

TECHNICAL MEMORANDUM

To: Nevada Environmental Response Trust

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

From: Dana Grady

Date: August 24, 2023

Subject: Las Vegas Wash ZVI-Enhanced 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 to summarize Tetra Tech's progress during July 2023 toward successfully implementing the Las Vegas Wash Zero-Valent Iron (ZVI)-Enhanced Bioremediation Treatability Study.

Task Progress Update: July 2023

Task M18 – Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

- Current Status –

The Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study is being conducted to evaluate the effectiveness of ZVI-enhanced bioremediation of perchlorate-contaminated groundwater that has migrated downgradient of the NERT site toward the Las Vegas Wash. The general treatability study layout, including locations of the continuous and discontinuous ZVI walls and associated injection well and monitoring well network, is presented on Figures 1, 2a, and 2b. Well construction details are provided in Table 1. The construction phase of the treatability study was completed on April 24, 2023 and the performance monitoring phase is ongoing.

- Performance Monitoring – The performance monitoring program included a pre-construction, baseline groundwater sampling event completed in October 2022 prior to installation of the continuous and discontinuous ZVI walls and performance monitoring network. Following construction of the ZVI walls, installation of the performance monitoring network, and injection of biological inoculum and nutrient solution, the performance monitoring program began in May 2023 and is ongoing. The performance monitoring program is being implemented in accordance with the NDEP-approved Work Plan Addendum, which includes monthly synoptic gauging events to evaluate hydrologic changes over time and groundwater sampling events approximately one month after completion of the construction phase and quarterly thereafter for a total of 16 months. The latest monthly synoptic gauging event was conducted from July 25 to July 26, 2023. The Month 1 monitoring groundwater sampling event was performed from May 22 to May 30, 2023 approximately one month after completion of the construction phase of the treatability study.

Available draft groundwater analytical results from the baseline sampling event and the subsequent Month 1 performance monitoring event performed in May 2023 are presented in Table 2. The May 2023 groundwater results are summarized below.

It should be noted that in accordance with Section 7.6.4 of the NDEP-approved Work Plan Addendum, the majority of the performance monitoring network had to be installed after emplacement of the ZVI to prevent damage to well infrastructure. As a result, pre-construction baseline concentrations are not available on a well-by-well basis for all performance monitoring wells. Therefore, performance is being evaluated by comparing constituent concentrations from individual monitoring wells to the average October 2022 baseline concentration within each treatability study test area. For example, samples collected from each performance monitoring well installed in Test Area 1a are compared to the average concentration of samples collected from existing pre-construction wells within Test Area 1a during the October 2022 baseline sampling event. The May 2023 groundwater results are summarized below.

- Test Area 1a – Test Area 1a includes the northernmost 100 feet of the 3-foot wide, 200-foot-long continuous ZVI wall installed in the alluvium via one pass trenching, which was backfilled with 10 percent ZVI by weight. Notable groundwater results from the Month 1 May 2023 sampling event are provided below.
 - Groundwater samples collected from upgradient monitoring wells screened in the alluvium in May 2023 indicated an average perchlorate concentration of 4,000 micrograms per liter ($\mu\text{g/L}$), which is similar to the average October 2022 baseline perchlorate concentration for Test Area 1a of 4,607 $\mu\text{g/L}$. Results of the groundwater samples collected from monitoring wells located directly within the continuous ZVI wall indicated perchlorate concentrations ranging from 2,580 $\mu\text{g/L}$ to 3,740 $\mu\text{g/L}$, which represents reductions ranging from 19 percent to 44 percent compared to the average baseline concentration of 4,607 $\mu\text{g/L}$. Similarly, groundwater samples collected from 10 of the 11 downgradient monitoring wells screened in the alluvium during the May 2023 sampling event indicated slight reductions in perchlorate concentrations ranging from 1 percent to 28 percent compared to the average baseline perchlorate concentration. These results were generally expected as the bench-scale study indicated that the removal of nitrate and chlorate is rapid and likely an abiotic process occurring primarily on the ZVI surface, while the reduction of perchlorate is slower and performed predominantly by autotrophic perchlorate-reducing bacteria using hydrogen generated at the ZVI surface. The injection of a biological inoculum completed in April 2023 is anticipated to reduce the lag phase associated with acclimation and growth of the microbial community, however, strong reductions in perchlorate concentrations are not expected this early in the performance monitoring phase of the treatability study.
 - Concentration reductions of chlorate and nitrate were significantly more pronounced than perchlorate reductions, which is consistent with the conclusions of the bench-scale study. As explained above, the removal of nitrate and chlorate is typically rapid and is likely occurring via abiotic processes primarily on the ZVI surface. Chlorate and nitrate concentrations in samples collected within the ZVI wall indicated greater than 92% reduction compared to baseline concentrations. Groundwater samples collected from all 11 monitoring wells located 5 to 150 feet downgradient of the ZVI wall indicated chlorate and nitrate reductions ranging from 63 percent to 96 percent.

- Lastly, dissolved hydrogen is another key indicator parameter that is being monitored during the treatability study because it is produced from the slow corrosion of ZVI and can be used as an electron donor by perchlorate reducing bacteria for degradation of perchlorate. The baseline dissolved hydrogen concentrations within the Test 1a area averaged 68 nanomolar (nM). One groundwater sample collected from monitoring well ZTS-MW164 (located directly within the ZVI wall) indicated a significantly elevated dissolved hydrogen concentration of 2,100 nM during the Month 1 May 2023 sampling event. This elevated concentration of dissolved hydrogen suggests that ZVI corrosion is producing enough hydrogen within portions of the ZVI wall for the autotrophic microbial community to utilize as it develops through the performance monitoring phase of the treatability study.
- Test Area 1b –Test Area 1b includes the southernmost 100 feet of the 3-foot wide, 200-foot-long continuous ZVI wall installed in the alluvium via one pass trenching, which was backfilled with 30 percent ZVI by weight. Notable groundwater results from the Month 1 May 2023 sampling event are provided below.
 - Groundwater samples collected from upgradient monitoring wells screened in the alluvium in May 2023 indicated an average perchlorate concentration of 6,268 µg/L, which is slightly lower than the average October 2022 baseline perchlorate concentration of 7,234 µg/L. Groundwater samples collected from monitoring wells located within the continuous ZVI wall indicated perchlorate concentrations ranging from 5,500 µg/L to 6,260 µg/L, which represent reductions ranging from 13 percent to 24 percent compared to the average baseline concentration of 7,234 µg/L. Similarly, samples collected from the 11 downgradient monitoring wells screened in the alluvium during the May 2023 sampling event indicated slight reductions in perchlorate concentrations ranging from 11 percent to 34 percent compared to the average baseline perchlorate concentration. As described above, strong reductions in perchlorate concentrations are not expected this early in the performance monitoring phase of the treatability study due to competing electronic acceptors (i.e., chlorate and nitrate) and the acclimation time required to develop a robust microbial community within the treatability study area.
 - As observed in Test Area 1a, the reductions in chlorate and nitrate concentrations at monitoring wells within Test Area 1b were significantly more pronounced than those observed for perchlorate. Chlorate concentrations in all nine samples collected from monitoring wells within the ZVI wall, 5 feet downgradient, and 15 feet downgradient were less than the sample detection limit, which represents chlorate reductions of 99 percent compared to the average baseline concentrations of 90,400 µg/L. Furthermore, chlorate concentration reductions of greater than 97 percent were observed in four of the five monitoring wells located farther downgradient of the ZVI wall (25 to 150 feet downgradient). Similarly, samples collected from 13 of the 14 monitoring wells located within or downgradient of the ZVI wall indicated nitrate concentration reductions ranging from 63 percent to 96 percent. Nitrate concentrations reduced to less than or equal to 7 mg/L in all 13 of these monitoring wells, which is significantly lower than the average baseline concentration of 19 mg/L.
 - Baseline dissolved hydrogen concentrations averaged 16.1 nM within the Test 1b area. During the Month 1 May 2023 sampling event, groundwater samples

collected from monitoring wells ZTS-MW166 and ZTS-MW171 (both located within the ZVI wall) indicated significantly increased dissolved hydrogen concentrations of 2,500 nM and 2,400 nM, respectively. Elevated dissolved hydrogen concentrations were not observed in any other monitoring wells located within the Test 1b area.

- Test Area 2a – Test Area 2a is a 24-foot long, discontinuous ZVI wall that targets the alluvium and is comprised of seventeen 12-inch diameter ZVI-filled borings installed along two staggered rows, with each boring backfilled with 50% ZVI by weight. Notable groundwater results from the Month 1 May 2023 sampling event are provided below.
 - The average October 2022 baseline groundwater perchlorate concentration in samples collected from monitoring wells screened in the alluvium within Test Area 2a was 6,798 µg/L. Perchlorate concentration reductions ranging from 4 percent to 25 percent were observed in the three monitoring wells located within and immediately downgradient of the discontinuous ZVI wall, with concentrations ranging from 5,120 µg/L to 6,540 µg/L.
 - Although chlorate concentrations reduced an average of 44 percent compared to the average baseline concentration of 88,280 µg/L, the upgradient chlorate concentration also reduced an average of approximately 41 percent. Therefore, the chlorate reductions observed during the Month 1 May 2023 sampling event within Test Area 2a are likely primarily due to a reduced upgradient flux into the test area. Significant chlorate and nitrate concentration reductions of 88 percent and 83 percent, respectively, were observed in the groundwater sample collected from monitoring well ZTS-MW191, which is located immediately downgradient of the discontinuous ZVI wall.
 - The baseline dissolved hydrogen concentrations in groundwater samples collected from monitoring wells located within Test Area 2a during the October 2022 baseline sampling event averaged 15 nM. In general, dissolved hydrogen concentrations during the May 2023 sampling event were slightly higher than the average October 2022 baseline concentration. The most notable increase in dissolved hydrogen concentration within Test Area 2a was the groundwater sample collected from monitoring well ZTS-MW195 (located immediately downgradient of the discontinuous ZVI wall), which indicated a dissolved hydrogen concentration of 1,400 nM.
- Test Area 2b – Test Area 2b is a 12-foot long, discontinuous ZVI wall that targets the Upper Muddy Creek formation (UMCf) and is comprised of nine 12-inch diameter ZVI-filled borings installed along two staggered rows, with each boring backfilled with 50% ZVI by weight. Due to the large, saturated thickness of the targeted UMCf treatment interval, paired performance monitoring wells were installed at two depth intervals from approximately 25-45 feet below ground surface (bgs) and from approximately 50 to 65 feet bgs. Notable groundwater results from the Month 1 May 2023 sampling event are provided below.
 - The average baseline perchlorate concentration in groundwater samples collected from monitoring wells screened in the UMCf was 3,156 µg/L. Perchlorate concentration reductions were observed in seven of the eight monitoring wells located two to seven feet downgradient of the discontinuous ZVI wall with perchlorate concentrations ranging from 112 µg/L to 2,900 µg/L during the May 2023 sampling event. In general, monitoring wells screened in the shallow UMCf indicated higher reductions in perchlorate, ranging from 69 percent

