

TECHNICAL MEMORANDUM

To: Nevada Environmental Response Trust

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

From: Dan Pastor and Dana Grady

Date: October 19, 2018

Subject: Seep Well Field Area Bioremediation Treatability Study Monthly Progress Report

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 during August 2018 toward successfully implementing the Seep Well Field (SWF) Area Bioremediation Treatability Study.

Task Progress Update: August 2018

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

- Task Leader – Dana Grady/Dan Pastor
- Current Status
 - As briefly summarized in the July progress report, the third injection event began on June 11, 2018 and was completed on June 30, 2018. Following the third injection event, groundwater sampling was performed the weeks of July 9, July 26, and August 9, 2018. Results of the groundwater sampling events are summarized below. For reference, the attached Figure 1 provides a map of the injection and monitoring well locations, which includes the baseline groundwater potentiometric surface. Well construction details and a summary of the groundwater analytical results for perchlorate, chlorate, nitrate, total organic carbon (TOC), and dissolved oxygen through August 2018 are provided in Tables 1 and 2, respectively. The following provides a short summary of the results.
 - Following the third injection event, effectiveness monitoring results continue to indicate that perchlorate concentrations remain at levels significantly below their respective baseline concentrations, with 17 of the downgradient monitoring wells observing a greater than 50% reduction in groundwater perchlorate concentrations. Of these 17 monitoring wells, groundwater samples from 10 wells observed a greater than 75% reduction in perchlorate concentrations when compared to baseline concentrations. Figure 2 provides a two-dimensional visualization of perchlorate concentrations in groundwater during the groundwater sampling events following the third injection event compared to baseline concentrations.

- Groundwater samples collected from monitoring wells between the injection well transects continued to indicate perchlorate concentration decreases, including very low concentrations to non-detect levels in groundwater samples from monitoring wells SWFTS-MW14 and SWFTS-MW16. Groundwater samples from SWFTS-MW02 and SWFTS-MW15 also continued to show decreases in perchlorate concentrations when compared to baseline, including the lowest concentrations to date at both wells during the July event. Groundwater perchlorate concentrations at SWFTS-MW02 have continued to exhibit a steady decreasing trend from baseline of 23,000 µg/L to 1,700 µg/L during the most recent August 2018 event.
- Groundwater samples collected from monitoring wells downgradient of the injection well transects also continue to indicate perchlorate concentration decreases similar to those observed following the first injection event, with nearly all downgradient monitoring wells showing at least a 50% reduction and seven monitoring wells showing greater than 75% reduction.
 - Chlorate concentrations in groundwater follow decreasing trends similar to perchlorate with 14 downgradient monitoring wells exhibiting greater than 80% reduction in chlorate concentrations in groundwater when compared to baseline. This includes four locations (PC-91, SWFTS-MW10A, SWFTS-MW14, and SWFTS-MW16) exhibiting groundwater concentrations at non-detect levels following the third injection event.
 - Nitrate concentrations were also evaluated since it is the most likely competing electron acceptor and carbon substrate consumer. The majority of the downgradient monitoring wells have exhibited concentration reductions when compared to baseline. Nitrate concentrations in groundwater were generally greater than 10 milligrams per liter (mg/L) during the baseline sampling event. Average nitrate concentrations in groundwater following the third injection are 4 mg/L, with many wells less than 1 mg/L.
- Schedule and Progress Updates
 - This task remains on schedule.
 - The next groundwater sampling event is scheduled for the week of September 10 – 14, 2018.
- Health and Safety
 - There were no safety incidents related to Task M11 during August 2018.

CERTIFICATION

Seep Well Field Area Bioremediation Treatability Study Monthly 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, not individually, but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee

not ind. v. solely, but solely as President

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: 10/19/18

CERTIFICATION

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 Monthly Progress Report.



October 19, 2018

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

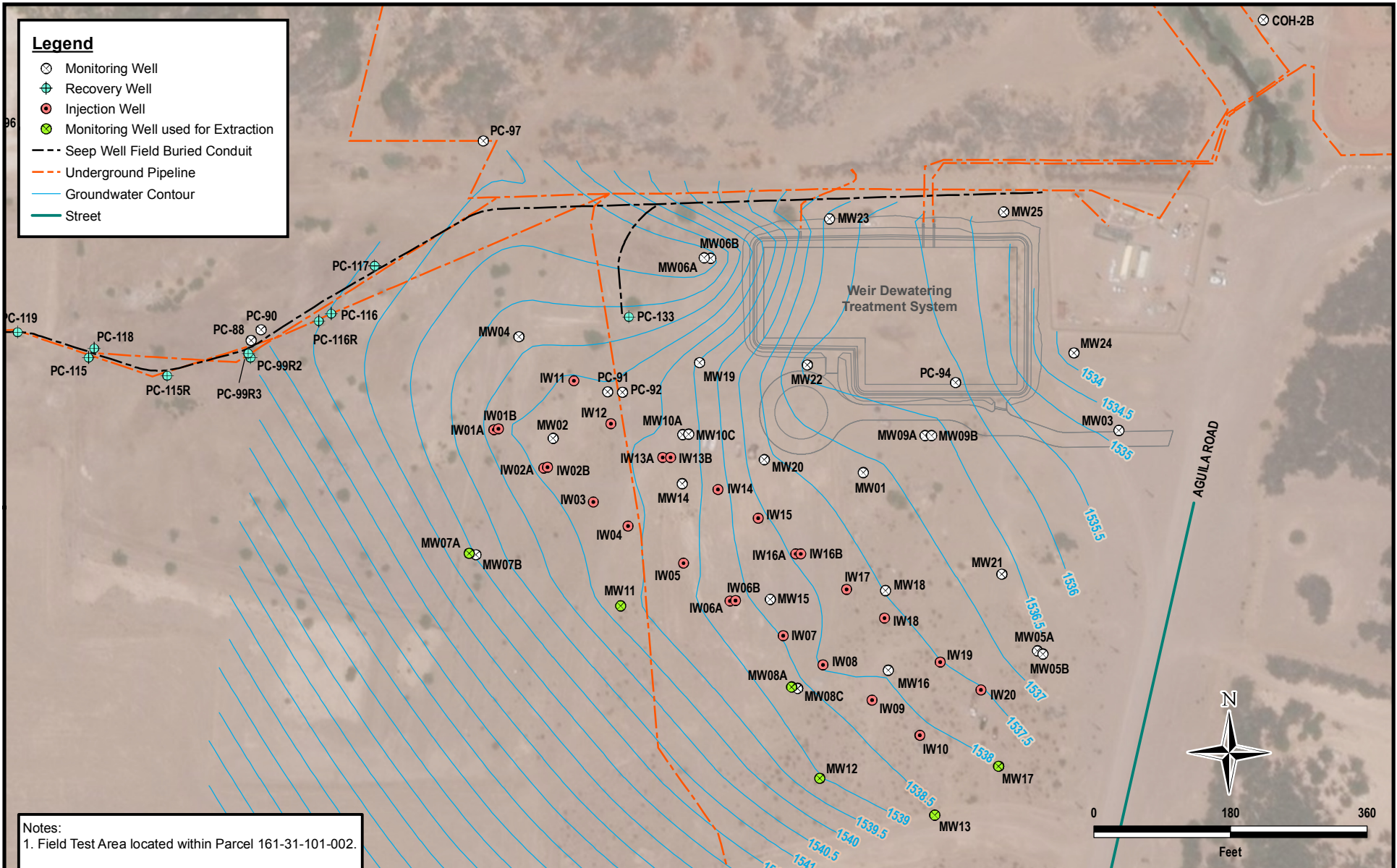
Date

Nevada CEM Certificate Number: 2167
Nevada CEM Expiration Date: September 18, 2020

Figures

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Legend

- Monitoring Well
- Recovery Well
- Injection Well
- Monitoring Well used for Extraction
- Seep Well Field Buried Conduit
- Underground Pipeline
- Groundwater Contour
- Street

- 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 baseline groundwater sampling event in July 2017.
 4. Imagery Source: Esri World Map, June 2015

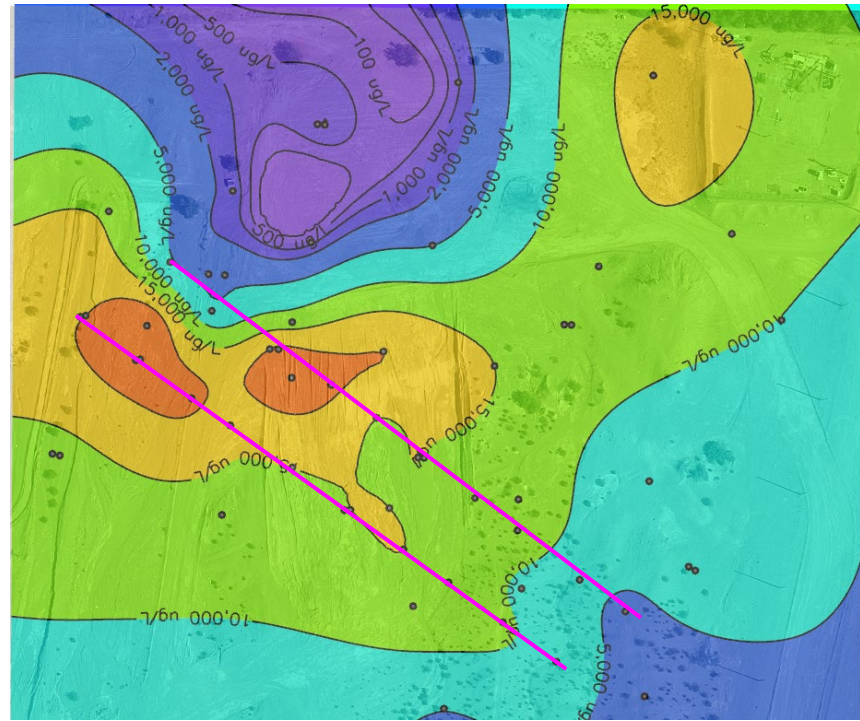
Tt TETRA TECH
www.tetrattech.com
150 S. 4th Street, Unit A
Henderson, Nevada 89015
Phone: (702) 854-2293

NEVADA ENVIRONMENTAL RESPONSE TRUST
MONTHLY PROGRESS UPDATE
MONITORING AND INJECTION WELL LAYOUT

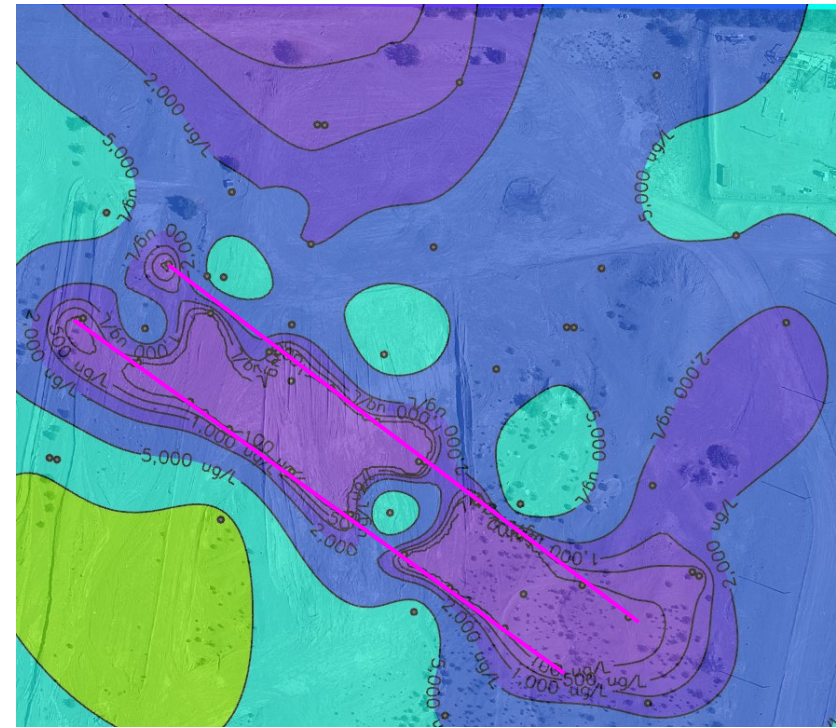
Project No.:	117-7502018
Date:	MAY 31, 2018
Designed By:	SRA
Figure No.	1

