

# TECHNICAL MEMORANDUM

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**To:** Nevada Environmental Response Trust

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**Cc:** Nevada Division of Environmental Protection  
United States Environmental Protection Agency

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**From:** Dana Grady

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**Date:** August 10, 2020

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**Subject:** Seep Well Field Area Bioremediation Treatability Study Quarterly Progress Report

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At the direction of the Nevada Environmental Response Trust (NERT or Trust), Tetra Tech, Inc. (Tetra Tech) has prepared this memorandum which summarizes Tetra Tech's progress from April through June 2020 toward successfully implementing the Seep Well Field (SWF) Area Bioremediation Treatability Study.

## Task Progress Update: April – June 2020

### Task M11 – Seep Well Field Area Bioremediation Treatability Study (SWFTS)

- Task Leader – Dana Grady
- Current Status
  - As presented in Treatability/Pilot Study Modification No. 6, the ongoing efforts related to the SWF Area Bioremediation Treatability Study focus on refinement of operations and maintenance techniques (O&M) associated with long-term implementation of in situ bioremediation (ISB) in the vicinity of the SWF and Las Vegas Wash. For reference, Figure 1 provides a map of the injection and monitoring well locations.
  - O&M of SWF Area Bioremediation Treatability Study:
    - The sixth injection event was conducted from May 27 through June 19, 2020 via in-line mixing in accordance with the Field Guidance Document for In-Line Mixing and Injection approved by NDEP on March 24, 2020. Complete details of the sixth injection event, including a summary of injection rates, pressures, quantities, and specific gravity information will be provided to NDEP following completion of data compilation and receipt of Cascade injection report.
    - Injection well performance continues to be evaluated as part of the extended treatability study. As previously described in the January through March 2020 quarterly report, a small-scale injection well maintenance event was performed in February 2020 on monitoring wells SWFTS-IW01B and SWFTS-IW13B in accordance with the Proposed Injection Well Maintenance Activities Technical Memorandum. Results indicated that the maintenance was successful in restoring injectability at both locations. While SWFTS-

IW13B had not previously accepted injectate in the previous two injection events, an average injection rate of 4.8 gpm was achieved at SWFTS-IW13B during the sixth injection event as a result of successful well maintenance activities.

- The sixth injection event employed an in-line mixing approach for the aboveground mixing of emulsified vegetable oil (EVO), amendments, and water as the injections were being performed. This was the first implementation of in-line mixing for the SWF Area Bioremediation Treatability Study; the prior five injection events followed batch mixing. The purpose of utilizing this approach was to evaluate different substrate mixing techniques as part of this study extension. Based on this field effort, the in-line mixing process appears to be more time consuming and intensive, but does not provide additional precision to the overall injection process when compared to previous batch mixing operations. This is primarily due to the additional labor and time to carry out the steps required for measurement of flows, pressures and monitoring of EVO quantities and dilutions. From a fluid mass balance and volume verification perspective, batch mixing appears to result in greater precision when compared to in-line mixing. Additional details surrounding Tetra Tech's evaluation and conclusions regarding batch and in-line mixing operations will be provided in the 2020 Annual Results Report.
- The Seep Well Field Treatability Study has been ongoing since August 2017, and a total of 6 injection events have been performed to date. Overall system performance and resulting operation and maintenance requirements are reasonable.
- Performance of the SWF Area Bioremediation Treatability Study
  - Results of the March 2020 and April 2020 groundwater sampling events (conducted prior to the sixth injection event) were received during the second quarter 2020 and are summarized below. Well construction details and a summary of the groundwater analytical results for perchlorate, chlorate, nitrate, total organic carbon (TOC), and dissolved oxygen through April 2020 are provided in Tables 1 and 2, respectively.
  - Groundwater continues to respond favorably to injections. Concentration fluctuations and/or more gradual responses continue at some downgradient locations, which is likely due to preferential flow pathways for carbon substrate migration, presence of paleochannels, and/or large lithological heterogeneity that was apparent during well drilling activities. In addition, during recent months, increased perchlorate concentrations appear to be entering the study area from the upgradient (northwest) edge near SWFTS-MW04. These increased perchlorate concentrations from the northwest would be expected to migrate downgradient in a fashion that only partially contacts the injection area, resulting in less effective destruction of the perchlorate in the northern portion of the downgradient area. Lastly, perchlorate from the AMPAC plume is thought to be migrating in the vicinity of the Las Vegas Wash towards Pabco Road Weir downgradient of the treatability study area and may be impacting groundwater quality at the most distant downgradient monitoring wells.
  - Groundwater samples from eight monitoring wells located between or downgradient of the injection well transects observed a greater than 70% reduction in perchlorate concentrations during the March 2020 sampling event when compared to baseline concentrations, while the April 2020 sampling event indicated groundwater perchlorate concentration reductions of greater than 70% in five downgradient monitoring wells. Noteworthy findings are described below:
    - Groundwater perchlorate concentrations in several monitoring wells located upgradient of the injection well transects (namely, SWFTS-MW04, SWFTS-MW07A/B, SWFTS-MW08A, and SWFTS-MW11) increased an average of 50%

during the previous quarter (January – March 2020) compared to previous 2019 groundwater sampling events. Some monitoring wells observed even larger increases (i.e., samples collected from upgradient monitoring well SWFTS-MW04 observed a groundwater perchlorate concentration increase from 2,600 µg/L in November 2019 to 9,400 µg/L in January 2020). This increasing trend continued this quarter with a groundwater perchlorate concentration of 12,000 µg/L in the sample collected from SWFTS-MW04 in April 2020. For reference, the baseline concentration in groundwater at this well location was 14,000 µg/L, which at the time was thought to be an anomaly since all sampling events from 2017 through 2019 indicated concentrations in groundwater at this location generally ranged from 2,000 to 4,000 µg/L. These increasing upgradient groundwater concentrations trends will continue to be monitored and evaluated.

- Groundwater samples collected from monitoring wells between the injection well transects continue to indicate perchlorate concentration decreases.
  - Groundwater perchlorate concentrations less than the sample detection limit were identified in samples collected from monitoring wells SWFTS-MW14 and SWFTS-MW16 following the fifth injection event in October 2019. Perchlorate concentrations at SWFTS-MW14 rebounded slightly to 97 µg/L in April 2020, which is still a decrease of greater than 99 percent from the baseline concentration.
  - Although groundwater samples collected from SWFTS-MW02 began showing increases in perchlorate concentrations following the fifth injection event, the March and April 2020 results indicate concentrations more than 60 percent below baseline levels. As noted in the previous bullet, groundwater perchlorate concentrations have significantly increased in groundwater at monitoring well SWFTS-MW04, which is located generally upgradient of SWFTS-MW02 and the injection well transect, with concentrations of 12,000 µg/L observed during the April 2020 sampling event compared to historical concentrations typically in the 2,000 to 4,000 µg/L range.
  - Groundwater from monitoring well SWFTS-MW15 continues to be slow to respond to the addition of EVO (potentially due to preferential flow pathways for carbon substrate migration, heterogeneity of the subsurface creating a potential dead zone, perchlorate upflux from the UMCf, and/or paleochannel effects).

It is likely that the increases in perchlorate concentrations observed at monitoring wells between the injection well transects in April 2020 are related to an increased mass flux through the system from increasing perchlorate concentrations in upgradient groundwater (described in the first bullet) and the time elapsed since the previous injection event of approximately seven months.

- Downgradient perchlorate concentrations continue to show reductions, with approximately half of downgradient monitoring wells showing 50% or greater reduction in groundwater perchlorate concentrations when compared to baseline concentrations (namely, PC-91, SWFTS-MW01, SWFTS-MW03, SWFTS-MW05A/B, SWFTS-MW20, SWFTS-MW24, and SWFTS-MW25). Samples collected in April 2020 from three downgradient monitoring wells (PC-91, SWFTS-MW05B, and SWFTS-MW20) indicated a greater than 75% reduction in perchlorate concentrations in groundwater compared to the baseline sampling.

The April 2020 sampling event also indicated a groundwater perchlorate concentration of 180 µg/L in monitoring well SWFTS-MW20, which is the lowest perchlorate concentration measured in groundwater to date at this well. Although results still indicate reduced concentrations, in general, perchlorate concentrations in groundwater samples collected from downgradient monitoring wells during this quarter have gradually increased, which is likely due to a combination of significant upgradient concentration increases (previously noted) as well as the time that has elapsed since the fifth injection event.

- Chlorate concentrations in groundwater follow trends similar to perchlorate, with samples from eight downgradient monitoring wells exhibiting greater than 90% reduction in chlorate concentrations in groundwater during the March and April 2020 sampling events when compared to the baseline sampling event (namely, SWFTS-MW01, SWFTS-MW03, SWFTS-MW05A/B, SWFTS-MW14, SWFTS-MW16, SWFTS-MW18, and SWFTS-MW20). Chlorate concentrations in groundwater were less than 100 µg/L at six of the 20 downgradient locations during the March and April 2020 sampling events (SWFTS-MW01, SWFTS-MW05A/B, SWFTS-MW14, SWFTS-MW16, and SWFTS-MW20). Although concentrations were still significantly lower than baseline, increasing trends in chlorate concentrations in groundwater samples collected from several downgradient monitoring wells were observed this quarter, which also suggests the need for a future injection event (which, as noted earlier, was completed in May/June 2020).
- Nitrate concentrations in groundwater were also evaluated since it is often a competing electron acceptor and carbon substrate consumer. Nitrate concentrations in groundwater were generally greater than 10 milligrams per liter (mg/L) during the baseline sampling event. During the March and April 2020 sampling events, groundwater samples from eight monitoring wells have nitrate concentrations less than 5 mg/L (PC-91, PC-92, SWFTS-MW01, SWFTS-MW05B, SWFTS-MW14, SWFTS-MW16, SWFTS-MW20, and SWFTS-MW22).
- As noted in previous quarterly reports, one other noteworthy result was the decrease in contaminant concentrations in the groundwater samples collected from monitoring well SWFTS-MW12, which is located approximately 150 feet upgradient of the injection wells and the well from which most of the distribution water was extracted during injection event 5. Groundwater samples collected from this well continued to show remarkable decreases, with perchlorate, chlorate, and nitrate concentrations less than the sample detection limit, as well as a noticeable increase in TOC concentrations consistent with substrate arrival and degradation of constituents of interest. As previously explained, a combination of the extraction from SWFTS-MW12 and an increase in injection rates and pressures during the fifth injection event likely resulted in a transport of the injectate to the vicinity of monitoring well SWFTS-MW12.
- Schedule and Progress Updates
  - This task remains on schedule.
  - The next groundwater sampling event is scheduled for the week of July 6, 2020.
- Health and Safety
  - There were no safety incidents related to Task M11 during the reporting period April through June 2020.

## CERTIFICATION

### Seep Well Field Area Bioremediation Treatability Study Quarterly Progress Report

**Nevada Environmental Response Trust Site  
(Former Tronox LLC Site)  
Henderson, Nevada**

#### **Nevada Environmental Response Trust (NERT) Representative Certification**

I certify that this document and all attachments submitted to the Division were prepared at the request of, or under the direction or supervision of NERT. Based on my own involvement and/or my inquiry of the person or persons who manage the systems(s) or those directly responsible for gathering the information or preparing the document, or the immediate supervisor of such person(s), the information submitted and provided herein is, to the best of my knowledge and belief, true, accurate, and complete in all material respects.

Office of the Nevada Environmental Response Trust

Le Petomane XXVII, not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

**Signature:** Jay A Steinberg <sup>Not Individually, but Solely  
as President of the Trustee</sup>, not individually,  
but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee

**Name:** Jay A. Steinberg, not individually, but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee

**Title:** Solely as President and not individually

**Company:** Le Petomane XXVII, Inc., not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

**Date:** 8/11/2020

## CERTIFICATION

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I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been prepared in a manner consistent with the current standards of the profession, and to the best of my knowledge, comply with all applicable federal, state, and local statutes, regulations, and ordinances. I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.

**Description of Services Provided:** Prepared Seep Well Field Area Bioremediation Treatability Study Quarterly Progress Report.



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**Kyle Hansen, CEM**  
Field Operations Manager/Geologist  
Tetra Tech, Inc.

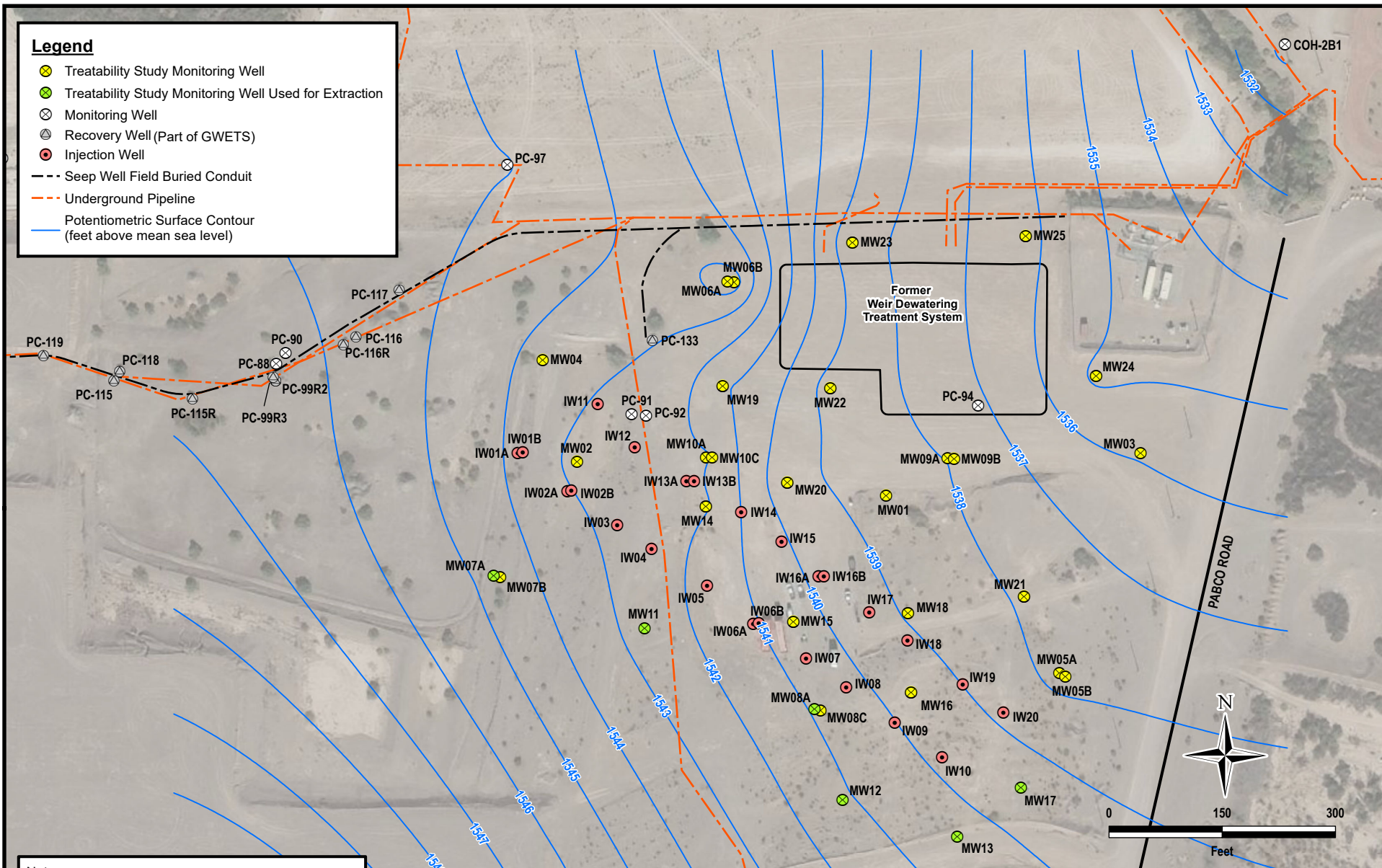
August 10, 2020

Date

Nevada CEM Certificate Number: 2167  
Nevada CEM Expiration Date: September 18, 2022

# Figures

\\TTS134FS1\GEO\UPVOL1\PROJECT\INERT\GIS\M11\_2019\PROGRESSRPT\_FIGURE2\_TSLAYOUT.MXD



**Legend**

- Treatability Study Monitoring Well
- Treatability Study Monitoring Well Used for Extraction
- Monitoring Well
- Recovery Well (Part of GWETS)
- Injection Well
- - - Seep Well Field Buried Conduit
- - - - - Underground Pipeline
- Potentiometric Surface Contour (feet above mean sea level)

- Notes:**
1. Field Test Area located within Parcel 161-31-101-002.
  2. The prefix 'SWTFS-' not shown for wells labeled as MW or IW. (MW03 = SWTFS-MW03)
  3. Groundwater potentiometric contours presented are based on water levels collected during the groundwater sampling event in December 2019.
  4. Imagery Source: Esri World Map, May 2017.

**TETRA TECH**

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**NEVADA ENVIRONMENTAL RESPONSE TRUST**

SEEP WELL FIELD AREA BIOREMEDIATION TREATABILITY STUDY  
QUARTERLY PROGRESS REPORT  
HENDERSON, NEVADA

**TREATABILITY STUDY LAYOUT**

Project No.:	117-7502018
Date:	APRIL 13, 2020
Designed By:	ACC
Figure No.	<b>1</b>



# Tables

**Table 1**  
**Well Construction Details**  
 Seep Well Field Area Bioremediation Treatability Study

Monitoring Well/Borehole ID	Screened Lithology	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Depth to Water <sup>1</sup>	Nominal Screen Length	Slot Size	Filter Pack Gradation	Well Diameter	Borehole Diameter	Borehole Total Depth	Well Total Depth	Bottom of Screen	Top of Screen
				feet amsl	feet amsl	feet bTOC	feet	inches		inches	inches	feet bgs	feet bgs	feet bgs	feet bgs
<b>Pre-Design Soil Boring and Monitoring Well Installation (February-March 2017)</b>															
SWFTS-BH01	-	26732831.60	831699.18	1556.73	-	-	-	-	-	-	6	43.0	-	-	-
SWFTS-BH02	-	26732742.32	831885.75	1562.47	-	-	-	-	-	-	8	50.0	-	-	-
SWFTS-BH03	-	26732633.19	832210.82	1562.75	-	-	-	-	-	-	6	54.0	-	-	-
SWFTS-BH04	-	26732816.71	832065.23	1554.68	-	-	-	-	-	-	6	45.0	-	-	-
SWFTS-BH05	-	26732859.98	832182.99	1553.48	-	-	-	-	-	-	6	40.0	-	-	-
SWFTS-BH06	-	26732914.77	832076.76	1554.08	-	-	-	-	-	-	6	15.0	-	-	-
SWFTS-BH07	-	26732976.44	831954.58	1551.37	-	-	-	-	-	-	6	45.0	-	-	-
SWFTS-BH08	-	26733066.02	832060.99	1550.79	-	-	-	-	-	-	8	53.0	-	-	-
SWFTS-BH09	-	26733156.54	832268.66	1546.93	-	-	-	-	-	-	6	37.0	-	-	-
SWFTS-BH10	-	26733223.18	832077.72	1548.28	-	-	-	-	-	-	6	52.0	-	-	-
SWFTS-MW01	Alluvium	26733003.73	832067.12	1552.68	1552.39	15.25	15	0.020	#3	2	6	43.0	39.4	38.9	24.2
SWFTS-MW02	Alluvium	26733048.86	831657.82	1553.90	1553.63	13.80	15	0.020	#3	2	6	41.0	33.5	33.1	18.4
SWFTS-MW03	Alluvium	26733059.49	832404.39	1549.26	1549.02	14.15	15	0.020	#3	2	6	60.0	42.2	42.1	27.2
SWFTS-MW04	Alluvium	26733183.35	831612.29	1552.16	1551.82	11.15	15	0.020	#3	2	6	45.0	40.9	40.4	25.8
SWFTS-MW05A	Alluvium	26732768.53	832296.89	1555.41	1554.91	18.35	10	0.020	#3	2	6	30.0	29.4	29.3	19.3
SWFTS-MW05B	Alluvium	26732764.09	832304.67	1555.41	1554.86	18.28	10	0.020	#3	2	6	44.0	42.5	42.0	32.3
SWFTS-MW06A	Alluvium	26733287.15	831857.05	1548.86	1548.41	6.43	10	0.020	#3	2	6	22.5	21.9	21.4	11.8
SWFTS-MW06B	Alluvium	26733286.65	831865.75	1549.03	1548.59	6.70	10	0.020	#3	2	6	40.0	36.0	35.5	25.9
SWFTS-MW07A	Alluvium	26732895.65	831555.99	1555.90	1555.64	14.25	15	0.020	#3	4	8	30.5	30.1	29.5	15.0
SWFTS-MW07B	Alluvium	26732897.49	831547.35	1555.90	1555.53	13.95	5	0.020	#3	2	6	55.0	38.9	38.3	33.8
SWFTS-MW08A	Alluvium	26732720.57	831972.55	1556.50	1556.03	17.26	15	0.020	#3	4	8	36.0	35.3	34.8	20.2
SWFTS-MW08C	UMCf	26732718.60	831980.38	1556.56	1556.18	18.34	20	0.020	#3	2	6	70.2	70.0	69.5	49.9
SWFTS-MW09A	Alluvium	26733052.94	832148.65	1551.61	1551.16	14.50	10	0.020	#3	4	8	30.0	29.4	28.9	19.3
SWFTS-MW09B	Alluvium	26733052.55	832157.19	1551.74	1551.27	14.60	5	0.020	#3	2	6	55.5	39.5	39.0	34.4
SWFTS-MW10A	Alluvium	26733054.00	831828.76	1551.92	1551.61	12.23	15	0.020	#3	4	8	36.0	35.5	35.0	20.4
SWFTS-MW10C	UMCf	26733054.15	831836.75	1551.85	1551.61	9.99	20	0.020	#3	2	6	64.0	63.6	63.1	43.5
<b>Injection and Monitoring Well Network Installation (May-July 2017)</b>															
SWFTS-IW01A	Alluvium	26733059.73	831579.19	1553.61	1553.32	13.00	10	0.020	#3	2	8	27.0	26.0	25.6	15.8
SWFTS-IW01B	Alluvium	26733061.20	831585.84	1553.49	1553.07	13.06	10	0.020	#3	2	8	39.0	37.1	36.7	26.9
SWFTS-IW02A	Alluvium	26733009.17	831645.08	1554.49	1554.08	14.23	10	0.020	#3	2	8	29.0	27.0	26.6	16.8
SWFTS-IW02B	Alluvium	26733010.07	831650.33	1554.42	1554.13	14.27	10	0.020	#3	2	8	37.0	36.5	36.1	26.3
SWFTS-IW03	Alluvium	26732964.70	831711.03	1554.71	1554.46	14.80	20	0.020	#3	2	8	38.0	37.0	36.6	16.8
SWFTS-IW04	Alluvium	26732932.97	831756.77	1554.45	1554.04	14.46	15	0.020	#3	2	8	36.5	35.0	34.6	19.8
SWFTS-IW05	Alluvium	26732883.80	831829.89	1552.17	1551.91	12.68	20	0.020	#3	2	8	35.5	34.8	34.4	14.6
SWFTS-IW06A	Alluvium	26732833.83	831891.31	1553.09	1552.79	14.15	10	0.020	#3	2	8	29.0	27.0	26.6	16.8
SWFTS-IW06B	Alluvium	26732834.30	831898.57	1552.81	1552.47	13.85	5	0.020	#3	2	8	35.0	34.0	33.6	28.8
SWFTS-IW07	Alluvium	26732787.99	831961.16	1554.76	1554.48	16.00	20	0.020	#3	2	8	38.0	37.5	37.1	17.3
SWFTS-IW08	Alluvium	26732749.42	832014.32	1557.84	1557.47	19.60	20	0.020	#3	2	8	39.0	37.7	37.3	17.5
SWFTS-IW09	Alluvium	26732702.88	832078.62	1562.81	1562.59	24.38	20	0.020	#3	2	8	47.4	46.8	46.4	26.6
SWFTS-IW10	Alluvium	26732656.78	832141.67	1562.43	1561.95	23.84	20	0.020	#3	2	8	47.6	47.0	46.6	26.8
SWFTS-IW11	Alluvium	26733124.81	831685.02	1552.61	1552.31	12.45	20	0.020	#3	2	8	39.0	37.5	37.1	17.3
SWFTS-IW12	Alluvium	26733067.66	831734.08	1552.94	1552.70	13.10	25	0.020	#3	2	8	41.0	39.5	39.1	14.3
SWFTS-IW13A	Alluvium	26733022.97	831802.64	1552.73	1552.38	13.03	10	0.020	#3	2	8	28.0	26.0	25.6	15.8

