (2.5)	4,400		1.9	14,000	830		7,900	
MW-66-165	N	MW-66-165-Q418		GW	12/05/18	97	ND (2.5)	910		16	3,800	450		2,400	
MW-66-230	N	MW-66-230-Q418		GW	12/05/18	30	ND (2.5)	6,200		6.3	20,000	1,100		10,000 J	
MW-66BR-270	N	MW-66BR-270-Q418		GW	12/07/18	ND (5.0)	ND (2.5)	6,000		ND (0.1)	18,000	260		10,000	
MW-67-185	N	MW-67-185-Q418		GW	12/05/18	74	7.8	2,100		47	7,900	560		5,000	
MW-67-225	N	MW-67-225-Q418		GW	12/05/18	140	2.7	1,100		17	6,300	1,200		3,700	
MW-67-260	N	MW-67-260-Q418		GW	12/05/18	ND (5.0)	ND (2.5)	5,800		0.31	18,000	820		10,000	
MW-68-180	N	MW-68-180-Q418		GW	12/07/18	99	ND (2.5)	860		6.9	4,500	910		2,900	
MW-68-240	N	MW-68-240-Q418		GW	12/05/18	63	ND (2.5)	5,200		2.3	17,000	890		9,600	
MW-68BR-280	N	MW-68BR-280-Q418		GW	12/05/18	13	ND (2.5)	7,100		ND (0.1)	22,000	700		12,000 J	
MW-69-195	N	MW-69-195-Q418		GW	12/07/18	190	ND (1.0)	550		18	3,500	660		2,200	
MW-70-105	N	MW-70-105-Q418		GW	12/13/18	87	ND (1.0)	880		3.7	3,200	250		1,900	
MW-70BR-225	N	MW-70BR-225-3V-Q418		GW	12/13/18	42	ND (5.0)	4,300		3.7	13,000	780		7,800	
MW-70BR-225	N	MW-70BR-225-LF-Q418		GW	12/13/18	40	ND (5.0)	3,800		3.1	12,000	720		7,400	
MW-71-035	N	MW-71-035-Q418		GW	12/11/18	220	ND (5.0)	5,100		ND (0.1)	16,000	1,200		9,800	
MW-71-035	FD	MW-925-Q418	MW-71-035-Q418	GW	12/11/18	210	ND (5.0)	5,000		ND (0.1)	16,000	1,200		9,900	
MW-72-080	N	MW-72-080-Q418		GW	12/06/18	59	ND (2.5)	4,800		0.5	15,000	650		8,100	
MW-72BR-200	N	MW-72BR-200-3V-Q418		GW	12/06/18	30	ND (2.5)	4,400		0.14	14,000	620		8,000	
MW-72BR-200	N	MW-72BR-200-LF_D-Q418		GW	12/06/18	25	ND (2.5)	5,100		ND (0.1)	16,000	690		9,000	
MW-72BR-200	N	MW-72BR-200-LF_S-Q418		GW	12/06/18	23	ND (2.5)	5,100		ND (0.1)	16,000	690		8,900	
MW-73-080	N	MW-73-080-Q418		GW	12/06/18	88	ND (2.5)	3,600		2.3	11,000	470		6,800	
MW-74-240	N	MW-74-240-Q418		GW	12/07/18	170	ND (0.5)	110		1.6	900	85		530	
OW-03D	N	OW-03D-Q418		GW	12/04/18	33	ND (2.5)	2,900			9,300	440		5,200	
OW-03M	N	OW-03M-Q418		GW	12/04/18	50	ND (0.5)	1,800			6,100	340		3,500	
OW-03S	N	OW-03S-Q418		GW	12/04/18	73	ND (0.5)	340			1,500	82		880	
PGE-07BR	N	PGE-07BR-Q418		GW	12/13/18	ND (5.0)	ND (10)	7,100			21,000	470		13,000	
PGE-08	N	PGE-08-Q418		GW	12/11/18	47	ND (5.0)	6,200		ND (0.1)	19,000	1,700		12,000	
PM-03	N	PM-03-Q418		GW	12/17/18	91	ND (1.0)	310		3.4	1,300	62	9.5	760	
PM-04	N	PM-04-Q418		GW	12/17/18	59	ND (1.0)	590		2.3	2,200	140	18	1,300	
PT2D	N	PT2D-Q418			12/12/18										ND (1.0)
PT2M	N	PT2M-Q418			12/12/18										ND (1.0 J)
PT2S	N	PT2S-Q418			12/12/18										2.1
TW-01	N	TW-01-Q418		GW	12/05/18	110	ND (2.5)	2,200		8.5	8,000	700		4,600	
TW-02D	N	TW-02D-Q418		GW	12/04/18	150	ND (2.5)	1,400			5,100	330		3,100	
TW-02S	N	TW-02S-Q418		GW	12/04/18	130	ND (1.0)	1,300		1.9	4,600	310		2,700	
TW-04	N	TW-04-3V-Q418		GW	12/11/18						21,000				ND (1.0)
TW-04	N	TW-04-LF-Q418		GW	12/11/18						23,000				ND (1.0)
TW-04	FD	MW-918-Q418	TW-04-3V-Q418	GW	12/11/18						21,000				ND (1.0)
TW-05	N	TW-05-3V-Q418		GW	12/04/18						13,000				
TW-05	N	TW-05-LF-Q418		GW	12/04/18						13,000				