DRAFT

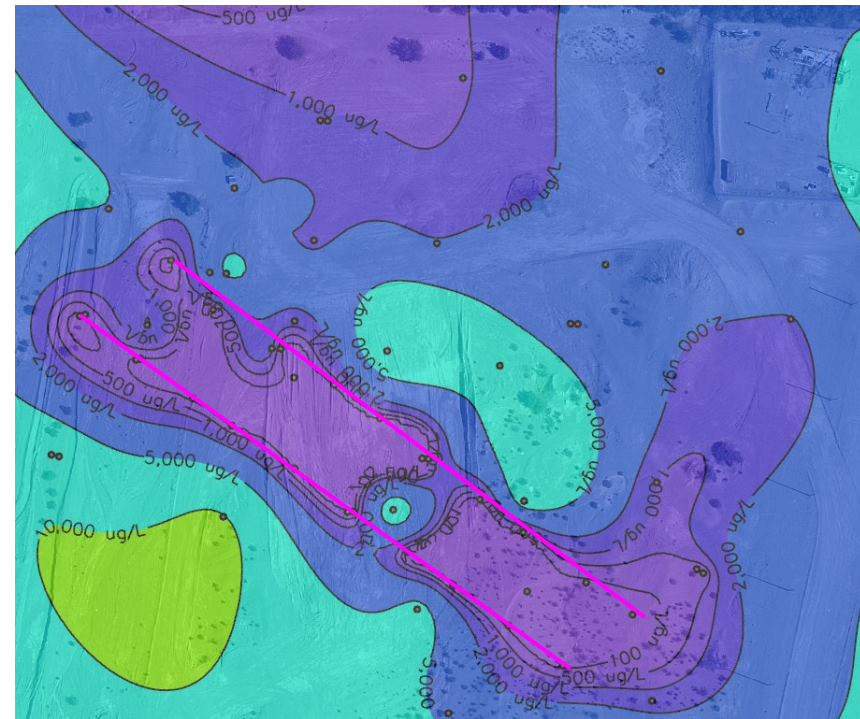
Baseline conditions (9/14/2017)



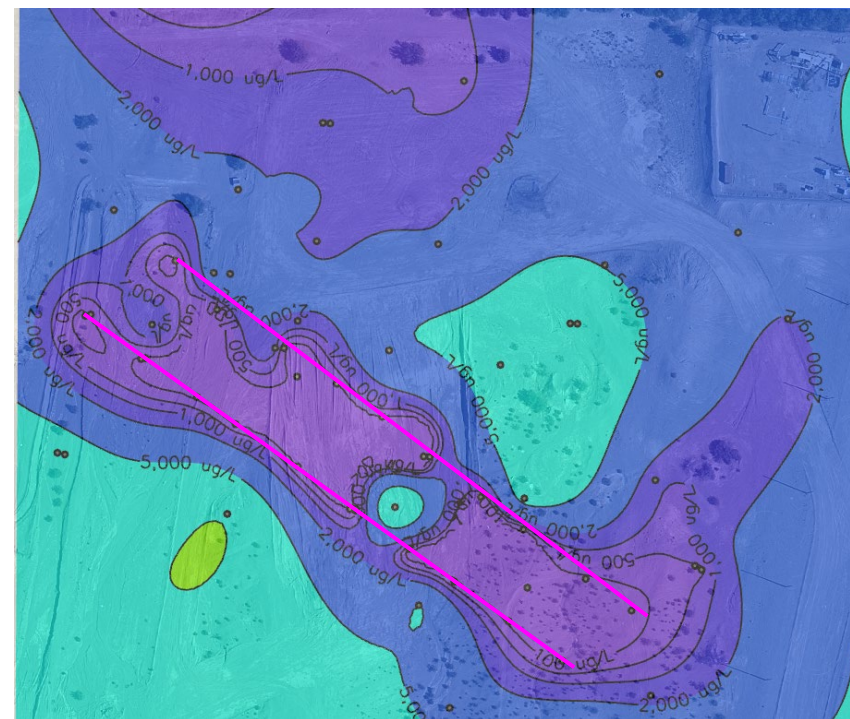
7/9/2018 Sampling Event



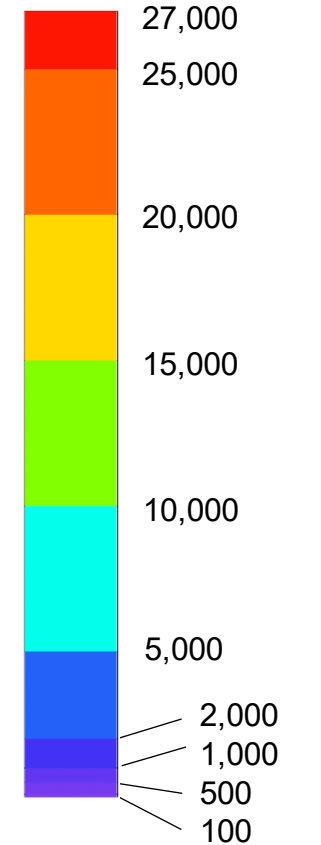
7/26/2018 Sampling Event



8/13/2018 Sampling Event

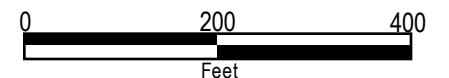


Perchlorate in groundwater (µg/L)



• Sample locations

Injection Well
Transect Lines



Notes:

1. Each image represents a horizontal slice through the interpolated perchlorate concentration plume at 1522 feet amsl (above mean sea level).
2. Baseline concentrations presented from September 2017 are representative of pre-injection conditions.
3. Injection events have occurred in August/September 2017, January/February 2018, and June 2018. Images presented in this figure represent groundwater sampling events that have occurred following the third injection event.

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<p>TETRA TECH</p> <p>www.tetratech.com 150 S. 4th Street, Unit A Henderson, Nevada 89015 PHONE: (702) 854-2293</p>	<p>NEVADA ENVIRONMENTAL RESPONSE TRUST SITE</p> <p>SEEP WELL FIELD AREA TREATABILITY STUDY MONTHLY PROGRESS REPORT</p> <p>HENDERSON, NEVADA</p>	<p>Project No.: 117-7502018</p> <p>Date: October 12, 2018</p> <p>Designed By: CKG</p>
	<p>2D VISUALIZATION PLAN VIEW OF PERCHLORATE DISTRIBUTION IN GROUNDWATER: BASELINE VS. POST-THIRD INJECTION EVENT</p>	<p>Figure No. 2</p>

Tables

Table 1
Monitoring Wells
 Seep Well Field Bioremediation Treatability Study

Monitoring Well/Borehole ID	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Depth to Water ¹	Well Diameter	Borehole Diameter	Borehole Total Depth	Well Total Depth	Bottom of Screen	Top of Screen	Screen Length	Slot Size
			feet amsl	feet amsl	feet bTOC	inches	inches	feet bgs	feet bgs	feet bgs	feet bgs	feet	inches
Newly Installed Monitoring Wells (February-June 2017)													
SWFTS-MW01	26733003.73	832067.12	1552.68	1552.39	15.25	2	6	43	39.4	38.9	24.2	15	0.020
SWFTS-MW02	26733048.86	831657.82	1553.90	1553.63	13.80	2	6	41	33.5	33.1	18.4	15	0.020
SWFTS-MW03	26733059.49	832404.39	1549.26	1549.02	14.15	2	6	60	42.2	42.1	27.2	15	0.020
SWFTS-MW04	26733183.35	831612.29	1552.16	1551.82	11.15	2	6	45	40.9	40.4	25.8	15	0.020
SWFTS-MW05A	26732768.53	832296.89	1555.41	1554.91	18.35	2	6	30	29.4	29.3	19.3	10	0.020
SWFTS-MW05B	26732764.09	832304.67	1555.41	1554.86	18.28	2	6	44	42.5	42.0	32.3	10	0.020
SWFTS-MW06A	26733287.15	831857.05	1549.03	1548.41	6.43	2	6	23	21.9	21.4	11.8	10	0.020
SWFTS-MW06B	26733286.65	831865.75	1548.86	1548.59	6.70	2	6	40	36.0	35.5	25.9	10	0.020
SWFTS-MW07A	26733052.94	832148.65	1555.90	1555.64	14.25	4	8	31	30.1	29.5	15	15	0.020
SWFTS-MW07B	26732895.65	831555.99	1555.90	1555.53	13.95	2	6	55	38.9	38.3	33.8	5	0.020
SWFTS-MW08A	26733052.55	832157.19	1556.50	1556.03	17.26	4	8	36	35.3	34.8	20.2	15	0.020
SWFTS-MW08C	26732897.49	831547.35	1556.56	1556.18	18.34	2	6	70	70.0	69.5	49.9	20	0.020
SWFTS-MW09A	26733054.00	831828.76	1551.61	1551.16	14.50	4	8	30	29.4	28.9	19.3	10	0.020
SWFTS-MW09B	26732720.57	831972.55	1551.74	1551.27	14.60	2	6	56	39.5	39.0	34.4	5	0.020
SWFTS-MW10A	26733054.15	831836.75	1551.92	1551.61	12.23	4	8	36	35.5	35.0	20.4	15	0.020
SWFTS-MW10C	26732718.60	831980.38	1551.85	1551.61	9.99	2	6	64	63.6	63.1	43.5	20	0.020
SWFTS-MW11	26732827.46	831747.30	1558.68	1558.10	18.44	4	10	43	40.0	39.6	14.8	25	0.020
SWFTS-MW12	26732600.73	832009.72	1559.00	1558.66	19.65	4	10	45	41.0	40.6	15.8	25	0.020
SWFTS-MW13	26732551.81	832161.20	1563.57	1563.20	24.65	4	10	51	48.0	47.6	17.8	30	0.020
SWFTS-MW14	26732989.39	831828.48	1552.20	1551.89	12.52	2	8	39	37.0	36.6	16.8	20	0.020
SWFTS-MW15	26732836.67	831944.36	1553.64	1553.34	15.00	2	8	37	35.0	34.6	14.8	20	0.020
SWFTS-MW16	26732742.78	832100.29	1561.83	1561.45	23.50	2	8	45	42.0	41.6	21.8	20	0.020
SWFTS-MW17	26732616.54	832245.85	1565.87	1565.56	27.53	4	10	55	53.0	52.6	22.8	30	0.020
SWFTS-MW18	26732847.58	832096.15	1554.59	1554.03	16.55	2	8	39.3	37.0	36.6	16.8	20	0.020
SWFTS-MW19	26733148.9	831850.68	1550.57	1550.37	11.48	2	8	35	31.5	31.1	11.3	20	0.020
SWFTS-MW20	26733020.92	831936.43	1551.63	1551.22	13.62	2	8	39	38.0	37.6	12.8	25	0.020
SWFTS-MW21	26732869.95	832249.88	1553.56	1553.30	16.60	2	8	41.3	40.0	39.6	14.8	25	0.020
SWFTS-MW22	26733146.27	831993.33	1549.55	1549.15	12.82	2	8	35	32.0	31.6	11.8	20	0.020
SWFTS-MW23	26733338.19	832022.56	1547.58	1550.16	13.38	2	8	38	34.0	33.6	13.8	20	0.020
SWFTS-MW24	26733161.74	832345.44	1547.78	1547.49	13.86	2	8	41	38.0	37.6	12.8	25	0.020
SWFTS-MW25	26733347.67	832252.13	1546.73	1546.37	11.20	2	8	44	43.0	42.6	12.8	30	0.020
Existing Monitoring Wells within Treatability Study Area													
COH-2B	26733593.69	832598.59	1544.42	1547.08	16.49	2	-	-	67	-	-	-	-
PC-58	26732118.20	831123.78	1574.21	1576.54	22.70	2	8	36	33	32.8	7.8	25	0.020
PC-91	26733111.11	831729.78	1552.63	1552.17	12.40	2	8	30	22	21.5	11.5	10	0.020
PC-92	26733110.00	831748.84	1552.14	1551.83	12.05	2	8	65	37	36.5	26.5	10	0.020
PC-94	26733122.77	832188.74	1548.05	1549.89	12.79	2	8	25	19.5	19.5	9.5	10	0.020
PC-97	26733441.54	831565.69	1548.88	1548.42	6.27	2	8	45	33.5	33	23	10	0.020
PC-88	26733178.42	831259.41	1550.90	1550.83	7.13	2	8	62	50.5	50	40	10	0.020

Notes:

amsl - above mean sea level

bTOC - below top of casing

bgs - below ground surface

- Not Available

1. Depth to water measurements collected during baseline groundwater sampling event on July 10, 2017. Water levels from COH-2B and PC-88 are from the first event following injections (September 19, 2017).