- to 96 percent compared to the average baseline concentration. Groundwater collected from downgradient monitoring wells screened in the deeper UMCf indicated perchlorate concentration reductions ranging from 8 percent to 58 percent. Samples collected from the two monitoring wells located approximately 15 feet downgradient (ZTS-MW208 and ZTS-MW209) indicated perchlorate concentrations similar to baseline concentrations.
- Chlorate and nitrate concentration reductions were observed in groundwater collected from all eight monitoring wells located two to seven feet downgradient of the discontinuous ZVI wall and averaged 92 percent and 75 percent, respectively.
 - Dissolved hydrogen concentrations averaged 79 nM during the October 2022 baseline event. One notable detection in dissolved hydrogen concentration during the Month 1 May 2023 event was a concentration of 4,700 nM in the groundwater sample collected from monitoring well ZTS-MW200, which is located two feet downgradient of the discontinuous ZVI wall in the deep UMCf.
 - Test Area 2c – Test Area 2c is a 24-foot long, discontinuous ZVI wall that targets the alluvium and is comprised of twenty-five 12-inch diameter ZVI-filled borings installed along three staggered rows, with each boring backfilled with 50% ZVI by weight. Notable groundwater results from the Month 1 May 2023 sampling event are provided below.
 - The average baseline perchlorate concentration in Test Area 2c from monitoring wells screened in the alluvium was 6,993 µg/L. Slight perchlorate concentration reductions ranging from 6 percent to 16 percent were observed in eight of the nine monitoring wells located within or downgradient of the discontinuous ZVI wall, with concentrations ranging from 5,860 µg/L to 6,440 µg/L during the May 2023 sampling event.
 - As expected, chlorate and nitrate concentrations reductions were greater than perchlorate, with average reductions of 45 percent and 24 percent, respectively. Significant chlorate and nitrate concentration reductions of 67 percent and 49 percent, respectively, were observed in the groundwater sample collected from monitoring well ZTS-MW182, which is located within the Test Area 2c discontinuous ZVI wall.
 - Dissolved hydrogen concentrations averaged 5.5 nM during the October 2022 baseline event. Notably elevated dissolved hydrogen concentrations were detected in groundwater samples collected from four monitoring wells screened in the alluvium in Test Area 2c (ZTS-MW141, ZTS-MW142, ZTS-MW182, and ZTS-MW189) with concentrations ranging from 140 to 900 nM.
 - Monthly Synoptic Monitoring – Monthly synoptic monitoring is being performed to evaluate any changes in horizontal and vertical gradients, assess for potential groundwater mounding upgradient of the ZVI reactive zone, assess hydraulic effects of seasonal precipitation, and evaluate potential non-uniform flow. Results of the July 2023 monthly synoptic monitoring event do not indicate any significant changes to groundwater elevations in monitoring wells located upgradient, within, and downgradient of ZVI reactive zones.
- Schedule and Progress Updates
 - Groundwater levels will be measured on a monthly basis for the duration of the treatability study. The next monthly synoptic event is scheduled for August 17 through August 18, 2023.

- Groundwater samples will continue to be collected on a quarterly basis to generate time-series data to evaluate the treatment effectiveness of the ZVI installations with respect to the design performance criteria. The next quarterly groundwater sampling event is planned for August 21 through August 31, 2023.
- Bio-Trap[®] samplers will be installed in August 2023 and retrieved in September 2023 to evaluate the microbial community within each test area.
- Health and Safety
 - There were no health and safety incidents related to Task M18 during July 2023.

CERTIFICATION

Las Vegas Wash ZVI-Enhanced 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

Not Individually, but Solely
as President of the Trustee

Signature: Jay A. Steinberg, President, 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

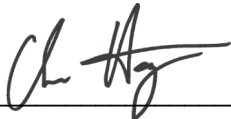
Company: Le Petomane XXVII, Inc., not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

Date: 8/24/23

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 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study Monthly Progress Report.



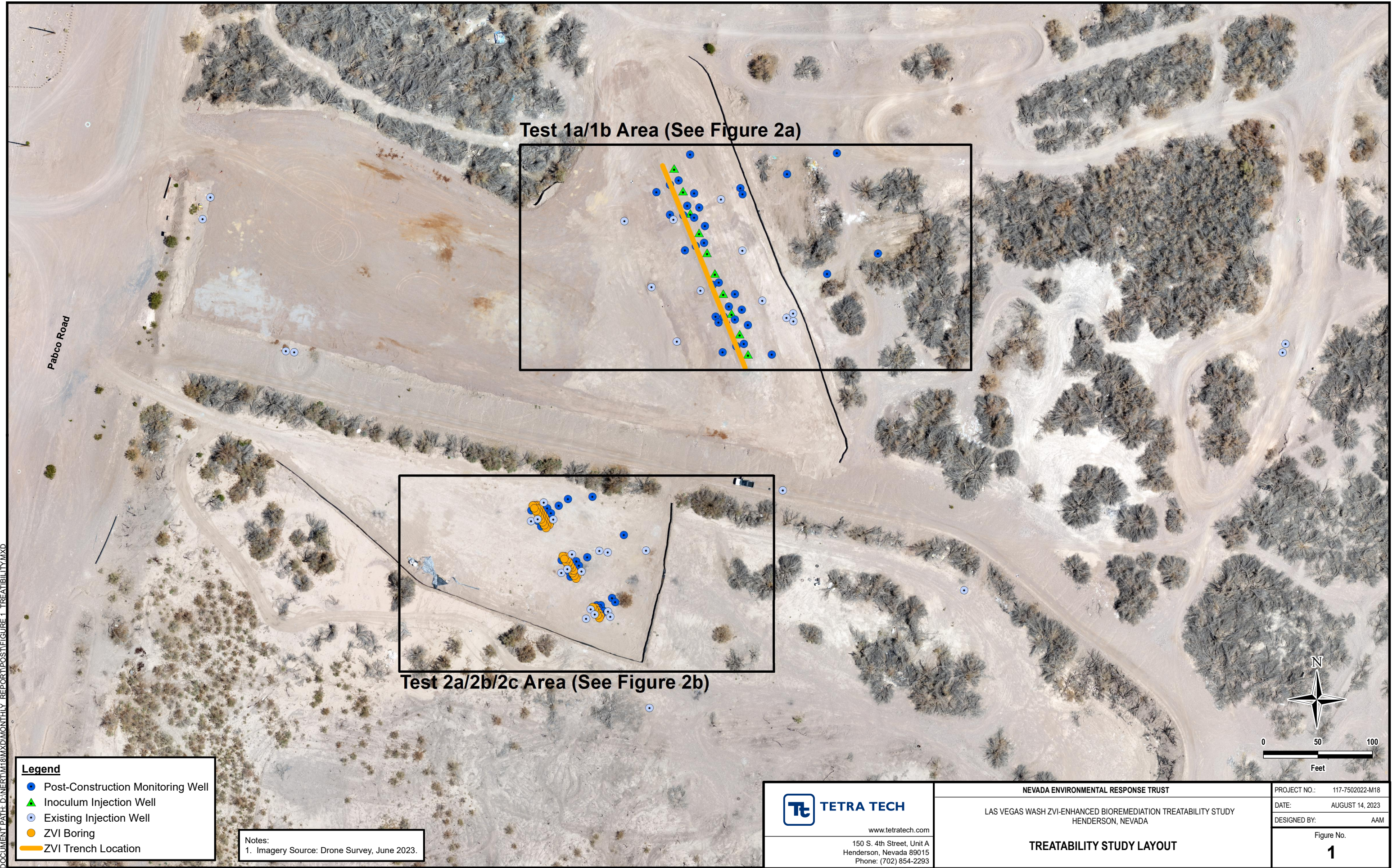
Christopher Hayes, CEM
Environmental Engineer
Tetra Tech, Inc.

August 24, 2023

Date

Nevada CEM Certificate Number: EM2499
Nevada CEM Expiration Date: December 15, 2024

Figures



DOCUMENT PATH: D:\NERT\18\18\MONTHLY REPORT\POST\FIGURE 1_TREATABILITY.MXD

Legend

- Post-Construction Monitoring Well
- ▲ Inoculum Injection Well
- Existing Injection Well
- ZVI Boring
- ZVI Trench Location

Notes:
 1. Imagery Source: Drone Survey, June 2023.

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NEVADA ENVIRONMENTAL RESPONSE TRUST
 LAS VEGAS WASH ZVI-ENHANCED BIOREMEDIATION TREATABILITY STUDY
 HENDERSON, NEVADA

TREATABILITY STUDY LAYOUT

PROJECT NO.: 117-7502022-M18
 DATE: AUGUST 14, 2023
 DESIGNED BY: AAM

Figure No.
1



DOCUMENT PATH: D:\NERT\M18\MXD\MONTHLY REPORT\POST\FIGURE 2A TEST AREA 1A 1B.MXD

Legend

- Post-Construction Monitoring Well
- ▲ Inoculum Injection Well
- Existing Monitoring Well
- ZVI Trench Location

Notes:
1. Imagery Source: Drone Survey, June 2023.