ARCADIS Design & Consultancy for natural and built assets

GMP 2018-12 AZ Sampling

					Filtered:	F	F	F	F	F	F	F	F	F	F	F	N	N	N	N	N	N
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Description:	Hexavalent Chromium	Arsenic, Dissolved	Boron, Dissolved	Calcium, Dissolved	Iron, Dissolved	Magnesium, Dissolved	Manganese, Dissolved	Molybdenum, Dissolved	Selenium, Dissolved	Sodium, Dissolved	Total Dissolved Chromium	Alkalinity, Total as CaCO3	Bromide	Chloride	Specific Conductance	Sulfate	Total Dissolved Solids
					Method:	EPA 218.6	SW 6020	SW 6010B	SW 6010B	SW 6010B	SW 6020	SW 6020	SW 6020	SW 6020	SW 6010B	SW 6020	SM 2320 B	EPA 300.0	EPA 300.0	EPA 120.1	EPA 300.0	SM 2540 C
					Units:	ug/L	ug/L	mg/L	mg/L		mg/L	ug/L	ug/L	ug/L	mg/L	ug/L	mg/L	mg/L	mg/L	UMHOS/CM	mg/L	mg/L
Location ID	**Sample Type**	**Sample ID**	**Parent Sample**	**Matrix**	**Date Collected**																	
MW-54-085	N	MW-54-085-Q418		GW	12/13/18	ND (0.1 J)	ND (2.0)	1.59	177	LL	92.4	804	ND (5.0)	ND (3.0)	1,950	ND (2.0)	148 J	0.422	2,850 J	9,890 J	535 J	5,550 J
MW-54-085	EB	MW-54-085-EB-Q418		GW	12/13/18	ND (0.1 J)																
MW-54-140	N	MW-54-140-Q418		GW	12/13/18	ND (0.5 J)	ND (2.0)	2.29	149	LL	16	ND (2.0)	ND (5.0)	ND (3.0)	2,800	ND (2.0)	98.8 J	0.377	3,870 J	12,900 J	575 J	7,590 J
MW-54-140	EB	MW-54-140-EB-Q418		GW	12/13/18	ND (0.1 J)																
MW-54-195	N	MW-54-195-Q418		GW	12/13/18	ND (0.5 J)	ND (2.0)	2.74	132	LL	4.95	266	116	ND (3.0)	4,550	ND (2.0)	58.9 J	0.468	6,040 J	19,600 J	873 J	11,600 J
MW-54-195	EB	MW-54-195-EB-Q418		GW	12/13/18	ND (0.1 J)																
MW-55-045	N	MW-55-045-Q418		GW	12/13/18	ND (0.1 J)		0.544	33.6	LL	8.09	802	42.1	ND (0.3)	244	ND (0.2)	161 J	0.236	261 J	1,360 J	81.2 J	749 J
MW-55-045	EB	MW-55-045-EB-Q418		GW	12/13/18	ND (0.1 J)																
MW-55-120	N	MW-55-120-Q418		GW	12/13/18	8.29 J		1.54	70	LL	1.57	ND (2.0)	ND (5.0)	ND (3.0)	1,650	ND (2.0)	69.9 J	0.244	2,470 J	7,750 J	262 J	4,260 J
MW-56D	N	MW-56D-Q418		GW	12/13/18	ND (0.5 J)		2.43	437	LL	87.2	624	ND (5.0)	ND (3.0)	4,630	ND (2.0)	136 J	1.12	8,110 J	21,100 J	1,370 J	13,500 J
MW-56D	FD	MW-916-Q418	MW-56D-Q418	GW	12/13/18	ND (0.5 J)		2.59	429	LL	87.6	631	ND (5.0)	ND (3.0)	4,890	ND (2.0)	135 J	1.09	7,450 J	21,000 J	1,310 J	14,100 J
MW-56M	N	MW-56M-Q418		GW	12/13/18	ND (0.5 J)		1.58	390	LL	105	651	ND (5.0)	ND (3.0)	2,760	ND (2.0)	454 J	0.924	4,680 J	13,200 J	886 J	9,220 J
MW-56S	N	MW-56S-Q418		GW	12/13/18	ND (0.1 J)		1.86	148	LL	58.3	655	ND (5.0)	ND (3.0)	1,210	ND (2.0)	536 J	0.726	1,430 J	5,560 J	498 J	3,430 J