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement Dissolved Oxygen
				ug/L	ug/L	mg/L	mg/L	mg/L
COH-2B1	8/9/2017	COH-2B1-BL02	N	1,700	1,800	0.71	2.3	1.14
COH-2B1	9/22/2017	SWFTS-COH-2B1-EM01	N	1,700	1,600	0.53 J	2.7	1.19
COH-2B1	10/5/2017	SWFTS-COH-2B1-EM03	N	1,800	1,400	0.60	2.6	0.14
COH-2B1	10/12/2017	SWFTS-COH-2B1-EM04	N	1,800	1,600	0.58	2.3	7.92
COH-2B1	10/26/2017	SWFTS-COH-2B1-EM05	N	1,900	1,400	0.42 J	2.6	0.40
COH-2B1	12/14/2017	COH-2B1-EM07	N	1,700	5,000	0.40	2.6	-0.06
COH-2B1	2/22/2018	COH-2B1-EM08	N	1,500	1,400	0.57 J	2.9	0.34
COH-2B1	3/29/2018	COH-2B1-EM09	N	1,800	1,200	<0.55	2.3	0.41
COH-2B1	5/2/2018	COH-2B1-EM10	N	1,700	1,200	0.45	11	0.00
COH-2B1	7/10/2018	COH-2B1-EM11	N	3,000	2,400	1.4	1.9	0.47
COH-2B1	8/16/2018	COH-2B1-EM13	N	1,500	980	0.53 J	2.6	0.50
PC-58	3/28/2017	PC-58-BL01	N	2,600	19,000	9.9	3.4	0.15
PC-58	7/13/2017	PC-58-BL02	N	2,600	17,000	9.5	2.8	0.00
PC-58	10/11/2017	SWFTS-PC-58-EM04	N	1,800	11,000	9.0	3.2	3.40
PC-58	11/16/2017	SWFTS-PC-58-EM06	N	2,100	16,000	10	2.9	0.65
PC-58	12/14/2017	PC-58-EM07	N	3,100	24,000	12	2.9	0.29
PC-58	2/21/2018	PC-58-EM08	N	3,700	35,000	12	5.4	2.49
PC-58	3/28/2018	PC-58-EM09-EM09	N	1,400	12,000	9.8	2.7	4.31
PC-58	5/2/2018	PC58-EM10	N	1,200	10,000	9.9	2.7	0.71
PC-58	7/11/2018	PC-58-EM11	N	1,100	9,800	10	2.6	1.17
PC-58	8/15/2018	PC-58-EM13	N	1,300	13,000	10	3.1	0.38
PC-88	9/22/2017	SWFTS-PC-88-EM01	N	15,000	6,900	4.8	2.7	4.15
PC-88	9/28/2017	SWFTS-PC-88-EM02	N	14,000 J+	6,300	5.8	2.8	1.13
PC-88	10/4/2017	SWFTS-PC-88-EM03	N	15,000	6,100	5.1	2.6	0.21
PC-88	10/11/2017	SWFTS-PC-88-EM04	N	15,000	6,200	4.6	2.5	0.37
PC-88	10/11/2017	SWFTS-PC-88-EM04-FD	FD	15,000	6,000	4.6	2.6	---
PC-88	10/25/2017	SWFTS-PC-88-EM05	N	15,000	5,400	5.0	2.8	0.37
PC-88	11/15/2017	PC-88-EM06	N	15,000	5,700	4.5	2.8	0.46
PC-88	11/15/2017	PC-88-EM06-FD	FD	16,000	5,700	4.6	2.9	---
PC-88	12/14/2017	PC-88-EM07	N	19,000	20,000	9.9	2.7	0.68
PC-88	2/22/2018	PC-88-EM08	N	6,700	14,000	12	3.0	0.29
PC-88	3/29/2018	PC-88-EM09	N	9,100	20,000	13	2.2	0.45
PC-88	5/2/2018	PC88-EM10	N	7,100	11,000	11	2.3	0.50
PC-88	5/2/2018	PC88-EM10-FD	FD	6,600	11,000	12	2.5	---
PC-88	7/12/2018	PC-88-EM11	N	16,000	12,000	7.8	2.4	0.89
PC-88	7/12/2018	PC-88-EM11-FD	FD	16,000	12,000	7.6	2.3	---
PC-88	8/16/2018	PC-88-EM13	N	10,000	6,700	6.0	2.9	3.31
PC-88	8/16/2018	PC-88-EM13-FD	FD	11,000	6,800	6.0	2.9	---
PC-91	3/29/2017	PC-91-BL01	N	2,400	1,700	1.4	2.7	0.25
PC-91	7/12/2017	PC-91-BL02	N	2,500	1,600	1.2	2.4	0.31
PC-91	7/12/2017	PC-91-BL02-FD	FD	2,400	1,500	1.1	2.3	---
PC-91	9/21/2017	SWFTS-PC-91-EM01	N	1,600	820	0.50 J	2.3	0.47

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement Dissolved Oxygen
				ug/L	ug/L	mg/L	mg/L	mg/L
PC-91	9/27/2017	SWFTS-PC-91-EM02	N	1,700	810	0.57	2.8	0.72
PC-91	10/4/2017	SWFTS-PC-91-EM03	N	1,300	590	0.58	2.9	0.19
PC-91	10/12/2017	SWFTS-PC-91-EM04	N	960	440	0.35	2.5	0.38 E
PC-91	10/25/2017	SWFTS-PC-91-EM05	N	750	370	0.62	2.7	0.55
PC-91	11/16/2017	SWFTS-PC-91-EM06	N	700	610	0.65 J-	2.8	0.82
PC-91	12/13/2017	PC-91-EM07	N	770	520	0.38	2.5	0.37
PC-91	2/20/2018	PC-91-EM08	N	900	1,100	0.88 J	2.8	0.82
PC-91	3/26/2018	PC-91-EM09	N	930	1,200	0.78	2.5	---
PC-91	5/1/2018	PC-91-EM10	N	860	260	0.56	2.4	0.64
PC-91	7/11/2018	PC-91-EM11	N	190	<5.0	<0.28	2.7	3.08
PC-91	7/27/2018	SWFTS-PC-91-EM12	N	160	<2.0	---	---	0.77
PC-91	8/14/2018	PC-91-EM-13	N	310	12 J	<0.28	3.0	1.08
PC-92	3/29/2017	PC-92-BL01	N	9,600	17,000	4.2	2.8	0.35
PC-92	7/12/2017	PC-92-BL02	N	4,400	10,000	2.6	2.8	0.31
PC-92	9/21/2017	SWFTS-PC-92-EM01	N	3,100	7,700	1.7	2.6	0.41
PC-92	9/27/2017	SWFTS-PC-92-EM02	N	3,500	6,800	1.7	2.8	0.45
PC-92	10/4/2017	SWFTS-PC-92-EM03	N	3,700	7,100	2.6	2.8	0.12
PC-92	10/12/2017	SWFTS-PC-92-EM04	N	3,700	7,300	2.1	2.8	9.88 E
PC-92	10/12/2017	SWFTS-PC-92-EM04-FD	FD	3,700	6,700	2.0	2.6	---
PC-92	10/25/2017	SWFTS-PC-92-EM05	N	4,000	6,900	2.3	2.9	0.30
PC-92	11/16/2017	SWFTS-PC-92-EM06	N	2,100	1,300	1.6	3.2	0.42
PC-92	11/16/2017	SWFTS-PC-92-EM06-FD	FD	2,100	1,300	1.1	3.3	---
PC-92	12/14/2017	PC-92-EM07	N	3,300	4,600	2.1	3.0	3.78
PC-92	12/14/2017	PC-92-EM07-FD	FD	3,300	4,800	1.8	3.0	---
PC-92	2/20/2018	PC-92-EM08	N	4,900	7,700	2.7	3.2	4.60
PC-92	2/20/2018	PC-92-EM08-FD	FD	5,000	7,400	2.7	3.2	---
PC-92	3/26/2018	PC-92-EM09	N	7,900	19,000	4.5	2.5	---
PC-92	3/26/2018	PC-92-EM09-FD	FD	8,000	18,000	4.5	2.5	---
PC-92	5/1/2018	PC-92-EM10	N	9,200	22,000	5.6	2.4	0.70
PC-92	7/11/2018	PC-92-EM11	N	7,300	17,000	4.2	2.3	1.47
PC-92	7/27/2018	SWFTS-PC-92-EM12	N	5,200	15,000	---	---	0.28
PC-92	8/15/2018	PC-92-EM13	N	4,700	13,000	3.1	3.0	0.98
PC-94	3/28/2017	PC-94-BL01	N	13,000	51,000	12	1.7	0.33
PC-94	7/13/2017	PC-94-BL02	N	14,000	47,000	12	1.3	0.41
PC-94	9/20/2017	SWFTS-PC-94-EM01	N	2,300	3,800	0.58 J	34	0.15
PC-94	9/26/2017	SWFTS-PC-94-EM02	N	2,000	3,700	<1.1	37	0.19
PC-94	10/5/2017	SWFTS-PC-94-EM03	N	1,700	3,600	1.3 J	5.2	0.13
PC-94	10/11/2017	SWFTS-PC-94-EM04	N	970	2,900	0.78 J	3.9	0.55
PC-94	10/26/2017	SWFTS-PC-94-EM05	N	540	1,300	1.4	3.1	3.80
PC-94	11/16/2017	PC-94-EM06	N	1,500	1,300	0.57 J	2.2	0.50
PC-94	12/12/2017	PC-94-EM07	N	4,300	9,300	0.68	2.1	0.19
PC-94	2/21/2018	PC-94-EM08	N	7,200	19,000	4.9	2.1	3.75

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement Dissolved Oxygen
				ug/L	ug/L	mg/L	mg/L	mg/L
PC-94	3/27/2018	PC-94-EM09	N	6,400	16,000	4.8	1.9	2.07
PC-94	5/1/2018	PC-94-EM10	N	6,700	18,000	6.3	1.5	0.00
PC-94	7/10/2018	PC-94-EM11	N	4,200	7,200	5.6	2.0	0.10
PC-94	7/27/2018	SWFTS-PC-94-EM12	N	1,500	1,600	---	---	0.25
PC-94	8/15/2018	PC-94-EM13	N	2,600	1,800	3.2	2.2	1.53
PC-97	7/13/2017	PC-97-BL02	N	1,900	180	0.84	3.0	0.27
PC-97	9/22/2017	SWFTS-PC-97-EM01	N	2,900	360	2.1	3.0	0.39
PC-97	9/22/2017	SWFTS-PC-97-EM01-FD	FD	2,900	340	2.2	3.0	---
PC-97	9/28/2017	SWFTS-PC-97-EM02	N	2,600	370	2.1	3.6	4.28
PC-97	9/28/2017	SWFTS-PC-97-EM02-FD	FD	2,700	380	2.0	3.6	---
PC-97	10/4/2017	SWFTS-PC-97-EM03	N	2,900	460	2.6	2.7	0.19
PC-97	10/4/2017	SWFTS-PC-97-EM03-FD	FD	2,900	410	2.3	2.8	---
PC-97	10/11/2017	SWFTS-PC-97-EM04	N	2,500	400	2.5	2.7	0.48
PC-97	10/11/2017	SWFTS-PC-97-EM04-FD	FD	2,700	390	2.3	2.8	---
PC-97	10/25/2017	SWFTS-PC-97-EM05	N	3,400	390	2.9	2.8	0.39
PC-97	10/25/2017	SWFTS-PC-97-EM05-FD	FD	3,300	410	2.9	2.9	---
PC-97	11/16/2017	SWFTS-PC-97-EM06	N	1,600	190	1.8	3.2	0.48
PC-97	12/13/2017	PC-97-EM07	N	2,600	320	1.6	3.0	0.79
PC-97	12/13/2017	PC-97-EM07-FD	FD	3,000	320	1.9	3.0	---
PC-97	2/21/2018	PC-97-EM08	N	1,500	77	0.56	3.3	2.47
PC-97	3/27/2018	PC-97-EM09	N	900	<10	0.19	3.3	1.68
PC-97	5/1/2018	PC-97-EM10	N	820	<5.0	0.088 J	3.2	2.10
PC-97	7/10/2018	PC-97-EM11	N	1,700	91	0.32	3.0	3.45
PC-97	8/16/2018	PC-97-EM13	N	1,100	85	0.38 J+	3.4	2.94
SWFTS-IW01A	7/11/2017	SWFTS-IW01A-BL02	N	20,000	51,000	12	---	0.55
SWFTS-IW01A	11/14/2017	SWFTS-IW01A-EM06	N	42	---	<0.55	610 J-	0.09
SWFTS-IW01A	11/14/2017	SWFTS-IW01A-EM06B	N	---	---	---	610 J-	---
SWFTS-IW01B	7/11/2017	SWFTS-IW01B-BL02	N	20,000	48,000	11	---	0.61
SWFTS-IW01B	11/14/2017	SWFTS-IW01B-EM06B	N	---	---	---	160 J-	---
SWFTS-IW01B	11/15/2017	SWFTS-IW01B-EM06	N	170	---	<0.55	220	0.17
SWFTS-IW02A	7/11/2017	SWFTS-IW02A-BL02	N	22,000	52,000	12	2.0	0.57
SWFTS-IW02A	11/14/2017	SWFTS-IW02A-EM06B	N	---	---	---	3,900 J-	---
SWFTS-IW02B	7/11/2017	SWFTS-IW02B-BL02	N	22,000	55,000	12	2.8	0.46
SWFTS-IW02B	11/14/2017	SWFTS-IW02B-EM06B	N	---	---	---	3,100 J-	---
SWFTS-IW03	7/11/2017	SWFTS-IW03-BL02	N	21,000	58,000	13	---	0.48
SWFTS-IW03	7/11/2017	SWFTS-IW03-BL02-FD	FD	21,000	53,000	12	---	---
SWFTS-IW03	12/11/2017	SWFTS-IW03-EM07	N	---	---	---	340 J-	---
SWFTS-IW04	7/11/2017	SWFTS-IW04-BL02	N	17,000	42,000	11	---	0.42
SWFTS-IW04	7/11/2017	SWFTS-IW04-BL02-FD	FD	16,000	42,000	12	---	---
SWFTS-IW04	12/11/2017	SWFTS-IW04-EM07	N	---	---	---	4,600 J-	---
SWFTS-IW05	7/11/2017	SWFTS-IW05-BL02	N	15,000	45,000	12	1.7	0.53
SWFTS-IW05	12/11/2017	SWFTS-IW05-EM07	N	---	---	---	3,700 J-	---