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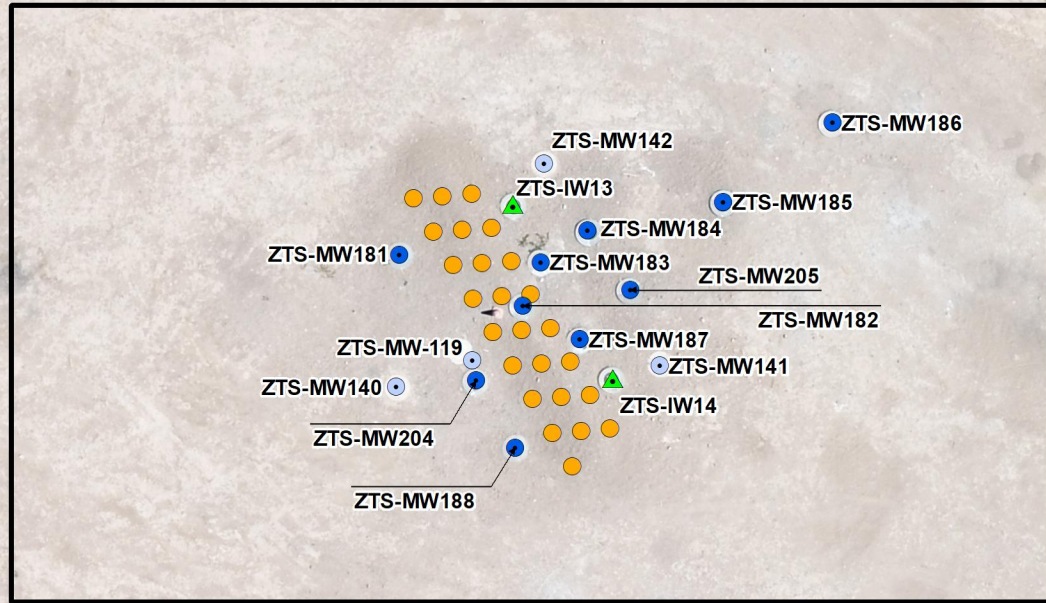
NEVADA ENVIRONMENTAL RESPONSE TRUST
LAS VEGAS WASH ZVI-ENHANCED BIOREMEDIATION TREATABILITY STUDY
HENDERSON, NEVADA

TEST AREA 1a/1b LAYOUT

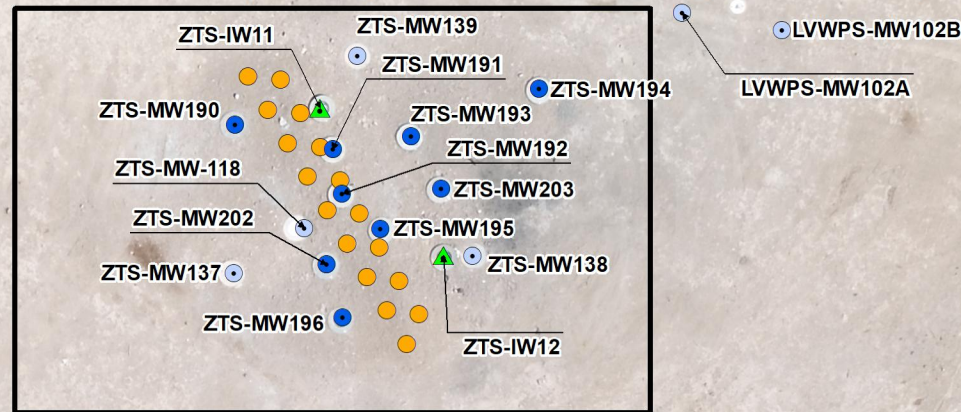
PROJECT NO.: 117-7502022-M18
DATE: AUGUST 14, 2023
DESIGNED BY: AAM

Figure No.
2a

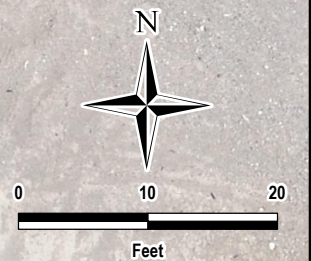
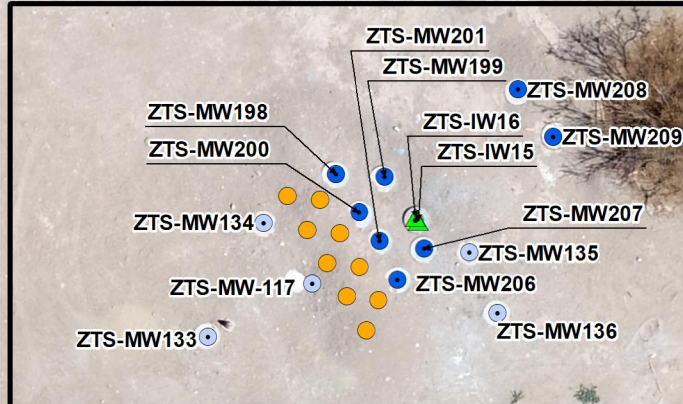
Test 2c Area (Borings ZTS-BH01 through ZTS-BH25)



Test 2a Area (Borings ZTS-BH26 through ZTS-BH42)



Test 2b Area (Borings ZTS-BH43 through ZTS-BH51)



Legend

- Post-Construction Monitoring Well
- ▲ Inoculum Injection Well
- ZVI Boring
- Existing Monitoring Well

Notes:
1. Imagery Source: Drone Survey, June 2023.



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NEVADA ENVIRONMENTAL RESPONSE TRUST

LAS VEGAS WASH ZVI-ENHANCED BIOREMEDIATION TREATABILITY STUDY
HENDERSON, NEVADA

TEST AREA 2a/2b/2c LAYOUT

PROJECT NO.: 117-7502022-M18
DATE: AUGUST 14, 2023
DESIGNED BY: AAM

Figure No.
2b

Tables

Table 1
Well Construction Details
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well ID	Screened Lithology	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Depth to Water ¹	Groundwater Elevation	Casing Material	Slot Size	Filter Pack Gradation	Nominal Borehole Diameter	Borehole Total Depth	Well Diameter	Nominal Screen Length	Well Total Depth	Bottom of Screen	Top of Screen
				feet amsl	feet amsl	ft bTOC	amsl		inches		inches	feet bgs	inches	feet	feet bgs	feet bgs	feet bgs
Test Area 1A																	
ZTS-MW124R	Alluvium	26732932.91	833021.97	1545.35	1545.24	16.94	1528.30	Schedule 40 PVC	0.020	#3	8	35.0	4	10.0	34.5	34.0	24.5
ZTS-MW125	UMCf	26732907.80	833037.00	1546.94	1546.51	17.84	1528.67	Schedule 40 PVC	0.010	#2/16	8	75	4	10	50.5	50	40
ZTS-MW143	Alluvium	26732906.40	832992.60	1545.04	1544.90	16.13	1528.77	Schedule 40 PVC	0.020	#3	6	35	2	10	33.5	33	23
ZTS-MW144	Alluvium	26732926.25	833081.32	1544.47	1544.52	16.85	1527.67	Schedule 40 PVC	0.020	#3	6	40	2	10	34.5	34	24
ZTS-MW149	Alluvium	26732967.42	833052.83	1544.31	1544.20	16.38	1527.82	Schedule 40 PVC	0.020	#3	6	35.0	2	10.0	33.5	33.0	23.3
ZTS-MW150	Alluvium	26732939.76	833034.23	1546.83	1546.74	18.70	1528.04	Schedule 40 PVC	0.020	#3	6	45.0	2	10.0	34.5	34.0	24.3
ZTS-MW151	Alluvium	26732943.59	833042.18	1545.72	1545.62	17.75	1527.87	Schedule 40 PVC	0.020	#3	6	37.5	2	10.0	34.5	34.0	24.3
ZTS-MW152	Alluvium	26732931.70	833056.48	1545.63	1545.50	17.81	1527.69	Schedule 40 PVC	0.020	#3	6	35.0	2	10.0	33.5	33.0	23.3
ZTS-MW153	Alluvium	26732912.34	833034.31	1545.73	1545.61	17.38	1528.23	Schedule 40 PVC	0.020	#3	6	40.0	2	10.0	34.5	34.0	24.3
ZTS-MW154	Alluvium	26732911.74	833046.57	1546.73	1546.62	18.72	1527.90	Schedule 40 PVC	0.020	#3	6	42.5	2	10.0	32.5	32.0	22.3
ZTS-MW155	Alluvium	26732920.46	833050.08	1545.97	1545.89	18.18	1527.71	Schedule 40 PVC	0.020	#3	6	40.0	2	15.0	35.5	35.0	20.3
ZTS-MW156	UMCf	26732909.63	833056.38	1546.34	1546.30	18.52	1527.78	Schedule 40 PVC	0.010	#2/16	6	55.0	2	10.0	54.0	53.5	43.8
ZTS-MW157	Alluvium	26732918.81	833061.15	1545.95	1545.87	18.21	1527.66	Schedule 40 PVC	0.020	#3	6	35.0	2	10.0	33.5	33.0	23.3
ZTS-MW158	Alluvium	26732936.67	833099.40	1544.15	1544.09	16.70	1527.39	Schedule 40 PVC	0.020	#3	6	35.0	2	10.0	33.5	33.0	23.3
ZTS-MW159	UMCf	26732930.97	833101.22	1544.36	1544.08	16.83	1527.25	Schedule 40 PVC	0.010	#2/16	6	50.0	48	10.0	49.0	48.5	38.8
ZTS-MW160	Alluvium	26732949.66	833141.96	1544.42	1544.11	16.86	1527.25	Schedule 40 PVC	0.020	#3	6	40.0	2	10.0	33.5	33.0	23.3
ZTS-MW161	Alluvium	26732968.87	833187.88	1544.23	1543.99	17.03	1526.96	Schedule 40 PVC	0.020	#3	6	45.0	2	10.0	34.5	34.0	24.3
ZTS-MW162	Alluvium	26732901.90	833066.48	1545.76	1545.61	17.94	1527.67	Schedule 40 PVC	0.020	#3	6	40.0	2	10.0	33.5	33.0	23.3
ZTS-MW163	Alluvium	26732879.80	833048.04	1546.23	1546.18	19.05	1527.13	Schedule 40 PVC	0.020	#3	6	40.0	2	10.0	34.5	34.0	24.3
ZTS-MW164	Alluvium	26732883.65	833057.93	1547.06	1546.96	17.90	1529.06	Schedule 40 PVC	0.020	#3	6	40.0	2	10.0	32.5	32.0	22.3
ZTS-MW165	Alluvium	26732886.70	833065.74	1545.63	1545.50	17.83	1527.67	Schedule 40 PVC	0.020	#3	6	38.0	2	10	32.5	32.0	22.3
Between Test Area 1A and Test Area 1B																	
ZTS-MW145	UMCf	26732845.93	833017.26	1547.43	1547.13	18.20	1528.93	Schedule 40 PVC	0.010	#2/16	8	50	4	10	49.5	49	39
ZTS-MW146	UMCf	26732879.40	833100.75	1548.63	1547.33	19.60	1527.73	Schedule 40 PVC	0.010	#2/16	8	55	4	10	51.5	51	41
Test Area 1B																	
ZTS-MW126	Alluvium	26732842.82	833063.07	1548.61	1548.47	19.35	1529.12	Schedule 40 PVC	0.020	#3	8	40	4	10	30.5	30	20
ZTS-MW127R	Alluvium	26732786.41	833082.92	1548.26	1548.18	19.80	1528.38	Schedule 40 PVC	0.020	#3	8	24.0	4	5.0	23.5	23.0	18.5
ZTS-MW147	Alluvium	26732796.25	833040.66	1547.65	1547.18	18.28	1528.90	Schedule 40 PVC	0.020	#3	6	35	2	10	30.0	29.5	19.5
ZTS-MW148	Alluvium	26732833.56	833119.27	1548.62	1548.41	20.49	1527.92	Schedule 40 PVC	0.020	#3	6	35	2	10	32.5	32.0	22.0
ZTS-MW166	Alluvium	26732847.93	833073.86	1548.22	1548.25	20.30	1527.95	Schedule 40 PVC	0.020	#3	6	38.0	2	10	30.0	29.5	19.8
ZTS-MW167	Alluvium	26732850.05	833079.50	1547.37	1547.33	19.43	1527.90	Schedule 40 PVC	0.020	#3	6	40.0	2	10.0	33.5	33.0	23.3
ZTS-MW168	Alluvium	26732839.48	833094.36	1547.52	1547.63	19.78	1527.85	Schedule 40 PVC	0.020	#3	6	32.0	2	10.0	30.5	30.0	20.3
ZTS-MW169	Alluvium	26732819.11	833076.48	1547.70	1547.57	19.44	1528.13	Schedule 40 PVC	0.020	#3	6	27.5	2	10.0	27.5	27.0	17.1
ZTS-MW170	UMCf	26732813.68	833079.28	1547.58	1547.45	19.32	1528.13	Schedule 40 PVC	0.010	#2/16	6	46.5	2	10.0	41.5	41.0	31.1
ZTS-MW171	Alluvium	26732819.11	833083.89	1548.61	1548.53	20.33	1528.20	Schedule 40 PVC	0.020	#3	6	35.0	2	10.0	29.5	29.0	19.3
ZTS-MW172	Alluvium	26732828.15	833088.77	1547.91	1547.74	19.77	1527.97	Schedule 40 PVC	0.020	#3	6	30.0	2	10.0	27.5	27.0	17.3
ZTS-MW173	UMCf	26732816.29	833094.22	1547.95	1547.78	19.77	1528.01	Schedule 40 PVC	0.010	#2/16	6	46.0	2	10.0	43.5	43.0	33.3
ZTS-MW174	Alluvium	26732825.33	833100.64	1548.30	1548.11	20.20	1527.91	Schedule 40 PVC	0.020	#3	6	31.5	2	10.0	30.0	29.5	19.8
ZTS-MW175	Alluvium	26732857.97	833178.91	1546.18	1546.25	19.24	1527.01	Schedule 40 PVC	0.020	#3	6	61.5	2	10.0	30.0	29.5	19.8
ZTS-MW176	Alluvium	26732876.92	833225.42	1543.90	1543.74	17.04	1526.70	Schedule 40 PVC	0.020	#3	6	32.0	2	10.0	30.0	29.5	19.8
ZTS-MW177	Alluvium	26732811.29	833106.07	1548.22	1548.12	20.17	1527.95	Schedule 40 PVC	0.020	#3	6	31.0	2	10.0	30.5	30.0	20.3
ZTS-MW178	Alluvium	26732791.95	833095.60	1549.21	1549.14	20.91	1528.23	Schedule 40 PVC	0.020	#3	6	34.0	2	10.0	28.0	27.5	17.8
ZTS-MW179	Alluvium	26732794.26	833102.47	1548.62	1548.45	20.23	1528.22	Schedule 40 PVC	0.020	#3	6	27.5	2	5.0	23.5	23.0	18.3
ZTS-MW180	Alluvium	26732784.25	833128.08	1548.42	1548.12	20.21	1527.91	Schedule 40 PVC	0.020	#3	6	25.0	2	5.0	23.0	22.5	17.8
LVWPS-MW107A	Alluvium	26732823.90	833144.18	1548.14	1547.58	19.96	1527.62	Schedule 40 PVC	0.020	#3	8	35.5	4	10	35.0	34.5	24.8
LVWPS-MW107B	UMCf	26732816.68	833144.44	1548.20	1547.82	16.61	1531.21	Schedule 40 PVC	0.010	#2/12	8	67.0	4	20	66.3	65.8	46.0
LVWPS-MW107C	UMCf (Semi-Cons)	26732819.93	833138.10	1548.33	1547.93	5.81	1542.12	Schedule 40 PVC	0.010	#2/12	6	121.0	2	20	120.5	120.0	100.3