ARCADIS Design & Consultancy for natural and built assets

PMP 2018-12 Sampling

				Filtered:	F	F	F	F	F	F	F	N	N	N	N	N	N	N
				Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
				Description:	Hexavalent Chromium	Calcium, Dissolved	Iron, Dissolved	Magnesium, Dissolved	Manganese, Dissolved	Sodium, Dissolved	Total Dissolved Chromium	Alkalinity, Total as CaCO3	Chloride	Nitrate/Nitrite as Nitrogen	pH	Specific Conductance	Sulfate	Total Dissolved Solids
				Method:	EPA 218.6	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.8	EPA 200.7	EPA 200.8	SM 2320 B	EPA 300.0	SM 4500-NO3 F	SM4500-HB	EPA 120.1	EPA 300.0	SM 2540 C
				Units:	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	mg/L	mg/L	PHUNITS	uS/cm	mg/L	mg/L
Location ID	**Sample Type**	**Sample ID**	**Matrix**	**Date Collected**														
PE-01	N	PE-01-1218	GW	12/4/2018	0.68	140	ND (20)	38	310	330	2.9	260	900	0.36	7.3	3,700	350	2,300
TW-03D	N	TW-03D-1218	GW	12/4/2018	480	210	ND (20)	30	15	1,500	490	160	2,100	2.0	7.2	7,600	520	4,300