**Table 1**  
**Well Construction Details**  
 Seep Well Field Area Bioremediation Treatability Study

Monitoring Well/Borehole ID	Screened Lithology	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Depth to Water <sup>1</sup>	Nominal Screen Length	Slot Size	Filter Pack Gradation	Well Diameter	Borehole Diameter	Borehole Total Depth	Well Total Depth	Bottom of Screen	Top of Screen
				feet amsl	feet amsl	feet bTOC	feet	inches		inches	inches	inches	feet bgs	feet bgs	feet bgs
SWFTS-IW13B	Alluvium	26733022.94	831812.84	1552.42	1552.12	12.75	10	0.020	#3	2	8	38.8	38.0	37.6	27.8
SWFTS-IW14	Alluvium	26732981.31	831875.23	1551.69	1551.36	12.65	20	0.020	#3	2	8	37.0	36.5	36.1	16.2
SWFTS-IW15	Alluvium	26732942.89	831928.63	1551.17	1550.76	12.66	20	0.020	#3	2	8	37.0	36.6	36.2	16.4
SWFTS-IW16A	Alluvium	26732896.44	831977.77	1553.06	1552.72	14.77	10	0.020	#3	2	8	29.3	27.5	27.1	17.3
SWFTS-IW16B	Alluvium	26732895.94	831984.74	1552.88	1552.43	14.50	10	0.020	#3	2	8	37.0	36.7	36.3	26.5
SWFTS-IW17	Alluvium	26732849.16	832045.01	1554.57	1554.01	16.22	20	0.020	#3	2	8	38.0	37.5	37.1	17.3
SWFTS-IW18	Alluvium	26732811.24	832095.47	1555.71	1555.47	17.84	20	0.020	#3	2	8	39.0	38.5	38.1	18.1
SWFTS-IW19	Alluvium	26732753.36	832168.69	1560.08	1560.06	22.55	20	0.020	#3	2	8	45.0	44.5	44.1	24.3
SWFTS-IW20	Alluvium	26732716.42	832222.65	1563.11	1562.85	25.30	20	0.020	#3	2	8	52.0	51.0	50.6	30.8
SWFTS-MW11	Alluvium	26732827.46	831747.30	1558.68	1558.10	18.44	25	0.020	#3	4	10	41.7	40.0	39.6	14.8
SWFTS-MW12	Alluvium	26732600.73	832009.72	1559.00	1558.66	19.65	25	0.020	#3	4	10	44.0	41.0	40.6	15.8
SWFTS-MW13	Alluvium	26732551.81	832161.20	1563.57	1563.20	24.65	30	0.020	#3	4	10	50.0	48.0	47.6	17.8
SWFTS-MW14	Alluvium	26732989.39	831828.48	1552.20	1551.89	12.52	20	0.020	#3	2	8	38.4	37.0	36.6	16.8
SWFTS-MW15	Alluvium	26732836.67	831944.36	1553.64	1553.34	15.00	20	0.020	#3	2	8	36.5	35.0	34.6	14.8
SWFTS-MW16	Alluvium	26732742.78	832100.29	1561.83	1561.45	23.50	20	0.020	#3	2	8	44.3	42.0	41.6	21.8
SWFTS-MW17	Alluvium	26732616.54	832245.85	1565.87	1565.56	27.53	30	0.020	#3	4	10	54.5	53.0	52.6	22.8
SWFTS-MW18	Alluvium	26732847.58	832096.15	1554.59	1554.03	16.55	20	0.020	#3	2	8	38.0	37.0	36.6	16.8
SWFTS-MW19	Alluvium	26733148.90	831850.68	1550.57	1550.37	11.48	20	0.020	#3	2	8	33.0	31.5	31.1	11.3
SWFTS-MW20	Alluvium	26733020.92	831936.43	1551.63	1551.22	13.62	25	0.020	#3	2	8	39.0	38.0	37.6	12.8
SWFTS-MW21	Alluvium	26732869.95	832249.88	1553.56	1553.30	16.60	25	0.020	#3	2	8	41.0	40.0	39.6	14.8
SWFTS-MW22	Alluvium	26733146.27	831993.33	1549.55	1549.15	12.82	20	0.020	#3	2	8	33.0	32.0	31.6	11.8
SWFTS-MW23	Alluvium	26733338.19	832022.56	1547.58	1550.16	13.38	20	0.020	#3	2	8	36.8	34.0	33.6	13.8
SWFTS-MW24	Alluvium	26733161.74	832345.44	1547.78	1547.49	13.86	25	0.020	#3	2	8	39.0	38.0	37.6	12.8
SWFTS-MW25	Alluvium	26733347.67	832252.13	1546.73	1546.37	11.20	30	0.020	#3	2	8	44.0	43.0	42.6	12.8

Notes:

amsl - above mean sea level

bTOC - below top of casing

bgs - below ground surface

UMCf - Upper Muddy Creek Formation

1. Baseline depth to water measurements were collected in July 2017.

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**Table 2**  
**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
COH-2B1	8/9/2017	COH-2B1-BL02	N	BL02	1,700	1,800	0.71	2.3	1.14
COH-2B1	9/22/2017	SWFTS-COH-2B1-EM01	N	EM01	1,700	1,600	0.53 J	2.7	1.19
COH-2B1	10/5/2017	SWFTS-COH-2B1-EM03	N	EM03	1,800	1,400	0.60	2.6	0.14
COH-2B1	10/12/2017	SWFTS-COH-2B1-EM04	N	EM04	1,800	1,600	0.58	2.3	7.92
COH-2B1	10/26/2017	SWFTS-COH-2B1-EM05	N	EM05	1,900	1,400	0.42 J	2.6	0.40
COH-2B1	12/14/2017	COH-2B1-EM07	N	EM07	1,700	5,000	0.40	2.6	-0.06 E
COH-2B1	2/22/2018	COH-2B1-EM08	N	EM08	1,500	1,400	0.57 J	2.9	0.34
COH-2B1	3/29/2018	COH-2B1-EM09	N	EM09	1,800	1,200	<0.55	2.3	0.41
COH-2B1	5/2/2018	COH-2B1-EM10	N	EM10	1,700	1,200	0.45	11	0.00
COH-2B1	7/10/2018	COH-2B1-EM11	N	EM11	3,000	2,400	1.4	1.9	0.47
COH-2B1	8/16/2018	COH-2B1-EM13	N	EM13	1,500	980	0.53 J	2.6	0.50
COH-2B1	9/11/2018	COH-2B1-EM14	N	EM14	2,800	3,800	1.5	1.9	2.18
COH-2B1	10/11/2018	COH-2B1-EM15	N	EM15	1,700	1,000	0.54 J	2.7	2.79
COH-2B1	1/3/2019	COH-2B1-EM16	N	EM16	3,200	3,800	2.5	2.0	0.97
COH-2B1	2/25/2019	COH-2B1-EM17	N	EM17	3,300	4,100	2.1	2.2	0.00
COH-2B1	4/9/2019	COH-2B1-EM18	N	EM18	1,800	570	0.65 J-	2.5	0.56
COH-2B1	5/22/2019	COH-2B1-EM19	N	EM19	1,700	520	0.57	2.4	0.12
COH-2B1	7/1/2019	COH-2B1-EM20	N	EM20	1,800	680	0.59	2.7	0.37
COH-2B1	8/15/2019	COH-2B1-EM21	N	EM21	1,900	660	0.68	2.7	0.43
COH-2B1	11/4/2019	COH-2B1-EM22	N	EM22	2,600	3,200	1.6	1.9	0.61
COH-2B1	12/18/2019	COH-2B1-EM23	N	EM23	1,800	610 J-	0.45	2.2	0.91
COH-2B1	1/28/2020	COH-2B1-EM24	N	EM24	3,200	9,200	4.4	2.2	5.11
COH-2B1	3/9/2020	COH-2B1-EM25	N	EM25	5,500	11,000	2.4	2.1 J+	2.35
COH-2B1	4/27/2020	COH-2B1-EM26	N	EM26	2,000	810	0.68	2.1	3.28
LVWPS-MW101A	7/12/2018	LVWPS-MW101A-EM11	N	EM11	6,300	25,000	15	0.82 J	2.10
LVWPS-MW104	7/12/2018	LVWPS-MW104-EM11	N	EM11	4,900	35,000	10	1.1	1.92
LVWPS-MW104	8/15/2018	LVWPS-MW104-EM13	N	EM13	4,600	36,000	10	1.5	3.79
LVWPS-MW104	9/13/2018	LVWPS-MW104-EM14	N	EM14	4,200	36,000	11	1.4	2.84
LVWPS-MW104	10/10/2018	LVWPS-MW104-EM15	N	EM15	4,800	37,000	11	1.8	4.3
LVWPS-MW107A	7/12/2018	LVWPS-MW107A-EM11	N	EM11	4,700	9,000	6.1	0.90 J	4.00
LVWPS-MW108A	7/12/2018	LVWPS-MW108A-EM11	N	EM11	7,200	17,000	7.2	1.3	3.86
LVWPS-MW108A	7/12/2018	LVWPS-MW108A-EM11-FD	FD	EM11	7,300	17,000	7.2	1.3	--
LVWPS-MW108A	8/15/2018	LVWPS-MW108A-EM13	N	EM13	5,700	11,000	6.2	1.9	2.73
LVWPS-MW108A	9/13/2018	LVWPS-MW108A-EM14	N	EM14	4,800	9,200	6.1 J+	1.6	3.08
LVWPS-MW108A	10/10/2018	LVWPS-MW108A-EM15	N	EM15	5,300	9,800	5.5	1.9	2.96
LVWPS-MW109	7/12/2018	LVWPS-MW109-EM11	N	EM11	6,100	25,000	8.9	1.2	0.40
LVWPS-MW109	8/15/2018	LVWPS-MW109-EM13	N	EM13	4,800	16,000	7.9	1.9	2.30
LVWPS-MW109	9/13/2018	LVWPS-MW109-EM14	N	EM14	4,500	9,200	6.7 J+	1.3	0.59
LVWPS-MW109	10/10/2018	LVWPS-MW109-EM15	N	EM15	4,400	7,300	6.9	1.9	2.71
LVWPS-MW111A	7/12/2018	LVWPS-MW111A-EM11	N	EM11	9,100	28,000	7.2	1.8	3.34

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Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
LVWPS-MW111A	8/15/2018	LVWPS-MW111A-EM13	N	EM13	7,800	30,000	7.9	2.0	2.23
LVWPS-MW111A	9/13/2018	LVWPS-MW111A-EM14	N	EM14	6,500	30,000	8.1 J+	1.4	0.35
LVWPS-MW111A	10/10/2018	LVWPS-MW111A-EM15	N	EM15	7,100	28,000	8.4	1.8	0.95
LVWPS-MW112A	7/12/2018	LVWPS-MW112A-EM11	N	EM11	5,200	28,000	10	1.5	0.89
LVWPS-MW112A	10/10/2018	LVWPS-MW112A-EM15	N	EM15	4,700	24,000	10	1.7	1.91
PC-58	3/28/2017	PC-58-BL01	N	BL01	2,600	19,000	9.9	3.4	0.15
PC-58	7/13/2017	PC-58-BL02	N	BL02	2,600	17,000	9.5	2.8	0.00
PC-58	10/11/2017	SWFTS-PC-58-EM04	N	EM04	1,800	11,000	9.0	3.2	3.40
PC-58	11/16/2017	SWFTS-PC-58-EM06	N	EM06	2,100	16,000	10	2.9	0.65
PC-58	12/14/2017	PC-58-EM07	N	EM07	3,100	24,000	12	2.9	0.29
PC-58	2/21/2018	PC-58-EM08	N	EM08	3,700	35,000	12	5.4	2.49
PC-58	3/28/2018	PC-58-EM09-EM09	N	EM09	1,400	12,000	9.8	2.7	4.31
PC-58	5/2/2018	PC58-EM10	N	EM10	1,200	10,000	9.9	2.7	0.71
PC-58	7/11/2018	PC-58-EM11	N	EM11	1,100	9,800	10	2.6	1.17
PC-58	8/15/2018	PC-58-EM13	N	EM13	1,300	13,000	10	3.1	0.38
PC-58	9/13/2018	PC-58-EM14	N	EM14	1,500	22,000	14	2.5	2.74
PC-58	10/11/2018	PC-58-EM15	N	EM15	1,300	13,000	12	3.5	0
PC-58	1/3/2019	PC-58-EM16	N	EM16	980	8,000	10	3.5	0.83
PC-58	3/1/2019	PC-58-EM17	N	EM17	1,700 J+	13,000	12	2.8	0.41
PC-58	4/9/2019	PC-58-EM18	N	EM18	1,400	11,000	9.1 J-	2.6	3.68
PC-58	5/22/2019	PC-58-EM19	N	EM19	1,600	12,000	11	2.9	1.68
PC-58	7/5/2019	PC-58-EM20	N	EM20	1,600	13,000	11	3.9	0.43
PC-58	8/15/2019	PC-58-EM21	N	EM21	1,500	10,000	12	3.7	0.47
PC-58	11/7/2019	PC-58-EM22	N	EM22	1,000	8,700	10	3.1	0.64
PC-58	12/20/2019	PC-58-EM23	N	EM23	4,000	30,000	13	2.4	1.00
PC-58	1/30/2020	PC-58-EM24	N	EM24	3,200	36,000	14	2.7	2.79
PC-58	3/11/2020	PC-58-EM25	N	EM25	2,800	33,000	12	2.7	1.69
PC-58	5/1/2020	PC-58-EM26	N	EM26	840	8,500	7.7	2.3	3.13
PC-88	9/22/2017	SWFTS-PC-88-EM01	N	EM01	15,000	6,900	4.8	2.7	4.15
PC-88	9/28/2017	SWFTS-PC-88-EM02	N	EM02	14,000 J+	6,300	5.8	2.8	1.13
PC-88	10/4/2017	SWFTS-PC-88-EM03	N	EM03	15,000	6,100	5.1	2.6	0.21
PC-88	10/11/2017	SWFTS-PC-88-EM04	N	EM04	15,000	6,200	4.6	2.5	0.37
PC-88	10/11/2017	SWFTS-PC-88-EM04-FD	FD	EM04	15,000	6,000	4.6	2.6	--
PC-88	10/25/2017	SWFTS-PC-88-EM05	N	EM05	15,000	5,400	5.0	2.8	0.37
PC-88	11/15/2017	PC-88-EM06	N	EM06	15,000	5,700	4.5	2.8	0.46
PC-88	11/15/2017	PC-88-EM06-FD	FD	EM06	16,000	5,700	4.6	2.9	--
PC-88	12/14/2017	PC-88-EM07	N	EM07	19,000	20,000	9.9	2.7	0.68
PC-88	2/22/2018	PC-88-EM08	N	EM08	6,700	14,000	12	3.0	0.29
PC-88	3/29/2018	PC-88-EM09	N	EM09	9,100	20,000	13	2.2	0.45
PC-88	5/2/2018	PC88-EM10	N	EM10	7,100	11,000	11	2.3	0.50

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Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
PC-88	5/2/2018	PC88-EM10-FD	FD	EM10	6,600	11,000	12	2.5	--
PC-88	7/12/2018	PC-88-EM11	N	EM11	16,000	12,000	7.8	2.4	0.89
PC-88	7/12/2018	PC-88-EM11-FD	FD	EM11	16,000	12,000	7.6	2.3	--
PC-88	8/16/2018	PC-88-EM13	N	EM13	10,000	6,700	6.0	2.9	3.31
PC-88	8/16/2018	PC-88-EM13-FD	FD	EM13	11,000	6,800	6.0	2.9	--
PC-88	9/12/2018	PC-88-EM14	N	EM14	19,000	13,000	6.7	2.6	2.28
PC-88	9/12/2018	PC-88-EM14-FD	FD	EM14	19,000	13,000	6.7	2.4	--
PC-88	10/11/2018	PC-88-EM15	N	EM15	15,000	15,000	6.3 J-	2.7	0
PC-88	10/11/2018	PC-88-EM15-FD	FD	EM15	15,000	15,000	7.5	2.7	--
PC-88	1/3/2019	PC-88-EM16	N	EM16	12,000	9,900	7.5	2.7	0.93
PC-88	1/3/2019	PC-88-EM16-FD	FD	EM16	12,000	9,900	7.5	2.8	--
PC-88	2/28/2019	PC-88-EM17	N	EM17	9,300	5,700	4.4	2.9	0.35
PC-88	2/28/2019	PC-88-EM17-FD	FD	EM17	9,100	5,700	4.4	3.1	--
PC-88	4/9/2019	PC-88-EM18	N	EM18	12,000	11,000	5.1 J-	2.6	0.54
PC-88	4/9/2019	PC-88-EM18-FD	FD	EM18	13,000	10,000	5.0 J-	2.7	--
PC-88	5/22/2019	PC-88-EM19	N	EM19	10,000	6,200	4.9	2.6	0.05
PC-88	5/22/2019	PC-88-EM19-FD	FD	EM19	10,000	6,400	5.0	2.5	--
PC-88	7/5/2019	PC-88-EM20	N	EM20	8,800	5,100	3.4	3.2	0.39
PC-88	7/5/2019	PC-88-EM20-FD	FD	EM20	10,000	5,000	3.4	3.2	--
PC-88	8/15/2019	PC-88-EM21	N	EM21	9,700	3,300	2.8	3.0	0.39
PC-88	8/15/2019	PC-88-EM21-FD	FD	EM21	9,900	3,300	3.1	3.0	--
PC-88	11/7/2019	PC-88-EM22	N	EM22	11,000	14,000	5.6	2.5	0.64
PC-88	11/7/2019	PC-88-EM22-FD	FD	EM22	11,000	15,000	5.5	2.4	--
PC-88	12/20/2019	PC-88-EM23	N	EM23	11,000	9,200	5.4	2.2	0.83
PC-88	12/20/2019	PC-88-EM23-FD	FD	EM23	12,000	9,100	5.1	2.2	--
PC-88	1/30/2020	PC-88-EM24	N	EM24	9,900	13,000	7.9	2.7	2.65
PC-88	1/30/2020	PC-88-EM24-FD	FD	EM24	9,900	13,000	7.9	2.7	--
PC-88	3/12/2020	PC-88-EM25	N	EM25	7,900	7,000	5.3	2.5	1.6
PC-88	3/12/2020	PC-88-EM25-FD	FD	EM25	7,700	6,900	5.5	2.4	--
PC-88	5/1/2020	PC-88-EM26	N	EM26	15,000	16,000	8.2	2.1	0.26
PC-88	5/1/2020	PC-88-EM26-FD	FD	EM26	15,000	16,000	8.7	2.1	--
PC-91	3/29/2017	PC-91-BL01	N	BL01	2,400	1,700	1.4	2.7	0.25
PC-91	7/12/2017	PC-91-BL02	N	BL02	2,500	1,600	1.2	2.4	0.31
PC-91	7/12/2017	PC-91-BL02-FD	FD	BL02	2,400	1,500	1.1	2.3	--
PC-91	9/21/2017	SWFTS-PC-91-EM01	N	EM01	1,600	820	0.50 J	2.3	0.47
PC-91	9/27/2017	SWFTS-PC-91-EM02	N	EM02	1,700	810	0.57	2.8	0.72
PC-91	10/4/2017	SWFTS-PC-91-EM03	N	EM03	1,300	590	0.58	2.9	0.19
PC-91	10/12/2017	SWFTS-PC-91-EM04	N	EM04	960	440	0.35	2.5	0.38 E
PC-91	10/25/2017	SWFTS-PC-91-EM05	N	EM05	750	370	0.62	2.7	0.55
PC-91	11/16/2017	SWFTS-PC-91-EM06	N	EM06	700	610	0.65 J-	2.8	0.82