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement Dissolved Oxygen
				ug/L	ug/L	mg/L	mg/L	mg/L
SWFTS-IW06A	7/11/2017	SWFTS-IW06A-BL02	N	15,000	46,000	12	---	2.02
SWFTS-IW06A	11/14/2017	SWFTS-IW06A-EM06B	N	---	---	---	440 J-	---
SWFTS-IW06A	11/15/2017	SWFTS-IW06A-EM06	N	230	---	<0.55	630	0.16
SWFTS-IW06B	7/11/2017	SWFTS-IW06B-BL02	N	15,000	41,000	12	---	0.38
SWFTS-IW06B	11/14/2017	SWFTS-IW06B-EM06B	N	---	---	---	600 J-	---
SWFTS-IW06B	11/15/2017	SWFTS-IW06B-EM06	N	20	---	<0.55	660	0.36
SWFTS-IW07	7/11/2017	SWFTS-IW07-BL02	N	15,000	45,000	11	---	0.55
SWFTS-IW07	12/11/2017	SWFTS-IW07-EM07	N	---	---	---	5,600 J-	---
SWFTS-IW08	7/12/2017	SWFTS-IW08-BL02	N	14,000	40,000	12	---	0.79
SWFTS-IW08	12/11/2017	SWFTS-IW08-EM07	N	---	---	---	6,700 J-	---
SWFTS-IW09	7/12/2017	SWFTS-IW09-BL02	N	11,000	48,000	12	1.7	0.47
SWFTS-IW09	7/12/2017	SWFTS-IW09-BL02-FD	FD	11,000	47,000	12	1.4	---
SWFTS-IW09	12/11/2017	SWFTS-IW09-EM07	N	---	---	---	290 J-	---
SWFTS-IW10	7/12/2017	SWFTS-IW10-BL02	N	7,800	37,000	14	---	0.30
SWFTS-IW10	12/11/2017	SWFTS-IW10-EM07	N	---	---	---	290 J-	---
SWFTS-IW11	7/12/2017	SWFTS-IW11-BL02	N	5,600	6,600	2.0	2.6	0.38
SWFTS-IW11	12/11/2017	SWFTS-IW11-EM07	N	---	---	---	1,000 J-	---
SWFTS-IW12	7/12/2017	SWFTS-IW12-BL02	N	6,200	7,800	2.5	---	0.51
SWFTS-IW12	12/11/2017	SWFTS-IW12-EM07	N	---	---	---	2,700 J-	---
SWFTS-IW13A	7/11/2017	SWFTS-IW13A-BL02	N	19,000	52,000	14	---	0.54
SWFTS-IW13A	11/14/2017	SWFTS-IW13A-EM06B	N	---	---	---	3,700 J-	---
SWFTS-IW13B	7/11/2017	SWFTS-IW13B-BL02	N	21,000	53,000	12	---	0.46
SWFTS-IW13B	11/14/2017	SWFTS-IW13B-EM06B	N	---	---	---	1,100 J-	---
SWFTS-IW14	7/12/2017	SWFTS-IW14-BL02	N	21,000	51,000	42 J	1.9	0.49
SWFTS-IW14	11/14/2017	SWFTS-IW14-EM06B	N	---	---	---	4,600	---
SWFTS-IW14	11/14/2017	SWFTS-IW14-EM06B-FD	FD	---	---	---	4,500 J-	---
SWFTS-IW15	7/12/2017	SWFTS-IW15-BL02	N	15,000	44,000	13	---	0.32
SWFTS-IW15	12/11/2017	SWFTS-IW15-EM07	N	---	---	---	1,300 J-	---
SWFTS-IW15	12/11/2017	SWFTS-IW15-EM07-FD	FD	---	---	---	1,300 J-	---
SWFTS-IW16A	7/11/2017	SWFTS-IW16A-BL02	N	17,000	45,000	11	---	0.86
SWFTS-IW16A	12/11/2017	SWFTS-IW16A-EM07	N	---	---	---	2,800 J-	---
SWFTS-IW16B	7/11/2017	SWFTS-IW16B-BL02	N	15,000	44,000	12	---	0.42
SWFTS-IW16B	12/11/2017	SWFTS-IW16B-EM07	N	---	---	---	940 J-	---
SWFTS-IW17	7/13/2017	SWFTS-IW17-BL02	N	13,000	47,000	12	1.4	0.41
SWFTS-IW17	11/14/2017	SWFTS-IW17-EM06B	N	---	---	---	6,500 J-	---
SWFTS-IW17	11/15/2017	SWFTS-IW17-EM06	N	<19	---	<1.1	7,500	0.36
SWFTS-IW18	7/13/2017	SWFTS-IW18-BL02	N	14,000	47,000	12	---	0.30
SWFTS-IW18	11/14/2017	SWFTS-IW18-EM06B	N	---	---	---	1.8	---
SWFTS-IW19	7/13/2017	SWFTS-IW19-BL02	N	6,400	57,000	16	---	3.30
SWFTS-IW19	12/11/2017	SWFTS-IW19-EM07	N	---	---	---	4,100 J-	---
SWFTS-IW20	7/12/2017	SWFTS-IW20-BL02	N	4,400	31,000	17	1.0	4.23
SWFTS-IW20	11/14/2017	SWFTS-IW20-EM06B	N	---	---	---	6,500 J-	---

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement Dissolved Oxygen
				ug/L	ug/L	mg/L	mg/L	mg/L
SWFTS-MW01	3/29/2017	SWFTS-MW01-BL01	N	15,000	49,000	12	1.6	1.07
SWFTS-MW01	9/19/2017	SWFTS-MW01-EM01	N	2,100	39,000	<0.55	11	1.38
SWFTS-MW01	9/26/2017	SWFTS-MW01-EM02	N	4,300	10,000	1.4 J	4.3	0.23
SWFTS-MW01	10/4/2017	SWFTS-MW01-EM03	N	5,000	13,000	3.3	2.5	0.20
SWFTS-MW01	10/10/2017	SWFTS-MW01-EM04	N	5,600	15,000	3.3	2.2	0.47
SWFTS-MW01	10/25/2017	SWFTS-MW01-EM05	N	15,000	18,000	5.1	2.1	0.89
SWFTS-MW01	11/15/2017	SWFTS-MW01-EM06	N	7,900	22,000	4.9	1.9	0.81
SWFTS-MW01	12/14/2017	SWFTS-MW01-EM07	N	8,000	24,000	5.3	1.9	0.20
SWFTS-MW01	2/20/2018	SWFTS-MW01-EM08	N	3,900	12,000	3.4	2.7	2.85
SWFTS-MW01	3/27/2018	SWFTS-MW01-EM09	N	6,900	26,000	5.3	1.9	2.42
SWFTS-MW01	4/30/2018	SWFTS-MW01-EM10	N	9,400	36,000	8.9	1.4	0.15
SWFTS-MW01	7/10/2018	SWFTS-MW01-EM11	N	3,100	6,900	1.4	2.4	0.04
SWFTS-MW01	7/27/2018	SWFTS-MW01-EM12	N	5,500	28,000	---	---	0.29
SWFTS-MW01	7/27/2018	SWFTS-MW01-EM12-FD	FD	5,500	28,000	---	---	---
SWFTS-MW01	8/16/2018	SWFTS-MW01-EM13	N	6,100	34,000	6.4	2.0	0.80
SWFTS-MW02	3/29/2017	SWFTS-MW02-BL01	N	25,000	58,000	11	2.2	0.33
SWFTS-MW02	9/21/2017	SWFTS-MW02-EM01	N	23,000	52,000	8.5	2.1	0.16
SWFTS-MW02	9/27/2017	SWFTS-MW02-EM02	N	23,000	47,000	9.4	2.2	0.14
SWFTS-MW02	10/4/2017	SWFTS-MW02-EM03	N	22,000	45,000	8.7	2.0	1.76
SWFTS-MW02	10/12/2017	SWFTS-MW02-EM04	N	20,000	23,000	6.2	2.3	0.25
SWFTS-MW02	10/26/2017	SWFTS-MW02-EM05	N	21,000	34,000	4.6 J-	2.5	2.11
SWFTS-MW02	11/14/2017	SWFTS-MW02-EM06	N	17,000	32,000	6.5	2.5	0.90
SWFTS-MW02	12/13/2017	SWFTS-MW02-EM07	N	19,000	38,000	6.7	2.1	0.01
SWFTS-MW02	2/19/2018	SWFTS-MW02-EM08	N	14,000	28,000	4.7	2.5	2.59
SWFTS-MW02	3/27/2018	SWFTS-MW02-EM09	N	4,400	7,400	0.80	2.5	1.76
SWFTS-MW02	4/30/2018	SWFTS-MW02-EM10	N	4,600	6,100	0.95 J	2.3	1.59
SWFTS-MW02	7/11/2018	SWFTS-MW02-EM11	N	3,700	5,100	1.7	1.9	1.86
SWFTS-MW02	7/27/2018	SWFTS-MW02-EM12	N	2,100	3,900	---	---	0.24
SWFTS-MW02	8/15/2018	SWFTS-MW02-EM13	N	1,700	2,600	0.74 J	2.5	2.35
SWFTS-MW03	3/30/2017	SWFTS-MW03-BL01	N	9,900	47,000	13	1.6	1.64
SWFTS-MW03	3/30/2017	SWFTS-MW03-BL01-FD	FD	9,200	47,000	13	1.7	---
SWFTS-MW03	9/21/2017	SWFTS-MW03-EM01	N	<4.8	<100	<0.55	4.2	0.19
SWFTS-MW03	9/27/2017	SWFTS-MW03-EM02	N	4.8	<100	<0.55	3.0	0.11
SWFTS-MW03	10/4/2017	SWFTS-MW03-EM03	N	<0.95	<50	<0.55	2.3	1.02
SWFTS-MW03	10/12/2017	SWFTS-MW03-EM04	N	21	<100	<0.55	2.0	0.14
SWFTS-MW03	10/26/2017	SWFTS-MW03-EM05	N	990	3,200	0.73 J	2.1	1.59
SWFTS-MW03	11/16/2017	SWFTS-MW03-EM06	N	3,200	15,000	3.2	1.7	0.64
SWFTS-MW03	12/12/2017	SWFTS-MW03-EM07	N	3,700	22,000	4.3	1.8	2.21
SWFTS-MW03	2/21/2018	SWFTS-MW03-EM08	N	3,400	33,000	4.2	1.7	0.30
SWFTS-MW03	3/27/2018	SWFTS-MW03-EM09	N	4,200	27,000	6.4	1.5	0.62
SWFTS-MW03	5/2/2018	SWFTS-MW03-EM10	N	4,300	30,000	7.9	1.4	0.45
SWFTS-MW03	7/10/2018	SWFTS-MW03-EM11	N	1,300	3,000	1.3	2.3	0.79