ARCADIS Design & Consultancy for natural and built assets

RMP 2018-11 SURFACEWAT

					Filtered:	F	N	F	F	F	F	F	F	F	F	F	F	F
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Description:	Hexavalent Chromium	Oxygen and Deuterium Stable	Arsenic, Dissolved	Barium, Dissolved	Boron, Dissolved	Calcium, Dissolved	Iron, Dissolved	Magnesium, Dissolved	Manganese, Dissolved	Molybdenum, Dissolved	Potassium, Dissolved	Selenium, Dissolved	Sodium, Dissolved
					Method:	EPA 218.6	CFIRM 0/00	SW 6020	SW 6020	SW 6010B	SW 6010B	SW 6010B	SW 6020	SW 6010B	SW 6010B	SW 6010B	SW 6020A	SW 6010B
					Units:	ug/L		ug/L	ug/L	mg/L	mg/L	ug/L	mg/L	ug/L	ug/L	mg/L	ug/L	mg/L
Location ID	**Sample Type**	**Sample ID**	**Parent Sample**	**Matrix**	**Date Collected**													
AmbientBlank	AB	AmbientBlank-1-Q418		SURFACEWAT	12/11/18	ND (0.2)												
AmbientBlank	AB	AmbientBlank-2-Q418		SURFACEWAT	12/11/18	ND (0.2)												
AmbientBlank	AB	AmbientBlank-3-Q418		SURFACEWAT	12/12/18	ND (0.2)												
C-BNS	N	C-BNS-Q418		SURFACEWAT	12/11/18	ND (0.2)		2.3	120			ND (20)		ND (0.5)	5.0		1.7	
C-CON-D	N	C-CON-D-Q418		SURFACEWAT	12/12/18	ND (0.2)		2.4	110			ND (20)		ND (0.5)	4.6		1.5	
C-CON-D	FD	MW-921-Q418	C-CON-D-Q418	SURFACEWAT	12/12/18	ND (0.2)		2.5	110			ND (20)		ND (0.5)	4.5		1.5	
C-CON-S	N	C-CON-S-Q418		SURFACEWAT	12/12/18	ND (0.2)		2.5	110			ND (20)		ND (0.5)	4.5		1.4	
C-I-3-D	N	C-I-3-D-Q418		SURFACEWAT	12/11/18	ND (0.2)		2.4	120			ND (20)		ND (0.5)	5.2		1.7	
C-I-3-S	N	C-I-3-S-Q418		SURFACEWAT	12/11/18	ND (0.2)		2.3	120			ND (20)		ND (0.5)	5.1		1.7	
C-MAR-D	N	C-MAR-D-Q418		SURFACEWAT	12/12/18	ND (0.2)		2.5	140			52		220	5.8		1.2	
C-MAR-S	N	C-MAR-S-Q418		SURFACEWAT	12/12/18	ND (0.2)		2.5	130			100		86	5.1		1.6	