Table 1
Well Construction Details
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well ID	Screened Lithology	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Depth to Water ¹	Groundwater Elevation	Casing Material	Slot Size	Filter Pack Gradation	Nominal Borehole Diameter	Borehole Total Depth	Well Diameter	Nominal Screen Length	Well Total Depth	Bottom of Screen	Top of Screen
				feet amsl	feet amsl	ft bTOC	amsl		inches		inches	feet bgs	inches	feet	feet bgs	feet bgs	feet bgs
Test Area 2A																	
ZTS-MW118	Alluvium	26732588.00	832939.61	1547.64	1547.41	16.34	1531.07	Schedule 40 PVC	0.020	#3	8	40	4	10	24	23.5	13.5
ZTS-MW137	Alluvium	26732584.41	832934.77	1547.68	1547.44	16.36	1531.08	Schedule 40 PVC	0.020	#3	6	28	2	10	24.5	24	14
ZTS-MW138	Alluvium	26732585.74	832953.21	1547.68	1547.35	16.37	1530.98	Schedule 40 PVC	0.020	#3	6	25	2	10	24.5	24	14
ZTS-MW139	Alluvium	26732601.13	832944.31	1547.36	1547.07	16.17	1530.90	Schedule 40 PVC	0.020	#3	6	30	2	10	23.5	23	13
ZTS-MW190	Alluvium	26732595.87	832934.90	1547.59	1547.32	16.32	1531.00	Schedule 40 PVC	0.020	#3	6	25.0	2	10.0	25.5	24.0	14.3
ZTS-MW191	Alluvium	26732593.97	832942.42	1548.18	1547.93	17.00	1530.93	Schedule 40 PVC	0.020	#3	6	30.0	2	10.0	25.0	24.5	14.8
ZTS-MW192	Alluvium	26732590.54	832943.15	1548.28	1548.11	17.16	1530.95	Schedule 40 PVC	0.020	#3	6	25.0	2	10.0	24.5	24.0	14.3
ZTS-MW193	Alluvium	26732594.97	832948.47	1547.64	1547.48	16.62	1530.86	Schedule 40 PVC	0.020	#3	6	25.0	2	10.0	23.8	23.3	13.6
ZTS-MW194	Alluvium	26732598.62	832958.35	1547.33	1547.38	16.65	1530.73	Schedule 40 PVC	0.020	#3	6	25.0	2	5.0	23.0	22.5	17.8
ZTS-MW195	Alluvium	26732587.81	832946.10	1548.38	1548.14	17.20	1530.94	Schedule 40 PVC	0.020	#3	6	25.0	2	10.0	24.5	24.0	14.3
ZTS-MW196	Alluvium	26732581.00	832943.16	1547.81	1547.34	16.29	1531.05	Schedule 40 PVC	0.020	#3	6	25.0	2	10.0	24.0	23.5	13.8
ZTS-MW197	Alluvium	26732619.07	832992.11	1547.27	1546.99	16.97	1530.02	Schedule 40 PVC	0.020	#3	6	25.0	2	10.0	23.0	22.5	12.8
ZTS-MW202	UMCf	26732585.08	832941.97	1547.83	1547.46	16.48	1530.98	Schedule 40 PVC	0.010	#2/16	6	40.0	2	10.0	39.0	38.5	28.8
ZTS-MW203	UMCf	26732590.95	832950.78	1547.77	1547.71	16.90	1530.81	Schedule 40 PVC	0.010	#2/16	6	45.0	2	10.0	38.5	38.0	28.3
LVWPS-MW102A	UMCf	26732606.35	832965.93	1547.23	1546.82	10.40	1536.42	Schedule 40 PVC	0.010	#2/12	6	67.5	2	20	67.1	66.6	47.0
LVWPS-MW102B	UMCf (Semi-Cons)	26732605.06	832973.68	1547.14	1546.78	4.77	1542.01	Schedule 40 PVC	0.010	#2/12	6	120.0	2	20	97.0	96.5	76.8
Test Area 2B																	
ZTS-MW117	UMCf	26732546.84	832964.21	1547.64	1547.32	14.75	1532.57	Schedule 40 PVC	0.010	#2/16	8	75	4	15	56	55.5	40.5
ZTS-MW133	UMCf	26732542.30	832957.28	1547.79	1547.51	11.11	1536.40	Schedule 40 PVC	0.010	#2/16	6	75	2	15	69.5	69	54
ZTS-MW134	UMCf	26732551.09	832961.57	1547.75	1547.54	16.31	1531.23	Schedule 40 PVC	0.010	#2/16	6	37	2	10	36.5	36	26
ZTS-MW135	UMCf	26732548.80	832977.51	1547.56	1547.42	10.76	1536.66	Schedule 40 PVC	0.010	#2/16	6	76	2	15	69.5	69	54
ZTS-MW136	UMCf	26732544.12	832979.70	1547.67	1547.29	16.01	1531.28	Schedule 40 PVC	0.010	#2/16	6	55	2	20	47.5	47	27
ZTS-MW198	UMCf	26732554.83	832967.16	1547.78	1547.69	16.64	1531.05	Schedule 40 PVC	0.010	#2/16	6	47.5	2	20.0	46.5	46.0	26.1
ZTS-MW199	UMCf	26732554.62	832970.93	1547.18	1546.84	10.53	1536.31	Schedule 40 PVC	0.010	#2/16	6	68.0	2	15.0	65.5	65.0	50.1
ZTS-MW200	UMCf	26732551.89	832968.94	1547.67	1547.57	11.41	1536.16	Schedule 40 PVC	0.010	#2/16	6	68.0	2	15.0	65.5	65.0	50.1
ZTS-MW201	UMCf	26732549.70	832970.52	1547.59	1547.29	16.03	1531.26	Schedule 40 PVC	0.010	#2/16	6	50.0	2	20.0	47.5	47.0	27.1
ZTS-MW206	UMCf	26732546.67	832971.91	1547.58	1547.61	11.34	1536.27	Schedule 40 PVC	0.010	#2/16	6	70.0	2	15.0	65.5	65.0	50.1
ZTS-MW207	UMCf	26732549.09	832973.98	1547.48	1547.43	16.33	1531.10	Schedule 40 PVC	0.010	#2/16	6	48.0	2	20.0	46.5	46.0	26.1
ZTS-MW208	UMCf	26732561.34	832981.27	1547.35	1547.21	16.41	1530.80	Schedule 40 PVC	0.010	#2/16	6	48.0	2	20.0	46.5	46.0	26.1
ZTS-MW209	UMCf	26732557.71	832983.97	1547.62	1547.30	11.00	1536.30	Schedule 40 PVC	0.010	#2/16	6	69.0	2	15.0	66.0	65.5	50.6
Test Area 2C																	
ZTS-MW119	Alluvium	26732634.25	832912.06	1547.46	1547.12	16.38	1530.74	Schedule 40 PVC	0.020	#3	8	37.5	4	10	25.5	25	15
ZTS-MW140	Alluvium	26732631.52	832907.03	1547.30	1546.73	15.94	1530.79	Schedule 40 PVC	0.020	#3	6	30	2	10	26.0	25.5	15.5
ZTS-MW141	Alluvium	26732633.15	832927.38	1547.65	1547.39	16.70	1530.69	Schedule 40 PVC	0.020	#3	6	30	2	10	25.0	24.5	14.5
ZTS-MW142	Alluvium	26732648.69	832918.45	1547.42	1546.81	16.21	1530.60	Schedule 40 PVC	0.020	#3	6	27	2	10	26.5	26	16
ZTS-MW181	Alluvium	26732641.70	832907.27	1547.62	1547.25	16.67	1530.58	Schedule 40 PVC	0.020	#3	6	27.5	2	10.0	27.5	27.0	17.3
ZTS-MW182	Alluvium	26732637.76	832916.80	1548.07	1547.79	17.17	1530.62	Schedule 40 PVC	0.020	#3	6	35.0	2	10.0	27.8	27.3	17.6
ZTS-MW183	Alluvium	26732641.13	832918.19	1547.72	1547.58	17.00	1530.58	Schedule 40 PVC	0.020	#3	6	28.0	2	10.0	27.5	27.0	17.3
ZTS-MW184	Alluvium	26732643.60	832921.80	1547.60	1547.53	17.02	1530.51	Schedule 40 PVC	0.020	#3	6	27.5	2	10.0	26.5	26.0	16.3
ZTS-MW185	Alluvium	26732645.77	832932.26	1547.59	1547.60	17.11	1530.49	Schedule 40 PVC	0.020	#3	6	27.5	2	10.0	25.5	25.0	15.3
ZTS-MW186	Alluvium	26732651.85	832940.71	1547.27	1547.26	16.87	1530.39	Schedule 40 PVC	0.020	#3	6	27.0	2	10.0	25.5	25.0	15.3
ZTS-MW187	Alluvium	26732635.16	832921.20	1547.70	1547.25	16.70	1530.55	Schedule 40 PVC	0.020	#3	6	28.0	2	10.0	25.5	25.0	15.3
ZTS-MW188	Alluvium	26732626.83	832916.22	1547.30	1546.93	16.25	1530.68	Schedule 40 PVC	0.020	#3	6	27.5	2	10.0	27.5	27.0	17.3
ZTS-MW189	Alluvium	26732654.00	832963.19	1547.16	1547.14	16.98	1530.16	Schedule 40 PVC	0.020	#3	6	27.5	2	10.0	23.5	23.0	12.8
ZTS-MW204	UMCf	26732632.00	832913.21	1547.40	1546.87	16.35	1530.52	Schedule 40 PVC	0.010	#2/16	6	42.5	2	10.0	40.5	40.0	30.3
ZTS-MW205	UMCf	26732638.98	832925.09	1547.61	1547.30	17.00	1530.30	Schedule 40 PVC	0.010	#2/16	6	42.5	2	10.0	40.5	40.0	30.3
General Vicinity																	
ZTS-MW116	UMCf	26732461.29	833014.94	1548.45	1547.92	16.31	1531.61	Schedule 40 PVC	0.010	#2/16	6	55	2	15	48.5	48	33
ZTS-MW128	UMCf	26732659.68	833137.95	1555.83	1555.41	26.67	1528.74	Schedule 40 PVC	0.010	#2/16	6	75	2	10	52.5	52	42