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement Dissolved Oxygen
				ug/L	ug/L	mg/L	mg/L	mg/L
SWFTS-MW03	7/27/2018	SWFTS-MW03-EM12	N	1,900 J+	1,800	---	---	0.23
SWFTS-MW03	8/15/2018	SWFTS-MW03-EM13	N	1,900	280 J	3.6	1.9	0.48
SWFTS-MW04	3/31/2017	SWFTS-MW04-BL01	N	14,000	26,000	5.5	2.3	7.02 E
SWFTS-MW04	9/20/2017	SWFTS-MW04-EM01	N	3,600	4,900	1.3	2.6	0.85
SWFTS-MW04	9/20/2017	SWFTS-MW04-EM01-FD	FD	3,600	4,800	1.3	2.6	---
SWFTS-MW04	9/27/2017	SWFTS-MW04-EM02	N	3,600	5,400	1.5	3.1	2.73
SWFTS-MW04	9/27/2017	SWFTS-MW04-EM02-FD	FD	3,500	5,400	1.5	3.1	---
SWFTS-MW04	10/4/2017	SWFTS-MW04-EM03	N	4,000	4,700	1.5	2.7	0.11
SWFTS-MW04	10/4/2017	SWFTS-MW04-EM03-FD	FD	3,900	4,700	1.9	2.6	---
SWFTS-MW04	10/11/2017	SWFTS-MW04-EM04	N	2,900	3,900	1.3	2.7	1.39
SWFTS-MW04	10/24/2017	SWFTS-MW04-EM05	N	3,600	4,200	1.4	2.9	0.28
SWFTS-MW04	10/24/2017	SWFTS-MW04-EM05-FD	FD	3,500	4,200	1.5	3.0	---
SWFTS-MW04	11/15/2017	SWFTS-MW04-EM06	N	3,500	3,400	1.6	3.0	0.89
SWFTS-MW04	12/14/2017	SWFTS-MW04-EM07	N	4,000	4,700	1.8	2.9	0.45
SWFTS-MW04	2/21/2018	SWFTS-MW04-EM08	N	5,200	8,000	2.4	2.7	0.37
SWFTS-MW04	3/27/2018	SWFTS-MW04-EM09	N	6,100	14,000	3.5	2.5	0.43
SWFTS-MW04	5/1/2018	SWFTS-MW04-EM10	N	4,100	3,700	1.4	2.8	2.80
SWFTS-MW04	7/10/2018	SWFTS-MW04-EM11	N	6,400	15,000	4.5	2.5	0.00
SWFTS-MW04	8/16/2018	SWFTS-MW04-EM13	N	3,100	8,700	1.9 J+	2.9	0.91
SWFTS-MW05A	3/30/2017	SWFTS-MW05A-BL01	N	7,400	67,000	18	1.4	4.28
SWFTS-MW05A	9/20/2017	SWFTS-MW05A-EM01	N	5,700	51,000	17	1.1	4.18
SWFTS-MW05A	9/27/2017	SWFTS-MW05A-EM02	N	5,600	44,000	18	1.2	3.30
SWFTS-MW05A	10/3/2017	SWFTS-MW05A-EM03	N	5,800	46,000	16	0.80 J	5.46
SWFTS-MW05A	10/10/2017	SWFTS-MW05A-EM04	N	5,600	44,000	16	1.3	3.41
SWFTS-MW05A	10/23/2017	SWFTS-MW05A-EM05	N	4,700	43,000	15	1.3	2.96
SWFTS-MW05A	11/14/2017	SWFTS-MW05A-EM06	N	5,500	38,000	16	1.4	2.27
SWFTS-MW05A	12/13/2017	SWFTS-MW05A-EM07	N	5,300	43,000	17	1.3	2.10
SWFTS-MW05A	2/20/2018	SWFTS-MW05A-EM08	N	6,400	53,000	18	1.4	2.78
SWFTS-MW05A	3/26/2018	SWFTS-MW05A-EM09	N	6,600	180,000	16	1.1	---
SWFTS-MW05A	4/30/2018	SWFTS-MW05A-EM10	N	6,400 J	55,000	17	1.0	2.16
SWFTS-MW05A	7/11/2018	SWFTS-MW05A-EM11	N	5,200	46,000	15	0.87 J	2.65
SWFTS-MW05A	7/27/2018	SWFTS-MW05A-EM12	N	4,300	41,000	---	---	3.46
SWFTS-MW05A	8/14/2018	SWFTS-MW05A-EM13	N	3,600	35,000	10 J+	1.5	0.93
SWFTS-MW05B	3/30/2017	SWFTS-MW05B-BL01	N	7,200	48,000	13	1.5	0.70
SWFTS-MW05B	9/22/2017	SWFTS-MW05B-EM01	N	190	300	<0.55	39	0.24
SWFTS-MW05B	9/27/2017	SWFTS-MW05B-EM02	N	<0.95	<50	<0.55	57	0.10
SWFTS-MW05B	10/3/2017	SWFTS-MW05B-EM03	N	8.3	<50	<0.55	90	0.10
SWFTS-MW05B	10/10/2017	SWFTS-MW05B-EM04	N	<0.95	<100	<0.55	100	0.08
SWFTS-MW05B	10/23/2017	SWFTS-MW05B-EM05	N	<0.95	<100	<0.55	68	0.34
SWFTS-MW05B	11/14/2017	SWFTS-MW05B-EM06	N	<0.95	16 J	<0.55	3.2	0.46
SWFTS-MW05B	12/13/2017	SWFTS-MW05B-EM07	N	990	5,300	0.36 J	2.3	0.30
SWFTS-MW05B	2/20/2018	SWFTS-MW05B-EM08	N	2,000	11,000	4.2	2.2	0.34

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement Dissolved Oxygen
				ug/L	ug/L	mg/L	mg/L	mg/L
SWFTS-MW05B	3/26/2018	SWFTS-MW05B-EM09	N	2,600	5,800	4.6	1.7	---
SWFTS-MW05B	4/30/2018	SWFTS-MW05B-EM10	N	2,600	18,000	5.4	1.9	0.00
SWFTS-MW05B	7/10/2018	SWFTS-MW05B-EM11	N	190	1,500	0.66 J-	2.4	1.45
SWFTS-MW05B	7/27/2018	SWFTS-MW05B-EM12	N	240	1,600	---	---	4.21 E
SWFTS-MW05B	8/14/2018	SWFTS-MW05B-EM13	N	420	2,000	<0.55	2.5	0.80
SWFTS-MW06A	3/30/2017	SWFTS-MW06A-BL01	N	170	<10	<0.11	3.6	0.38
SWFTS-MW06A	9/21/2017	SWFTS-MW06A-EM01	N	2,400	220	1.5	3.0	0.16
SWFTS-MW06A	9/27/2017	SWFTS-MW06A-EM02	N	2,600	320	1.7	3.3	0.30
SWFTS-MW06A	10/3/2017	SWFTS-MW06A-EM03	N	2,700	300	2.0 J-	2.8	0.12
SWFTS-MW06A	10/11/2017	SWFTS-MW06A-EM04	N	5,500	1,100	1.9	3.0	0.37
SWFTS-MW06A	10/23/2017	SWFTS-MW06A-EM05	N	2,300	350	1.9	3.3	2.52
SWFTS-MW06A	11/16/2017	SWFTS-MW06A-EM06	N	3,300	380	2.5	2.8	0.42
SWFTS-MW06A	12/13/2017	SWFTS-MW06A-EM07	N	3,600	520	2.6	2.7	0.17
SWFTS-MW06A	2/22/2018	SWFTS-MW06A-EM08	N	1,800	200	0.88	3.4	0.37
SWFTS-MW06A	3/28/2018	SWFTS-MW06A-EM09	N	1,500	77	0.36	3.1	0.44
SWFTS-MW06A	5/1/2018	SWFTS-MW06A-EM10	N	760 J	10 J	0.11	3.1	0.27
SWFTS-MW06A	5/1/2018	SWFTS-MW06A-EM10-FD	FD	880	13 J	0.11	3.1	---
SWFTS-MW06A	7/11/2018	SWFTS-MW06A-EM11	N	830	21	0.11 J	2.9	2.40
SWFTS-MW06A	7/11/2018	SWFTS-MW06A-EM11-FD	FD	840	20	<0.11	2.9	---
SWFTS-MW06A	8/14/2018	SWFTS-MW06A-EM13	N	1,500	96	0.28	3.4	0.69
SWFTS-MW06A	8/14/2018	SWFTS-MW06A-EM13-FD	FD	1,500	95	0.29	3.3	---
SWFTS-MW06B	3/30/2017	SWFTS-MW06B-BL01	N	1,000	490	0.13 J	3.5	0.06
SWFTS-MW06B	9/21/2017	SWFTS-MW06B-EM01	N	2,000	350	0.70	2.8	0.18
SWFTS-MW06B	9/27/2017	SWFTS-MW06B-EM02	N	2,000	360	0.76	3.3	0.78
SWFTS-MW06B	10/3/2017	SWFTS-MW06B-EM03	N	2,500	340	1.0	2.8	0.11
SWFTS-MW06B	10/11/2017	SWFTS-MW06B-EM04	N	4,400	380	1.1	3.1	0.45
SWFTS-MW06B	10/23/2017	SWFTS-MW06B-EM05	N	2,000	390	1.3	3.1	1.14
SWFTS-MW06B	11/16/2017	SWFTS-MW06B-EM06	N	2,800	400	1.8	2.9	0.44
SWFTS-MW06B	12/13/2017	SWFTS-MW06B-EM07	N	3,200	590	2.2	2.9	0.91
SWFTS-MW06B	2/22/2018	SWFTS-MW06B-EM08	N	2,900	480	1.9	3.1	0.47
SWFTS-MW06B	3/28/2018	SWFTS-MW06B-EM09	N	2,500	370	1.1	2.8	0.59
SWFTS-MW06B	5/1/2018	SWFTS-MW06B-EM10	N	1,800	270	0.56	2.9	1.31
SWFTS-MW06B	7/11/2018	SWFTS-MW06B-EM11	N	880	140	0.18 J	2.9	2.05
SWFTS-MW06B	8/14/2018	SWFTS-MW06B-EM13	N	1,200	170	0.14	3.8	0.57
SWFTS-MW07A	3/30/2017	SWFTS-MW07A-BL01	N	14,000	44,000	11	2.1	0.16
SWFTS-MW07A	9/20/2017	SWFTS-MW07A-EM01	N	14,000	41,000	11	2.0	0.20
SWFTS-MW07A	9/26/2017	SWFTS-MW07A-EM02	N	15,000	36,000	11	2.3	0.49
SWFTS-MW07A	10/3/2017	SWFTS-MW07A-EM03	N	16,000	37,000	10	2.1	0.22
SWFTS-MW07A	10/11/2017	SWFTS-MW07A-EM04	N	12,000	39,000	12	2.0	0.11
SWFTS-MW07A	10/24/2017	SWFTS-MW07A-EM05	N	14,000	38,000	10	2.3	0.43
SWFTS-MW07A	11/15/2017	SWFTS-MW07A-EM06	N	16,000	40,000	12	2.1	0.35
SWFTS-MW07A	12/14/2017	SWFTS-MW07A-EM07	N	14,000	35,000	11	2.1	-0.02