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PC-91	12/13/2017	PC-91-EM07	N	EM07	770	520	0.38	2.5	0.37
PC-91	2/20/2018	PC-91-EM08	N	EM08	900	1,100	0.88 J	2.8	0.82
PC-91	3/26/2018	PC-91-EM09	N	EM09	930	1,200	0.78	2.5	1.02
PC-91	5/1/2018	PC-91-EM10	N	EM10	860	260	0.56	2.4	0.64
PC-91	7/11/2018	PC-91-EM11	N	EM11	190	<5.0	<0.28	2.7	3.08
PC-91	7/27/2018	SWFTS-PC-91-EM12	N	EM12	160	<2.0	--	--	0.77
PC-91	8/14/2018	PC-91-EM-13	N	EM13	310	12 J	<0.28	3.0	1.08
PC-91	9/12/2018	PC-91-EM14	N	EM14	440	21	<0.28	2.6	3.12
PC-91	10/10/2018	PC-91-EM15	N	EM15	460	80	<0.55	3.1	0
PC-91	12/20/2018	PC-91-EM16	N	EM16	220	47 J	<0.11	3.2	0.68
PC-91	2/26/2019	PC-91-EM17	N	EM17	67	<10	<0.55	3.8	0.47
PC-91	4/10/2019	PC-91-EM18	N	EM18	190	38 J	<0.55	4.5	1.41
PC-91	5/21/2019	PC-91-EM19	N	EM19	120	56	0.81	3.6	0.05
PC-91	7/1/2019	PC-91-EM20	N	EM20	120	52	<0.28	3.8	0.42
PC-91	8/12/2019	PC-91-EM21	N	EM21	39 J+	14 J	<0.28	3.6	0.44
PC-91	11/6/2019	PC-91-EM22	N	EM22	1.5 J	<10	<0.55	5.9	0.56
PC-91	12/17/2019	PC-91-EM23	N	EM23	6.9	<10	<0.55	4.3	8.61
PC-91	1/28/2020	PC-91-EM24	N	EM24	230	100	<0.28	4.2	5.81
PC-91	3/12/2020	PC-91-EM25	N	EM25	310	170	<0.28	3.6	1.49
PC-91	4/30/2020	PC-91-EM26	N	EM26	460	500	<0.28	3.9	0.37
PC-92	3/29/2017	PC-92-BL01	N	BL01	9,600	17,000	4.2	2.8	0.35
PC-92	7/12/2017	PC-92-BL02	N	BL02	4,400	10,000	2.6	2.8	0.31
PC-92	9/21/2017	SWFTS-PC-92-EM01	N	EM01	3,100	7,700	1.7	2.6	0.41
PC-92	9/27/2017	SWFTS-PC-92-EM02	N	EM02	3,500	6,800	1.7	2.8	0.45
PC-92	10/4/2017	SWFTS-PC-92-EM03	N	EM03	3,700	7,100	2.6	2.8	0.12
PC-92	10/12/2017	SWFTS-PC-92-EM04	N	EM04	3,700	7,300	2.1	2.8	9.88 E
PC-92	10/12/2017	SWFTS-PC-92-EM04-FD	FD	EM04	3,700	6,700	2.0	2.6	--
PC-92	10/25/2017	SWFTS-PC-92-EM05	N	EM05	4,000	6,900	2.3	2.9	0.30
PC-92	11/16/2017	SWFTS-PC-92-EM06	N	EM06	2,100	1,300	1.6	3.2	0.42
PC-92	11/16/2017	SWFTS-PC-92-EM06-FD	FD	EM06	2,100	1,300	1.1	3.3	--
PC-92	12/14/2017	PC-92-EM07	N	EM07	3,300	4,600	2.1	3.0	3.78
PC-92	12/14/2017	PC-92-EM07-FD	FD	EM07	3,300	4,800	1.8	3.0	--
PC-92	2/20/2018	PC-92-EM08	N	EM08	4,900	7,700	2.7	3.2	4.60
PC-92	2/20/2018	PC-92-EM08-FD	FD	EM08	5,000	7,400	2.7	3.2	--
PC-92	3/26/2018	PC-92-EM09	N	EM09	7,900	19,000	4.5	2.5	0.51
PC-92	3/26/2018	PC-92-EM09-FD	FD	EM09	8,000	18,000	4.5	2.5	--
PC-92	5/1/2018	PC-92-EM10	N	EM10	9,200	22,000	5.6	2.4	0.70
PC-92	7/11/2018	PC-92-EM11	N	EM11	7,300	17,000	4.2	2.3	1.47
PC-92	7/27/2018	SWFTS-PC-92-EM12	N	EM12	5,200	15,000	--	--	0.28
PC-92	8/15/2018	PC-92-EM13	N	EM13	4,700	13,000	3.1	3.0	0.98

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**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
PC-92	9/12/2018	PC-92-EM14	N	EM14	4,100	12,000	2.6	2.6	2.95
PC-92	10/11/2018	PC-92-EM15	N	EM15	4,200	12,000	3.4	2.9	0
PC-92	12/20/2018	PC-92-EM16	N	EM16	3,500	13,000	2.6	3.1	0.72
PC-92	2/26/2019	PC-92-EM17	N	EM17	2,700	13,000	1.5	2.7	0.56
PC-92	4/10/2019	PC-92-EM18	N	EM18	3,100	8,200	2.2	2.7	0.84
PC-92	5/21/2019	PC-92-EM19	N	EM19	2,500	6,000	1.5	2.3	0.09
PC-92	7/1/2019	PC-92-EM20	N	EM20	3,100	7,000	1.8	3.4	0.42
PC-92	8/12/2019	PC-92-EM21	N	EM21	2,800	3,500	1.1	3.3	0.41
PC-92	11/6/2019	PC-92-EM22	N	EM22	4,000	11,000	2.0	2.8	0.56
PC-92	12/17/2019	PC-92-EM23	N	EM23	3,100	7,700	2.0	2.8	0.67
PC-92	1/28/2020	PC-92-EM24	N	EM24	6,700	20,000	4.7	3.0	4.93
PC-92	3/12/2020	PC-92-EM25	N	EM25	8,800	26,000	6.4	2.5	1.63
PC-92	4/30/2020	PC-92-EM26	N	EM26	3,400	5,300	1.8	4.0	5.37
PC-94	3/28/2017	PC-94-BL01	N	BL01	13,000	51,000	12	1.7	0.33
PC-94	7/13/2017	PC-94-BL02	N	BL02	14,000	47,000	12	1.3	0.41
PC-94	9/20/2017	SWFTS-PC-94-EM01	N	EM01	2,300	3,800	0.58 J	34	0.15
PC-94	9/26/2017	SWFTS-PC-94-EM02	N	EM02	2,000	3,700	<1.1	37	0.19
PC-94	10/5/2017	SWFTS-PC-94-EM03	N	EM03	1,700	3,600	1.3 J	5.2	0.13
PC-94	10/11/2017	SWFTS-PC-94-EM04	N	EM04	970	2,900	0.78 J	3.9	0.55
PC-94	10/26/2017	SWFTS-PC-94-EM05	N	EM05	540	1,300	1.4	3.1	3.80
PC-94	11/16/2017	PC-94-EM06	N	EM06	1,500	1,300	0.57 J	2.2	0.50
PC-94	12/12/2017	PC-94-EM07	N	EM07	4,300	9,300	0.68	2.1	0.19
PC-94	2/21/2018	PC-94-EM08	N	EM08	7,200	19,000	4.9	2.1	3.75
PC-94	3/27/2018	PC-94-EM09	N	EM09	6,400	16,000	4.8	1.9	2.07
PC-94	5/1/2018	PC-94-EM10	N	EM10	6,700	18,000	6.3	1.5	0.00
PC-94	7/10/2018	PC-94-EM11	N	EM11	4,200	7,200	5.6	2.0	0.10
PC-94	7/27/2018	SWFTS-PC-94-EM12	N	EM12	1,500	1,600	--	--	0.25
PC-94	8/15/2018	PC-94-EM13	N	EM13	2,600	1,800	3.2	2.2	1.53
PC-94	9/11/2018	PC-94-EM14	N	EM14	3,500	6,200	5.2	1.7	1.67
PC-94	10/11/2018	PC-94-EM15	N	EM15	3,900	10,000	8.2	1.9	0
PC-94	12/28/2018	PC-94-EM16	N	EM16	3,200	9,000	8.3	1.7	4.54
PC-94	2/27/2019	PC-94-EM17	N	EM17	3,100	6,700	6.4	1.8	0.74
PC-94	4/11/2019	PC-94-EM18	N	EM18	3,000	5,600	5.2	1.8	1.43
PC-94	5/22/2019	PC-94-EM19	N	EM19	3,600	11,000	7.6	1.7	0.05
PC-94	7/5/2019	PC-94-EM20	N	EM20	4,100	16,000	8.2	2.9	4.35
PC-94	8/12/2019	PC-94-EM21	N	EM21	4,600	16,000	7.8	2.0	1.19
PC-94	11/6/2019	PC-94-EM22	N	EM22	4,200	16,000	7.8	1.6	3.82
PC-94	12/19/2019	PC-94-EM23	N	EM23	4,000	16,000	6.3	1.7	1.78
PC-94	1/30/2020	PC-94-EM24	N	EM24	5,600	44,000	7.8	1.8	4.11
PC-94	3/10/2020	PC-94-EM25	N	EM25	7,100	27,000	8.5 J-	1.8	2.62



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**Table 2**  
**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
PC-94	4/28/2020	PC-94-EM26	N	EM26	7,400	28,000	8.2	1.5	0.31
PC-97	7/13/2017	PC-97-BL02	N	BL02	1,900	180	0.84	3.0	0.27
PC-97	9/22/2017	SWFTS-PC-97-EM01	N	EM01	2,900	360	2.1	3.0	0.39
PC-97	9/22/2017	SWFTS-PC-97-EM01-FD	FD	EM01	2,900	340	2.2	3.0	--
PC-97	9/28/2017	SWFTS-PC-97-EM02	N	EM02	2,600	370	2.1	3.6	4.28
PC-97	9/28/2017	SWFTS-PC-97-EM02-FD	FD	EM02	2,700	380	2.0	3.6	--
PC-97	10/4/2017	SWFTS-PC-97-EM03	N	EM03	2,900	460	2.6	2.7	0.19
PC-97	10/4/2017	SWFTS-PC-97-EM03-FD	FD	EM03	2,900	410	2.3	2.8	--
PC-97	10/11/2017	SWFTS-PC-97-EM04	N	EM04	2,500	400	2.5	2.7	0.48
PC-97	10/11/2017	SWFTS-PC-97-EM04-FD	FD	EM04	2,700	390	2.3	2.8	--
PC-97	10/25/2017	SWFTS-PC-97-EM05	N	EM05	3,400	390	2.9	2.8	0.39
PC-97	10/25/2017	SWFTS-PC-97-EM05-FD	FD	EM05	3,300	410	2.9	2.9	--
PC-97	11/16/2017	SWFTS-PC-97-EM06	N	EM06	1,600	190	1.8	3.2	0.48
PC-97	12/13/2017	PC-97-EM07	N	EM07	2,600	320	1.6	3.0	0.79
PC-97	12/13/2017	PC-97-EM07-FD	FD	EM07	3,000	320	1.9	3.0	--
PC-97	2/21/2018	PC-97-EM08	N	EM08	1,500	77	0.56	3.3	2.47
PC-97	3/27/2018	PC-97-EM09	N	EM09	900	<10	0.19	3.3	1.68
PC-97	5/1/2018	PC-97-EM10	N	EM10	820	<5.0	0.088 J	3.2	2.10
PC-97	7/10/2018	PC-97-EM11	N	EM11	1,700	91	0.32	3.0	3.45
PC-97	8/16/2018	PC-97-EM13	N	EM13	1,100	85	0.38 J+	3.4	2.94
PC-97	9/12/2018	PC-97-EM14	N	EM14	2,400	210	0.82	3.0	1.74
PC-97	10/11/2018	PC-97-EM15	N	EM15	1,700	160	0.71	3.4	0.71
PC-97	1/3/2019	PC-97-EM16	N	EM16	1,500	64	0.33	3.2	1.07
PC-97	2/28/2019	PC-97-EM17	N	EM17	1,300	80	0.71	3.5	0.44
PC-97	4/9/2019	PC-97-EM18	N	EM18	1,600	150	0.71 J-	3.0	0.53
PC-97	5/22/2019	PC-97-EM19	N	EM19	2,300	280	1.8	3.1	0.07
PC-97	7/5/2019	PC-97-EM20	N	EM20	2,800	360	1.9	3.7	0.41
PC-97	8/14/2019	PC-97-EM21	N	EM21	3,100	330	1.7	3.3	0.39
PC-97	11/6/2019	PC-97-EM22	N	EM22	1,800	30	1.3	2.8	0.56
PC-97	12/20/2019	PC-97-EM23	N	EM23	1,100	48 J	0.29	3.1	0.81
PC-97	1/30/2020	PC-97-EM24	N	EM24	640	<4.0	0.12 J	3.4	4.31
PC-97	3/12/2020	PC-97-EM25	N	EM25	400	<2.0	<0.11	3.2	1.65
PC-97	4/30/2020	PC-97-EM26	N	EM26	390	<10	<0.11	3.2	4.82
SWFTS-IW01A	7/11/2017	SWFTS-IW01A-BL02	N	BL02	20,000	51,000	12	--	0.55
SWFTS-IW01A	11/14/2017	SWFTS-IW01A-EM06	N	EM06	42	--	<0.55	610 J-	0.09
SWFTS-IW01A	11/14/2017	SWFTS-IW01A-EM06B	N	EM06	--	--	--	610 J-	--
SWFTS-IW01B	7/11/2017	SWFTS-IW01B-BL02	N	BL02	20,000	48,000	11	--	0.61
SWFTS-IW01B	11/14/2017	SWFTS-IW01B-EM06B	N	EM06	--	--	--	160 J-	--
SWFTS-IW01B	11/15/2017	SWFTS-IW01B-EM06	N	EM06	170	--	<0.55	220	0.17
SWFTS-IW02A	7/11/2017	SWFTS-IW02A-BL02	N	BL02	22,000	52,000	12	2.0	0.57

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Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-IW02A	11/14/2017	SWFTS-IW02A-EM06B	N	EM06	--	--	--	3,900 J-	--
SWFTS-IW02B	7/11/2017	SWFTS-IW02B-BL02	N	BL02	22,000	55,000	12	2.8	0.46
SWFTS-IW02B	11/14/2017	SWFTS-IW02B-EM06B	N	EM06	--	--	--	3,100 J-	--
SWFTS-IW03	7/11/2017	SWFTS-IW03-BL02	N	BL02	21,000	58,000	13	--	0.48
SWFTS-IW03	7/11/2017	SWFTS-IW03-BL02-FD	FD	BL02	21,000	53,000	12	--	--
SWFTS-IW03	12/11/2017	SWFTS-IW03-EM07	N	EM07	--	--	--	340 J-	--
SWFTS-IW04	7/11/2017	SWFTS-IW04-BL02	N	BL02	17,000	42,000	11	--	0.42
SWFTS-IW04	7/11/2017	SWFTS-IW04-BL02-FD	FD	BL02	16,000	42,000	12	--	--
SWFTS-IW04	12/11/2017	SWFTS-IW04-EM07	N	EM07	--	--	--	4,600 J-	--
SWFTS-IW05	7/11/2017	SWFTS-IW05-BL02	N	BL02	15,000	45,000	12	1.7	0.53
SWFTS-IW05	12/11/2017	SWFTS-IW05-EM07	N	EM07	--	--	--	3,700 J-	--
SWFTS-IW06A	7/11/2017	SWFTS-IW06A-BL02	N	BL02	15,000	46,000	12	--	2.02
SWFTS-IW06A	11/14/2017	SWFTS-IW06A-EM06B	N	EM06	--	--	--	440 J-	--
SWFTS-IW06A	11/15/2017	SWFTS-IW06A-EM06	N	EM06	230	--	<0.55	630	0.16
SWFTS-IW06B	7/11/2017	SWFTS-IW06B-BL02	N	BL02	15,000	41,000	12	--	0.38
SWFTS-IW06B	11/14/2017	SWFTS-IW06B-EM06B	N	EM06	--	--	--	600 J-	--
SWFTS-IW06B	11/15/2017	SWFTS-IW06B-EM06	N	EM06	20	--	<0.55	660	0.36
SWFTS-IW07	7/11/2017	SWFTS-IW07-BL02	N	BL02	15,000	45,000	11	--	0.55
SWFTS-IW07	12/11/2017	SWFTS-IW07-EM07	N	EM07	--	--	--	5,600 J-	--
SWFTS-IW08	7/12/2017	SWFTS-IW08-BL02	N	BL02	14,000	40,000	12	--	0.79
SWFTS-IW08	12/11/2017	SWFTS-IW08-EM07	N	EM07	--	--	--	6,700 J-	--
SWFTS-IW09	7/12/2017	SWFTS-IW09-BL02	N	BL02	11,000	48,000	12	1.7	0.47
SWFTS-IW09	7/12/2017	SWFTS-IW09-BL02-FD	FD	BL02	11,000	47,000	12	1.4	--
SWFTS-IW09	12/11/2017	SWFTS-IW09-EM07	N	EM07	--	--	--	290 J-	--
SWFTS-IW10	7/12/2017	SWFTS-IW10-BL02	N	BL02	7,800	37,000	14	--	0.30
SWFTS-IW10	12/11/2017	SWFTS-IW10-EM07	N	EM07	--	--	--	290 J-	--
SWFTS-IW11	7/12/2017	SWFTS-IW11-BL02	N	BL02	5,600	6,600	2.0	2.6	0.38
SWFTS-IW11	12/11/2017	SWFTS-IW11-EM07	N	EM07	--	--	--	1,000 J-	--
SWFTS-IW12	7/12/2017	SWFTS-IW12-BL02	N	BL02	6,200	7,800	2.5	--	0.51
SWFTS-IW12	12/11/2017	SWFTS-IW12-EM07	N	EM07	--	--	--	2,700 J-	--
SWFTS-IW13A	7/11/2017	SWFTS-IW13A-BL02	N	BL02	19,000	52,000	14	--	0.54
SWFTS-IW13A	11/14/2017	SWFTS-IW13A-EM06B	N	EM06	--	--	--	3,700 J-	--
SWFTS-IW13B	7/11/2017	SWFTS-IW13B-BL02	N	BL02	21,000	53,000	12	--	0.46
SWFTS-IW13B	11/14/2017	SWFTS-IW13B-EM06B	N	EM06	--	--	--	1,100 J-	--
SWFTS-IW14	7/12/2017	SWFTS-IW14-BL02	N	BL02	21,000	51,000	11	1.9	0.49
SWFTS-IW14	11/14/2017	SWFTS-IW14-EM06B	N	EM06	--	--	--	4,600	--
SWFTS-IW14	11/14/2017	SWFTS-IW14-EM06B-FD	FD	EM06	--	--	--	4,500 J-	--
SWFTS-IW15	7/12/2017	SWFTS-IW15-BL02	N	BL02	15,000	44,000	13	--	0.32
SWFTS-IW15	12/11/2017	SWFTS-IW15-EM07	N	EM07	--	--	--	1,300 J-	--
SWFTS-IW15	12/11/2017	SWFTS-IW15-EM07-FD	FD	EM07	--	--	--	1,300 J-	--

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 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-IW16A	7/11/2017	SWFTS-IW16A-BL02	N	BL02	17,000	45,000	11	--	0.86
SWFTS-IW16A	12/11/2017	SWFTS-IW16A-EM07	N	EM07	--	--	--	2,800 J-	--
SWFTS-IW16B	7/11/2017	SWFTS-IW16B-BL02	N	BL02	15,000	44,000	12	--	0.42
SWFTS-IW16B	12/11/2017	SWFTS-IW16B-EM07	N	EM07	--	--	--	940 J-	--
SWFTS-IW17	7/13/2017	SWFTS-IW17-BL02	N	BL02	13,000	47,000	12	1.4	0.41
SWFTS-IW17	11/14/2017	SWFTS-IW17-EM06B	N	EM06	--	--	--	6,500 J-	--
SWFTS-IW17	11/15/2017	SWFTS-IW17-EM06	N	EM06	<19	--	<1.1	7,500	0.36
SWFTS-IW18	7/13/2017	SWFTS-IW18-BL02	N	BL02	14,000	47,000	12	--	0.30
SWFTS-IW18	11/14/2017	SWFTS-IW18-EM06B	N	EM06	--	--	--	1.8	--
SWFTS-IW19	7/13/2017	SWFTS-IW19-BL02	N	BL02	6,400	57,000	16	--	3.30
SWFTS-IW19	12/11/2017	SWFTS-IW19-EM07	N	EM07	--	--	--	4,100 J-	--
SWFTS-IW20	7/12/2017	SWFTS-IW20-BL02	N	BL02	4,400	31,000	17	1.0	4.23
SWFTS-IW20	11/14/2017	SWFTS-IW20-EM06B	N	EM06	--	--	--	6,500 J-	--
SWFTS-MW01	3/29/2017	SWFTS-MW01-BL01	N	BL01	15,000	49,000	12	1.6	1.07
SWFTS-MW01	9/19/2017	SWFTS-MW01-EM01	N	EM01	2,100	39,000	<0.55	11	1.38
SWFTS-MW01	9/26/2017	SWFTS-MW01-EM02	N	EM02	4,300	10,000	1.4 J	4.3	0.23
SWFTS-MW01	10/4/2017	SWFTS-MW01-EM03	N	EM03	5,000	13,000	3.3	2.5	0.20
SWFTS-MW01	10/10/2017	SWFTS-MW01-EM04	N	EM04	5,600	15,000	3.3	2.2	0.47
SWFTS-MW01	10/25/2017	SWFTS-MW01-EM05	N	EM05	15,000	18,000	5.1	2.1	0.89
SWFTS-MW01	11/15/2017	SWFTS-MW01-EM06	N	EM06	7,900	22,000	4.9	1.9	0.81
SWFTS-MW01	12/14/2017	SWFTS-MW01-EM07	N	EM07	8,000	24,000	5.3	1.9	0.20
SWFTS-MW01	2/20/2018	SWFTS-MW01-EM08	N	EM08	3,900	12,000	3.4	2.7	2.85
SWFTS-MW01	3/27/2018	SWFTS-MW01-EM09	N	EM09	6,900	26,000	5.3	1.9	2.42
SWFTS-MW01	4/30/2018	SWFTS-MW01-EM10	N	EM10	9,400	36,000	8.9	1.4	0.15
SWFTS-MW01	7/10/2018	SWFTS-MW01-EM11	N	EM11	3,100	6,900	1.4	2.4	0.04
SWFTS-MW01	7/27/2018	SWFTS-MW01-EM12	N	EM12	5,500	28,000	--	--	0.29
SWFTS-MW01	7/27/2018	SWFTS-MW01-EM12-FD	FD	EM12	5,500	28,000	--	--	--
SWFTS-MW01	8/16/2018	SWFTS-MW01-EM13	N	EM13	6,100	34,000	6.4	2.0	0.80
SWFTS-MW01	9/10/2018	SWFTS-MW01-EM14	N	EM14	6,300	34,000	8.4	1.9	6.07
SWFTS-MW01	10/9/2018	SWFTS-MW01-EM15	N	EM15	4,700 J	24,000	7.1	2.1	0.09
SWFTS-MW01	12/27/2018	SWFTS-MW01-EM16	N	EM16	4,300	7,400	9.9	1.8	0.51
SWFTS-MW01	2/26/2019	SWFTS-MW01-EM17	N	EM17	1,300	<10	1.7	2.6	0.50
SWFTS-MW01	4/10/2019	SWFTS-MW01-EM18	N	EM18	3,800	<10	5.2	1.9	0.59
SWFTS-MW01	5/21/2019	SWFTS-MW01-EM19	N	EM19	4,100	<10	6.4	1.6	0.75
SWFTS-MW01	7/1/2019	SWFTS-MW01-EM20	N	EM20	4,100	<10	5.4	2.1	0.29
SWFTS-MW01	8/12/2019	SWFTS-MW01-EM21	N	EM21	3,800	<10	3.9	1.9	0.36
SWFTS-MW01	11/5/2019	SWFTS-MW01-EM22	N	EM22	54	<10	<0.55	2.7	0.49
SWFTS-MW01	12/18/2019	SWFTS-MW01-EM23	N	EM23	3,600	<10	3.7	1.7	0.89
SWFTS-MW01	1/29/2020	SWFTS-MW01-EM24	N	EM24	4,500	<10	5.0	2.4	4.25
SWFTS-MW01	3/11/2020	SWFTS-MW01-EM25	N	EM25	6,400	<20	4.9	2.2	2.34