Table 1
Well Construction Details
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well ID	Screened Lithology	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Depth to Water ¹	Groundwater Elevation	Casing Material	Slot Size	Filter Pack Gradation	Nominal Borehole Diameter	Borehole Total Depth	Well Diameter	Nominal Screen Length	Well Total Depth	Bottom of Screen	Top of Screen
				feet amsl	feet amsl	ft bTOC	amsl		inches		inches	feet bgs	inches	feet	feet bgs	feet bgs	feet bgs
Injection Wells																	
ZTS-IW01	Alluvium	26732954.69	833038.19	1545.73	1545.62	NM	NM	Schedule 40 PVC	0.020	#3	6	40.0	2	15.0	36.0	35.5	20.8
ZTS-IW02	Alluvium	26732933.88	833046.37	1545.63	1545.70	NM	NM	Schedule 40 PVC	0.020	#3	6	37.5	2	15.0	35.5	35.0	20.3
ZTS-IW03	Alluvium	26732913.63	833053.06	1546.39	1546.35	NM	NM	Schedule 40 PVC	0.020	#3	6	40.0	2	15.0	36.0	35.5	20.8
ZTS-IW04	Alluvium	26732895.95	833061.35	1545.81	1545.64	NM	NM	Schedule 40 PVC	0.020	#3	6	38.0	2	15.0	36.0	35.5	20.8
ZTS-IW05	Alluvium	26732877.62	833068.66	1546.34	1546.32	NM	NM	Schedule 40 PVC	0.020	#3	6	37.5	2	15.0	36.0	35.5	20.8
ZTS-IW06	Alluvium	26732858.63	833075.96	1547.14	1546.96	NM	NM	Schedule 40 PVC	0.020	#3	6	35.0	2	15.0	35.0	34.5	19.8
ZTS-IW07	Alluvium	26732840.03	833083.70	1547.73	1547.48	NM	NM	Schedule 40 PVC	0.020	#3	6	30.0	2	5.0	27.5	27.0	22.3
ZTS-IW08	Alluvium	26732822.00	833091.44	1547.88	1547.75	NM	NM	Schedule 40 PVC	0.020	#3	6	31.0	2	5.0	27.5	27.0	22.3
ZTS-IW09	Alluvium	26732803.17	833098.78	1548.14	1548.30	NM	NM	Schedule 40 PVC	0.020	#3	6	27.0	2	5.0	26.5	26.0	21.3
ZTS-IW10	Alluvium	26732784.72	833106.32	1548.63	1548.48	NM	NM	Schedule 40 PVC	0.020	#3	6	25.0	2	5.0	25.0	24.5	19.8
ZTS-IW11	Alluvium	26732597.13	832941.47	1547.80	1547.86	NM	NM	Schedule 40 PVC	0.020	#3	6	25.0	2	5.0	23.5	23.0	18.3
ZTS-IW12	Alluvium	26732585.78	832951.00	1547.51	1547.54	NM	NM	Schedule 40 PVC	0.020	#3	6	26.0	2	5.0	25.0	24.5	19.8
ZTS-IW13	Alluvium	26732645.58	832916.08	1547.54	1547.64	NM	NM	Schedule 40 PVC	0.020	#3	6	30.0	2	10.0	29.5	29.0	19.3
ZTS-IW14	Alluvium	26732632.18	832923.75	1547.50	1547.55	NM	NM	Schedule 40 PVC	0.020	#3	6	30.0	2	10.0	27.3	26.8	17.1
ZTS-IW15	UMCf	26732551.24	832973.58	1547.33	1547.34	NM	NM	Schedule 40 PVC	0.010	#2/16	10	68.0	2	15.0	46.5	46.0	26.3
ZTS-IW16	UMCf	26732551.53	832973.34	1547.37	1547.44	NM	NM	Schedule 40 PVC	0.010	#2/16			2	20.0	67.5	67.0	52.3

Notes

- amsl - above mean sea level
- bgs - below ground surface
- bTOC - below top of casing
- NM - not measured
- PVC - polyvinyl chloride
- UMCf - Upper Muddy Creek formation
- Semi-Cons - Semi-Consolidated
- 1. Depth to water collected on May 16-17, 2023.