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement
				ug/L	ug/L	mg/L	mg/L	Dissolved Oxygen mg/L
SWFTS-MW07A	2/19/2018	SWFTS-MW07A-EM08	N	12,000	36,000	12	2.2	0.72
SWFTS-MW07A	3/28/2018	SWFTS-MW07A-EM09	N	11,000	36,000	12	1.8	3.29
SWFTS-MW07A	5/2/2018	SWFTS-MW07A-EM10	N	11,000	40,000	13	1.7	1.02
SWFTS-MW07A	7/11/2018	SWFTS-MW07A-EM11	N	11,000	44,000	14	1.6	1.42
SWFTS-MW07A	8/16/2018	SWFTS-MW07A-EM13	N	8,600	76,000	15	2.0	0.58
SWFTS-MW07B	3/30/2017	SWFTS-MW07B-BL01	N	13,000	40,000	11	2.0	1.29
SWFTS-MW07B	9/20/2017	SWFTS-MW07B-EM01	N	10,000	33,000	9.0	1.8	0.35
SWFTS-MW07B	9/26/2017	SWFTS-MW07B-EM02	N	11,000	29,000	10	2.2	0.60
SWFTS-MW07B	10/3/2017	SWFTS-MW07B-EM03	N	9,400	28,000	9.9	1.6	1.38
SWFTS-MW07B	10/11/2017	SWFTS-MW07B-EM04	N	8,400	28,000	11	1.7	0.13
SWFTS-MW07B	10/24/2017	SWFTS-MW07B-EM05	N	9,300	29,000	11	1.2	0.33
SWFTS-MW07B	11/15/2017	SWFTS-MW07B-EM06	N	9,700	29,000	12	2.0	0.42
SWFTS-MW07B	12/14/2017	SWFTS-MW07B-EM07	N	9,400	30,000	12	1.9	-0.09
SWFTS-MW07B	2/19/2018	SWFTS-MW07B-EM08	N	9,700	37,000	14	2.2	1.23
SWFTS-MW07B	3/28/2018	SWFTS-MW07B-EM09	N	11,000	47,000	16	1.7	0.30
SWFTS-MW07B	5/2/2018	SWFTS-MW07B-EM10	N	9,100	34,000	13	1.9	4.67
SWFTS-MW07B	7/11/2018	SWFTS-MW07B-EM11	N	8,300	43,000	16	1.7	1.60
SWFTS-MW07B	8/16/2018	SWFTS-MW07B-EM13	N	6,500	44,000	17	2.0	0.49
SWFTS-MW08A	3/30/2017	SWFTS-MW08A-BL01	N	14,000	20,000	28 J	1.5	0.25
SWFTS-MW08A	9/20/2017	SWFTS-MW08A-EM01	N	10,000	47,000	12	1.4	0.41
SWFTS-MW08A	9/20/2017	SWFTS-MW08A-EM01-FD	FD	10,000	46,000	13	1.4	---
SWFTS-MW08A	9/26/2017	SWFTS-MW08A-EM02	N	9,800	40,000	12	1.7	0.27
SWFTS-MW08A	9/26/2017	SWFTS-MW08A-EM02-FD	FD	10,000	42,000	12	1.8	---
SWFTS-MW08A	10/5/2017	SWFTS-MW08A-EM03	N	7,800	42,000	14	1.6	4.16
SWFTS-MW08A	10/5/2017	SWFTS-MW08A-EM03-FD	FD	9,800	49,000	12	2.0	---
SWFTS-MW08A	10/10/2017	SWFTS-MW08A-EM04	N	9,500	43,000	12	1.6	44.01 E
SWFTS-MW08A	10/23/2017	SWFTS-MW08A-EM05	N	8,100	41,000	14	1.8	1.49
SWFTS-MW08A	10/23/2017	SWFTS-MW08A-EM05-FD	FD	8,100	40,000	12	1.8	---
SWFTS-MW08A	11/15/2017	SWFTS-MW08A-EM06	N	9,000	43,000	14	1.6	0.60
SWFTS-MW08A	12/14/2017	SWFTS-MW08A-EM07	N	8,900	45,000	14	1.6	0.11
SWFTS-MW08A	2/22/2018	SWFTS-MW08A-EM08	N	9,500	54,000	14	1.9	5.05
SWFTS-MW08A	3/29/2018	SWFTS-MW08A-EM09	N	9,100	59,000	15	1.5	2.61
SWFTS-MW08A	5/3/2018	SWFTS-MW08A-EM10	N	9,100	55,000	17	1.5	0.37
SWFTS-MW08A	7/11/2018	SWFTS-MW08A-EM11	N	7,500	63,000	15	1.3	1.54
SWFTS-MW08A	8/16/2018	SWFTS-MW08A-EM13	N	5,500	47,000	15	1.8	0.63
SWFTS-MW08C	3/28/2017	SWFTS-MW08C-BL01	N	7,800	55,000	13	1.3	0.08
SWFTS-MW08C	12/14/2017	SWFTS-MW08C-EM07	N	9,300	50,000	13	1.1	-0.06
SWFTS-MW09A	3/29/2017	SWFTS-MW09A-BL01	N	14,000	50,000	13	1.6	0.33
SWFTS-MW09A	9/21/2017	SWFTS-MW09A-EM01	N	3,400	1,200	<0.55	51	0.57
SWFTS-MW09A	9/28/2017	SWFTS-MW09A-EM02	N	54	<100	<0.55	40	0.26
SWFTS-MW09A	10/4/2017	SWFTS-MW09A-EM03	N	420	200	<0.55	22	4.54
SWFTS-MW09A	10/11/2017	SWFTS-MW09A-EM04	N	8.4 J+	55	<0.55	7.5	0.12

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement Dissolved Oxygen
				ug/L	ug/L	mg/L	mg/L	mg/L
SWFTS-MW09A	10/25/2017	SWFTS-MW09A-EM05	N	1,300	1,700	<0.55	2.9	0.31
SWFTS-MW09A	11/16/2017	SWFTS-MW09A-EM06	N	3,400	8,400	1.2	2.1	1.88
SWFTS-MW09A	12/12/2017	SWFTS-MW09A-EM07	N	5,400	16,000	2.7	2.1	0.29
SWFTS-MW09A	2/20/2018	SWFTS-MW09A-EM08	N	6,800	16,000	5.3	2.1	4.16
SWFTS-MW09A	3/27/2018	SWFTS-MW09A-EM09	N	6,700	18,000	6.4	1.8	2.12
SWFTS-MW09A	5/1/2018	SWFTS-MW09A-EM10	N	7,300	19,000	8.0	1.6	0.00
SWFTS-MW09A	7/12/2018	SWFTS-MW09A-EM11	N	2,800	2,700	3.1	2.0	1.86
SWFTS-MW09A	7/27/2018	SWFTS-MW09A-EM12	N	1,900	1,600	---	---	5.97
SWFTS-MW09A	8/14/2018	SWFTS-MW09A-EM13	N	7,200	7,600	4.5	2.2	2.83
SWFTS-MW09B	3/29/2017	SWFTS-MW09B-BL01	N	13,000	46,000	12	1.8	0.31
SWFTS-MW09B	3/29/2017	SWFTS-MW09B-BL01-FD	FD	15,000	46,000	12	1.8	---
SWFTS-MW09B	9/21/2017	SWFTS-MW09B-EM01	N	220	390	<0.55	30	1.81
SWFTS-MW09B	9/28/2017	SWFTS-MW09B-EM02	N	990	2,500	<0.55	25	0.38
SWFTS-MW09B	10/4/2017	SWFTS-MW09B-EM03	N	430	1,000	<1.1	29	3.71
SWFTS-MW09B	10/11/2017	SWFTS-MW09B-EM04	N	1,400	3,000	1.1	18	0.12
SWFTS-MW09B	10/25/2017	SWFTS-MW09B-EM05	N	2,700	7,700	1.7	2.4	0.38
SWFTS-MW09B	11/16/2017	SWFTS-MW09B-EM06	N	2,400	8,600	2.1	2.1	0.77
SWFTS-MW09B	12/12/2017	SWFTS-MW09B-EM07	N	3,500	13,000	3.4	2.1	0.07
SWFTS-MW09B	2/20/2018	SWFTS-MW09B-EM08	N	800	1,400	<1.1	2.5	5.47
SWFTS-MW09B	3/27/2018	SWFTS-MW09B-EM09	N	7,700	28,000	5.9	1.8	2.09
SWFTS-MW09B	4/30/2018	SWFTS-MW09B-EM10	N	7,400	23,000	7.9	1.8	0.00
SWFTS-MW09B	7/12/2018	SWFTS-MW09B-EM11	N	6,500	15,000	7.0	1.9	1.58
SWFTS-MW09B	7/26/2018	SWFTS-MW09B-EM12	N	6,600	20,000	---	---	1.16
SWFTS-MW09B	8/14/2018	SWFTS-MW09B-EM13	N	6,400	24,000	9.7	2.1	2.99
SWFTS-MW10A	3/31/2017	SWFTS-MW10A-BL01	N	13,000	27,000	5.1	2.8	2.70
SWFTS-MW10A	9/21/2017	SWFTS-MW10A-EM01	N	1.9 J	<50	<0.55	23	0.42
SWFTS-MW10A	9/27/2017	SWFTS-MW10A-EM02	N	100	<100	0.66 J	12	5.10
SWFTS-MW10A	10/4/2017	SWFTS-MW10A-EM03	N	14	<100	<0.28	10	4.56
SWFTS-MW10A	10/12/2017	SWFTS-MW10A-EM04	N	<0.95	13 J	<0.11	13	0.15
SWFTS-MW10A	10/24/2017	SWFTS-MW10A-EM05	N	14	630	<0.28	6.3	1.38
SWFTS-MW10A	11/16/2017	SWFTS-MW10A-EM06	N	11	<50	<0.28	4.2	0.60
SWFTS-MW10A	11/16/2017	SWFTS-MW10A-EM06-FD	FD	15	<50	<0.28	4.0	---
SWFTS-MW10A	12/12/2017	SWFTS-MW10A-EM07	N	160	190	<0.28	3.2	0.53
SWFTS-MW10A	12/12/2017	SWFTS-MW10A-EM07-FD	FD	170	180	<0.28	3.4	---
SWFTS-MW10A	2/20/2018	SWFTS-MW10A-EM08	N	990	1,400	<1.1	3.2	0.44
SWFTS-MW10A	2/20/2018	SWFTS-MW10A-EM08-FD	FD	1,000	1,300	1.3 J	3.3	---
SWFTS-MW10A	3/26/2018	SWFTS-MW10A-EM09	N	2,300	4,000	0.37 J	2.8	---
SWFTS-MW10A	3/26/2018	SWFTS-MW10A-EM09-FD	FD	2,200	4,000	0.36 J	2.8 J-	---
SWFTS-MW10A	5/1/2018	SWFTS-MW10A-EM10	N	4,300	4,800	0.96 J	2.5	0.83
SWFTS-MW10A	7/11/2018	SWFTS-MW10A-EM11	N	3,000 J-	40 J	0.89 J	2.2	2.42
SWFTS-MW10A	7/26/2018	SWFTS-MW10A-EM12	N	1,300	<10	---	---	0.55
SWFTS-MW10A	8/14/2018	SWFTS-MW10A-EM13	N	1,500	<10	<0.55	3.0	2.59

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement Dissolved Oxygen
				ug/L	ug/L	mg/L	mg/L	mg/L
SWFTS-MW10C	3/28/2017	SWFTS-MW10C-BL01	N	8,300	39,000	7.6	1.5	0.09
SWFTS-MW10C	12/12/2017	SWFTS-MW10C-EM07	N	9,200	38,000	8.4	1.3	0.51
SWFTS-MW11	7/12/2017	SWFTS-MW11-BL02	N	13,000 J+	41,000	12	1.8	4.30
SWFTS-MW11	9/20/2017	SWFTS-MW11-EM01	N	13,000	40,000	11	1.7	1.86
SWFTS-MW11	9/26/2017	SWFTS-MW11-EM02	N	14,000	37,000	12	2.1	1.47
SWFTS-MW11	10/3/2017	SWFTS-MW11-EM03	N	13,000	36,000	12	1.8	0.93
SWFTS-MW11	10/11/2017	SWFTS-MW11-EM04	N	16,000	38,000	11	1.6	1.15
SWFTS-MW11	10/24/2017	SWFTS-MW11-EM05	N	13,000	36,000	12	5.7	2.32
SWFTS-MW11	11/16/2017	SWFTS-MW11-EM06	N	14,000	37,000	12	1.7	0.95
SWFTS-MW11	12/14/2017	SWFTS-MW11-EM07	N	12,000	40,000	11	2.0	1.78
SWFTS-MW11	2/21/2018	SWFTS-MW11-EM08	N	12,000	45,000	14	1.7	7.35
SWFTS-MW11	2/21/2018	SWFTS-MW11-EM08-FD	FD	12,000	46,000	13	1.9	---
SWFTS-MW11	3/28/2018	SWFTS-MW11-EM09	N	13,000	49,000	14	1.5	4.05
SWFTS-MW11	3/28/2018	SWFTS-MW11-EM09-FD	FD	13,000	49,000	14	1.5	---
SWFTS-MW11	5/1/2018	SWFTS-MW11-EM10	N	13,000	52,000	14	1.5	5.35
SWFTS-MW11	5/1/2018	SWFTS-MW11-EM10-FD	FD	12,000	48,000	14	1.4	---
SWFTS-MW11	7/12/2018	SWFTS-MW11-EM11	N	11,000	52,000	16	1.2	5.48
SWFTS-MW11	7/12/2018	SWFTS-MW11-EM11-FD	FD	11,000	52,000	16	1.2	---
SWFTS-MW11	8/16/2018	SWFTS-MW11-EM13	N	9,400	53,000	16	1.7	2.83
SWFTS-MW11	8/16/2018	SWFTS-MW11-EM13-FD	FD	9,600	52,000	16	1.8	---
SWFTS-MW12	7/13/2017	SWFTS-MW12-BL02	N	5,100	37,000	16	0.88 J	7.81
SWFTS-MW12	9/19/2017	SWFTS-MW12-EM01	N	5,100	360,000	14	1.1	4.36
SWFTS-MW12	9/26/2017	SWFTS-MW12-EM02	N	4,900	34,000	14	1.6	2.98
SWFTS-MW12	10/3/2017	SWFTS-MW12-EM03	N	5,400	34,000	14 J-	0.78 J	2.77
SWFTS-MW12	10/11/2017	SWFTS-MW12-EM04	N	4,800	35,000	13	0.93 J	1.59
SWFTS-MW12	10/24/2017	SWFTS-MW12-EM05	N	5,000	37,000	14	1.2	5.09
SWFTS-MW12	11/14/2017	SWFTS-MW12-EM06	N	4,700	33,000	14	0.99 J	2.52
SWFTS-MW12	12/14/2017	SWFTS-MW12-EM07	N	4,900	30,000	13	1.5	4.37
SWFTS-MW12	2/22/2018	SWFTS-MW12-EM08	N	4,500	26,000	12	1.6	5.95
SWFTS-MW12	3/28/2018	SWFTS-MW12-EM09	N	6,400	39,000	14	1.3	4.30
SWFTS-MW12	5/3/2018	SWFTS-MW12-EM10	N	4,200	28,000	13	0.89 J	2.24
SWFTS-MW12	7/12/2018	SWFTS-MW12-EM11	N	4,600	35,000	13	0.69 J	5.35
SWFTS-MW12	8/16/2018	SWFTS-MW12-EM13	N	4,000	86,000	14	1.2	2.75
SWFTS-MW13	7/12/2017	SWFTS-MW13-BL02	N	4,600	40,000	12	1.6	4.72
SWFTS-MW13	9/20/2017	SWFTS-MW13-EM01	N	10,000	52,000	17	1.1	5.20
SWFTS-MW13	9/26/2017	SWFTS-MW13-EM02	N	6,200	53,000	18	1.4	3.17
SWFTS-MW13	10/3/2017	SWFTS-MW13-EM03	N	6,900	100	17 J-	1.1	5.57
SWFTS-MW13	10/10/2017	SWFTS-MW13-EM04	N	6,300	51,000	16	0.98 J	2.40
SWFTS-MW13	10/24/2017	SWFTS-MW13-EM05	N	6,100	52,000	19	1.3	6.62
SWFTS-MW13	11/15/2017	SWFTS-MW13-EM06	N	5,900	49,000	16	0.93 J	3.22
SWFTS-MW13	12/14/2017	SWFTS-MW13-EM07	N	6,200	49,000	16	1.2	3.79
SWFTS-MW13	2/22/2018	SWFTS-MW13-EM08	N	5,800	50,000	15	1.5	4.95