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Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW01	4/28/2020	SWFTS-MW01-EM26	N	EM26	7,500	110	6.2	1.8	0.5
SWFTS-MW02	3/29/2017	SWFTS-MW02-BL01	N	BL01	25,000	58,000	11	2.2	0.33
SWFTS-MW02	9/21/2017	SWFTS-MW02-EM01	N	EM01	23,000	52,000	8.5	2.1	0.16
SWFTS-MW02	9/27/2017	SWFTS-MW02-EM02	N	EM02	23,000	47,000	9.4	2.2	0.14
SWFTS-MW02	10/4/2017	SWFTS-MW02-EM03	N	EM03	22,000	45,000	8.7	2.0	1.76
SWFTS-MW02	10/12/2017	SWFTS-MW02-EM04	N	EM04	20,000	23,000	6.2	2.3	0.25
SWFTS-MW02	10/26/2017	SWFTS-MW02-EM05	N	EM05	21,000	34,000	4.6 J-	2.5	2.11
SWFTS-MW02	11/14/2017	SWFTS-MW02-EM06	N	EM06	17,000	32,000	6.5	2.5	0.90
SWFTS-MW02	12/13/2017	SWFTS-MW02-EM07	N	EM07	19,000	38,000	6.7	2.1	0.01
SWFTS-MW02	2/19/2018	SWFTS-MW02-EM08	N	EM08	14,000	28,000	4.7	2.5	2.59
SWFTS-MW02	3/27/2018	SWFTS-MW02-EM09	N	EM09	4,400	7,400	0.80	2.5	1.76
SWFTS-MW02	4/30/2018	SWFTS-MW02-EM10	N	EM10	4,600	6,100	0.95 J	2.3	1.59
SWFTS-MW02	7/11/2018	SWFTS-MW02-EM11	N	EM11	3,700	5,100	1.7	1.9	1.86
SWFTS-MW02	7/27/2018	SWFTS-MW02-EM12	N	EM12	2,100	3,900	--	--	0.24
SWFTS-MW02	8/15/2018	SWFTS-MW02-EM13	N	EM13	1,700	2,600	0.74 J	2.5	2.35
SWFTS-MW02	9/10/2018	SWFTS-MW02-EM14	N	EM14	1,300	2,500	<0.55	2.5	5.31
SWFTS-MW02	10/10/2018	SWFTS-MW02-EM15	N	EM15	1,400	950	<1.1	3.0	0
SWFTS-MW02	12/20/2018	SWFTS-MW02-EM16	N	EM16	620	77 J	<0.55	2.4	2.95
SWFTS-MW02	2/25/2019	SWFTS-MW02-EM17	N	EM17	740	32 J	<1.1	2.5	0.33
SWFTS-MW02	4/9/2019	SWFTS-MW02-EM18	N	EM18	1,300	82 J	<1.1 UJ	2.1	0.40
SWFTS-MW02	5/21/2019	SWFTS-MW02-EM19	N	EM19	3,200	50 J	<1.1	2.3	6.97
SWFTS-MW02	7/2/2019	SWFTS-MW02-EM20	N	EM20	4,200	<4.0	<0.55	2.5	0.34
SWFTS-MW02	8/14/2019	SWFTS-MW02-EM21	N	EM21	3,900	<20	<0.28	2.4	0.36
SWFTS-MW02	11/7/2019	SWFTS-MW02-EM22	N	EM22	2,700	<10	<0.28	2.2	0.49
SWFTS-MW02	12/17/2019	SWFTS-MW02-EM23	N	EM23	6,800	2,700	2.6	1.9	0.60
SWFTS-MW02	1/28/2020	SWFTS-MW02-EM24	N	EM24	6,600	11,000	4.3	2.9	4.00
SWFTS-MW02	3/12/2020	SWFTS-MW02-EM25	N	EM25	7,500	13,000	5.6	3.2	1.4
SWFTS-MW02	4/30/2020	SWFTS-MW02-EM26	N	EM26	9,500	17,000	7.1	2.1	0.49
SWFTS-MW03	3/30/2017	SWFTS-MW03-BL01	N	BL01	9,900	47,000	13	1.6	1.64
SWFTS-MW03	3/30/2017	SWFTS-MW03-BL01-FD	FD	BL01	9,200	47,000	13	1.7	--
SWFTS-MW03	9/21/2017	SWFTS-MW03-EM01	N	EM01	<4.8	<100	<0.55	4.2	0.19
SWFTS-MW03	9/27/2017	SWFTS-MW03-EM02	N	EM02	4.8	<100	<0.55	3.0	0.11
SWFTS-MW03	10/4/2017	SWFTS-MW03-EM03	N	EM03	<0.95	<50	<0.55	2.3	1.02
SWFTS-MW03	10/12/2017	SWFTS-MW03-EM04	N	EM04	21	<100	<0.55	2.0	0.14
SWFTS-MW03	10/26/2017	SWFTS-MW03-EM05	N	EM05	990	3,200	0.73 J	2.1	1.59
SWFTS-MW03	11/16/2017	SWFTS-MW03-EM06	N	EM06	3,200	15,000	3.2	1.7	0.64
SWFTS-MW03	12/12/2017	SWFTS-MW03-EM07	N	EM07	3,700	22,000	4.3	1.8	2.21
SWFTS-MW03	2/21/2018	SWFTS-MW03-EM08	N	EM08	3,400	33,000	4.2	1.7	0.30
SWFTS-MW03	3/27/2018	SWFTS-MW03-EM09	N	EM09	4,200	27,000	6.4	1.5	0.62
SWFTS-MW03	5/2/2018	SWFTS-MW03-EM10	N	EM10	4,300	30,000	7.9	1.4	0.45

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**Table 2**  
**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW03	7/10/2018	SWFTS-MW03-EM11	N	EM11	1,300	3,000	1.3	2.3	0.79
SWFTS-MW03	7/27/2018	SWFTS-MW03-EM12	N	EM12	1,900 J+	1,800	--	--	0.23
SWFTS-MW03	8/15/2018	SWFTS-MW03-EM13	N	EM13	1,900	280 J	3.6	1.9	0.48
SWFTS-MW03	9/11/2018	SWFTS-MW03-EM14	N	EM14	2,200	<10	4.9	1.5	1.84
SWFTS-MW03	10/9/2018	SWFTS-MW03-EM15	N	EM15	2,200	<20	5.9	2.0	0
SWFTS-MW03	1/2/2019	SWFTS-MW03-EM16	N	EM16	2,500	<10	7.7	1.8	0.8
SWFTS-MW03	2/27/2019	SWFTS-MW03-EM17	N	EM17	2,700	27 J	10	1.5	0.95
SWFTS-MW03	4/10/2019	SWFTS-MW03-EM18	N	EM18	2,700	130	8.4	1.4	0.95
SWFTS-MW03	5/21/2019	SWFTS-MW03-EM19	N	EM19	2,800	150	7.7	1.4	0.57
SWFTS-MW03	7/1/2019	SWFTS-MW03-EM20	N	EM20	2,800	550	8.2	1.9	0.34
SWFTS-MW03	8/14/2019	SWFTS-MW03-EM21	N	EM21	3,000	2,700	8.5	1.8	0.40
SWFTS-MW03	11/4/2019	SWFTS-MW03-EM22	N	EM22	2,100	1,000	6.8	1.6	0.52
SWFTS-MW03	12/19/2019	SWFTS-MW03-EM23	N	EM23	2,600	770	7.7	1.5	0.95
SWFTS-MW03	1/30/2020	SWFTS-MW03-EM24	N	EM24	3,100	1,800	8.0	1.6	2.58
SWFTS-MW03	3/9/2020	SWFTS-MW03-EM25	N	EM25	3,800	4,200	7.6	1.8	2.24
SWFTS-MW03	4/28/2020	SWFTS-MW03-EM26	N	EM26	3,400	5,400	7.1	1.7	0.58
SWFTS-MW04	3/31/2017	SWFTS-MW04-BL01	N	BL01	14,000	26,000	5.5	2.3	7.02
SWFTS-MW04	9/20/2017	SWFTS-MW04-EM01	N	EM01	3,600	4,900	1.3	2.6	0.85
SWFTS-MW04	9/20/2017	SWFTS-MW04-EM01-FD	FD	EM01	3,600	4,800	1.3	2.6	--
SWFTS-MW04	9/27/2017	SWFTS-MW04-EM02	N	EM02	3,600	5,400	1.5	3.1	2.73
SWFTS-MW04	9/27/2017	SWFTS-MW04-EM02-FD	FD	EM02	3,500	5,400	1.5	3.1	--
SWFTS-MW04	10/4/2017	SWFTS-MW04-EM03	N	EM03	4,000	4,700	1.5	2.7	0.11
SWFTS-MW04	10/4/2017	SWFTS-MW04-EM03-FD	FD	EM03	3,900	4,700	1.9	2.6	--
SWFTS-MW04	10/11/2017	SWFTS-MW04-EM04	N	EM04	2,900	3,900	1.3	2.7	1.39
SWFTS-MW04	10/24/2017	SWFTS-MW04-EM05	N	EM05	3,600	4,200	1.4	2.9	0.28
SWFTS-MW04	10/24/2017	SWFTS-MW04-EM05-FD	FD	EM05	3,500	4,200	1.5	3.0	--
SWFTS-MW04	11/15/2017	SWFTS-MW04-EM06	N	EM06	3,500	3,400	1.6	3.0	0.89
SWFTS-MW04	12/14/2017	SWFTS-MW04-EM07	N	EM07	4,000	4,700	1.8	2.9	0.45
SWFTS-MW04	2/21/2018	SWFTS-MW04-EM08	N	EM08	5,200	8,000	2.4	2.7	0.37
SWFTS-MW04	3/27/2018	SWFTS-MW04-EM09	N	EM09	6,100	14,000	3.5	2.5	0.43
SWFTS-MW04	5/1/2018	SWFTS-MW04-EM10	N	EM10	4,100	3,700	1.4	2.8	2.80
SWFTS-MW04	7/10/2018	SWFTS-MW04-EM11	N	EM11	6,400	15,000	4.5	2.5	0.00
SWFTS-MW04	8/16/2018	SWFTS-MW04-EM13	N	EM13	3,100	8,700	1.9 J+	2.9	0.91
SWFTS-MW04	9/12/2018	SWFTS-MW04-EM14	N	EM14	4,000	9,100	2.6	2.9	2.64
SWFTS-MW04	10/11/2018	SWFTS-MW04-EM15	N	EM15	3,400	8,300	2.0	3.0	0.84
SWFTS-MW04	1/3/2019	SWFTS-MW04-EM16	N	EM16	3,500	6,900	1.6	3.1	1.11
SWFTS-MW04	3/1/2019	SWFTS-MW04-EM17	N	EM17	3,500 J+	8,900	2.6	2.9	0.55
SWFTS-MW04	4/9/2019	SWFTS-MW04-EM18	N	EM18	3,100	7,500	2.3 J-	2.8	0.70
SWFTS-MW04	5/21/2019	SWFTS-MW04-EM19	N	EM19	2,400	5,300	1.2	3.0	0.05
SWFTS-MW04	7/5/2019	SWFTS-MW04-EM20	N	EM20	2,100	4,000	1.2	3.7	0.40

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**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW04	8/14/2019	SWFTS-MW04-EM21	N	EM21	3,300	5,400	1.7	3.4	0.39
SWFTS-MW04	11/7/2019	SWFTS-MW04-EM22	N	EM22	2,600	4,900	1.9	2.9	0.36
SWFTS-MW04	12/19/2019	SWFTS-MW04-EM23	N	EM23	4,200	9,600	2.3	2.8	0.89
SWFTS-MW04	1/29/2020	SWFTS-MW04-EM24	N	EM24	9,400	26,000	7.1	2.7	2.89
SWFTS-MW04	3/12/2020	SWFTS-MW04-EM25	N	EM25	9,100	24,000	6.6	2.5	1.64
SWFTS-MW04	5/1/2020	SWFTS-MW04-EM26	N	EM26	12,000	29,000	7.1	2.2	0.11
SWFTS-MW05A	3/30/2017	SWFTS-MW05A-BL01	N	BL01	7,400	67,000	18	1.4	4.28
SWFTS-MW05A	9/20/2017	SWFTS-MW05A-EM01	N	EM01	5,700	51,000	17	1.1	4.18
SWFTS-MW05A	9/27/2017	SWFTS-MW05A-EM02	N	EM02	5,600	44,000	18	1.2	3.30
SWFTS-MW05A	10/3/2017	SWFTS-MW05A-EM03	N	EM03	5,800	46,000	16	0.80 J	5.46
SWFTS-MW05A	10/10/2017	SWFTS-MW05A-EM04	N	EM04	5,600	44,000	16	1.3	3.41
SWFTS-MW05A	10/23/2017	SWFTS-MW05A-EM05	N	EM05	4,700	43,000	15	1.3	2.96
SWFTS-MW05A	11/14/2017	SWFTS-MW05A-EM06	N	EM06	5,500	38,000	16	1.4	2.27
SWFTS-MW05A	12/13/2017	SWFTS-MW05A-EM07	N	EM07	5,300	43,000	17	1.3	2.10
SWFTS-MW05A	2/20/2018	SWFTS-MW05A-EM08	N	EM08	6,400	53,000	18	1.4	2.78
SWFTS-MW05A	3/26/2018	SWFTS-MW05A-EM09	N	EM09	6,600	58,000	16	1.1	0.99
SWFTS-MW05A	4/30/2018	SWFTS-MW05A-EM10	N	EM10	6,400 J	55,000	17	1.0	2.16
SWFTS-MW05A	7/11/2018	SWFTS-MW05A-EM11	N	EM11	5,200	46,000	15	0.87 J	2.65
SWFTS-MW05A	7/27/2018	SWFTS-MW05A-EM12	N	EM12	4,300	41,000	--	--	3.46
SWFTS-MW05A	8/14/2018	SWFTS-MW05A-EM13	N	EM13	3,600	35,000	10 J+	1.5	0.93
SWFTS-MW05A	9/11/2018	SWFTS-MW05A-EM14	N	EM14	3,400	30,000	9.5	1.2	2.59
SWFTS-MW05A	10/10/2018	SWFTS-MW05A-EM15	N	EM15	4,200	34,000	12	1.3	2.08
SWFTS-MW05A	12/20/2018	SWFTS-MW05A-EM16	N	EM16	5,000	21,000	16	1.3	0.68
SWFTS-MW05A	2/27/2019	SWFTS-MW05A-EM17	N	EM17	4,300	10,000	17	1.5	0.51
SWFTS-MW05A	4/10/2019	SWFTS-MW05A-EM18	N	EM18	3,100	56 J	13	1.5	0.70
SWFTS-MW05A	5/21/2019	SWFTS-MW05A-EM19	N	EM19	2,600	17 J	13	1.6	0.65
SWFTS-MW05A	7/1/2019	SWFTS-MW05A-EM20	N	EM20	2,700	<20	14	1.7	0.44
SWFTS-MW05A	8/13/2019	SWFTS-MW05A-EM21	N	EM21	3,100	33 J	13	1.9	0.3
SWFTS-MW05A	11/5/2019	SWFTS-MW05A-EM22	N	EM22	3,600 J+	30 J	14	1.8	0.60
SWFTS-MW05A	12/18/2019	SWFTS-MW05A-EM23	N	EM23	3,400	<10	12	1.3	0.83
SWFTS-MW05A	1/29/2020	SWFTS-MW05A-EM24	N	EM24	3,800	110	14	1.4	2.55
SWFTS-MW05A	3/11/2020	SWFTS-MW05A-EM25	N	EM25	3,900	28 J	13 J-	1.8	2.24
SWFTS-MW05A	4/29/2020	SWFTS-MW05A-EM26	N	EM26	3,700	<20	13	1.4	0.57
SWFTS-MW05B	3/30/2017	SWFTS-MW05B-BL01	N	BL01	7,200	48,000	13	1.5	0.70
SWFTS-MW05B	9/22/2017	SWFTS-MW05B-EM01	N	EM01	190	300	<0.55	39	0.24
SWFTS-MW05B	9/27/2017	SWFTS-MW05B-EM02	N	EM02	<0.95	<50	<0.55	57	0.10
SWFTS-MW05B	10/3/2017	SWFTS-MW05B-EM03	N	EM03	8.3	<50	<0.55	90	0.10
SWFTS-MW05B	10/10/2017	SWFTS-MW05B-EM04	N	EM04	<0.95	<100	<0.55	100	0.08
SWFTS-MW05B	10/23/2017	SWFTS-MW05B-EM05	N	EM05	<0.95	<100	<0.55	68	0.34
SWFTS-MW05B	11/14/2017	SWFTS-MW05B-EM06	N	EM06	<0.95	16 J	<0.55	3.2	0.46

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 Seep Well Field Area Bioremediation Treatability Study

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SWFTS-MW05B	12/13/2017	SWFTS-MW05B-EM07	N	EM07	990	5,300	0.36 J	2.3	0.30
SWFTS-MW05B	2/20/2018	SWFTS-MW05B-EM08	N	EM08	2,000	11,000	4.2	2.2	0.34
SWFTS-MW05B	3/26/2018	SWFTS-MW05B-EM09	N	EM09	2,600	18,000	4.6	1.7	0.49
SWFTS-MW05B	4/30/2018	SWFTS-MW05B-EM10	N	EM10	2,600	18,000	5.4	1.9	0.00
SWFTS-MW05B	7/10/2018	SWFTS-MW05B-EM11	N	EM11	190	1,500	0.66 J-	2.4	1.45
SWFTS-MW05B	7/27/2018	SWFTS-MW05B-EM12	N	EM12	240	1,600	--	--	4.21
SWFTS-MW05B	8/14/2018	SWFTS-MW05B-EM13	N	EM13	420	2,000	<0.55	2.5	0.80
SWFTS-MW05B	9/11/2018	SWFTS-MW05B-EM14	N	EM14	860	4,800	1.3	1.9	2.37
SWFTS-MW05B	10/9/2018	SWFTS-MW05B-EM15	N	EM15	1,400	8,700	2.5	2.3	0
SWFTS-MW05B	12/20/2018	SWFTS-MW05B-EM16	N	EM16	2,100	8,000	4.7	2.1	0.62
SWFTS-MW05B	2/27/2019	SWFTS-MW05B-EM17	N	EM17	910	240	3.8	2.1	0.61
SWFTS-MW05B	4/10/2019	SWFTS-MW05B-EM18	N	EM18	1,200	19 J	3.3	2.0	0.63
SWFTS-MW05B	5/21/2019	SWFTS-MW05B-EM19	N	EM19	1,200	<4.0	4.3	1.9	0.81
SWFTS-MW05B	7/1/2019	SWFTS-MW05B-EM20	N	EM20	1,400	<10	4.8	2.4	0.21
SWFTS-MW05B	8/13/2019	SWFTS-MW05B-EM21	N	EM21	1,600	<10	4.8	2.3	0.38
SWFTS-MW05B	11/5/2019	SWFTS-MW05B-EM22	N	EM22	790	13 J	1.6 J	2.3	0.48
SWFTS-MW05B	12/18/2019	SWFTS-MW05B-EM23	N	EM23	1,200	<10	3.4	1.9	0.72
SWFTS-MW05B	1/29/2020	SWFTS-MW05B-EM24	N	EM24	1,900	37 J	5.0	2.0	2.43
SWFTS-MW05B	3/11/2020	SWFTS-MW05B-EM25	N	EM25	1,800	<20	4.9 J-	1.7	2.15
SWFTS-MW05B	4/29/2020	SWFTS-MW05B-EM26	N	EM26	1,800	<10	6.1	2.0	0.65
SWFTS-MW06A	3/30/2017	SWFTS-MW06A-BL01	N	BL01	170	<10	<0.11	3.6	0.38
SWFTS-MW06A	9/21/2017	SWFTS-MW06A-EM01	N	EM01	2,400	220	1.5	3.0	0.16
SWFTS-MW06A	9/27/2017	SWFTS-MW06A-EM02	N	EM02	2,600	320	1.7	3.3	0.30
SWFTS-MW06A	10/3/2017	SWFTS-MW06A-EM03	N	EM03	2,700	300	2.0 J-	2.8	0.12
SWFTS-MW06A	10/11/2017	SWFTS-MW06A-EM04	N	EM04	5,500	1,100	1.9	3.0	0.37
SWFTS-MW06A	10/23/2017	SWFTS-MW06A-EM05	N	EM05	2,300	350	1.9	3.3	2.52
SWFTS-MW06A	11/16/2017	SWFTS-MW06A-EM06	N	EM06	3,300	380	2.5	2.8	0.42
SWFTS-MW06A	12/13/2017	SWFTS-MW06A-EM07	N	EM07	3,600	520	2.6	2.7	0.17
SWFTS-MW06A	2/22/2018	SWFTS-MW06A-EM08	N	EM08	1,800	200	0.88	3.4	0.37
SWFTS-MW06A	3/28/2018	SWFTS-MW06A-EM09	N	EM09	1,500	77	0.36	3.1	0.44
SWFTS-MW06A	5/1/2018	SWFTS-MW06A-EM10	N	EM10	760 J	10 J	0.11	3.1	0.27
SWFTS-MW06A	5/1/2018	SWFTS-MW06A-EM10-FD	FD	EM10	880	13 J	0.11	3.1	--
SWFTS-MW06A	7/11/2018	SWFTS-MW06A-EM11	N	EM11	830	21	0.11 J	2.9	2.40
SWFTS-MW06A	7/11/2018	SWFTS-MW06A-EM11-FD	FD	EM11	840	20	<0.11	2.9	--
SWFTS-MW06A	8/14/2018	SWFTS-MW06A-EM13	N	EM13	1,500	96	0.28	3.4	0.69
SWFTS-MW06A	8/14/2018	SWFTS-MW06A-EM13-FD	FD	EM13	1,500	95	0.29	3.3	--
SWFTS-MW06A	9/11/2018	SWFTS-MW06A-EM14	N	EM14	1,700	150	0.42	3.4	0.49
SWFTS-MW06A	9/11/2018	SWFTS-MW06A-EM14-FD	FD	EM14	1,600	140	0.43	3.3	--
SWFTS-MW06A	10/10/2018	SWFTS-MW06A-EM15	N	EM15	2,400	210	0.84	3.5	0.2
SWFTS-MW06A	10/10/2018	SWFTS-MW06A-EM15-FD	FD	EM15	2,100	210	0.79	3.6	--