C-MAR-S	FD	MW-922-Q418	C-MAR-S-Q418	SURFACEWAT	12/12/18	ND (0.2)		2.6	130			97		87	5.2		1.7	
C-NR1-D	N	C-NR1-D-Q418		SURFACEWAT	12/12/18	ND (0.2)		2.4	110			ND (20)		ND (0.5)	4.7		1.6	
C-NR1-S	N	C-NR1-S-Q418		SURFACEWAT	12/12/18	ND (0.2)		2.7	120			ND (20)		ND (0.5)	4.9		1.6	
C-NR3-D	N	C-NR3-D-Q418		SURFACEWAT	12/12/18	ND (0.2)		2.4	120			ND (20)		ND (0.5)	4.8		1.4	
C-NR3-S	N	C-NR3-S-Q418		SURFACEWAT	12/12/18	ND (0.2)		2.4	110			ND (20)		ND (0.5)	4.7		1.6	
C-NR4-D	N	C-NR4-D-Q418		SURFACEWAT	12/12/18	ND (0.2)		2.5	110			ND (20)		ND (0.5)	4.7		1.6	
C-NR4-S	N	C-NR4-S-Q418		SURFACEWAT	12/12/18	ND (0.2)		2.5	110			ND (20)		ND (0.5)	4.8		1.8	
C-R22A-D	N	C-R22A-D-Q418		SURFACEWAT	12/11/18	ND (0.2)		2.3	120			ND (20)		ND (0.5)	5.5		1.5	
C-R22A-S	N	C-R22A-S-Q418		SURFACEWAT	12/11/18	ND (0.2)		2.4	120			ND (20)		ND (0.5)	5.3		1.7	
C-R22A-S	FD	MW-924-Q418	C-R22A-S-Q418	SURFACEWAT	12/11/18	ND (0.2)		2.1	120			ND (20)		ND (0.5)	5.1		1.7	
C-R27-D	N	C-R27-D-Q418		SURFACEWAT	12/11/18	ND (0.2)		2.1	120			ND (20)		ND (0.5)	4.9		1.8	
C-R27-S	N	C-R27-S-Q418		SURFACEWAT	12/11/18	ND (0.2)		2.3	120			ND (20)		ND (0.5)	5.3		1.8	
C-TAZ-D	N	C-TAZ-D-Q418		SURFACEWAT	12/11/18	ND (0.2)		2.4	120 J			ND (20)		ND (0.5)	5.5		1.8	
C-TAZ-S	N	C-TAZ-S-Q418		SURFACEWAT	12/11/18	ND (0.2)		2.3	120			ND (20)		ND (0.5)	5.4		1.5	
R-19	N	R-19-Q418		SURFACEWAT	12/12/18	ND (0.2)		2.6	110			ND (20)		1.4	4.7		1.9	
R-28	N	R-28-Q418		SURFACEWAT	12/11/18	ND (0.2)	-12.38	2.2	120	ND (0.13)	71	ND (20)	25	1.0	5.2	4.7	1.4	94
R-28	FD	MW-923-Q418	R-28-Q418	SURFACEWAT	12/11/18	ND (0.2)	-12.49	2.3	120	ND (0.13)	71	27	25	0.8	5.0	4.7	1.6	94
R63	N	R63-Q418		SURFACEWAT	12/11/18	ND (0.2)		2.2	120			ND (20)		ND (0.5)	5.1		1.8	
SW1	N	SW1-Q418		SURFACEWAT	12/11/18	ND (0.2)												
SW2	N	SW2-Q418		SURFACEWAT	12/11/18	ND (0.2)												