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement Dissolved Oxygen
				ug/L	ug/L	mg/L	mg/L	mg/L
SWFTS-MW13	3/26/2018	SWFTS-MW13-EM09	N	6,400	52,000	16 J+	1.2	---
SWFTS-MW13	5/3/2018	SWFTS-MW13-EM10	N	6,000	49,000	18	1.1	8.17
SWFTS-MW13	7/12/2018	SWFTS-MW13-EM11	N	6,300	49,000	16	0.80 J	6.45
SWFTS-MW13	8/16/2018	SWFTS-MW13-EM13	N	5,200	21,000	17	1.3	2.95
SWFTS-MW14	7/12/2017	SWFTS-MW14-BL02	N	23,000	54,000	12	2.6	0.65
SWFTS-MW14	7/12/2017	SWFTS-MW14-BL02-FD	FD	22,000	52,000	12	2.3	---
SWFTS-MW14	9/20/2017	SWFTS-MW14-EM01	N	<9.5	<100	<0.55	100	0.39
SWFTS-MW14	9/26/2017	SWFTS-MW14-EM02	N	<4.8	2,400	<1.1	81	0.17
SWFTS-MW14	10/3/2017	SWFTS-MW14-EM03	N	4.8	<100	<0.55 UJ	36	0.19
SWFTS-MW14	10/11/2017	SWFTS-MW14-EM04	N	<9.5	<50	<0.55	4.1	0.39
SWFTS-MW14	10/27/2017	SWFTS-MW14-EM05	N	26	<50	<0.28	3.5	0.60
SWFTS-MW14	11/15/2017	SWFTS-MW14-EM06	N	20 J+	<50	<0.55	3.1	0.83
SWFTS-MW14	12/12/2017	SWFTS-MW14-EM07	N	1,600	2,400	<0.55	2.6	6.49
SWFTS-MW14	2/20/2018	SWFTS-MW14-EM08	N	2,200	<100	<1.1	670	3.12
SWFTS-MW14	3/26/2018	SWFTS-MW14-EM09	N	5,500	<50	<0.28	220	---
SWFTS-MW14	4/30/2018	SWFTS-MW14-EM10	N	4,300	26 J	<0.55	91	0.45
SWFTS-MW14	7/10/2018	SWFTS-MW14-EM11	N	6.5	<25	<0.55	180	0.90
SWFTS-MW14	7/26/2018	SWFTS-MW14-EM12	N	<95	<10	---	---	2.26
SWFTS-MW14	8/14/2018	SWFTS-MW14-EM13	N	8.2 J	<10	<0.55	130	0.47
SWFTS-MW15	7/13/2017	SWFTS-MW15-BL02	N	15,000	43,000	10	1.6	0.47
SWFTS-MW15	9/20/2017	SWFTS-MW15-EM01	N	11,000	40,000	10	1.6	0.27
SWFTS-MW15	9/26/2017	SWFTS-MW15-EM02	N	12,000	41,000	11	1.5	0.30
SWFTS-MW15	10/4/2017	SWFTS-MW-15-EM03	N	11,000	39,000	12	1.4	0.38
SWFTS-MW15	10/10/2017	SWFTS-MW15-EM04	N	18,000	40,000	11	1.6	0.21
SWFTS-MW15	10/27/2017	SWFTS-MW15-EM05	N	13,000	38,000	13	1.8	0.78
SWFTS-MW15	11/14/2017	SWFTS-MW15-EM06	N	9,900	38,000	12	1.8	1.08
SWFTS-MW15	12/13/2017	SWFTS-MW15-EM07	N	13,000	38,000	12	1.6	3.83
SWFTS-MW15	2/19/2018	SWFTS-MW15-EM08	N	12,000	47,000	11	1.6	3.24
SWFTS-MW15	3/26/2018	SWFTS-MW15-EM09	N	12,000	52,000	12	1.7	---
SWFTS-MW15	5/2/2018	SWFTS-MW15-EM10	N	13,000	59,000	14	1.4	1.09
SWFTS-MW15	7/11/2018	SWFTS-MW15-EM11	N	9,300	45,000	12 J-	3.5	6.10
SWFTS-MW15	7/26/2018	SWFTS-MW15-EM12	N	6,800	39,000	---	---	2.73
SWFTS-MW15	8/15/2018	SWFTS-MW15-EM13	N	9,000	52,000	16	1.9	0.97
SWFTS-MW16	7/13/2017	SWFTS-MW16-BL02	N	8,400	38,000	12	1.6	0.93
SWFTS-MW16	9/22/2017	SWFTS-MW16-EM01	N	1,700	8,700	3.3	120	0.71
SWFTS-MW16	9/26/2017	SWFTS-MW16-EM02	N	1,300	8,800	3.8	68	1.54
SWFTS-MW16	10/3/2017	SWFTS-MW16-EM03	N	1,600	6,300	2.7	92	1.30
SWFTS-MW16	10/12/2017	SWFTS-MW16-EM04	N	1,100	5,800	2.1	180	1.32
SWFTS-MW16	10/24/2017	SWFTS-MW16-EM05	N	830	4,700	1.5	180	1.03
SWFTS-MW16	11/16/2017	SWFTS-MW16-EM06	N	<0.95	4,000	1.2	110	0.49
SWFTS-MW16	12/12/2017	SWFTS-MW16-EM07	N	490	3,100	1.1	5.9	0.56
SWFTS-MW16	2/21/2018	SWFTS-MW16-EM08	N	620	2,800	<1.1	7.7	0.49

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement Dissolved Oxygen
				ug/L	ug/L	mg/L	mg/L	mg/L
SWFTS-MW16	3/27/2018	SWFTS-MW16-EM09	N	9,000	46,000	12	1.5	0.49
SWFTS-MW16	5/2/2018	SWFTS-MW16-EM10	N	1,500 J	11,000	3.5	2.3	0.15
SWFTS-MW16	7/11/2018	SWFTS-MW16-EM11	N	<4.8	<5.0	<0.55	7.9	5.38
SWFTS-MW16	7/26/2018	SWFTS-MW16-EM12	N	<0.95	<4.0	---	---	1.99
SWFTS-MW16	8/15/2018	SWFTS-MW16-EM13	N	12	67	<0.28	3.2	0.98
SWFTS-MW17	7/12/2017	SWFTS-MW17-BL02	N	3,200	---	16	1.1	4.30
SWFTS-MW17	9/19/2017	SWFTS-MW17-EM01	N	2,600	180,000	16	1.2	5.07
SWFTS-MW17	9/19/2017	SWFTS-MW17-EM01-FD	FD	2,600	180,000	16	1.3	---
SWFTS-MW17	9/26/2017	SWFTS-MW17-EM02	N	2,800	17,000	17	1.5	4.04
SWFTS-MW17	9/26/2017	SWFTS-MW17-EM02-FD	FD	2,800	17,000	17	1.5	---
SWFTS-MW17	10/3/2017	SWFTS-MW17-EM03	N	3,300	19,000	15	1.1	6.87
SWFTS-MW17	10/3/2017	SWFTS-MW17-EM03-FD	FD	3,300	19,000	16	1.0	---
SWFTS-MW17	10/10/2017	SWFTS-MW17-EM04	N	2,800	16,000	16	1.3	3.90
SWFTS-MW17	10/24/2017	SWFTS-MW17-EM05	N	2,700	15,000	17	1.2	5.28
SWFTS-MW17	10/24/2017	SWFTS-MW17-EM05-FD	FD	2,700	15,000	16	2.2	---
SWFTS-MW17	11/15/2017	SWFTS-MW17-EM06	N	2,300	16,000	17	1.3	4.91
SWFTS-MW17	11/15/2017	SWFTS-MW17-EM06-FD	FD	2,200	15,000	17	1.2	---
SWFTS-MW17	12/13/2017	SWFTS-MW17-EM07	N	2,200	14,000	16	1.2	5.54
SWFTS-MW17	12/13/2017	SWFTS-MW17-EM07-FD	FD	2,300	13,000	16	1.2	---
SWFTS-MW17	2/22/2018	SWFTS-MW17-EM08	N	2,000	15,000	16	2.1	3.65
SWFTS-MW17	3/28/2018	SWFTS-MW17-EM09	N	2,000	14,000	15	1.2	3.49
SWFTS-MW17	5/3/2018	SWFTS-MW17-EM10	N	1,900 J-	11,000	15	1.1	4.08
SWFTS-MW17	7/11/2018	SWFTS-MW17-EM11	N	1,300	11,000	15	1.1	4.35
SWFTS-MW17	8/16/2018	SWFTS-MW17-EM13	N	1,600	12,000	16	1.4	4.56
SWFTS-MW18	7/11/2017	SWFTS-MW18-BL02	N	13,000	52,000	12	1.5	2.68
SWFTS-MW18	9/21/2017	SWFTS-MW18-EM01	N	9,700	34,000	8.9	2.0	0.59
SWFTS-MW18	9/27/2017	SWFTS-MW18-EM02	N	11,000	36,000	12	2.2	0.40
SWFTS-MW18	10/3/2017	SWFTS-MW18-EM03	N	8,100	30,000	8.6	1.5	2.22
SWFTS-MW18	10/10/2017	SWFTS-MW18-EM04	N	9,700	40,000	12	1.7	0.31
SWFTS-MW18	10/23/2017	SWFTS-MW18-EM05	N	8,200	38,000	12	1.7	0.98
SWFTS-MW18	11/15/2017	SWFTS-MW18-EM06	N	11,000	37,000	11	1.8	1.37
SWFTS-MW18	12/13/2017	SWFTS-MW18-EM07	N	9,100	39,000	12	1.6	0.40
SWFTS-MW18	2/22/2018	SWFTS-MW18-EM08	N	8,900	45,000	12	2.3	0.51
SWFTS-MW18	3/27/2018	SWFTS-MW18-EM09	N	2,000	11,000	3.9	2.5	0.25
SWFTS-MW18	3/27/2018	SWFTS-MW18-EM09-FD	FD	2,100	11,000	3.5	2.4	---
SWFTS-MW18	5/1/2018	SWFTS-MW18-EM10	N	9,200	50,000	13	1.5	0.43
SWFTS-MW18	7/11/2018	SWFTS-MW18-EM11	N	6,900	41,000	11	1.6	0.01
SWFTS-MW18	7/26/2018	SWFTS-MW18-EM12	N	6,100	43,000	---	---	2.81
SWFTS-MW18	8/15/2018	SWFTS-MW18-EM13	N	5,900	41,000	13	2.0	0.58
SWFTS-MW19	7/12/2017	SWFTS-MW19-BL02	N	840	130	0.33	2.6	0.77
SWFTS-MW19	9/21/2017	SWFTS-MW19-EM01	N	1,400	220	0.51	2.3	0.43
SWFTS-MW19	9/28/2017	SWFTS-MW19-EM02	N	1,400	260	0.74	2.8	6.39