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Screened Interval	E314.0	E300.1	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A
									Perchlorate	Chlorate	Bromide	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)
									ft bgs	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Test Area 1A															
Pre-Construction Baseline Results															
ZTS-MW124	8/31/2022	N	BL01	1A	Upgradient	-8	Alluvium	24.0 - 34.0	3,730	36,200	----	----	----	16,500	----
ZTS-MW124	8/31/2022	FD	BL01	1A	Upgradient	-8	Alluvium	24.0 - 34.0	3,690	36,900	----	----	----	16,300	----
ZTS-MW124	10/18/2022	N	BL02	1A	Upgradient	-8	Alluvium	24.0 - 34.0	3,930	36,800	<7,060	872,000	<1,280	16,700	<840
ZTS-MW124	10/18/2022	FD	BL02	1A	Upgradient	-8	Alluvium	24.0 - 34.0	3,970	37,200	<7,060	864,000	<1,280	16,600	<840
ZTS-MW125	8/31/2022	N	BL01	1A	Upgradient	-8	UMCf	40.0 - 50.0	2,890	23,400	----	----	----	12,600	----
ZTS-MW125	10/24/2022	N	BL02	1A	Upgradient	-8	UMCf	40.0 - 50.0	93	2400	353	750,000	1,040	349	42
ZTS-MW125	10/24/2022	FD	BL02	1A	Upgradient	-8	UMCf	40.0 - 50.0	----	----	----	----	----	----	----
ZTS-MW143	10/18/2022	N	BL02	1A	Upgradient	-50	Alluvium	23.0 - 33.0	4,300	45,000	<7,060	919,000	<1,280	16,800	<840
ZTS-MW144	10/18/2022	N	BL02	1A	Downgradient	35	Alluvium	24.0 - 34.0	5,590	41,300	<7,060	1,100,000	<1,280	16,100	<840
Post-Construction Performance Monitoring Results															
ZTS-MW143	5/26/2023	N	PM01	1A	Upgradient	-50	Alluvium	23.0 - 33.0	4,340	22,400	<7,060	982,000	<1,280	13,000 J-	<840 R
ZTS-MW124R	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	24.5 - 34.0	4,460	16,600	<3,530	819,000	<640	13,100 J-	<420 R
ZTS-MW125	5/25/2023	N	PM01	1A	Upgradient	-8	UMCf	40.0 - 50.0	173	698 J-	5,540 J	701,000	1,200 J	<480 R	<420 R
ZTS-MW153	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	24.3 - 34.0	3,880	18,100	<3,530	863,000	<640	13,100 J-	<420 R
ZTS-MW163	5/25/2023	N	PM01	1A	Upgradient	-8	Alluvium	24.3 - 34.0	3,320 J	19,200	<3,530	925,000	<640	16,600	<420
ZTS-MW150	5/22/2023	N	PM01	1A	Center of Trench	0	Alluvium	24.3 - 34.0	2,580	315	<3,530	829,000	<640	1,110	<420
ZTS-MW154	5/24/2023	N	PM01	1A	Center of Trench	0	Alluvium	22.3 - 32.0	3,020	<480	<3,530	917,000	<640	<480 UJ	<420 UJ
ZTS-MW164	5/23/2023	N	PM01	1A	Center of Trench	0	Alluvium	22.3 - 32.0	3,740	2,550	<3,530	904,000	<640	1,370	<420
ZTS-MW164	5/23/2023	FD	PM01	1A	Center of Trench	0	Alluvium	22.3 - 32.0	3,760 J-	3,060	<3,530	911,000	<640	1,300	<420
ZTS-MW151	5/25/2023	N	PM01	1A	Downgradient	5	Alluvium	24.3 - 34.0	3,600	8,050	<3,530	958,000	<640	4,040	<420
ZTS-MW155	5/24/2023	N	PM01	1A	Downgradient	5	Alluvium	20.3 - 35.0	3,690	3,260	<3,530	977,000	658	632 J	<420 UJ
ZTS-MW155	5/24/2023	FD	PM01	1A	Downgradient	5	Alluvium	20.3 - 35.0	3,590	3,160	<3,530	982,000	644	636 J	<420 UJ
ZTS-MW156	5/24/2023	N	PM01	1A	Downgradient	5	UMCf	43.8 - 53.5	<0.3	<24 UJ	<3,530	756,000	1,000	<480 UJ	<420 UJ
ZTS-MW165	5/31/2023	N	PM01	1A	Downgradient	5	Alluvium	22.3 - 32.0	3,900	6,340	<3,530	<3,790	<640	<480 R	<420 R
ZTS-MW152	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	23.3 - 33.0	3,980	7,050	<3,530	970,000	<640	4,020	<420
ZTS-MW157	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	23.3 - 33.0	3,530	3,400	<3,530	1,040,000	<640	2,320	500 J
ZTS-MW162	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	23.3 - 33.0	5,160	6,700	<3,530	1,010,000	<640	2,350 J-	<420 R
ZTS-MW149	5/31/2023	N	PM01	1A	Downgradient	25	Alluvium	23.3 - 33.0	3,300	14,300	<3,530	944,000	<640	3,190 J-	<420 R
ZTS-MW144	5/31/2023	N	PM01	1A	Downgradient	35	Alluvium	24.0 - 34.0	4,100	4,470	<3,530	1,010,000	<640	2,220 J-	<420 R
ZTS-MW158	5/24/2023	N	PM01	1A	Downgradient	50	Alluvium	23.3 - 33.0	4,450	2,110	<3,530	1,010,000	684 J	1,940 J-	<420 UJ
ZTS-MW159	5/24/2023	N	PM01	1A	Downgradient	50	UMCf	38.8 - 48.5	391	631	<353	654,000	868	222	42.6 J
ZTS-MW160	5/24/2023	N	PM01	1A	Downgradient	100	Alluvium	23.3 - 33.0	4,560	9,780	<3,530	924,000	<640	6,110	<420
ZTS-MW161	5/26/2023	N	PM01	1A	Downgradient	150	Alluvium	24.3 - 34.0	3,890	6,370	<3,530	915,000	<640	2,490 J-	<420 R
Between Test Area 1A and Test Area 1B															
Pre-Construction Baseline Results															
ZTS-MW145	10/24/2022	N	BL02	1A/1B	Upgradient	-50	UMCf	39.0 - 49.0	1,630	14,900	3530	888,000	640	4,260	420
ZTS-MW146	10/24/2022	N	BL02	1A/1B	Downgradient	35	UMCf	41.0 - 51.0	2,820	20,600	3530	1,080,000	640	6,590	420
Post-Construction Performance Monitoring Results															
ZTS-MW145	5/22/2023	N	PM01	1A/1B	Upgradient	-50	UMCf	39.0 - 49.0	18 J-	<24 UJ	<353	117,000	630	540	<42
ZTS-MW146	5/26/2023	N	PM01	1A/1B	Downgradient	35	UMCf	41.0 - 51.0	1,250	2,490 J-	<7,060	886,000	<1,280	1,710 J	<840 R
Test Area 1B															
Pre-Construction Baseline Results															
ZTS-MW147	10/18/2022	N	BL02	1B	Upgradient	-50	Alluvium	19.5 - 29.5	7,390	93,300	<7,060	1,140,000	<1,280	18,700	<840
ZTS-MW126	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	20.0 - 30.0	6,570	71,300	----	----	----	15,600	----
ZTS-MW126	10/18/2022	N	BL02	1B	Upgradient	-8	Alluvium	20.0 - 30.0	7,210	74,600	<7,060	1,130,000	<1,280	17,100	<840
ZTS-MW126	10/18/2022	FD	BL02	1B	Upgradient	-8	Alluvium	20.0 - 30.0	7,450	78,300	<7,060	1,120,000	<1,280	17,000	<840
ZTS-MW127	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	18.0 - 23.0	8,260	100,000	----	----	----	19,000	----
ZTS-MW127	10/24/2022	N	BL02	1B	Upgradient	-8	Alluvium	18.0 - 23.0	7,100	98,200	3530	1,190,000	640	20,000	420

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Screened Interval	E314.0	E300.1	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A
									Perchlorate	Chlorate	Bromide	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)
									ft bgs	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ZTS-MW148	10/24/2022	N	BL02	1B	Downgradient	35	Alluvium	22.0 - 32.0	7,400	94,800	3530	1,150,000	640	19,300	420
LVWPS-MW107A	10/24/2022	N	BL02	1B	Downgradient	50	Alluvium	24.8 - 34.5	7,070	91,100	3530	1,170,000	640	19,600	420
LVWPS-MW107B	10/21/2022	N	BL02	1B	Downgradient	50	UMCf	46.0 - 65.8	<30	<2,400	<7,060	1,200,000	<1,280	<960	<840
LVWPS-MW107C	10/24/2022	N	BL02	1B	Downgradient	50	UMCf (Semi-Cons)	100.3 - 120.0	30	24000	35300	14,900,000	6400	4800	4200
Post-Construction Performance Monitoring Results															
ZTS-MW147	5/26/2023	N	PM01	1B	Upgradient	-50	Alluvium	19.5 - 29.5	7,000	49,900	<3,530	1,070,000	<640	16,500 J-	<420 R
ZTS-MW126	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	20.0 - 30.0	5,920	17,900	<3,530	980,000	<640	13,900	<420
ZTS-MW127R	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	18.5 - 23.0	5,880	51,100	<3,530	1,110,000	<640	20,100	<420
ZTS-MW169	5/24/2023	N	PM01	1B	Upgradient	-8	Alluvium	17.1 - 27.0	6,270	54,300	<3,530	1,100,000	<640	16,500	<420
ZTS-MW170	5/24/2023	N	PM01	1B	Upgradient	-8	UMCf	31.1 - 41.0	4,570	17,500	<3,530	830,000	775 J	7,310 J-	<420 UJ
ZTS-MW166	5/23/2023	N	PM01	1B	Center of Trench	0	Alluvium	19.8 - 29.5	5,850	<240	<3,530	1,130,000	662 J	<480	<420
ZTS-MW171	5/22/2023	N	PM01	1B	Center of Trench	0	Alluvium	19.3 - 29.0	6,260	<120	<3,530	1,130,000	<640	10,200	<420
ZTS-MW178	5/25/2023	N	PM01	1B	Center of Trench	0	Alluvium	17.8 - 27.5	5,500	<480	<3,530	1,140,000	<640	1,200	<420
ZTS-MW167	5/24/2023	N	PM01	1B	Downgradient	5	Alluvium	23.3 - 33.0	5,740	<480	<3,530	1,150,000	894 J	<480	<420
ZTS-MW172	5/23/2023	N	PM01	1B	Downgradient	5	Alluvium	17.3 - 27.0	5,650	<240	<3,530	1,060,000	<640	3,380	<420
ZTS-MW172	5/23/2023	FD	PM01	1B	Downgradient	5	Alluvium	17.3 - 27.0	5,740	<240	<3,530	1,080,000	652 J	3,530	<420
ZTS-MW173	5/25/2023	N	PM01	1B	Downgradient	5	UMCf	33.3 - 43.0	1,230	2,650	<3,530	874,000	844 J	2,440	686 J
ZTS-MW179	5/25/2023	N	PM01	1B	Downgradient	5	Alluvium	18.3 - 23.0	4,760	<480	<3,530	1,120,000	<640	1,970	<420
ZTS-MW168	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	20.3 - 30.0	5,810	<480	<3,530	1,130,000	<640	5,940	1,350
ZTS-MW174	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	19.8 - 29.5	5,950	<480	<3,530	1,130,000	656 J	5,350 J-	4,510 J-
ZTS-MW174	5/26/2023	N	PM01	1B	Downgradient	15	Alluvium	19.8 - 29.5	----	----	----	----	----	----	----
ZTS-MW177	5/25/2023	N	PM01	1B	Downgradient	15	Alluvium	20.3 - 30.0	5,340	<480	4,450 J	1,130,000	<640	749 J	451 J
ZTS-MW180	5/24/2023	N	PM01	1B	Downgradient	25	Alluvium	17.8 - 22.5	5,990	54,100	<3,530	1,110,000	733 J	20,600	<420
ZTS-MW180	5/24/2023	FD	PM01	1B	Downgradient	25	Alluvium	17.8 - 22.5	6,230	54,300	<3,530	1,080,000	725 J	20,000	<420
ZTS-MW148	5/25/2023	N	PM01	1B	Downgradient	35	Alluvium	22.0 - 32.0	5,250	<480	5,470 J	1,100,000	945 J	7,010 J-	698 J
LVWPS-MW107A	5/23/2023	N	PM01	1B	Downgradient	50	Alluvium	24.8 - 34.5	6,410	933 J	<3,530	1,050,000	<640	1,880	<420
LVWPS-MW107B	5/23/2023	N	PM01	1B	Downgradient	50	UMCf	46.0 - 65.8	<0.3	<480	<3,530	1,140,000	708 J	<480	<420
LVWPS-MW107C	5/23/2023	N	PM01	1B	Downgradient	50	UMCf (Semi-Cons)	100.3 - 120.0	<0.3	5,320	<35,300	13,000,000	<6,400	<4,800	<4,200
ZTS-MW175	5/26/2023	N	PM01	1B	Downgradient	100	Alluvium	19.8 - 29.5	5,930	1,790	<3,530	1,060,000	<640	6,300 J-	<420 R
ZTS-MW176	5/26/2023	N	PM01	1B	Downgradient	150	Alluvium	19.8 - 29.5	6,170	1,920	<3,530	1,090,000	<640	5,170 J-	<420 R
Test Area 2A															
Pre-Construction Baseline Results															
ZTS-MW137	10/20/2022	N	BL02	2A	Upgradient	-9	Alluvium	14.0 - 24.0	6,620	95,200	<353	1,160,000	579	18,200	101
ZTS-MW118	9/1/2022	N	BL01	2A	Upgradient	-3	Alluvium	13.5 - 23.5	7,160	89,900	----	----	----	19,400	----
ZTS-MW118	10/21/2022	N	BL02	2A	Upgradient	-3	Alluvium	13.5 - 23.5	6,710	86,600	<7,060	1,200,000	<1,280	19,200 J-	<840
ZTS-MW138	10/20/2022	N	BL02	2A	Downgradient	5	Alluvium	14.0 - 24.0	6,860	85,100	<353	1,150,000	535	18,100	114
ZTS-MW139	10/21/2022	N	BL02	2A	Downgradient	5	Alluvium	13.0 - 23.0	6,970	94,900	<7,060	1,170,000	<1,280	18,700	<840
LVWPS-MW102A	10/21/2022	N	BL02	2A	Downgradient	30	UMCf	47.0 - 66.6	3,700	35,400	<3,530	2,320,000	<640	6,230	<420
LVWPS-MW102B	10/21/2022	N	BL02	2A	Downgradient	30	UMCf (Semi-Cons)	76.8 - 96.5	<30	<24,000	<7,060	12,000,000	<1,280	<960	<840
ZTS-MW113	10/25/2022	N	BL02	2A	Cross/Downgradient	60	Alluvium	20.0 - 30.0	6,830	79,600	3530	1,180,000	640	18,500	420
Post-Construction Performance Monitoring Results															
ZTS-MW137	5/31/2023	N	PM01	2A	Upgradient	-9	Alluvium	14.0 - 24.0	6,140	50,900	<3,530	1,070,000	<640	16,700 J-	<420 R
ZTS-MW118	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	13.5 - 23.5	6,620	53,800	<3,530	1,110,000	<640	16,500 J-	<420 R
ZTS-MW118	5/31/2023	FD	PM01	2A	Upgradient	-3	Alluvium	13.5 - 23.5	6,460	53,200	<3,530	1,110,000	<640	16,500 J-	<420 R
ZTS-MW190	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	14.3 - 24.0	5,950	52,300	<3,530	1,070,000	<640	16,600 J-	<420 R
ZTS-MW196	5/30/2023	N	PM01	2A	Upgradient	-3	Alluvium	13.8 - 23.5	6,090	51,000	<3,530	1,070,000	<640	16,700 J-	<420 R
ZTS-MW202	5/30/2023	N	PM01	2A	Upgradient	-3	UMCf	28.8 - 38.5	5,560	42,600	<3,530	995,000	727 J	12,800	<420
ZTS-MW192	5/22/2023	N	PM01	2A	Center of Array	0	Alluvium	14.3 - 24.0	6,540	86,100	<3,530	1,090,000	<640	18,300	<420
ZTS-MW191	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	14.8 - 24.5	5,120	10,300	<3,530	1,140,000	<640	3,070 J-	<420 R
ZTS-MW195	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	14.3 - 24.0	6,430	47,500	<3,530	1,100,000	<640	16,800 J-	<420 R