ARCADIS Design & Consultancy for natural and built assets

RMP 2018-11 SURFACEWAT

					Filtered:	F	N	N	N	N	N	N	N	N	N	N
					Lab:	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET	ASSET
					Description:	Total Dissolved Chromium	Alkalinity, Total as CaCO3	Bromide	Chloride	Nitrate/Nitrite as Nitrogen	pH	Specific Conductance	Sulfate	Total Dissolved Solids	Total Iron	Total suspended solids (TSS)
					Method:	SW 6020	SM 2320 B	EPA 300.0	EPA 300.0	SM 4500-NO3 F	SM4500-HB	EPA 120.1	EPA 300.0	SM 2540 C	SW 6010B	SM 2540 D
					Units:	ug/L	mg/L	mg/L	mg/L	mg/L	PHUNITS	uS/cm	mg/L	mg/L	ug/L	mg/L
Location ID	**Sample Type**	**Sample ID**	**Parent Sample**	**Matrix**	**Date Collected**											
AmbientBlank	AB	AmbientBlank-1-Q418		SURFACEWAT	12/11/18											
AmbientBlank	AB	AmbientBlank-2-Q418		SURFACEWAT	12/11/18											
AmbientBlank	AB	AmbientBlank-3-Q418		SURFACEWAT	12/12/18											
C-BNS	N	C-BNS-Q418		SURFACEWAT	12/11/18	ND (1.0)				0.31	8.2	970			ND (20)	ND (10)
C-CON-D	N	C-CON-D-Q418		SURFACEWAT	12/12/18	ND (1.0)				0.22	8.4	920			ND (20)	ND (10)
C-CON-D	FD	MW-921-Q418	C-CON-D-Q418	SURFACEWAT	12/12/18	ND (1.0)				0.23	8.4	920			ND (20)	ND (10)
C-CON-S	N	C-CON-S-Q418		SURFACEWAT	12/12/18	ND (1.0)				0.47	8.4	920			ND (20)	ND (10)
C-I-3-D	N	C-I-3-D-Q418		SURFACEWAT	12/11/18	ND (1.0)				0.27	8.3	930			ND (20)	ND (10)
C-I-3-S	N	C-I-3-S-Q418		SURFACEWAT	12/11/18	ND (1.0)				0.27	8.3	920			ND (20)	ND (10)
C-MAR-D	N	C-MAR-D-Q418		SURFACEWAT	12/12/18	ND (1.0)				0.18	8.1	1,400			3,200	88
C-MAR-S	N	C-MAR-S-Q418		SURFACEWAT	12/12/18	ND (1.0)				0.22	8.1	1,200			2,600	51
C-MAR-S	FD	MW-922-Q418	C-MAR-S-Q418	SURFACEWAT	12/12/18	ND (1.0)				0.2	8.0	1,200			2,300	45
C-NR1-D	N	C-NR1-D-Q418		SURFACEWAT	12/12/18	ND (1.0)				0.26	8.4	920			ND (20)	ND (10)
C-NR1-S	N	C-NR1-S-Q418		SURFACEWAT	12/12/18	ND (1.0)				0.24	8.4	930			ND (20)	ND (10)
C-NR3-D	N	C-NR3-D-Q418		SURFACEWAT	12/12/18	ND (1.0)				0.29	8.4	920			ND (20)	ND (10)
C-NR3-S	N	C-NR3-S-Q418		SURFACEWAT	12/12/18	ND (1.0)				0.29	8.4	920			ND (20)	ND (10)
C-NR4-D	N	C-NR4-D-Q418		SURFACEWAT	12/12/18	ND (1.0)				0.3	8.4	930			ND (20)	ND (10)
C-NR4-S	N	C-NR4-S-Q418		SURFACEWAT	12/12/18	ND (1.0)				0.3	8.4	930			ND (20)	ND (10)
C-R22A-D	N	C-R22A-D-Q418		SURFACEWAT	12/11/18	ND (1.0)				0.27	8.2	940			ND (20)	ND (10)
C-R22A-S	N	C-R22A-S-Q418		SURFACEWAT	12/11/18	ND (1.0)				0.28	8.2	930			ND (20)	ND (10)
C-R22A-S	FD	MW-924-Q418	C-R22A-S-Q418	SURFACEWAT	12/11/18	ND (1.0)				0.28	8.2	950			24	ND (10)
C-R27-D	N	C-R27-D-Q418		SURFACEWAT	12/11/18	ND (1.0)				0.28	8.2	930			ND (20)	ND (10)
C-R27-S	N	C-R27-S-Q418		SURFACEWAT	12/11/18	ND (1.0)				0.27	8.2	940			ND (20)	ND (10)
C-TAZ-D	N	C-TAZ-D-Q418		SURFACEWAT	12/11/18	ND (1.0)				0.29	8.2	950			ND (20)	ND (10)
C-TAZ-S	N	C-TAZ-S-Q418		SURFACEWAT	12/11/18	ND (1.0)				0.27	8.3	920			20	ND (10)
R-19	N	R-19-Q418		SURFACEWAT	12/12/18	ND (1.0)				0.22	8.4	930			ND (20)	ND (10)
R-28	N	R-28-Q418		SURFACEWAT	12/11/18	ND (1.0)	130	ND (0.5)	88	0.29	8.3	960	210	580	28	ND (10)
R-28	FD	MW-923-Q418	R-28-Q418	SURFACEWAT	12/11/18	ND (1.0)	130	ND (0.5)	87	0.28	8.2	950	210	600	27	ND (10)
R63	N	R63-Q418		SURFACEWAT	12/11/18	ND (1.0)				0.28	8.2	930			ND (20)	ND (10)
SW1	N	SW1-Q418		SURFACEWAT	12/11/18	ND (1.0)					8.0	980				
SW2	N	SW2-Q418		SURFACEWAT	12/11/18	ND (1.0)					7.0	980				