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Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW06A	12/28/2018	SWFTS-MW06A-EM16	N	EM16	1,700	760	0.41	3.6	0.98
SWFTS-MW06A	12/28/2018	SWFTS-MW06A-EM16-FD	FD	EM16	1,600	760	0.42	3.5	--
SWFTS-MW06A	2/27/2019	SWFTS-MW06A-EM17	N	EM17	1,600	93	0.42	3.1	0.05
SWFTS-MW06A	2/27/2019	SWFTS-MW06A-EM17-FD	FD	EM17	1,500	95	0.43	3.1	--
SWFTS-MW06A	4/10/2019	SWFTS-MW06A-EM18	N	EM18	1,500	120	0.60	3.4	0.61
SWFTS-MW06A	4/10/2019	SWFTS-MW06A-EM18-FD	FD	EM18	1,500	120	0.59	3.3	--
SWFTS-MW06A	5/20/2019	SWFTS-MW06A-EM19	N	EM19	1,800	170	1.0	3.0	0.09
SWFTS-MW06A	5/20/2019	SWFTS-MW06A-EM19-FD	FD	EM19	1,800	160	0.86	3.2	--
SWFTS-MW06A	7/1/2019	SWFTS-MW06A-EM20	N	EM20	2,500	350 J	1.3	3.6	0.40
SWFTS-MW06A	7/1/2019	SWFTS-MW06A-EM20-FD	FD	EM20	2,800	310 J	1.2	3.7	--
SWFTS-MW06A	8/14/2019	SWFTS-MW06A-EM21	N	EM21	3,200	390	1.7	3.7	0.37
SWFTS-MW06A	8/14/2019	SWFTS-MW06A-EM21-FD	FD	EM21	3,300	380	1.7	3.2	--
SWFTS-MW06A	11/6/2019	SWFTS-MW06A-EM22	N	EM22	2,500	330	1.3	3.3	0.62
SWFTS-MW06A	11/6/2019	SWFTS-MW06A-EM22-FD	FD	EM22	2,600	320	1.3	3.2	--
SWFTS-MW06A	12/19/2019	SWFTS-MW06A-EM23	N	EM23	1,900	180	0.77	3.0	0.80
SWFTS-MW06A	12/19/2019	SWFTS-MW06A-EM23-FD	FD	EM23	1,900	190	0.77	2.8	--
SWFTS-MW06A	1/29/2020	SWFTS-MW06A-EM24	N	EM24	1,100	51 J	0.26	3.2	4.31
SWFTS-MW06A	1/29/2020	SWFTS-MW06A-EM24-FD	FD	EM24	1,100	53 J	0.26	3.2	--
SWFTS-MW06A	3/11/2020	SWFTS-MW06A-EM25	N	EM25	580	<4.0	<0.11	3.3	2.6
SWFTS-MW06A	3/11/2020	SWFTS-MW06A-EM25-FD	FD	EM25	600	<4.0	<0.11	3.3	--
SWFTS-MW06A	4/29/2020	SWFTS-MW06A-EM26	N	EM26	350	<10	<0.11	3.1	0.84
SWFTS-MW06A	4/29/2020	SWFTS-MW06A-EM26-FD	FD	EM26	360	<10	<0.11	3.2	--
SWFTS-MW06B	3/30/2017	SWFTS-MW06B-BL01	N	BL01	1,000	490	0.13 J	3.5	0.06
SWFTS-MW06B	9/21/2017	SWFTS-MW06B-EM01	N	EM01	2,000	350	0.70	2.8	0.18
SWFTS-MW06B	9/27/2017	SWFTS-MW06B-EM02	N	EM02	2,000	360	0.76	3.3	0.78
SWFTS-MW06B	10/3/2017	SWFTS-MW06B-EM03	N	EM03	2,500	340	1.0	2.8	0.11
SWFTS-MW06B	10/11/2017	SWFTS-MW6B-EM04	N	EM04	4,400	380	1.1	3.1	0.45
SWFTS-MW06B	10/23/2017	SWFTS-MW06B-EM05	N	EM05	2,000	390	1.3	3.1	1.14
SWFTS-MW06B	11/16/2017	SWFTS-MW06B-EM06	N	EM06	2,800	400	1.8	2.9	0.44
SWFTS-MW06B	12/13/2017	SWFTS-MW06B-EM07	N	EM07	3,200	590	2.2	2.9	0.91
SWFTS-MW06B	2/22/2018	SWFTS-MW06B-EM08	N	EM08	2,900	480	1.9	3.1	0.47
SWFTS-MW06B	3/28/2018	SWFTS-MW06B-EM09	N	EM09	2,500	370	1.1	2.8	0.59
SWFTS-MW06B	5/1/2018	SWFTS-MW06B-EM10	N	EM10	1,800	270	0.56	2.9	1.31
SWFTS-MW06B	7/11/2018	SWFTS-MW06B-EM11	N	EM11	880	140	0.18 J	2.9	2.05
SWFTS-MW06B	8/14/2018	SWFTS-MW06B-EM13	N	EM13	1,200	170	0.14	3.8	0.57
SWFTS-MW06B	9/11/2018	SWFTS-MW06B-EM14	N	EM14	1,700	230	0.23	3.3	0.71
SWFTS-MW06B	10/10/2018	SWFTS-MW06B-EM15	N	EM15	1,700	260	0.36 J	4.1	0.17
SWFTS-MW06B	12/28/2018	SWFTS-MW06B-EM16	N	EM16	1,900	270	0.66	3.1	0.7
SWFTS-MW06B	2/28/2019	SWFTS-MW06B-EM17	N	EM17	1,600	230	0.53	3.2	0.45
SWFTS-MW06B	4/10/2019	SWFTS-MW06B-EM18	N	EM18	1,600	210	1.2	3.4	0.54



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**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW06B	5/21/2019	SWFTS-MW06B-EM19	N	EM19	1,700	220	0.43	3.7	0.09
SWFTS-MW06B	7/1/2019	SWFTS-MW06B-EM20	N	EM20	2,100	340	0.73	3.6	0.43
SWFTS-MW06B	8/14/2019	SWFTS-MW06B-EM21	N	EM21	2,900	420	1.4	3.2	0.39
SWFTS-MW06B	11/6/2019	SWFTS-MW06B-EM22	N	EM22	3,000	530	1.6	<0.65	0.59
SWFTS-MW06B	12/19/2019	SWFTS-MW06B-EM23	N	EM23	2,500	410	1.0	2.9	0.82
SWFTS-MW06B	1/29/2020	SWFTS-MW06B-EM24	N	EM24	1,900	290	0.72	3.4	3.56
SWFTS-MW06B	3/11/2020	SWFTS-MW06B-EM25	N	EM25	1,300	150	0.32	2.8	1.54
SWFTS-MW06B	4/29/2020	SWFTS-MW06B-EM26	N	EM26	690	70	<0.11	3.0	0.73
SWFTS-MW07A	3/30/2017	SWFTS-MW07A-BL01	N	BL01	14,000	44,000	11	2.1	0.16
SWFTS-MW07A	9/20/2017	SWFTS-MW07A-EM01	N	EM01	14,000	41,000	11	2.0	0.20
SWFTS-MW07A	9/26/2017	SWFTS-MW07A-EM02	N	EM02	15,000	36,000	11	2.3	0.49
SWFTS-MW07A	10/3/2017	SWFTS-MW07A-EM03	N	EM03	16,000	37,000	10	2.1	0.22
SWFTS-MW07A	10/11/2017	SWFTS-MW07A-EM04	N	EM04	12,000	39,000	12	2.0	0.11
SWFTS-MW07A	10/24/2017	SWFTS-MW07A-EM05	N	EM05	14,000	38,000	10	2.3	0.43
SWFTS-MW07A	11/15/2017	SWFTS-MW07A-EM06	N	EM06	16,000	40,000	12	2.1	0.35
SWFTS-MW07A	12/14/2017	SWFTS-MW07A-EM07	N	EM07	14,000	35,000	11	2.1	-0.02 E
SWFTS-MW07A	2/19/2018	SWFTS-MW07A-EM08	N	EM08	12,000	36,000	12	2.2	0.72
SWFTS-MW07A	3/28/2018	SWFTS-MW07A-EM09	N	EM09	11,000	36,000	12	1.8	3.29
SWFTS-MW07A	5/2/2018	SWFTS-MW07A-EM10	N	EM10	11,000	40,000	13	1.7	1.02
SWFTS-MW07A	7/11/2018	SWFTS-MW07A-EM11	N	EM11	11,000	44,000	14	1.6	1.42
SWFTS-MW07A	8/16/2018	SWFTS-MW07A-EM13	N	EM13	8,600	76,000	15	2.0	0.58
SWFTS-MW07A	9/12/2018	SWFTS-MW07A-EM14	N	EM14	9,500	42,000	17	1.8	1.30
SWFTS-MW07A	10/10/2018	SWFTS-MW07A-EM15	N	EM15	9,300	40,000	17	2.1	0.08
SWFTS-MW07A	1/2/2019	SWFTS-MW07A-EM16	N	EM16	8,100	35,000	15	1.8	0.99
SWFTS-MW07A	2/28/2019	SWFTS-MW07A-EM17	N	EM17	7,300	34,000	15	2.5	0.62
SWFTS-MW07A	4/12/2019	SWFTS-MW07A-EM18	N	EM18	7,600	36,000	16	1.7	0.72
SWFTS-MW07A	5/22/2019	SWFTS-MW07A-EM19	N	EM19	6,800	35,000	15	1.9	1.03
SWFTS-MW07A	7/3/2019	SWFTS-MW07A-EM20	N	EM20	7,800	36,000	14	2.2	0.41
SWFTS-MW07A	8/15/2019	SWFTS-MW07A-EM21	N	EM21	8,500	38,000	15	2.1	0.43
SWFTS-MW07A	11/7/2019	SWFTS-MW07A-EM22	N	EM22	7,900	35,000	13	1.8	0.62
SWFTS-MW07A	12/20/2019	SWFTS-MW07A-EM23	N	EM23	8,900	35,000	13	1.8	0.73
SWFTS-MW07A	1/28/2020	SWFTS-MW07A-EM24	N	EM24	9,000	39,000	14 J-	1.8	0.59
SWFTS-MW07A	3/12/2020	SWFTS-MW07A-EM25	N	EM25	12,000	44,000	13 J-	2.0	2.25
SWFTS-MW07A	4/30/2020	SWFTS-MW07A-EM26	N	EM26	12,000	35,000	13	1.9	0.3
SWFTS-MW07B	3/30/2017	SWFTS-MW07B-BL01	N	BL01	13,000	40,000	11	2.0	1.29
SWFTS-MW07B	9/20/2017	SWFTS-MW07B-EM01	N	EM01	10,000	33,000	9.0	1.8	0.35
SWFTS-MW07B	9/26/2017	SWFTS-MW07B-EM02	N	EM02	11,000	29,000	10	2.2	0.60
SWFTS-MW07B	10/3/2017	SWFTS-MW07B-EM03	N	EM03	9,400	28,000	9.9	1.6	1.38
SWFTS-MW07B	10/11/2017	SWFTS-MW07B-EM04	N	EM04	8,400	28,000	11	1.7	0.13
SWFTS-MW07B	10/24/2017	SWFTS-MW07B-EM05	N	EM05	9,300	29,000	11	1.2	0.33

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**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW07B	11/15/2017	SWFTS-MW07B-EM06	N	EM06	9,700	29,000	12	2.0	0.42
SWFTS-MW07B	12/14/2017	SWFTS-MW07B-EM07	N	EM07	9,400	30,000	12	1.9	-0.09 E
SWFTS-MW07B	2/19/2018	SWFTS-MW07B-EM08	N	EM08	9,700	37,000	14	2.2	1.23
SWFTS-MW07B	3/28/2018	SWFTS-MW07B-EM09	N	EM09	11,000	47,000	16	1.7	0.30
SWFTS-MW07B	5/2/2018	SWFTS-MW07B-EM10	N	EM10	9,100	34,000	13	1.9	4.67
SWFTS-MW07B	7/11/2018	SWFTS-MW07B-EM11	N	EM11	8,300	43,000	16	1.7	1.60
SWFTS-MW07B	8/16/2018	SWFTS-MW07B-EM13	N	EM13	6,500	44,000	17	2.0	0.49
SWFTS-MW07B	9/12/2018	SWFTS-MW07B-EM14	N	EM14	6,200	31,000	17	1.8	1.69
SWFTS-MW07B	10/10/2018	SWFTS-MW07B-EM15	N	EM15	5,700	28,000	16	1.8	0.09
SWFTS-MW07B	1/3/2019	SWFTS-MW07B-EM16	N	EM16	6,100	32,000	13	1.6	1.35
SWFTS-MW07B	2/28/2019	SWFTS-MW07B-EM17	N	EM17	6,700	40,000	15	2.3	0.40
SWFTS-MW07B	4/12/2019	SWFTS-MW07B-EM18	N	EM18	7,500	39,000	14	1.6	0.52
SWFTS-MW07B	5/22/2019	SWFTS-MW07B-EM19	N	EM19	7,600	37,000	14	1.4	0.87
SWFTS-MW07B	7/3/2019	SWFTS-MW07B-EM20	N	EM20	6,500	30,000	13	2.1	0.47
SWFTS-MW07B	8/15/2019	SWFTS-MW07B-EM21	N	EM21	7,200	33,000	13	2.0	0.42
SWFTS-MW07B	11/7/2019	SWFTS-MW07B-EM22	N	EM22	6,400	33,000	12	1.6	0.59
SWFTS-MW07B	12/20/2019	SWFTS-MW07B-EM23	N	EM23	9,800	38,000	13	1.4	0.81
SWFTS-MW07B	1/28/2020	SWFTS-MW07B-EM24	N	EM24	12,000	47,000	14	2.1	0.55
SWFTS-MW07B	3/12/2020	SWFTS-MW07B-EM25	N	EM25	14,000	46,000	13 J-	2.0	2.3
SWFTS-MW07B	4/30/2020	SWFTS-MW07B-EM26	N	EM26	10,000	41,000	12	1.7	0.49
SWFTS-MW08A	3/30/2017	SWFTS-MW08A-BL01	N	BL01	14,000	20,000	11	1.5	0.25
SWFTS-MW08A	9/20/2017	SWFTS-MW08A-EM01	N	EM01	10,000	47,000	12	1.4	0.41
SWFTS-MW08A	9/20/2017	SWFTS-MW08A-EM01-FD	FD	EM01	10,000	46,000	13	1.4	--
SWFTS-MW08A	9/26/2017	SWFTS-MW08A-EM02	N	EM02	9,800	40,000	12	1.7	0.27
SWFTS-MW08A	9/26/2017	SWFTS-MW08A-EM02-FD	FD	EM02	10,000	42,000	12	1.8	--
SWFTS-MW08A	10/5/2017	SWFTS-MW08A-EM03	N	EM03	7,800	42,000	14	1.6	4.16
SWFTS-MW08A	10/5/2017	SWFTS-MW08A-EM03-FD	FD	EM03	9,800	49,000	12	2.0	--
SWFTS-MW08A	10/10/2017	SWFTS-MW08A-EM04	N	EM04	9,500	43,000	12	1.6	44.01 E
SWFTS-MW08A	10/23/2017	SWFTS-MW08A-EM05	N	EM05	8,100	41,000	14	1.8	1.49
SWFTS-MW08A	10/23/2017	SWFTS-MW08A-EM05-FD	FD	EM05	8,100	40,000	12	1.8	--
SWFTS-MW08A	11/15/2017	SWFTS-MW08A-EM06	N	EM06	9,000	43,000	14	1.6	0.60
SWFTS-MW08A	12/14/2017	SWFTS-MW08A-EM07	N	EM07	8,900	45,000	14	1.6	0.11
SWFTS-MW08A	2/22/2018	SWFTS-MW08A-EM08	N	EM08	9,500	54,000	14	1.9	5.05
SWFTS-MW08A	3/29/2018	SWFTS-MW08A-EM09	N	EM09	9,100	59,000	15	1.5	2.61
SWFTS-MW08A	5/3/2018	SWFTS-MW08A-EM10	N	EM10	9,100	55,000	17	1.5	0.37
SWFTS-MW08A	7/11/2018	SWFTS-MW08A-EM11	N	EM11	7,500	63,000	15	1.3	1.54
SWFTS-MW08A	8/16/2018	SWFTS-MW08A-EM13	N	EM13	5,500	47,000	15	1.8	0.63
SWFTS-MW08A	9/12/2018	SWFTS-MW08A-EM14	N	EM14	5,600	43,000	15	1.6	0.77
SWFTS-MW08A	10/10/2018	SWFTS-MW08A-EM15	N	EM15	5,500	42,000	15	1.8	0.09
SWFTS-MW08A	1/2/2019	SWFTS-MW08A-EM16	N	EM16	7,200	45,000	15	2.0	1.23

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 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW08A	2/28/2019	SWFTS-MW08A-EM17	N	EM17	7,500	53,000	16	1.7	0.40
SWFTS-MW08A	4/12/2019	SWFTS-MW08A-EM18	N	EM18	7,100	50,000	15	1.4	0.74
SWFTS-MW08A	5/22/2019	SWFTS-MW08A-EM19	N	EM19	7,600	46,000	14	1.5	1.30
SWFTS-MW08A	7/1/2019	SWFTS-MW08A-EM20	N	EM20	6,700	44,000	14	1.9	0.55
SWFTS-MW08A	8/15/2019	SWFTS-MW08A-EM21	N	EM21	6,500	41,000	12	1.9	0.45
SWFTS-MW08A	11/7/2019	SWFTS-MW08A-EM22	N	EM22	6,400	17,000	13	1.5	0.76
SWFTS-MW08A	12/19/2019	SWFTS-MW08A-EM23	N	EM23	9,100	49,000	13	1.3	1.09
SWFTS-MW08A	1/28/2020	SWFTS-MW08A-EM24	N	EM24	11,000	57,000	15 J-	1.6	0.76
SWFTS-MW08A	3/12/2020	SWFTS-MW08A-EM25	N	EM25	14,000	58,000	14 J-	1.5	2.52
SWFTS-MW08A	4/29/2020	SWFTS-MW08A-EM26	N	EM26	12,000	51,000	14	1.4	0.73
SWFTS-MW08C	3/28/2017	SWFTS-MW08C-BL01	N	BL01	7,800	55,000	13	1.3	0.08
SWFTS-MW08C	12/14/2017	SWFTS-MW08C-EM07	N	EM07	9,300	50,000	13	1.1	-0.06 E
SWFTS-MW08C	4/29/2020	SWFTS-MW08C-EM26	N	EM26	8,800	52,000	--	--	2.1
SWFTS-MW09A	3/29/2017	SWFTS-MW09A-BL01	N	BL01	14,000	50,000	13	1.6	0.33
SWFTS-MW09A	9/21/2017	SWFTS-MW09A-EM01	N	EM01	3,400	1,200	<0.55	51	0.57
SWFTS-MW09A	9/28/2017	SWFTS-MW09A-EM02	N	EM02	54	<100	<0.55	40	0.26
SWFTS-MW09A	10/4/2017	SWFTS-MW09A-EM03	N	EM03	420	200	<0.55	22	4.54
SWFTS-MW09A	10/11/2017	SWFTS-MW09A-EM04	N	EM04	8.4 J+	55	<0.55	7.5	0.12
SWFTS-MW09A	10/25/2017	SWFTS-MW09A-EM05	N	EM05	1,300	1,700	<0.55	2.9	0.31
SWFTS-MW09A	11/16/2017	SWFTS-MW09A-EM06	N	EM06	3,400	8,400	1.2	2.1	1.88
SWFTS-MW09A	12/12/2017	SWFTS-MW09A-EM07	N	EM07	5,400	16,000	2.7	2.1	0.29
SWFTS-MW09A	2/20/2018	SWFTS-MW09A-EM08	N	EM08	6,800	16,000	5.3	2.1	4.16
SWFTS-MW09A	3/27/2018	SWFTS-MW09A-EM09	N	EM09	6,700	18,000	6.4	1.8	2.12
SWFTS-MW09A	5/1/2018	SWFTS-MW09A-EM10	N	EM10	7,300	19,000	8.0	1.6	0.00
SWFTS-MW09A	7/12/2018	SWFTS-MW09A-EM11	N	EM11	2,800	2,700	3.1	2.0	1.86
SWFTS-MW09A	7/27/2018	SWFTS-MW09A-EM12	N	EM12	1,900	1,600	--	--	5.97
SWFTS-MW09A	8/14/2018	SWFTS-MW09A-EM13	N	EM13	7,200	7,600	4.5	2.2	2.83
SWFTS-MW09A	9/11/2018	SWFTS-MW09A-EM14	N	EM14	4,000	13,000	6.5	1.7	1.72
SWFTS-MW09A	10/9/2018	SWFTS-MW09A-EM15	N	EM15	4,600	15,000	7.7	2.0	1.3
SWFTS-MW09A	12/27/2018	SWFTS-MW09A-EM16	N	EM16	3,600	14,000	9.1	1.8	0.83
SWFTS-MW09A	2/26/2019	SWFTS-MW09A-EM17	N	EM17	2,400	5,600	3.8	2.1	0.43
SWFTS-MW09A	4/10/2019	SWFTS-MW09A-EM18	N	EM18	3,500	12,000	6.0	1.8	0.72
SWFTS-MW09A	5/22/2019	SWFTS-MW09A-EM19	N	EM19	2,900	6,000	6.6	1.8	0.47
SWFTS-MW09A	7/2/2019	SWFTS-MW09A-EM20	N	EM20	3,500	13,000	6.5	2.2	0.45
SWFTS-MW09A	8/12/2019	SWFTS-MW09A-EM21	N	EM21	4,800	20,000	8.0	1.8	0.44
SWFTS-MW09A	11/5/2019	SWFTS-MW09A-EM22	N	EM22	2,500	8,400	3.6	2.0	0.70
SWFTS-MW09A	12/18/2019	SWFTS-MW09A-EM23	N	EM23	5,400	20,000	6.9 J+	1.7	0.76
SWFTS-MW09A	1/28/2020	SWFTS-MW09A-EM24	N	EM24	5,700	25,000	7.6 J-	1.8	0.84
SWFTS-MW09A	3/10/2020	SWFTS-MW09A-EM25	N	EM25	7,100	27,000	7.5 J-	1.7	2.34
SWFTS-MW09A	4/28/2020	SWFTS-MW09A-EM26	N	EM26	7,500	28,000	8.2	1.6	0.36