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Screened Interval	E314.0	E300.1	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A
									Perchlorate	Chlorate	Bromide	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)
						feet		ft bgs	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
ZTS-MW138	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	14.0 - 24.0	6,520	53,200	<3,530	1,020,000	705 J	17,300 J-	<420 UJ
ZTS-MW139	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	13.0 - 23.0	6,000	44,300	<3,530	1,090,000	<640	14,700	<420
ZTS-MW193	5/25/2023	N	PM01	2A	Downgradient	5	Alluvium	13.6 - 23.3	7,730	51,400	<3,530	1,100,000	<640	20,200	<420
ZTS-MW193	5/25/2023	FD	PM01	2A	Downgradient	5	Alluvium	13.6 - 23.3	6,880	53,600	<3,530	1,110,000	<640	20,400	<420
ZTS-MW203	5/30/2023	N	PM01	2A	Downgradient	5	UMCf	28.3 - 38.0	5,750	33,100	<3,530	1,020,000	640 J	12,200 J-	<420 R
ZTS-MW194	5/25/2023	N	PM01	2A	Downgradient	15	Alluvium	17.8 - 22.5	6,250	50,700	<3,530	1,090,000	<640	21,300	763 J
LVWPS-MW102A	5/30/2023	N	PM01	2A	Downgradient	30	UMCf	47.0 - 66.6	4,190	7,640	<7,060	2,190,000	<1,280	2,800 J	<2100 R
LVWPS-MW102B	5/26/2023	N	PM01	2A	Downgradient	30	UMCf (Semi-Cons)	76.8 - 96.5	<0.3	2,580	<35,300	11,600,000	<6,400	<4800 R	<4200 R
ZTS-MW197	5/26/2023	N	PM01	2A	Downgradient	55	Alluvium	12.8 - 22.5	4,420	52,900	<3,530	1,050,000	<640	17,400 J-	<420 R
ZTS-MW113	5/26/2023	N	PM01	2A	Cross/Downgradient	60	Alluvium	20.0 - 30.0	6,430	53,800	<3,530	1,040,000	<640	17,200 J-	<420 R
Test Area 2B															
Pre-Construction Baseline Results															
ZTS-MW133	10/20/2022	N	BL02	2B	Upgradient	-9	UMCf	54.0 - 69.0	2,150	19,800	<7,060	1,350,000	<1,280	3,030	<840
ZTS-MW117	9/1/2022	N	BL01	2B	Upgradient	-2	UMCf	40.5 - 55.5	2,840	7,320	----	----	----	3,360	----
ZTS-MW117	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	40.5 - 55.5	<0.3	<2,400	<353	698,000	994	<48	232
ZTS-MW117	10/19/2022	FD	BL02	2B	Upgradient	-2	UMCf	40.5 - 55.5	<0.3	<2,400	<353	636,000	988	<48	231
ZTS-MW134	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	26.0 - 36.0	6,980	101,000	<3,530	1,150,000	<640	20,200	<420
ZTS-MW135	10/19/2022	N	BL02	2B	Downgradient	7	UMCf	54.0 - 69.0	2,690	21,700	<3,530	1,350,000	<640	3,710	<420
ZTS-MW136	10/20/2022	N	BL02	2B	Cross Gradient	7	UMCf	27.0 - 47.0	805	11,900	<3,530	685,000	<640	2,130	<420
Post-Construction Performance Monitoring Results															
ZTS-MW133	5/23/2023	N	PM01	2B	Upgradient	-9	UMCf	54.0 - 69.0	2,690	4,280	<3,530	1,310,000	663 J	1,730	<420
ZTS-MW117	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	40.5 - 55.5	14.4	<480	5,540 J	793,000	1,100 J	<480 R	<420 R
ZTS-MW134	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	26.0 - 36.0	6,000	45,700	<3,530	1,090,000	<640	18,500	<420
ZTS-MW198	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	26.1 - 46.0	921	5,290	<3,530	1,060,000	807 J	3,740 J-	1,170
ZTS-MW200	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	50.1 - 65.0	1,320	<240	<3,530	1,290,000	<640	<480	<420
ZTS-MW200	5/23/2023	FD	PM01	2B	Downgradient	2	UMCf	50.1 - 65.0	1,200	<240	<3,530	1,270,000	<640	<480	<420
ZTS-MW201	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	27.1 - 47.0	888	1,120	<3,530	1,030,000	704 J	1,160 J-	<420 UJ
ZTS-MW206	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	50.1 - 65.0	1,340	1,630 J-	<3,530	1,300,000	<640	2,900	<420
ZTS-MW199	5/23/2023	N	PM01	2B	Downgradient	5	UMCf	50.1 - 65.0	2,900	6,390	<3,530	1,270,000	<640	1,740	<420
ZTS-MW207	5/24/2023	N	PM01	2B	Downgradient	5	UMCf	26.1 - 46.0	986	2,200 J	<3,530	796,000	670 J	668 J	<420
ZTS-MW207	5/24/2023	FD	PM01	2B	Downgradient	5	UMCf	26.1 - 46.0	1,060	3,220 J	<3,530	878,000	651 J	878 J	<420
ZTS-MW135	5/26/2023	N	PM01	2B	Downgradient	7	UMCf	54.0 - 69.0	3,770	6,760	<3,530	1,300,000	<640	2,290 J-	<420 R
ZTS-MW136	5/26/2023	N	PM01	2B	Cross Gradient	7	UMCf	27.0 - 47.0	112 J	597 J	<3,530	576,000	<640	<480 R	<420 R
ZTS-MW136	5/26/2023	FD	PM01	2B	Cross Gradient	7	UMCf	27.0 - 47.0	207 J	1,060 J	<1,760	639,000	725 J	<240 R	<210 R
ZTS-MW208	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	26.1 - 46.0	4,440	25,200	<3,530	972,000	<640	12,000	726 J
ZTS-MW209	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	50.6 - 65.5	3,660	6,600	<3,530	1,410,000	<640	5,070	931 J
Test Area 2C															
Pre-Construction Baseline Results															
ZTS-MW140	10/21/2022	N	BL02	2C	Upgradient	-9	Alluvium	15.5 - 25.5	6,650	93,400	<7,060	1,150,000	<1,280	18,500	<840
ZTS-MW119	9/1/2022	N	BL01	2C	Upgradient	-3	Alluvium	15.0 - 25.0	6,150	65,500	----	----	----	18,000	----
ZTS-MW119	10/19/2022	N	BL02	2C	Upgradient	-3	Alluvium	15.0 - 25.0	7,530	87,200	<3,530	1,220,000	<640	18,100	<420
ZTS-MW119	10/19/2022	FD	BL02	2C	Upgradient	-3	Alluvium	15.0 - 25.0	7,180	93,800	<3,530	1,230,000	<640	18,100	<420
ZTS-MW141	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	14.5 - 24.5	7,030	86,300	3530	1,180,000	640	17,400	420
ZTS-MW142	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	16.0 - 26.0	6,760	83,600	<7,060	1,130,000	<1,280	17,400	<840
Post-Construction Performance Monitoring Results															
ZTS-MW140	5/25/2023	N	PM01	2C	Upgradient	-9	Alluvium	15.5 - 25.5	7,160	57,800	<3,530	1,130,000	<640	20,700	<420
ZTS-MW140	5/25/2023	FD	PM01	2C	Upgradient	-9	Alluvium	15.5 - 25.5	7,260	59,000	<3,530	1,130,000	<640	20,700	<420
ZTS-MW119	5/24/2023	N	PM01	2C	Upgradient	-3	Alluvium	15.0 - 25.0	6,950	57,000	<3,530	1,070,000	702 J	13,400 J-	<420 UJ
ZTS-MW181	5/25/2023	N	PM01	2C	Upgradient	-3	Alluvium	17.3 - 27.0	7,250	51,900	<3,530	1,120,000	<640	12,200	427 J
ZTS-MW188	5/26/2023	N	PM01	2C	Upgradient	-3	Alluvium	17.3 - 27.0	6,190	52,800	<3,530	1,040,000	<640	16,300 J-	<420 R