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement Dissolved Oxygen
				ug/L	ug/L	mg/L	mg/L	mg/L
SWFTS-MW19	10/5/2017	SWFTS-MW19-EM03	N	1,400	220	0.63	2.6	5.16
SWFTS-MW19	10/12/2017	SWFTS-MW19-EM04	N	1,400	220 J+	0.70	2.2	0.28
SWFTS-MW19	10/27/2017	SWFTS-MW19-EM05	N	1,900	250	0.77	2.6	0.38
SWFTS-MW19	11/16/2017	SWFTS-MW19-EM06	N	1,500	270	0.97	2.3	0.73
SWFTS-MW19	12/12/2017	SWFTS-MW19-EM07	N	2,000	410	1.2	2.4	0.92
SWFTS-MW19	2/20/2018	SWFTS-MW19-EM08	N	1,900	610	0.73	2.6	1.25
SWFTS-MW19	3/27/2018	SWFTS-MW19-EM09	N	1,800	650	0.71	2.2	1.09
SWFTS-MW19	4/30/2018	SWFTS-MW19-EM10	N	1,800	820	0.70	2.2	0.56
SWFTS-MW19	4/30/2018	SWFTS-MW19-EM10-FD	FD	1,700	760	0.67	2.2	---
SWFTS-MW19	7/10/2018	SWFTS-MW19-EM11	N	2,000	1,100	0.52	1.9	2.80
SWFTS-MW19	7/10/2018	SWFTS-MW19-EM11-FD	FD	2,000	1,000	0.52	1.9	---
SWFTS-MW19	7/26/2018	SWFTS-MW19-EM12	N	1,800	890	---	---	1.11
SWFTS-MW19	7/26/2018	SWFTS-MW19-EM12-FD	FD	1,700	890	---	---	---
SWFTS-MW19	8/15/2018	SWFTS-MW19-EM13	N	1,700	900	0.44	2.4	0.95
SWFTS-MW20	7/12/2017	SWFTS-MW20-BL02	N	20,000	51,000	13	1.7	6.05
SWFTS-MW20	9/21/2017	SWFTS-MW20-EM01	N	17,000	30,000	7.3	2.5	3.72
SWFTS-MW20	9/26/2017	SWFTS-MW20-EM02	N	16,000	33,000	7.6	3.0	0.49
SWFTS-MW20	10/4/2017	SWFTS-MW20-EM03	N	19,000	38,000	9.6	2.6	0.22
SWFTS-MW20	10/12/2017	SWFTS-MW20-EM04	N	14,000	42,000	8.5	2.2	0.23
SWFTS-MW20	10/12/2017	SWFTS-MW20-EM04-FD	FD	14,000	40,000	9.1	2.2	---
SWFTS-MW20	10/25/2017	SWFTS-MW20-EM05	N	17,000	40,000	11	2.6	0.45
SWFTS-MW20	11/16/2017	SWFTS-MW20-EM06	N	7,900	16,000	4.0	3.0	0.74
SWFTS-MW20	12/12/2017	SWFTS-MW20-EM07	N	16,000	43,000	8.5	2.2	0.20
SWFTS-MW20	2/19/2018	SWFTS-MW20-EM08	N	6,600	16,000	3.2	2.5	2.54
SWFTS-MW20	3/27/2018	SWFTS-MW20-EM09	N	11,000	24,000	5.2	2.2	3.64
SWFTS-MW20	4/30/2018	SWFTS-MW20-EM10	N	6,700	14,000	3.3	2.3	0.19
SWFTS-MW20	7/11/2018	SWFTS-MW20-EM11	N	6,700	16,000	3.2	2.8	1.72
SWFTS-MW20	7/26/2018	SWFTS-MW20-EM12	N	7,500	19,000	---	---	1.88
SWFTS-MW20	8/15/2018	SWFTS-MW20-EM13	N	4,300	5,600	2.8	2.8	0.81
SWFTS-MW20	8/15/2018	SWFTS-MW20-EM13-FD	FD	4,300	5,700	2.7	2.8	---
SWFTS-MW21	7/13/2017	SWFTS-MW21-BL02	N	5,800	49,000	15	0.94 J	6.15
SWFTS-MW21	9/21/2017	SWFTS-MW21-EM01	N	5,200	15,000	3.9	7.5	4.90
SWFTS-MW21	9/27/2017	SWFTS-MW21-EM02	N	950	4,700	1.8 J	19	0.28
SWFTS-MW21	10/5/2017	SWFTS-MW21-EM03	N	1,100	7,700	3.2	24	4.40
SWFTS-MW21	10/11/2017	SWFTS-MW21-EM04	N	820	4,200	1.8	25	0.28
SWFTS-MW21	10/27/2017	SWFTS-MW21-EM05	N	890	5,000	2.0	2.8	0.45
SWFTS-MW21	11/15/2017	SWFTS-MW21-EM06	N	2,300	13,000	3.7	2.1	3.07
SWFTS-MW21	12/13/2017	SWFTS-MW21-EM07	N	3,500	26,000	22	1.6	0.68
SWFTS-MW21	2/20/2018	SWFTS-MW21-EM08	N	4,800	34,000	11	1.6	0.24
SWFTS-MW21	2/20/2018	SWFTS-MW21-EM08-FD	FD	4,900	33,000	11	1.6	---
SWFTS-MW21	3/27/2018	SWFTS-MW21-EM09	N	4,600	32,000	10	1.1	0.37
SWFTS-MW21	4/30/2018	SWFTS-MW21-EM10	N	4,400	27,000	10	1.3	0.00

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement Dissolved Oxygen
				ug/L	ug/L	mg/L	mg/L	mg/L
SWFTS-MW21	7/12/2018	SWFTS-MW21-EM11	N	1,300	7,900	2.8	3.7	0.06
SWFTS-MW21	7/27/2018	SWFTS-MW21-EM12	N	1,000	9,000	---	---	8.98 E
SWFTS-MW21	8/15/2018	SWFTS-MW21-EM13	N	1,300	2,900	1.9	2.7	0.68
SWFTS-MW22	7/13/2017	SWFTS-MW22-BL02	N	5,000	7,900	2.2	2.2	2.09
SWFTS-MW22	9/20/2017	SWFTS-MW22-EM01	N	4,000	6,700	1.7	2.2	0.32
SWFTS-MW22	9/27/2017	SWFTS-MW22-EM02	N	3,800	6,300	1.7	2.6	0.12
SWFTS-MW22	10/5/2017	SWFTS-MW22-EM03	N	3,500	6,000	1.7	2.7	0.41
SWFTS-MW22	10/12/2017	SWFTS-MW22-EM04	N	2,600	5,700	1.4	2.3	2.72
SWFTS-MW22	10/26/2017	SWFTS-MW22-EM05	N	3,700	5,500	1.6	2.6	0.29
SWFTS-MW22	11/16/2017	SWFTS-MW22-EM06	N	3,000	4,400	1.3	2.5	0.45
SWFTS-MW22	12/14/2017	SWFTS-MW22-EM07	N	2,500	4,900	1.4	2.6	1.31
SWFTS-MW22	2/21/2018	SWFTS-MW22-EM08	N	2,000	2,400	0.89 J	2.4	0.43
SWFTS-MW22	3/28/2018	SWFTS-MW22-EM09	N	2,000	2,600	0.83	2.4	0.65
SWFTS-MW22	4/30/2018	SWFTS-MW22-EM10	N	1,900	1,800	<0.055	2.2	0.26
SWFTS-MW22	7/10/2018	SWFTS-MW22-EM11	N	2,900	840	0.81	2.3	2.80
SWFTS-MW22	7/27/2018	SWFTS-MW22-EM12	N	2,200	3,600	---	---	4.13
SWFTS-MW22	8/16/2018	SWFTS-MW22-EM13	N	2,400	1,300	0.95 J+	2.4	2.29
SWFTS-MW23	7/13/2017	SWFTS-MW23-BL02	N	930	20	0.14 J	2.9	0.36
SWFTS-MW23	9/22/2017	SWFTS-MW23-EM01	N	1,700	160 J	0.64	3.1	0.55
SWFTS-MW23	9/28/2017	SWFTS-MW23-EM02	N	1,700	120	0.67	3.3	0.16
SWFTS-MW23	10/5/2017	SWFTS-MW23-EM03	N	1,900	<2,000	0.79	3.2	0.79
SWFTS-MW23	10/11/2017	SWFTS-MW23-EM04	N	4,000	220	0.88	2.9	1.87
SWFTS-MW23	10/26/2017	SWFTS-MW23-EM05	N	2,400	270	1.2	2.8	0.38
SWFTS-MW23	11/15/2017	SWFTS-MW23-EM06	N	2,400	270	1.4	3.0	0.49
SWFTS-MW23	12/12/2017	SWFTS-MW23-EM07	N	2,800	370	1.5	2.7	0.23
SWFTS-MW23	2/21/2018	SWFTS-MW23-EM08	N	2,800	300 J-	1.6	3.1	5.42
SWFTS-MW23	3/28/2018	SWFTS-MW23-EM09	N	2,100	180	0.83	2.8	2.59
SWFTS-MW23	5/2/2018	SWFTS-MW23-EM10	N	1,400	120	0.43	2.8	0.30
SWFTS-MW23	7/10/2018	SWFTS-MW23-EM11	N	1,000	18 J	0.11	2.7	0.44
SWFTS-MW23	8/16/2018	SWFTS-MW23-EM13	N	870	28	0.055 J	3.2	2.48
SWFTS-MW24	7/13/2017	SWFTS-MW24-BL02	N	13,000	47,000	13	1.3	3.04
SWFTS-MW24	9/22/2017	SWFTS-MW24-EM01	N	9,400	32,000	9.0	1.7	1.31
SWFTS-MW24	9/28/2017	SWFTS-MW24-EM02	N	5,200	12,000	4.5	4.3	0.48
SWFTS-MW24	10/5/2017	SWFTS-MW24-EM03	N	7,800	34,000	9.4	2.0	0.76
SWFTS-MW24	10/11/2017	SWFTS-MW24-EM04	N	4,400	17,000	4.7	1.9	3.88
SWFTS-MW24	10/26/2017	SWFTS-MW24-EM05	N	7,000	24,000	7.9	2.0 J-	3.06
SWFTS-MW24	11/15/2017	SWFTS-MW24-EM06	N	4,100	14,000	3.9	1.9	1.39
SWFTS-MW24	12/12/2017	SWFTS-MW24-EM07	N	6,600	26,000	6.1	1.5	1.11
SWFTS-MW24	2/21/2018	SWFTS-MW24-EM08	N	6,100	22,000	6.9	2.0	0.95
SWFTS-MW24	3/28/2018	SWFTS-MW24-EM09	N	4,800	15,000	5.4	1.6	0.55
SWFTS-MW24	5/2/2018	SWFTS-MW24-EM10	N	4,800	12,000	6.6	1.5	0.00
SWFTS-MW24	7/12/2018	SWFTS-MW24-EM11	N	5,000	6,100	7.3	1.3	0.10

Table 2
Groundwater Analytical Results
 Seep Well Field Bioremediation Treatability Study

Well	Sample Date	Sample ID	QC Type	Perchlorate by USEPA Method 314.0	Chlorate by USEPA Method 300.1B	Nitrate (as N) by USEPA Method 300.0	Total Organic Carbon by SM 5310B	Field Measurement Dissolved Oxygen
				ug/L	ug/L	mg/L	mg/L	mg/L
SWFTS-MW24	7/27/2018	SWFTS-MW24-EM12	N	4,000	7,100	---	---	5.09
SWFTS-MW24	8/15/2018	SWFTS-MW24-EM13	N	4,000	4,800	7.6	1.9	1.83
SWFTS-MW25	7/13/2017	SWFTS-MW25-BL02	N	17,000	43,000	10	1.8	3.03
SWFTS-MW25	9/22/2017	SWFTS-MW25-EM01	N	280	<200	<0.55	13	0.50
SWFTS-MW25	9/28/2017	SWFTS-MW25-EM02	N	370	130	<0.55	4.8	0.14
SWFTS-MW25	10/5/2017	SWFTS-MW25-EM03	N	230	<500	<0.55	3.3	0.96
SWFTS-MW25	10/11/2017	SWFTS-MW25-EM04	N	140	160	<0.55	2.7	0.26
SWFTS-MW25	10/26/2017	SWFTS-MW25-EM05	N	420	170	<0.28	2.6	0.98
SWFTS-MW25	11/15/2017	SWFTS-MW25-EM06	N	440	630	<0.55	2.5	1.11
SWFTS-MW25	12/12/2017	SWFTS-MW25-EM07	N	2,300	1,700	<0.55	2.3	0.63
SWFTS-MW25	2/21/2018	SWFTS-MW25-EM08	N	2,800	4,700	<1.1	2.4	0.32
SWFTS-MW25	3/28/2018	SWFTS-MW25-EM09	N	4,600	11,000	2.8	2.0	0.20
SWFTS-MW25	5/3/2018	SWFTS-MW25-EM10	N	5,700	3,600	4.2	1.9	0.00
SWFTS-MW25	7/10/2018	SWFTS-MW25-EM11	N	4,300	2,100	3.6	1.7	3.00
SWFTS-MW25	7/27/2018	SWFTS-MW25-EM12	N	3,500	2,300	---	---	2.49
SWFTS-MW25	8/15/2018	SWFTS-MW25-EM13	N	4,500	4,300	5.2	2.3	1.91

- 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. The associated numerical value is the approximate concentration of the analyte 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