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**Table 2**  
**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW09B	3/29/2017	SWFTS-MW09B-BL01	N	BL01	13,000	46,000	12	1.8	0.31
SWFTS-MW09B	3/29/2017	SWFTS-MW09B-BL01-FD	FD	BL01	15,000	46,000	12	1.8	--
SWFTS-MW09B	9/21/2017	SWFTS-MW09B-EM01	N	EM01	220	390	<0.55	30	1.81
SWFTS-MW09B	9/28/2017	SWFTS-MW09B-EM02	N	EM02	990	2,500	<0.55	25	0.38
SWFTS-MW09B	10/4/2017	SWFTS-MW09B-EM03	N	EM03	430	1,000	<1.1	29	3.71
SWFTS-MW09B	10/11/2017	SWFTS-MW09B-EM04	N	EM04	1,400	3,000	1.1	18	0.12
SWFTS-MW09B	10/25/2017	SWFTS-MW09B-EM05	N	EM05	2,700	7,700	1.7	2.4	0.38
SWFTS-MW09B	11/16/2017	SWFTS-MW09B-EM06	N	EM06	2,400	8,600	2.1	2.1	0.77
SWFTS-MW09B	12/12/2017	SWFTS-MW09B-EM07	N	EM07	3,500	13,000	3.4	2.1	0.07
SWFTS-MW09B	2/20/2018	SWFTS-MW09B-EM08	N	EM08	800	1,400	<1.1	2.5	5.47
SWFTS-MW09B	3/27/2018	SWFTS-MW09B-EM09	N	EM09	7,700	28,000	5.9	1.8	2.09
SWFTS-MW09B	4/30/2018	SWFTS-MW09B-EM10	N	EM10	7,400	23,000	7.9	1.8	0.00
SWFTS-MW09B	7/12/2018	SWFTS-MW09B-EM11	N	EM11	6,500	15,000	7.0	1.9	1.58
SWFTS-MW09B	7/26/2018	SWFTS-MW09B-EM12	N	EM12	6,600	20,000	--	--	1.16
SWFTS-MW09B	8/14/2018	SWFTS-MW09B-EM13	N	EM13	6,400	24,000	9.7	2.1	2.99
SWFTS-MW09B	9/11/2018	SWFTS-MW09B-EM14	N	EM14	6,600	28,000	11	1.6	1.12
SWFTS-MW09B	10/9/2018	SWFTS-MW09B-EM15	N	EM15	6,500	24,000	10	2.0	0.58
SWFTS-MW09B	12/28/2018	SWFTS-MW09B-EM16	N	EM16	5,500	21,000	11	1.7	1.3
SWFTS-MW09B	2/28/2019	SWFTS-MW09B-EM17	N	EM17	5,800	25,000	16 J-	1.9	0.50
SWFTS-MW09B	4/10/2019	SWFTS-MW09B-EM18	N	EM18	8,300	32,000	11	1.6	2.69
SWFTS-MW09B	5/22/2019	SWFTS-MW09B-EM19	N	EM19	7,300	30,000	10	1.6	0.70
SWFTS-MW09B	7/2/2019	SWFTS-MW09B-EM20	N	EM20	6,900	30,000	11	1.9	0.70
SWFTS-MW09B	8/12/2019	SWFTS-MW09B-EM21	N	EM21	7,200	28,000	11	1.9	0.53
SWFTS-MW09B	11/5/2019	SWFTS-MW09B-EM22	N	EM22	7,400	26,000	9.4	1.7	1.48
SWFTS-MW09B	12/18/2019	SWFTS-MW09B-EM23	N	EM23	8,300	28,000	11	1.5	0.87
SWFTS-MW09B	1/28/2020	SWFTS-MW09B-EM24	N	EM24	9,800	35,000	11 J-	1.7	0.54
SWFTS-MW09B	3/10/2020	SWFTS-MW09B-EM25	N	EM25	11,000	36,000	11 J-	1.7	2.33
SWFTS-MW09B	4/28/2020	SWFTS-MW09B-EM26	N	EM26	12,000	39,000	11	1.6	0.85
SWFTS-MW10A	3/31/2017	SWFTS-MW10A-BL01	N	BL01	13,000	27,000	5.1	2.8	2.70
SWFTS-MW10A	9/21/2017	SWFTS-MW10A-EM01	N	EM01	1.9 J	<50	<0.55	23	0.42
SWFTS-MW10A	9/27/2017	SWFTS-MW10A-EM02	N	EM02	100	<100	0.66 J	12	5.10
SWFTS-MW10A	10/4/2017	SWFTS-MW10A-EM03	N	EM03	14	<100	<0.28	10	4.56
SWFTS-MW10A	10/12/2017	SWFTS-MW10A-EM04	N	EM04	<0.95	13 J	<0.11	13	0.15
SWFTS-MW10A	10/24/2017	SWFTS-MW10A-EM05	N	EM05	14	630	<0.28	6.3	1.38
SWFTS-MW10A	11/16/2017	SWFTS-MW10A-EM06	N	EM06	11	<50	<0.28	4.2	0.60
SWFTS-MW10A	11/16/2017	SWFTS-MW10A-EM06-FD	FD	EM06	15	<50	<0.28	4.0	--
SWFTS-MW10A	12/12/2017	SWFTS-MW10A-EM07	N	EM07	160	190	<0.28	3.2	0.53
SWFTS-MW10A	12/12/2017	SWFTS-MW10A-EM07-FD	FD	EM07	170	180	<0.28	3.4	--
SWFTS-MW10A	2/20/2018	SWFTS-MW10A-EM08	N	EM08	990	1,400	<1.1	3.2	0.44
SWFTS-MW10A	2/20/2018	SWFTS-MW10A-EM08-FD	FD	EM08	1,000	1,300	1.3 J	3.3	--

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**Table 2**  
**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW10A	3/26/2018	SWFTS-MW10A-EM09	N	EM09	2,300	4,000	0.37 J	2.8	1.15
SWFTS-MW10A	3/26/2018	SWFTS-MW10A-EM09-FD	FD	EM09	2,200	4,000	0.36 J	2.8 J-	--
SWFTS-MW10A	5/1/2018	SWFTS-MW10A-EM10	N	EM10	4,300	4,800	0.96 J	2.5	0.83
SWFTS-MW10A	7/11/2018	SWFTS-MW10A-EM11	N	EM11	3,000 J-	40 J	0.89 J	2.2	2.42
SWFTS-MW10A	7/26/2018	SWFTS-MW10A-EM12	N	EM12	1,300	<10	--	--	0.55
SWFTS-MW10A	8/14/2018	SWFTS-MW10A-EM13	N	EM13	1,500	<10	<0.55	3.0	2.59
SWFTS-MW10A	9/10/2018	SWFTS-MW10A-EM14	N	EM14	1,500	<10	<0.55	2.9	0.37
SWFTS-MW10A	10/9/2018	SWFTS-MW10A-EM15	N	EM15	2,300	<20	<0.55	2.8	0.86
SWFTS-MW10A	12/20/2018	SWFTS-MW10A-EM16	N	EM16	3,000	83	1.3	3.4	0.7
SWFTS-MW10A	2/26/2019	SWFTS-MW10A-EM17	N	EM17	3,900	1,200	2.1 J	2.6	0.37
SWFTS-MW10A	4/10/2019	SWFTS-MW10A-EM18	N	EM18	2,800	1,400	1.7	2.8	0.61
SWFTS-MW10A	5/21/2019	SWFTS-MW10A-EM19	N	EM19	1,500	34 J	1.2	3.3	0.46
SWFTS-MW10A	7/1/2019	SWFTS-MW10A-EM20	N	EM20	1,500	<10	0.84 J	3.4	5.15
SWFTS-MW10A	8/12/2019	SWFTS-MW10A-EM21	N	EM21	870	<10	<0.55	3.1	0.38
SWFTS-MW10A	11/6/2019	SWFTS-MW10A-EM22	N	EM22	2,600	310	1.4	3.6 J-	0.49
SWFTS-MW10A	12/17/2019	SWFTS-MW10A-EM23	N	EM23	4,000 J+	3,600	2.1	4.4	0.69
SWFTS-MW10A	1/28/2020	SWFTS-MW10A-EM24	N	EM24	7,900	19,000	6.5	2.3	0.55
SWFTS-MW10A	3/13/2020	SWFTS-MW10A-EM25	N	EM25	9,900	26,000	8.7	2.1 J+	1.55
SWFTS-MW10A	4/29/2020	SWFTS-MW10A-EM26	N	EM26	10,000	28,000	8.1	2.3	2.04
SWFTS-MW10C	3/28/2017	SWFTS-MW10C-BL01	N	BL01	8,300	39,000	7.6	1.5	0.09
SWFTS-MW10C	12/12/2017	SWFTS-MW10C-EM07	N	EM07	9,200	38,000	8.4	1.3	0.51
SWFTS-MW10C	5/1/2020	SWFTS-MW10C-EM26	N	EM26	9,900	51,000	--	--	2.11
SWFTS-MW11	7/12/2017	SWFTS-MW11-BL02	N	BL02	13,000 J+	41,000	12	1.8	4.30
SWFTS-MW11	9/20/2017	SWFTS-MW11-EM01	N	EM01	13,000	40,000	11	1.7	1.86
SWFTS-MW11	9/26/2017	SWFTS-MW11-EM02	N	EM02	14,000	37,000	12	2.1	1.47
SWFTS-MW11	10/3/2017	SWFTS-MW11-EM03	N	EM03	13,000	36,000	12	1.8	0.93
SWFTS-MW11	10/11/2017	SWFTS-MW11-EM04	N	EM04	16,000	38,000	11	1.6	1.15
SWFTS-MW11	10/24/2017	SWFTS-MW11-EM05	N	EM05	13,000	36,000	12	5.7	2.32
SWFTS-MW11	11/16/2017	SWFTS-MW11-EM06	N	EM06	14,000	37,000	12	1.7	0.95
SWFTS-MW11	12/14/2017	SWFTS-MW11-EM07	N	EM07	12,000	40,000	11	2.0	1.78
SWFTS-MW11	2/21/2018	SWFTS-MW11-EM08	N	EM08	12,000	45,000	14	1.7	7.35
SWFTS-MW11	2/21/2018	SWFTS-MW11-EM08-FD	FD	EM08	12,000	46,000	13	1.9	--
SWFTS-MW11	3/28/2018	SWFTS-MW11-EM09	N	EM09	13,000	49,000	14	1.5	4.05
SWFTS-MW11	3/28/2018	SWFTS-MW11-EM09-FD	FD	EM09	13,000	49,000	14	1.5	--
SWFTS-MW11	5/1/2018	SWFTS-MW11-EM10	N	EM10	13,000	52,000	14	1.5	5.35
SWFTS-MW11	5/1/2018	SWFTS-MW11-EM10-FD	FD	EM10	12,000	48,000	14	1.4	--
SWFTS-MW11	7/12/2018	SWFTS-MW11-EM11	N	EM11	11,000	52,000	16	1.2	5.48
SWFTS-MW11	7/12/2018	SWFTS-MW11-EM11-FD	FD	EM11	11,000	52,000	16	1.2	--
SWFTS-MW11	8/16/2018	SWFTS-MW11-EM13	N	EM13	9,400	53,000	16	1.7	2.83
SWFTS-MW11	8/16/2018	SWFTS-MW11-EM13-FD	FD	EM13	9,600	52,000	16	1.8	--

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**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW11	9/12/2018	SWFTS-MW11-EM14	N	EM14	11,000	52,000	16	1.5	4.18
SWFTS-MW11	9/12/2018	SWFTS-MW11-EM14-FD	FD	EM14	11,000	52,000	16	1.4	--
SWFTS-MW11	10/11/2018	SWFTS-MW11-EM15	N	EM15	10,000	54,000	17	1.6	3.59
SWFTS-MW11	10/11/2018	SWFTS-MW11-EM15-FD	FD	EM15	11,000	52,000	17	1.7	--
SWFTS-MW11	1/2/2019	SWFTS-MW11-EM16	N	EM16	8,600	44,000	16	1.5	7.08
SWFTS-MW11	1/2/2019	SWFTS-MW11-EM16-FD	FD	EM16	8,400	45,000	16	1.5	--
SWFTS-MW11	3/1/2019	SWFTS-MW11-EM17	N	EM17	7,900 J+	42,000	17	1.5	5.23
SWFTS-MW11	3/1/2019	SWFTS-MW11-EM17-FD	FD	EM17	7,700 J+	41,000	17	1.6	--
SWFTS-MW11	4/12/2019	SWFTS-MW11-EM18	N	EM18	7,700	41,000	15	1.9	5.50
SWFTS-MW11	4/12/2019	SWFTS-MW11-EM18-FD	FD	EM18	7,800	42,000	17	1.4	--
SWFTS-MW11	5/22/2019	SWFTS-MW11-EM19	N	EM19	8,000	44,000	14	1.7	5.09
SWFTS-MW11	5/22/2019	SWFTS-MW11-EM19-FD	FD	EM19	7,800	44,000	16	1.8	--
SWFTS-MW11	7/3/2019	SWFTS-MW11-EM20	N	EM20	7,100	43,000	16	1.9	5.03
SWFTS-MW11	7/3/2019	SWFTS-MW11-EM20-FD	FD	EM20	7,500	43,000	17	1.9	--
SWFTS-MW11	8/15/2019	SWFTS-MW11-EM21	N	EM21	9,200	43,000	16	1.8	4.95
SWFTS-MW11	8/15/2019	SWFTS-MW11-EM21-FD	FD	EM21	8,900	43,000	16	1.8	--
SWFTS-MW11	11/7/2019	SWFTS-MW11-EM22	N	EM22	7,600	42,000	14	1.5	5.79
SWFTS-MW11	11/7/2019	SWFTS-MW11-EM22-FD	FD	EM22	7,400	43,000	14	1.5	--
SWFTS-MW11	12/17/2019	SWFTS-MW11-EM23	N	EM23	8,200	21,000	14	1.6	5.91
SWFTS-MW11	12/17/2019	SWFTS-MW11-EM23-FD	FD	EM23	8,300	20,000	14	1.4	--
SWFTS-MW11	1/28/2020	SWFTS-MW11-EM24	N	EM24	10,000	47,000	15	1.6	6.54
SWFTS-MW11	1/28/2020	SWFTS-MW11-EM24-FD	FD	EM24	10,000	47,000	15	1.5	--
SWFTS-MW11	3/13/2020	SWFTS-MW11-EM25	N	EM25	12,000	51,000	15	2.0	6.44
SWFTS-MW11	3/13/2020	SWFTS-MW11-EM25-FD	FD	EM25	12,000	51,000	14	2.2	--
SWFTS-MW11	4/30/2020	SWFTS-MW11-EM26	N	EM26	11,000	52,000	14	1.6	5.03
SWFTS-MW11	4/30/2020	SWFTS-MW11-EM26-FD	FD	EM26	12,000	51,000	15	1.5	--
SWFTS-MW12	7/13/2017	SWFTS-MW12-BL02	N	BL02	5,100	37,000	16	0.88 J	7.81
SWFTS-MW12	9/19/2017	SWFTS-MW12-EM01	N	EM01	5,100	36,000	14	1.1	4.36
SWFTS-MW12	9/26/2017	SWFTS-MW12-EM02	N	EM02	4,900	34,000	14	1.6	2.98
SWFTS-MW12	10/3/2017	SWFTS-MW12-EM03	N	EM03	5,400	34,000	14 J-	0.78 J	2.77
SWFTS-MW12	10/11/2017	SWFTS-MW12-EM04	N	EM04	4,800	35,000	13	0.93 J	1.59
SWFTS-MW12	10/24/2017	SWFTS-MW12-EM05	N	EM05	5,000	37,000	14	1.2	5.09
SWFTS-MW12	11/14/2017	SWFTS-MW12-EM06	N	EM06	4,700	33,000	14	0.99 J	2.52
SWFTS-MW12	12/14/2017	SWFTS-MW12-EM07	N	EM07	4,900	30,000	13	1.5	4.37
SWFTS-MW12	2/22/2018	SWFTS-MW12-EM08	N	EM08	4,500	26,000	12	1.6	5.95
SWFTS-MW12	3/28/2018	SWFTS-MW12-EM09	N	EM09	6,400	39,000	14	1.3	4.30
SWFTS-MW12	5/3/2018	SWFTS-MW12-EM10	N	EM10	4,200	28,000	13	0.89 J	2.24
SWFTS-MW12	7/12/2018	SWFTS-MW12-EM11	N	EM11	4,600	35,000	13	0.69 J	5.35
SWFTS-MW12	8/16/2018	SWFTS-MW12-EM13	N	EM13	4,000	34,000	14	1.2	2.75
SWFTS-MW12	9/12/2018	SWFTS-MW12-EM14	N	EM14	4,800	36,000	14	1.1	3.46

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**Table 2**  
**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW12	10/11/2018	SWFTS-MW12-EM15	N	EM15	4,200	28,000	14	1.3	5.11
SWFTS-MW12	1/2/2019	SWFTS-MW12-EM16	N	EM16	5,800	55,000	17	1.2	4.35
SWFTS-MW12	2/28/2019	SWFTS-MW12-EM17	N	EM17	3,700	29,000	14	1.1	3.64
SWFTS-MW12	4/12/2019	SWFTS-MW12-EM18	N	EM18	4,500	31,000	14	1.2	3.50
SWFTS-MW12	5/22/2019	SWFTS-MW12-EM19	N	EM19	4,400	32,000	12	0.87 J	3.81
SWFTS-MW12	7/5/2019	SWFTS-MW12-EM20	N	EM20	4,300	33,000	13 J+	1.2	3.56
SWFTS-MW12	8/16/2019	SWFTS-MW12-EM21	N	EM21	4,200	31,000	13	1.2	3.35
SWFTS-MW12	11/7/2019	SWFTS-MW12-EM22	N	EM22	<4.8	88 J	<0.55	560	0.29
SWFTS-MW12	11/26/2019	SWFTS-MW12-EM22-R	N	EM22	<4.8	<20	<0.55	610 J-	--
SWFTS-MW12	11/26/2019	SWFTS-MW12-EM22-R-FD	FD	EM22	<4.8	<20	<0.55	610 J-	--
SWFTS-MW12	12/20/2019	SWFTS-MW12-EM23	N	EM23	<4.8	<10	<0.55	230	0.84
SWFTS-MW12	1/29/2020	SWFTS-MW12-EM24	N	EM24	22	60 J	<0.55	14 J-	0.46
SWFTS-MW12	3/12/2020	SWFTS-MW12-EM25	N	EM25	170	<10	0.55 R	9.3	2.19
SWFTS-MW12	4/30/2020	SWFTS-MW12-EM26	N	EM26	<4.8	<10	<0.55	8.2	1.83
SWFTS-MW13	7/12/2017	SWFTS-MW13-BL02	N	BL02	4,600	40,000	12	1.6	4.72
SWFTS-MW13	9/20/2017	SWFTS-MW13-EM01	N	EM01	10,000	52,000	17	1.1	5.20
SWFTS-MW13	9/26/2017	SWFTS-MW13-EM02	N	EM02	6,200	53,000	18	1.4	3.17
SWFTS-MW13	10/3/2017	SWFTS-MW13-EM03	N	EM03	6,900	100	17 J-	1.1	5.57
SWFTS-MW13	10/10/2017	SWFTS-MW13-EM04	N	EM04	6,300	51,000	16	0.98 J	2.40
SWFTS-MW13	10/24/2017	SWFTS-MW13-EM05	N	EM05	6,100	52,000	19	1.3	6.62
SWFTS-MW13	11/15/2017	SWFTS-MW13-EM06	N	EM06	5,900	49,000	16	0.93 J	3.22
SWFTS-MW13	12/14/2017	SWFTS-MW13-EM07	N	EM07	6,200	49,000	16	1.2	3.79
SWFTS-MW13	2/22/2018	SWFTS-MW13-EM08	N	EM08	5,800	50,000	15	1.5	4.95
SWFTS-MW13	3/26/2018	SWFTS-MW13-EM09	N	EM09	6,400	52,000	16 J+	1.2	2.98
SWFTS-MW13	5/3/2018	SWFTS-MW13-EM10	N	EM10	6,000	49,000	18	1.1	8.17 E
SWFTS-MW13	7/12/2018	SWFTS-MW13-EM11	N	EM11	6,300	49,000	16	0.80 J	6.45
SWFTS-MW13	8/16/2018	SWFTS-MW13-EM13	N	EM13	5,200	54,000	17	1.3	2.95
SWFTS-MW13	9/13/2018	SWFTS-MW13-EM14	N	EM14	5,000	48,000	16	1.2	3.44
SWFTS-MW13	10/11/2018	SWFTS-MW13-EM15	N	EM15	5,800	55,000	17	1.2	3.49
SWFTS-MW13	1/2/2019	SWFTS-MW13-EM16	N	EM16	3,900	28,000	13	1.1	6.89
SWFTS-MW13	2/28/2019	SWFTS-MW13-EM17	N	EM17	5,500	53,000	18	1.1	4.02
SWFTS-MW13	4/12/2019	SWFTS-MW13-EM18	N	EM18	5,300	45,000	18	1.2	5.30
SWFTS-MW13	5/22/2019	SWFTS-MW13-EM19	N	EM19	5,300	45,000	17	0.94 J	5.32
SWFTS-MW13	7/5/2019	SWFTS-MW13-EM20	N	EM20	5,600	48,000	17	1.3	5.15
SWFTS-MW13	8/16/2019	SWFTS-MW13-EM21	N	EM21	5,200	51,000	18	1.3	4.55
SWFTS-MW13	11/6/2019	SWFTS-MW13-EM22	N	EM22	6,200	50,000	16	1.2	3.81
SWFTS-MW13	12/20/2019	SWFTS-MW13-EM23	N	EM23	5,300	43,000	14	0.84 J	4.20
SWFTS-MW13	1/29/2020	SWFTS-MW13-EM24	N	EM24	5,400	48,000	16	1.1	3.83
SWFTS-MW13	3/12/2020	SWFTS-MW13-EM25	N	EM25	5,100	46,000	15 J-	0.89 J	5.14
SWFTS-MW13	4/30/2020	SWFTS-MW13-EM26	N	EM26	4,900	48,000	18	0.79 J	4.78

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**Table 2**  
**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW14	7/12/2017	SWFTS-MW14-BL02	N	BL02	23,000	54,000	12	2.6	0.65
SWFTS-MW14	7/12/2017	SWFTS-MW14-BL02-FD	FD	BL02	22,000	52,000	12	2.3	--
SWFTS-MW14	9/20/2017	SWFTS-MW14-EM01	N	EM01	<9.5	<100	<0.55	100	0.39
SWFTS-MW14	9/26/2017	SWFTS-MW14-EM02	N	EM02	<4.8	2,400	<1.1	81	0.17
SWFTS-MW14	10/3/2017	SWFTS-MW14-EM03	N	EM03	4.8	<100	<0.55 UJ	36	0.19
SWFTS-MW14	10/11/2017	SWFTS-MW14-EM04	N	EM04	<9.5	<50	<0.55	4.1	0.39
SWFTS-MW14	10/27/2017	SWFTS-MW14-EM05	N	EM05	26	<50	<0.28	3.5	0.60
SWFTS-MW14	11/15/2017	SWFTS-MW14-EM06	N	EM06	20 J+	<50	<0.55	3.1	0.83
SWFTS-MW14	12/12/2017	SWFTS-MW14-EM07	N	EM07	1,600	2,400	<0.55	2.6	6.49
SWFTS-MW14	2/20/2018	SWFTS-MW14-EM08	N	EM08	2,200	<100	<1.1	670	3.12
SWFTS-MW14	3/26/2018	SWFTS-MW14-EM09	N	EM09	5,500	<50	<0.28	220	4.03
SWFTS-MW14	4/30/2018	SWFTS-MW14-EM10	N	EM10	4,300	26 J	<0.55	91	0.45
SWFTS-MW14	7/10/2018	SWFTS-MW14-EM11	N	EM11	6.5	<25	<0.55	180	0.90
SWFTS-MW14	7/26/2018	SWFTS-MW14-EM12	N	EM12	<95	<10	--	--	2.26
SWFTS-MW14	8/14/2018	SWFTS-MW14-EM13	N	EM13	8.2 J	<10	<0.55	130	0.47
SWFTS-MW14	9/11/2018	SWFTS-MW14-EM14	N	EM14	6.4 J	<10	<0.55	91	0.25
SWFTS-MW14	10/9/2018	SWFTS-MW14-EM15	N	EM15	<0.95	<20	<1.1	80	0.81
SWFTS-MW14	12/20/2018	SWFTS-MW14-EM16	N	EM16	<0.95	<10	<0.28	16	0.46
SWFTS-MW14	2/26/2019	SWFTS-MW14-EM17	N	EM17	<0.95	<10	<0.55	6.2	0.67
SWFTS-MW14	4/9/2019	SWFTS-MW14-EM18	N	EM18	38	150	<0.55 UJ	5.3	0.65
SWFTS-MW14	5/21/2019	SWFTS-MW14-EM19	N	EM19	<0.95	<20	<0.55	6.3	0.35
SWFTS-MW14	7/2/2019	SWFTS-MW14-EM20	N	EM20	2.8 J	<4.0	<0.11	6.5	0.35
SWFTS-MW14	8/13/2019	SWFTS-MW14-EM21	N	EM21	<0.50	<10	<0.55	6.7	0.22
SWFTS-MW14	11/6/2019	SWFTS-MW14-EM22	N	EM22	<0.95	28 J	<0.55	5.6	0.21
SWFTS-MW14	12/17/2019	SWFTS-MW14-EM23	N	EM23	<4.8	<10	<0.55	4.0	0.47
SWFTS-MW14	1/29/2020	SWFTS-MW14-EM24	N	EM24	<0.95	<10	<0.55	3.9	0.55
SWFTS-MW14	3/13/2020	SWFTS-MW14-EM25	N	EM25	<0.95	<20	<0.28	4.2 J+	1.25
SWFTS-MW14	5/1/2020	SWFTS-MW14-EM26	N	EM26	97	<20	<0.55	3.8	1.94
SWFTS-MW15	7/13/2017	SWFTS-MW15-BL02	N	BL02	15,000	43,000	10	1.6	0.47
SWFTS-MW15	9/20/2017	SWFTS-MW15-EM01	N	EM01	11,000	40,000	10	1.6	0.27
SWFTS-MW15	9/26/2017	SWFTS-MW15-EM02	N	EM02	12,000	41,000	11	1.5	0.30
SWFTS-MW15	10/4/2017	SWFTS-MW15-EM03	N	EM03	11,000	39,000	12	1.4	0.38
SWFTS-MW15	10/10/2017	SWFTS-MW15-EM04	N	EM04	18,000	40,000	11	1.6	0.21
SWFTS-MW15	10/27/2017	SWFTS-MW15-EM05	N	EM05	13,000	38,000	13	1.8	0.78
SWFTS-MW15	11/14/2017	SWFTS-MW15-EM06	N	EM06	9,900	38,000	12	1.8	1.08
SWFTS-MW15	12/13/2017	SWFTS-MW15-EM07	N	EM07	13,000	38,000	12	1.6	3.83
SWFTS-MW15	2/19/2018	SWFTS-MW15-EM08	N	EM08	12,000	47,000	11	1.6	3.24
SWFTS-MW15	3/26/2018	SWFTS-MW15-EM09	N	EM09	12,000	52,000	12	1.7	5.95
SWFTS-MW15	5/2/2018	SWFTS-MW15-EM10	N	EM10	13,000	59,000	14	1.4	1.09
SWFTS-MW15	7/11/2018	SWFTS-MW15-EM11	N	EM11	9,300	45,000	12 J-	3.5	6.10



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**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW15	7/26/2018	SWFTS-MW15-EM12	N	EM12	6,800	39,000	--	--	2.73
SWFTS-MW15	8/15/2018	SWFTS-MW15-EM13	N	EM13	9,000	52,000	16	1.9	0.97
SWFTS-MW15	9/11/2018	SWFTS-MW15-EM14	N	EM14	7,800	48,000	16	1.4	0.73
SWFTS-MW15	10/9/2018	SWFTS-MW15-EM15	N	EM15	6,400	28,000	7.5	3.3	1.09
SWFTS-MW15	12/20/2018	SWFTS-MW15-EM16	N	EM16	5,300	33,000	9.4	1.8	0.91
SWFTS-MW15	2/25/2019	SWFTS-MW15-EM17	N	EM17	6,200	31,000	9.2	3.0	0.00
SWFTS-MW15	4/9/2019	SWFTS-MW15-EM18	N	EM18	9,700	53,000	14 J-	1.4	1.14
SWFTS-MW15	5/20/2019	SWFTS-MW15-EM19	N	EM19	9,200	48,000	15	1.6	0.65
SWFTS-MW15	7/2/2019	SWFTS-MW15-EM20	N	EM20	8,800	49,000	13	2.0	0.59
SWFTS-MW15	8/13/2019	SWFTS-MW15-EM21	N	EM21	6,400	50,000	14	1.7	0.56
SWFTS-MW15	11/6/2019	SWFTS-MW15-EM22	N	EM22	9,900	46,000	13	1.4	1.99
SWFTS-MW15	12/17/2019	SWFTS-MW15-EM23	N	EM23	9,700	46,000	13	1.3	0.80
SWFTS-MW15	1/29/2020	SWFTS-MW15-EM24	N	EM24	12,000	49,000	15	1.6	0.70
SWFTS-MW15	3/13/2020	SWFTS-MW15-EM25	N	EM25	14,000	44,000	13	1.8 J+	1.7
SWFTS-MW15	4/29/2020	SWFTS-MW15-EM26	N	EM26	13,000	46,000	13	1.5	5.51
SWFTS-MW16	7/13/2017	SWFTS-MW16-BL02	N	BL02	8,400	38,000	12	1.6	0.93
SWFTS-MW16	9/22/2017	SWFTS-MW16-EM01	N	EM01	1,700	8,700	3.3	120	0.71
SWFTS-MW16	9/26/2017	SWFTS-MW16-EM02	N	EM02	1,300	8,800	3.8	68	1.54
SWFTS-MW16	10/3/2017	SWFTS-MW16-EM03	N	EM03	1,600	6,300	2.7	92	1.30
SWFTS-MW16	10/12/2017	SWFTS-MW16-EM04	N	EM04	1,100	5,800	2.1	180	1.32
SWFTS-MW16	10/24/2017	SWFTS-MW16-EM05	N	EM05	830	4,700	1.5	180	1.03
SWFTS-MW16	11/16/2017	SWFTS-MW16-EM06	N	EM06	<0.95	4,000	1.2	110	0.49
SWFTS-MW16	12/12/2017	SWFTS-MW16-EM07	N	EM07	490	3,100	1.1	5.9	0.56
SWFTS-MW16	2/21/2018	SWFTS-MW16-EM08	N	EM08	620	2,800	<1.1	7.7	0.49
SWFTS-MW16	3/27/2018	SWFTS-MW16-EM09	N	EM09	9,000	46,000	12	1.5	0.49
SWFTS-MW16	5/2/2018	SWFTS-MW16-EM10	N	EM10	1,500 J	11,000	3.5	2.3	0.15
SWFTS-MW16	7/11/2018	SWFTS-MW16-EM11	N	EM11	<4.8	<5.0	<0.55	7.9	5.38
SWFTS-MW16	7/26/2018	SWFTS-MW16-EM12	N	EM12	<0.95	<4.0	--	--	1.99
SWFTS-MW16	8/15/2018	SWFTS-MW16-EM13	N	EM13	12	67	<0.28	3.2	0.98
SWFTS-MW16	9/10/2018	SWFTS-MW16-EM14	N	EM14	200	1,400	0.42 J	2.9	0.78
SWFTS-MW16	10/11/2018	SWFTS-MW16-EM15	N	EM15	340	2,200	0.76 J	2.8	3.73
SWFTS-MW16	12/19/2018	SWFTS-MW16-EM16	N	EM16	270	2,300	1.0 J	2.5	0.4
SWFTS-MW16	2/26/2019	SWFTS-MW16-EM17	N	EM17	<0.95	<10	<0.55	5.6	0.00
SWFTS-MW16	4/9/2019	SWFTS-MW16-EM18	N	EM18	<0.95	<10	<0.55 UJ	2.9	0.47
SWFTS-MW16	5/20/2019	SWFTS-MW16-EM19	N	EM19	<0.95 UJ	<10	<0.55	3.5	0.53
SWFTS-MW16	7/1/2019	SWFTS-MW16-EM20	N	EM20	<0.95	<10	<0.55	4.0	0.20
SWFTS-MW16	8/13/2019	SWFTS-MW16-EM21	N	EM21	19	100	<0.55	3.6	0.35
SWFTS-MW16	11/6/2019	SWFTS-MW16-EM22	N	EM22	<0.95	<40	<0.55	3.2	0.21
SWFTS-MW16	12/17/2019	SWFTS-MW16-EM23	N	EM23	<4.8	<10	<0.55	2.3	2.00
SWFTS-MW16	1/29/2020	SWFTS-MW16-EM24	N	EM24	<0.95	<100	<0.55	2.7	0.53

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Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW16	3/13/2020	SWFTS-MW16-EM25	N	EM25	<0.95	<10	<0.55	3.6	2.24
SWFTS-MW16	4/30/2020	SWFTS-MW16-EM26	N	EM26	<4.8	<10	<0.55	5.7	2.25
SWFTS-MW17	7/12/2017	SWFTS-MW17-BL02	N	BL02	3,200	--	16	1.1	4.30
SWFTS-MW17	9/19/2017	SWFTS-MW17-EM01	N	EM01	2,600	18,000	16	1.2	5.07
SWFTS-MW17	9/19/2017	SWFTS-MW17-EM01-FD	FD	EM01	2,600	18,000	16	1.3	--
SWFTS-MW17	9/26/2017	SWFTS-MW17-EM02	N	EM02	2,800	17,000	17	1.5	4.04
SWFTS-MW17	9/26/2017	SWFTS-MW17-EM02-FD	FD	EM02	2,800	17,000	17	1.5	--
SWFTS-MW17	10/3/2017	SWFTS-MW17-EM03	N	EM03	3,300	19,000	15	1.1	6.87
SWFTS-MW17	10/3/2017	SWFTS-MW17-EM03-FD	FD	EM03	3,300	19,000	16	1.0	--
SWFTS-MW17	10/10/2017	SWFTS-MW17-EM04	N	EM04	2,800	16,000	16	1.3	3.90
SWFTS-MW17	10/24/2017	SWFTS-MW17-EM05	N	EM05	2,700	15,000	17	1.2	5.28
SWFTS-MW17	10/24/2017	SWFTS-MW17-EM05-FD	FD	EM05	2,700	15,000	16	2.2	--
SWFTS-MW17	11/15/2017	SWFTS-MW17-EM06	N	EM06	2,300	16,000	17	1.3	4.91
SWFTS-MW17	11/15/2017	SWFTS-MW17-EM06-FD	FD	EM06	2,200	15,000	17	1.2	--
SWFTS-MW17	12/13/2017	SWFTS-MW17-EM07	N	EM07	2,200	14,000	16	1.2	5.54
SWFTS-MW17	12/13/2017	SWFTS-MW17-EM07-FD	FD	EM07	2,300	13,000	16	1.2	--
SWFTS-MW17	2/22/2018	SWFTS-MW17-EM08	N	EM08	2,000	15,000	16	2.1	3.65
SWFTS-MW17	3/28/2018	SWFTS-MW17-EM09	N	EM09	2,000	14,000	15	1.2	3.49
SWFTS-MW17	5/3/2018	SWFTS-MW17-EM10	N	EM10	1,900 J-	11,000	15	1.1	4.08
SWFTS-MW17	7/11/2018	SWFTS-MW17-EM11	N	EM11	1,300	11,000	15	1.1	4.35
SWFTS-MW17	8/16/2018	SWFTS-MW17-EM13	N	EM13	1,600	12,000	16	1.4	4.56
SWFTS-MW17	9/12/2018	SWFTS-MW17-EM14	N	EM14	1,900	13,000	15	1.0	3.49
SWFTS-MW17	10/11/2018	SWFTS-MW17-EM15	N	EM15	2,100	15,000	16	1.6	3.33
SWFTS-MW17	1/2/2019	SWFTS-MW17-EM16	N	EM16	1,700	11,000	15	1.2	6.18
SWFTS-MW17	2/28/2019	SWFTS-MW17-EM17	N	EM17	1,700	13,000	15	1.3	4.83
SWFTS-MW17	4/11/2019	SWFTS-MW17-EM18	N	EM18	1,700	12,000	14	1.3	4.74
SWFTS-MW17	5/22/2019	SWFTS-MW17-EM19	N	EM19	1,900	13,000	14	1.1	4.85
SWFTS-MW17	7/5/2019	SWFTS-MW17-EM20	N	EM20	1,800	13,000	16	1.3	4.91
SWFTS-MW17	8/16/2019	SWFTS-MW17-EM21	N	EM21	2,200	13,000	16	1.4	5.02
SWFTS-MW17	11/7/2019	SWFTS-MW17-EM22	N	EM22	2,100	15,000	12	1.3	5.25
SWFTS-MW17	12/20/2019	SWFTS-MW17-EM23	N	EM23	2,100	16,000	14	1.2	5.71
SWFTS-MW17	1/30/2020	SWFTS-MW17-EM24	N	EM24	2,200	18,000	14	1.1	4.77
SWFTS-MW17	3/13/2020	SWFTS-MW17-EM25	N	EM25	2,100	17,000	14	1.6	6.02
SWFTS-MW17	4/30/2020	SWFTS-MW17-EM26	N	EM26	2,000	17,000	13	1.0	5.11
SWFTS-MW18	7/11/2017	SWFTS-MW18-BL02	N	BL02	13,000	52,000	12	1.5	2.68
SWFTS-MW18	9/21/2017	SWFTS-MW18-EM01	N	EM01	9,700	34,000	8.9	2.0	0.59
SWFTS-MW18	9/27/2017	SWFTS-MW18-EM02	N	EM02	11,000	36,000	12	2.2	0.40
SWFTS-MW18	10/3/2017	SWFTS-MW18-EM03	N	EM03	8,100	30,000	8.6	1.5	2.22
SWFTS-MW18	10/10/2017	SWFTS-MW18-EM04	N	EM04	9,700	40,000	12	1.7	0.31
SWFTS-MW18	10/23/2017	SWFTS-MW18-EM05	N	EM05	8,200	38,000	12	1.7	0.98

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Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW18	11/15/2017	SWFTS-MW18-EM06	N	EM06	11,000	37,000	11	1.8	1.37
SWFTS-MW18	12/13/2017	SWFTS-MW18-EM07	N	EM07	9,100	39,000	12	1.6	0.40
SWFTS-MW18	2/22/2018	SWFTS-MW18-EM08	N	EM08	8,900	45,000	12	2.3	0.51
SWFTS-MW18	3/27/2018	SWFTS-MW18-EM09	N	EM09	2,000	11,000	3.9	2.5	0.25
SWFTS-MW18	3/27/2018	SWFTS-MW18-EM09-FD	FD	EM09	2,100	11,000	3.5	2.4	--
SWFTS-MW18	5/1/2018	SWFTS-MW18-EM10	N	EM10	9,200	50,000	13	1.5	0.43
SWFTS-MW18	7/11/2018	SWFTS-MW18-EM11	N	EM11	6,900	41,000	11	1.6	0.01
SWFTS-MW18	7/26/2018	SWFTS-MW18-EM12	N	EM12	6,100	43,000	--	--	2.81
SWFTS-MW18	8/15/2018	SWFTS-MW18-EM13	N	EM13	5,900	41,000	13	2.0	0.58
SWFTS-MW18	9/11/2018	SWFTS-MW18-EM14	N	EM14	5,600	41,000	13	1.6	0.79
SWFTS-MW18	10/11/2018	SWFTS-MW18-EM15	N	EM15	5,300	41,000	13	2.1	1.88
SWFTS-MW18	12/20/2018	SWFTS-MW18-EM16	N	EM16	5,000	38,000	15	1.8	0.67
SWFTS-MW18	2/26/2019	SWFTS-MW18-EM17	N	EM17	4,600	28,000	11	1.9	0.00
SWFTS-MW18	4/9/2019	SWFTS-MW18-EM18	N	EM18	4,800	26,000	11 J-	1.6	0.48
SWFTS-MW18	5/21/2019	SWFTS-MW18-EM19	N	EM19	4,600	25,000	12	1.5	0.65
SWFTS-MW18	7/1/2019	SWFTS-MW18-EM20	N	EM20	4,300	29,000	12	1.9	0.41
SWFTS-MW18	8/13/2019	SWFTS-MW18-EM21	N	EM21	4,600	25,000	12	1.8	0.39
SWFTS-MW18	11/6/2019	SWFTS-MW18-EM22	N	EM22	2,600	6,600	2.8	2.0	0.30
SWFTS-MW18	12/17/2019	SWFTS-MW18-EM23	N	EM23	4,200	19,000	8.8	1.9	0.64
SWFTS-MW18	1/29/2020	SWFTS-MW18-EM24	N	EM24	5,800	23,000	10	2.0	0.53
SWFTS-MW18	3/11/2020	SWFTS-MW18-EM25	N	EM25	7,100	30,000	9.4	1.7	2.18
SWFTS-MW18	4/29/2020	SWFTS-MW18-EM26	N	EM26	6,700	31,000	10	1.9	2.07
SWFTS-MW19	7/12/2017	SWFTS-MW19-BL02	N	BL02	840	130	0.33	2.6	0.77
SWFTS-MW19	9/21/2017	SWFTS-MW19-EM01	N	EM01	1,400	220	0.51	2.3	0.43
SWFTS-MW19	9/28/2017	SWFTS-MW19-EM02	N	EM02	1,400	260	0.74	2.8	6.39
SWFTS-MW19	10/5/2017	SWFTS-MW19-EM03	N	EM03	1,400	220	0.63	2.6	5.16
SWFTS-MW19	10/12/2017	SWFTS-MW19-EM04	N	EM04	1,400	220 J+	0.70	2.2	0.28
SWFTS-MW19	10/27/2017	SWFTS-MW19-EM05	N	EM05	1,900	250	0.77	2.6	0.38
SWFTS-MW19	11/16/2017	SWFTS-MW19-EM06	N	EM06	1,500	270	0.97	2.3	0.73
SWFTS-MW19	12/12/2017	SWFTS-MW19-EM07	N	EM07	2,000	410	1.2	2.4	0.92
SWFTS-MW19	2/20/2018	SWFTS-MW19-EM08	N	EM08	1,900	610	0.73	2.6	1.25
SWFTS-MW19	3/27/2018	SWFTS-MW19-EM09	N	EM09	1,800	650	0.71	2.2	1.09
SWFTS-MW19	4/30/2018	SWFTS-MW19-EM10	N	EM10	1,800	820	0.70	2.2	0.56
SWFTS-MW19	4/30/2018	SWFTS-MW19-EM10-FD	FD	EM10	1,700	760	0.67	2.2	--
SWFTS-MW19	7/10/2018	SWFTS-MW19-EM11	N	EM11	2,000	1,100	0.52	1.9	2.80
SWFTS-MW19	7/10/2018	SWFTS-MW19-EM11-FD	FD	EM11	2,000	1,000	0.52	1.9	--
SWFTS-MW19	7/26/2018	SWFTS-MW19-EM12	N	EM12	1,800	890	--	--	1.11
SWFTS-MW19	7/26/2018	SWFTS-MW19-EM12-FD	FD	EM12	1,700	890	--	--	--
SWFTS-MW19	8/15/2018	SWFTS-MW19-EM13	N	EM13	1,700	900	0.44	2.4	0.95
SWFTS-MW19	9/11/2018	SWFTS-MW19-EM14	N	EM14	1,500	850	0.37	2.0	1.06

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**Table 2**  
**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW19	10/9/2018	SWFTS-MW19-EM15	N	EM15	2,000	870	0.41 J	2.4	1.43
SWFTS-MW19	10/9/2018	SWFTS-MW19-EM15-FD	FD	EM15	1,700	870	0.40 J	2.4	--
SWFTS-MW19	12/27/2018	SWFTS-MW19-EM16	N	EM16	1,400	760	0.36	2.4	1.43
SWFTS-MW19	12/27/2018	SWFTS-MW19-EM16-FD	FD	EM16	1,300	760	0.36	2.1	--
SWFTS-MW19	2/27/2019	SWFTS-MW19-EM17	N	EM17	1,300	590	0.35	2.1	0.14
SWFTS-MW19	2/27/2019	SWFTS-MW19-EM17-FD	FD	EM17	1,300	560	0.38 J	2.1	--
SWFTS-MW19	4/10/2019	SWFTS-MW19-EM18	N	EM18	1,500	530	0.33 J	2.2	1.27
SWFTS-MW19	4/10/2019	SWFTS-MW19-EM18-FD	FD	EM18	1,300	510	0.37 J	2.1	--
SWFTS-MW19	5/21/2019	SWFTS-MW19-EM19	N	EM19	1,200	420	0.18 J	3.3	1.22
SWFTS-MW19	5/21/2019	SWFTS-MW19-EM19-FD	FD	EM19	1,200	400	0.24	3.2	--
SWFTS-MW19	7/2/2019	SWFTS-MW19-EM20	N	EM20	1,100	340	0.11	2.9	1.54
SWFTS-MW19	7/2/2019	SWFTS-MW19-EM20-FD	FD	EM20	1,100	340	0.11	3.1	--
SWFTS-MW19	8/15/2019	SWFTS-MW19-EM21	N	EM21	1,200	260	<0.28	2.6	1.6
SWFTS-MW19	8/15/2019	SWFTS-MW19-EM21-FD	FD	EM21	1,200	260	<0.28	2.6	--
SWFTS-MW19	11/5/2019	SWFTS-MW19-EM22	N	EM22	1,300	270	0.36 J	2.3	1.28
SWFTS-MW19	11/5/2019	SWFTS-MW19-EM22-FD	FD	EM22	1,300	270	0.37 J	2.3	--
SWFTS-MW19	12/19/2019	SWFTS-MW19-EM23	N	EM23	1,200	420	0.31 J	2.0	2.03
SWFTS-MW19	12/19/2019	SWFTS-MW19-EM23-FD	FD	EM23	1,300	370	0.32 J	2.1	--
SWFTS-MW19	1/29/2020	SWFTS-MW19-EM24	N	EM24	1,400	550	0.61	2.3	1.01
SWFTS-MW19	1/29/2020	SWFTS-MW19-EM24-FD	FD	EM24	1,300	570	0.62	2.2	--
SWFTS-MW19	3/11/2020	SWFTS-MW19-EM25	N	EM25	1,300	780	0.70 J	2.3	1.69
SWFTS-MW19	3/11/2020	SWFTS-MW19-EM25-FD	FD	EM25	1,300	740	0.72 J	2.3	--
SWFTS-MW19	4/28/2020	SWFTS-MW19-EM26	N	EM26	1,200	1,100	<0.55	2.5	2.1
SWFTS-MW19	4/28/2020	SWFTS-MW19-EM26-FD	FD	EM26	1,200	1,100	0.56 J	2.6	--
SWFTS-MW20	7/12/2017	SWFTS-MW20-BL02	N	BL02	20,000	51,000	13	1.7	6.05
SWFTS-MW20	9/21/2017	SWFTS-MW20-EM01	N	EM01	17,000	30,000	7.3	2.5	3.72
SWFTS-MW20	9/26/2017	SWFTS-MW20-EM02	N	EM02	16,000	33,000	7.6	3.0	0.49
SWFTS-MW20	10/4/2017	SWFTS-MW20-EM03	N	EM03	19,000	38,000	9.6	2.6	0.22
SWFTS-MW20	10/12/2017	SWFTS-MW20-EM04	N	EM04	14,000	42,000	8.5	2.2	0.23
SWFTS-MW20	10/12/2017	SWFTS-MW20-EM04-FD	FD	EM04	14,000	40,000	9.1	2.2	--
SWFTS-MW20	10/25/2017	SWFTS-MW20-EM05	N	EM05	17,000	40,000	11	2.6	0.45
SWFTS-MW20	11/16/2017	SWFTS-MW20-EM06	N	EM06	7,900	16,000	4.0	3.0	0.74
SWFTS-MW20	12/12/2017	SWFTS-MW20-EM07	N	EM07	16,000	43,000	8.5	2.2	0.20
SWFTS-MW20	2/19/2018	SWFTS-MW20-EM08	N	EM08	6,600	16,000	3.2	2.5	2.54
SWFTS-MW20	3/27/2018	SWFTS-MW20-EM09	N	EM09	11,000	24,000	5.2	2.2	3.64
SWFTS-MW20	4/30/2018	SWFTS-MW20-EM10	N	EM10	6,700	14,000	3.3	2.3	0.19
SWFTS-MW20	7/11/2018	SWFTS-MW20-EM11	N	EM11	6,700	16,000	3.2	2.8	1.72
SWFTS-MW20	7/26/2018	SWFTS-MW20-EM12	N	EM12	7,500	19,000	--	--	1.88
SWFTS-MW20	8/15/2018	SWFTS-MW20-EM13	N	EM13	4,300	5,600	2.8	2.8	0.81
SWFTS-MW20	8/15/2018	SWFTS-MW20-EM13-FD	FD	EM13	4,300	5,700	2.7	2.8	--

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**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW20	9/11/2018	SWFTS-MW20-EM14	N	EM14	3,400	8,500	2.3 J	2.6	0.51
SWFTS-MW20	9/11/2018	SWFTS-MW20-EM14-FD	FD	EM14	3,900	9,500	6.9 J	2.6	--
SWFTS-MW20	10/9/2018	SWFTS-MW20-EM15	N	EM15	4,000	5,900	2.2	3.0	1.96
SWFTS-MW20	12/20/2018	SWFTS-MW20-EM16	N	EM16	2,800	830	2.1	2.8	0.97
SWFTS-MW20	2/26/2019	SWFTS-MW20-EM17	N	EM17	1,500	170	1.5 J	3.2	0.36
SWFTS-MW20	4/9/2019	SWFTS-MW20-EM18	N	EM18	1,400	300	1.7 J	2.9	0.64
SWFTS-MW20	5/21/2019	SWFTS-MW20-EM19	N	EM19	1,000	69 J	1.3 J	2.8	0.41
SWFTS-MW20	7/2/2019	SWFTS-MW20-EM20	N	EM20	870	37 J	0.70 J	4.0	0.43
SWFTS-MW20	8/13/2019	SWFTS-MW20-EM21	N	EM21	390	23 J	0.41 J	3.4	0.42
SWFTS-MW20	11/5/2019	SWFTS-MW20-EM22	N	EM22	430	26 J	<1.1	3.4	0.49
SWFTS-MW20	12/17/2019	SWFTS-MW20-EM23	N	EM23	290	30 J	<1.1	2.8	0.65
SWFTS-MW20	1/29/2020	SWFTS-MW20-EM24	N	EM24	340	32 J	0.49 J	3.0	0.52
SWFTS-MW20	3/12/2020	SWFTS-MW20-EM25	N	EM25	220	370	0.55 R	4.8	2.25
SWFTS-MW20	4/29/2020	SWFTS-MW20-EM26	N	EM26	180	38 J	<0.28	4.3	2
SWFTS-MW21	7/13/2017	SWFTS-MW21-BL02	N	BL02	5,800	49,000	15	0.94 J	6.15
SWFTS-MW21	9/21/2017	SWFTS-MW21-EM01	N	EM01	5,200	15,000	3.9	7.5	4.90
SWFTS-MW21	9/27/2017	SWFTS-MW21-EM02	N	EM02	950	4,700	1.8 J	19	0.28
SWFTS-MW21	10/5/2017	SWFTS-MW21-EM03	N	EM03	1,100	7,700	3.2	24	4.40
SWFTS-MW21	10/11/2017	SWFTS-MW21-EM04	N	EM04	820	4,200	1.8	25	0.28
SWFTS-MW21	10/27/2017	SWFTS-MW21-EM05	N	EM05	890	5,000	2.0	2.8	0.45
SWFTS-MW21	11/15/2017	SWFTS-MW21-EM06	N	EM06	2,300	13,000	3.7	2.1	3.07
SWFTS-MW21	12/13/2017	SWFTS-MW21-EM07	N	EM07	3,500	26,000	4.7	1.6	0.68
SWFTS-MW21	2/20/2018	SWFTS-MW21-EM08	N	EM08	4,800	34,000	11	1.6	0.24
SWFTS-MW21	2/20/2018	SWFTS-MW21-EM08-FD	FD	EM08	4,900	33,000	11	1.6	--
SWFTS-MW21	3/27/2018	SWFTS-MW21-EM09	N	EM09	4,600	32,000	10	1.1	0.37
SWFTS-MW21	4/30/2018	SWFTS-MW21-EM10	N	EM10	4,400	27,000	10	1.3	0.00
SWFTS-MW21	7/12/2018	SWFTS-MW21-EM11	N	EM11	1,300	7,900	2.8	3.7	0.06
SWFTS-MW21	7/27/2018	SWFTS-MW21-EM12	N	EM12	1,000	9,000	--	--	8.98 E
SWFTS-MW21	8/15/2018	SWFTS-MW21-EM13	N	EM13	1,300	2,900	1.9	2.7	0.68
SWFTS-MW21	9/12/2018	SWFTS-MW21-EM14	N	EM14	2,000	2,600	1.3	2.2	0.35
SWFTS-MW21	10/9/2018	SWFTS-MW21-EM15	N	EM15	2,700	2,600	2.9	1.9	0.59
SWFTS-MW21	12/20/2018	SWFTS-MW21-EM16	N	EM16	3,000	5,200	7.5	1.6	1.11
SWFTS-MW21	2/26/2019	SWFTS-MW21-EM17	N	EM17	2,800	2,500	9.3	1.4	0.00
SWFTS-MW21	4/10/2019	SWFTS-MW21-EM18	N	EM18	2,400	200	7.1	1.3	3.78
SWFTS-MW21	5/22/2019	SWFTS-MW21-EM19	N	EM19	3,100	530	9.6	1.3	0.57
SWFTS-MW21	7/1/2019	SWFTS-MW21-EM20	N	EM20	3,400	4,500	11	1.8	0.25
SWFTS-MW21	8/13/2019	SWFTS-MW21-EM21	N	EM21	4,000	5,400	11	1.5	0.38
SWFTS-MW21	11/4/2019	SWFTS-MW21-EM22	N	EM22	690	1,200	1.9	5.2	0.30
SWFTS-MW21	12/18/2019	SWFTS-MW21-EM23	N	EM23	810	230	2.0	1.5	0.82
SWFTS-MW21	1/30/2020	SWFTS-MW21-EM24	N	EM24	2,300	2,500	3.7	1.4	0.63

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 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW21	3/11/2020	SWFTS-MW21-EM25	N	EM25	2,600	2,700	7.2 J-	1.4	2.27
SWFTS-MW21	4/29/2020	SWFTS-MW21-EM26	N	EM26	4,200	17,000	9.7	1.5	3.29
SWFTS-MW22	7/13/2017	SWFTS-MW22-BL02	N	BL02	5,000	7,900	2.2	2.2	2.09
SWFTS-MW22	9/20/2017	SWFTS-MW22-EM01	N	EM01	4,000	6,700	1.7	2.2	0.32
SWFTS-MW22	9/27/2017	SWFTS-MW22-EM02	N	EM02	3,800	6,300	1.7	2.6	0.12
SWFTS-MW22	10/5/2017	SWFTS-MW22-EM03	N	EM03	3,500	6,000	1.7	2.7	0.41
SWFTS-MW22	10/12/2017	SWFTS-MW22-EM04	N	EM04	2,600	5,700	1.4	2.3	2.72
SWFTS-MW22	10/26/2017	SWFTS-MW22-EM05	N	EM05	3,700	5,500	1.6	2.6	0.29
SWFTS-MW22	11/16/2017	SWFTS-MW22-EM06	N	EM06	3,000	4,400	1.3	2.5	0.45
SWFTS-MW22	12/14/2017	SWFTS-MW22-EM07	N	EM07	2,500	4,900	1.4	2.6	1.31
SWFTS-MW22	2/21/2018	SWFTS-MW22-EM08	N	EM08	2,000	2,400	0.89 J	2.4	0.43
SWFTS-MW22	3/28/2018	SWFTS-MW22-EM09	N	EM09	2,000	2,600	0.83	2.4	0.65
SWFTS-MW22	4/30/2018	SWFTS-MW22-EM10	N	EM10	1,900	1,800	<0.055	2.2	0.26
SWFTS-MW22	7/10/2018	SWFTS-MW22-EM11	N	EM11	2,900	840	0.81	2.3	2.80
SWFTS-MW22	7/27/2018	SWFTS-MW22-EM12	N	EM12	2,200	3,600	--	--	4.13
SWFTS-MW22	8/16/2018	SWFTS-MW22-EM13	N	EM13	2,400	1,300	0.95 J+	2.4	2.29
SWFTS-MW22	9/11/2018	SWFTS-MW22-EM14	N	EM14	2,800	1,600 J+	1.2	2.2	0.47
SWFTS-MW22	10/9/2018	SWFTS-MW22-EM15	N	EM15	3,100	1,600	1.2	2.7	0.28
SWFTS-MW22	12/27/2018	SWFTS-MW22-EM16	N	EM16	2,400	1,700	1.3	2.4	0.6
SWFTS-MW22	2/27/2019	SWFTS-MW22-EM17	N	EM17	2,500	2,100	1.5	2.4	0.07
SWFTS-MW22	4/11/2019	SWFTS-MW22-EM18	N	EM18	2,500	2,700	1.7	2.4	0.57
SWFTS-MW22	5/21/2019	SWFTS-MW22-EM19	N	EM19	2,500	2,500	1.6	3.4	0.49
SWFTS-MW22	7/2/2019	SWFTS-MW22-EM20	N	EM20	2,300	2,200	1.5	2.7	0.43
SWFTS-MW22	8/12/2019	SWFTS-MW22-EM21	N	EM21	2,300	2,300	1.3	2.6	0.4
SWFTS-MW22	11/5/2019	SWFTS-MW22-EM22	N	EM22	2,000	2,300	1.2	2.4	0.39
SWFTS-MW22	12/19/2019	SWFTS-MW22-EM23	N	EM23	1,600	2,200	0.92	2.2	0.80
SWFTS-MW22	1/30/2020	SWFTS-MW22-EM24	N	EM24	1,700	2,100	1.0	2.2	0.62
SWFTS-MW22	3/11/2020	SWFTS-MW22-EM25	N	EM25	1,900	3,100	1.3	2.3	1.55
SWFTS-MW22	4/28/2020	SWFTS-MW22-EM26	N	EM26	3,000	4,700	1.9	2.3	1.99
SWFTS-MW23	7/13/2017	SWFTS-MW23-BL02	N	BL02	930	20	0.14 J	2.9	0.36
SWFTS-MW23	9/22/2017	SWFTS-MW23-EM01	N	EM01	1,700	160 J	0.64	3.1	0.55
SWFTS-MW23	9/28/2017	SWFTS-MW23-EM02	N	EM02	1,700	120	0.67	3.3	0.16
SWFTS-MW23	10/5/2017	SWFTS-MW23-EM03	N	EM03	1,900	<2,000	0.79	3.2	0.79
SWFTS-MW23	10/11/2017	SWFTS-MW23-EM04	N	EM04	4,000	220	0.88	2.9	1.87
SWFTS-MW23	10/26/2017	SWFTS-MW23-EM05	N	EM05	2,400	270	1.2	2.8	0.38
SWFTS-MW23	11/15/2017	SWFTS-MW23-EM06	N	EM06	2,400	270	1.4	3.0	0.49
SWFTS-MW23	12/12/2017	SWFTS-MW23-EM07	N	EM07	2,800	370	1.5	2.7	0.23
SWFTS-MW23	2/21/2018	SWFTS-MW23-EM08	N	EM08	2,800	300 J-	1.6	3.1	5.42
SWFTS-MW23	3/28/2018	SWFTS-MW23-EM09	N	EM09	2,100	180	0.83	2.8	2.59
SWFTS-MW23	5/2/2018	SWFTS-MW23-EM10	N	EM10	1,400	120	0.43	2.8	0.30

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Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW23	7/10/2018	SWFTS-MW23-EM11	N	EM11	1,000	18 J	0.11	2.7	0.44
SWFTS-MW23	8/16/2018	SWFTS-MW23-EM13	N	EM13	870	28	0.055 J	3.2	2.48
SWFTS-MW23	9/12/2018	SWFTS-MW23-EM14	N	EM14	1,300	52	0.11	2.7	0.64
SWFTS-MW23	10/11/2018	SWFTS-MW23-EM15	N	EM15	1,500	95 J	<0.28	3.2	1.68
SWFTS-MW23	12/28/2018	SWFTS-MW23-EM16	N	EM16	1,700	110	0.46	2.9	0.97
SWFTS-MW23	2/27/2019	SWFTS-MW23-EM17	N	EM17	1,400	66	0.30	2.9	0.05
SWFTS-MW23	4/11/2019	SWFTS-MW23-EM18	N	EM18	1,400	76	0.26	3.3	0.57
SWFTS-MW23	5/22/2019	SWFTS-MW23-EM19	N	EM19	1,400	100	0.35	2.9	0.08
SWFTS-MW23	7/3/2019	SWFTS-MW23-EM20	N	EM20	1,800	160	0.73	3.4	0.50
SWFTS-MW23	8/14/2019	SWFTS-MW23-EM21	N	EM21	2,500	250	1.2	3.1	0.42
SWFTS-MW23	11/5/2019	SWFTS-MW23-EM22	N	EM22	3,000	310	1.4	2.7	0.64
SWFTS-MW23	12/19/2019	SWFTS-MW23-EM23	N	EM23	2,300	290	0.94	2.6	1.41
SWFTS-MW23	1/30/2020	SWFTS-MW23-EM24	N	EM24	1,700	140	0.66	2.7	0.61
SWFTS-MW23	3/10/2020	SWFTS-MW23-EM25	N	EM25	1,200	50	0.24 J-	3.0	2.44
SWFTS-MW23	4/28/2020	SWFTS-MW23-EM26	N	EM26	670	8.8 J	<0.11	2.9	2.12
SWFTS-MW24	7/13/2017	SWFTS-MW24-BL02	N	BL02	13,000	47,000	13	1.3	3.04
SWFTS-MW24	9/22/2017	SWFTS-MW24-EM01	N	EM01	9,400	32,000	9.0	1.7	1.31
SWFTS-MW24	9/28/2017	SWFTS-MW24-EM02	N	EM02	5,200	12,000	4.5	4.3	0.48
SWFTS-MW24	10/5/2017	SWFTS-MW24-EM03	N	EM03	7,800	34,000	9.4	2.0	0.76
SWFTS-MW24	10/11/2017	SWFTS-MW24-EM04	N	EM04	4,400	17,000	4.7	1.9	3.88
SWFTS-MW24	10/26/2017	SWFTS-MW24-EM05	N	EM05	7,000	24,000	7.9	2.0 J-	3.06
SWFTS-MW24	11/15/2017	SWFTS-MW24-EM06	N	EM06	4,100	14,000	3.9	1.9	1.39
SWFTS-MW24	12/12/2017	SWFTS-MW24-EM07	N	EM07	6,600	26,000	6.1	1.5	1.11
SWFTS-MW24	2/21/2018	SWFTS-MW24-EM08	N	EM08	6,100	22,000	6.9	2.0	0.95
SWFTS-MW24	3/28/2018	SWFTS-MW24-EM09	N	EM09	4,800	15,000	5.4	1.6	0.55
SWFTS-MW24	5/2/2018	SWFTS-MW24-EM10	N	EM10	4,800	12,000	6.6	1.5	0.00
SWFTS-MW24	7/12/2018	SWFTS-MW24-EM11	N	EM11	5,000	6,100	7.3	1.3	0.10
SWFTS-MW24	7/27/2018	SWFTS-MW24-EM12	N	EM12	4,000	7,100	--	--	5.09
SWFTS-MW24	8/15/2018	SWFTS-MW24-EM13	N	EM13	4,000	4,800	7.6	1.9	1.83
SWFTS-MW24	9/12/2018	SWFTS-MW24-EM14	N	EM14	3,700	3,500	6.1	1.6	0.75
SWFTS-MW24	10/10/2018	SWFTS-MW24-EM15	N	EM15	3,500	2,700	6.5	2.0	2.95
SWFTS-MW24	1/2/2019	SWFTS-MW24-EM16	N	EM16	3,500	2,000	7.7	1.7	1.55
SWFTS-MW24	2/27/2019	SWFTS-MW24-EM17	N	EM17	3,400	2,100	7.8	1.5	1.29
SWFTS-MW24	4/10/2019	SWFTS-MW24-EM18	N	EM18	2,700	1,100	6.1	1.5	1.24
SWFTS-MW24	5/22/2019	SWFTS-MW24-EM19	N	EM19	2,700	1,900	5.8	1.6	1.18
SWFTS-MW24	7/1/2019	SWFTS-MW24-EM20	N	EM20	2,800	1,900	5.1	2.0	0.65
SWFTS-MW24	8/14/2019	SWFTS-MW24-EM21	N	EM21	3,400	5,500	6.9	1.9	0.63
SWFTS-MW24	11/5/2019	SWFTS-MW24-EM22	N	EM22	3,500	6,900	6.9	1.6	1.34
SWFTS-MW24	12/19/2019	SWFTS-MW24-EM23	N	EM23	2,400	2,400	5.4	1.4	1.47
SWFTS-MW24	1/30/2020	SWFTS-MW24-EM24	N	EM24	2,500	2,900	4.8	1.6	1.16

**Table 2**  
**Groundwater Analytical Results**  
 Seep Well Field Area Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Event	Perchlorate by USEPA Method 314.0 µg/L	Chlorate by USEPA Method 300.1B µg/L	Nitrate (as N) by USEPA Method 300.0 mg/L	Total Organic Carbon by SM 5310B mg/L	Dissolved Oxygen Field Measurement mg/L
SWFTS-MW24	3/10/2020	SWFTS-MW24-EM25	N	EM25	3,400	6,000	4.9 J-	1.5	2.8
SWFTS-MW24	4/28/2020	SWFTS-MW24-EM26	N	EM26	5,800	15,000	6.9	1.4	2.6
SWFTS-MW25	7/13/2017	SWFTS-MW25-BL02	N	BL02	17,000	43,000	10	1.8	3.03
SWFTS-MW25	9/22/2017	SWFTS-MW25-EM01	N	EM01	280	<200	<0.55	13	0.50
SWFTS-MW25	9/28/2017	SWFTS-MW25-EM02	N	EM02	370	130	<0.55	4.8	0.14
SWFTS-MW25	10/5/2017	SWFTS-MW25-EM03	N	EM03	230	<500	<0.55	3.3	0.96
SWFTS-MW25	10/11/2017	SWFTS-MW25-EM04	N	EM04	140	160	<0.55	2.7	0.26
SWFTS-MW25	10/26/2017	SWFTS-MW25-EM05	N	EM05	420	170	<0.28	2.6	0.98
SWFTS-MW25	11/15/2017	SWFTS-MW25-EM06	N	EM06	440	630	<0.55	2.5	1.11
SWFTS-MW25	12/12/2017	SWFTS-MW25-EM07	N	EM07	2,300	1,700	<0.55	2.3	0.63
SWFTS-MW25	2/21/2018	SWFTS-MW25-EM08	N	EM08	2,800	4,700	<1.1	2.4	0.32
SWFTS-MW25	3/28/2018	SWFTS-MW25-EM09	N	EM09	4,600	11,000	2.8	2.0	0.20
SWFTS-MW25	5/3/2018	SWFTS-MW25-EM10	N	EM10	5,700	3,600	4.2	1.9	0.00
SWFTS-MW25	7/10/2018	SWFTS-MW25-EM11	N	EM11	4,300	2,100	3.6	1.7	3.00
SWFTS-MW25	7/27/2018	SWFTS-MW25-EM12	N	EM12	3,500	2,300	--	--	2.49
SWFTS-MW25	8/15/2018	SWFTS-MW25-EM13	N	EM13	4,500	4,300	5.2	2.3	1.91
SWFTS-MW25	9/12/2018	SWFTS-MW25-EM14	N	EM14	5,200	6,800	6.9	1.9	0.47
SWFTS-MW25	10/11/2018	SWFTS-MW25-EM15	N	EM15	5,000	7,600	7.9	2.0	1.25
SWFTS-MW25	1/2/2019	SWFTS-MW25-EM16	N	EM16	6,300	11,000	8.7	2.0	0.97
SWFTS-MW25	2/27/2019	SWFTS-MW25-EM17	N	EM17	4,000	6,400	4.9	2.0	0.05
SWFTS-MW25	4/11/2019	SWFTS-MW25-EM18	N	EM18	5,300	13,000	7.4	2.1	0.81
SWFTS-MW25	5/22/2019	SWFTS-MW25-EM19	N	EM19	5,700	15,000	9.2	1.9	0.12
SWFTS-MW25	7/3/2019	SWFTS-MW25-EM20	N	EM20	5,600	15,000	8.1	2.2	0.47
SWFTS-MW25	8/14/2019	SWFTS-MW25-EM21	N	EM21	6,600	19,000	8.2	2.5	0.39
SWFTS-MW25	11/5/2019	SWFTS-MW25-EM22	N	EM22	6,100	14,000	7.7	1.8	0.54
SWFTS-MW25	12/19/2019	SWFTS-MW25-EM23	N	EM23	6,000	15,000	7.4	1.7	0.74
SWFTS-MW25	1/30/2020	SWFTS-MW25-EM24	N	EM24	7,500	21,000	8.7	1.9	0.55
SWFTS-MW25	3/10/2020	SWFTS-MW25-EM25	N	EM25	8,300	22,000	8.6 J-	2.0	2.45
SWFTS-MW25	4/28/2020	SWFTS-MW25-EM26	N	EM26	8,400	23,000	9.5	1.8	2

Notes:

mg/L - milligrams per liter

ug/L - micrograms per liter

-- not analyzed

< The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

E Instrument error during sampling