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Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Screened Interval	E314.0	E300.1	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A	Anions by E300.0/SW9065A
						feet			Perchlorate	Chlorate	Bromide	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)
						ft bgs			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ZTS-MW204	5/25/2023	N	PM01	2C	Upgradient	-3	UMCf	30.3 - 40.0	1,500	14,900	<353 R	624,000	897 J-	3,260	367
ZTS-MW182	5/23/2023	N	PM01	2C	Center of Array	0	Alluvium	17.6 - 27.3	6,600	28,900	<3,530	1,070,000	643 J	9,070 J-	<420
ZTS-MW183	5/23/2023	N	PM01	2C	Downgradient	1	Alluvium	17.3 - 27.0	5,900	43,400	<3,530	1,080,000	656 J	9,680	435 J
ZTS-MW187	5/24/2023	N	PM01	2C	Downgradient	1	Alluvium	15.3 - 25.0	5,860	44,800	<3,530	1,050,000	665 J	13,700 J-	<420 UJ
ZTS-MW141	5/25/2023	N	PM01	2C	Downgradient	5	Alluvium	14.5 - 24.5	6,440	56,800	<3,530	1,100,000	<640	14,700	<420
ZTS-MW142	5/26/2023	N	PM01	2C	Downgradient	5	Alluvium	16.0 - 26.0	7,140	44,500	<3,530	1,070,000	<640	13,900 J-	<420 R
ZTS-MW184	5/24/2023	N	PM01	2C	Downgradient	5	Alluvium	16.3 - 26.0	6,440	51,400	<3,530	1,050,000	644 J	15,300 J-	<420 UJ
ZTS-MW205	5/24/2023	N	PM01	2C	Downgradient	5	UMCf	30.3 - 40.0	338	380 J-	<353	477,000	1,040	62.3 J	<42 UJ
ZTS-MW185	5/25/2023	N	PM01	2C	Downgradient	15	Alluvium	15.3 - 25.0	5,940	55,800	<3,530	1,100,000	651 J	14,400	<420
ZTS-MW186	5/25/2023	N	PM01	2C	Downgradient	25	Alluvium	15.3 - 25.0	5,870	55,600	<3,530	1,100,000	683 J	14,600	<420
ZTS-MW189	5/25/2023	N	PM01	2C	Downgradient	55	Alluvium	12.8 - 23.0	5,870	53,600	5,470 J	1,030,000	877 J	16,100 J-	<420 R
General Vicinity															
Pre-Construction Baseline Results															
ZTS-MW116	9/1/2022	N	BL01	NA	NA	NA	UMCf	33.0 - 48.0	3,510	12,600	----	----	----	6,710	----
ZTS-MW116	10/25/2022	N	BL02	NA	NA	NA	UMCf	33.0 - 48.0	4,110	21,600	3530	862,000	640	5,110	420
ZTS-MW128	9/1/2022	N	BL01	NA	NA	NA	UMCf	42.0 - 52.0	4,710	13,300	----	----	----	7,250	----
ZTS-MW128	10/25/2022	N	BL02	NA	NA	NA	UMCf	42.0 - 52.0	6,060	51,400	3530	1,060,000	640	11,600	420
Post-Construction Performance Monitoring Results															
ZTS-MW116	5/24/2023	N	PM01	NA	NA	NA	UMCf	33.0 - 48.0	3,720	6,730	<3,530	816,000	765 J	4,340 J-	<420 UJ
ZTS-MW128	5/24/2023	N	PM01	NA	NA	NA	UMCf	42.0 - 52.0	6,110	21,600	<3,530	961,000	794 J	10,100 J-	<420 UJ

Notes:

- bgs - below ground surface
- J- The result is an estimated quantity, but the result may be biased low.
- 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.
- 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.
- < The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

mg/L - milligram per liter
 mS/cm - milliSiemens per centimeter
 mV - millivolts
 nmol - nanomol
 SU - standard units
 N - normal field sample
 µg/L - micrograms per liter
 UMCf - Upper Muddy Creek formation
 FD - field duplicate

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Anions by E300.0/SW9065A	CALC	E351.2	E353.2	E365.4	Alkalinity by SM2320B	AM20GAX	SM2540C
								Sulfate	Nitrogen	Total Kjeldahl Nitrogen (TKN)	Nitrogen, Nitrate-Nitrite	Phosphorus	Alkalinity as CaCO3	Hydrogen	Total Dissolved Solids
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	nmol	µg/L
Test Area 1A															
Pre-Construction Baseline Results															
ZTS-MW124	8/31/2022	N	BL01	1A	Upgradient	-8	Alluvium	2,440,000	----	----	----	----	----	----	3,020,000
ZTS-MW124	8/31/2022	FD	BL01	1A	Upgradient	-8	Alluvium	2,460,000	----	----	----	----	----	----	2,310,000
ZTS-MW124	10/18/2022	N	BL02	1A	Upgradient	-8	Alluvium	2,450,000	17,900	<1,400	15,500	<35	102,000	2.6	4,750,000
ZTS-MW124	10/18/2022	FD	BL02	1A	Upgradient	-8	Alluvium	2,430,000	17,600	2,560	15,000	<35	102,000	2.9	4,220,000
ZTS-MW125	8/31/2022	N	BL01	1A	Upgradient	-8	UMCf	2,210,000	----	----	----	----	----	----	3,650,000
ZTS-MW125	10/24/2022	N	BL02	1A	Upgradient	-8	UMCf	1,210,000	50	140	50	35	132,000	7.2	2,930,000
ZTS-MW125	10/24/2022	FD	BL02	1A	Upgradient	-8	UMCf	----	----	----	----	----	----	7.2	----
ZTS-MW143	10/18/2022	N	BL02	1A	Upgradient	-50	Alluvium	2,520,000	26,600	11,300	15,300	<35	103,000	110	4,570,000
ZTS-MW144	10/18/2022	N	BL02	1A	Downgradient	35	Alluvium	2,520,000	18,900	3,590	15,300	<35	118,000	92	4,750,000
Post-Construction Performance Monitoring Results															
ZTS-MW143	5/26/2023	N	PM01	1A	Upgradient	-50	Alluvium	2,510,000	15,000	<700	15,000	89.6 J	110,000	42	5,120,000
ZTS-MW124R	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	2,280,000	17,100	<700	17,100	<35	110,000	40	4,590,000
ZTS-MW125	5/25/2023	N	PM01	1A	Upgradient	-8	UMCf	1,140,000	645	282	363	135	126,000	32 J	2,970,000
ZTS-MW153	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	2,360,000	17,200	<700	17,200	114	115,000	36	4,840,000
ZTS-MW163	5/25/2023	N	PM01	1A	Upgradient	-8	Alluvium	2,480,000	14,700	<560	14,700	<35	106,000	49 J	5,370,000
ZTS-MW150	5/22/2023	N	PM01	1A	Center of Trench	0	Alluvium	2,140,000	3,440	3,210	234	35.6 J	28,100	<0.49	4,760,000
ZTS-MW154	5/24/2023	N	PM01	1A	Center of Trench	0	Alluvium	2,330,000	1,580	1,580	<50	<35	29,900	30	4,750,000 J-
ZTS-MW164	5/23/2023	N	PM01	1A	Center of Trench	0	Alluvium	2,400,000	4,600	2,740	1,860	<35	39,700	2,100	4,070,000
ZTS-MW164	5/23/2023	FD	PM01	1A	Center of Trench	0	Alluvium	2,370,000	4,390	2,680	1,710	<35	39,200	----	3,860,000
ZTS-MW151	5/25/2023	N	PM01	1A	Downgradient	5	Alluvium	2,490,000	4,060	1,280	2,780	<35	78,300	34 J	5,110,000
ZTS-MW155	5/24/2023	N	PM01	1A	Downgradient	5	Alluvium	2,480,000	3,080	1,900 J+	1,180	<35	62,300	26	5,070,000
ZTS-MW155	5/24/2023	FD	PM01	1A	Downgradient	5	Alluvium	2,620,000	3,280	2,120	1,160	<35	63,200	----	4,860,000
ZTS-MW156	5/24/2023	N	PM01	1A	Downgradient	5	UMCf	1,150,000	<50	<140	<50	35.8	115,000	18	4,300,000
ZTS-MW165	5/31/2023	N	PM01	1A	Downgradient	5	Alluvium	<5,940	5,930	1,410	4,520	35.5 J	73,200	40	5,360,000
ZTS-MW152	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	2,450,000	4,650	1,680	2,970	184	67,000	45 J	5,470,000
ZTS-MW157	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	2,430,000	3,050	1,770 J	1,280	68 J	62,900	32 J	8,910,000
ZTS-MW162	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	2,520,000	5,140	1,930	3,210	<35	94,200	32 J	5,440,000
ZTS-MW149	5/31/2023	N	PM01	1A	Downgradient	25	Alluvium	2,420,000	13,500	<700	13,500	100 J	111,000	47	4,560,000
ZTS-MW144	5/31/2023	N	PM01	1A	Downgradient	35	Alluvium	2,380,000	6,060	2,820	3,240	81.4 J	79,900	52 J	5,330,000
ZTS-MW158	5/24/2023	N	PM01	1A	Downgradient	50	Alluvium	2,460,000	4,680	1,990	2,690	<35	69,600	18	4,860,000
ZTS-MW159	5/24/2023	N	PM01	1A	Downgradient	50	UMCf	1,130,000	730	149 J	581	91.2 J	128,000	40	2,460,000 J
ZTS-MW160	5/24/2023	N	PM01	1A	Downgradient	100	Alluvium	2,390,000	8,190	386 J-	7,800	37.7 J	98,100	18	4,140,000
ZTS-MW161	5/26/2023	N	PM01	1A	Downgradient	150	Alluvium	2,550,000	4,640	1,090	3,550	74.4 J	72,700	35	4,950,000
Between Test Area 1A and Test Area 1B															
Pre-Construction Baseline Results															
ZTS-MW145	10/24/2022	N	BL02	1A/1B	Upgradient	-50	UMCf	1,860,000	3,730	140	3,730	35	114,000	7.3	3,710,000
ZTS-MW146	10/24/2022	N	BL02	1A/1B	Downgradient	35	UMCf	2,480,000	5,500	140	5,500	35	127,000	10	5,180,000
Post-Construction Performance Monitoring Results															
ZTS-MW145	5/22/2023	N	PM01	1A/1B	Upgradient	-50	UMCf	238,000	695	435 J+	260	35 J	138,000	17	700,000
ZTS-MW146	5/26/2023	N	PM01	1A/1B	Downgradient	35	UMCf	2,040,000	2,780	<140	2,780	59.3 J	129,000	41	3,960,000
Test Area 1B															
Pre-Construction Baseline Results															
ZTS-MW147	10/18/2022	N	BL02	1B	Upgradient	-50	Alluvium	2,550,000	21,500	3,950	17,500	<35	102,000	59	4,720,000
ZTS-MW126	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	2,650,000	----	----	----	----	----	----	3,710,000
ZTS-MW126	10/18/2022	N	BL02	1B	Upgradient	-8	Alluvium	2,630,000	18,600	2,810	15,800	<35 UJ	110,000	2.5	4,720,000
ZTS-MW126	10/18/2022	FD	BL02	1B	Upgradient	-8	Alluvium	2,620,000	15,400	<1400 UJ	15,400	<35 UJ	110,000	2	5,300,000
ZTS-MW127	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	2,550,000	----	----	----	----	----	----	4,660,000
ZTS-MW127	10/24/2022	N	BL02	1B	Upgradient	-8	Alluvium	2,650,000	18,800	700	18,800	35	118,000	27	5,550,000

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Anions by E300.0/SW9065A	CALC	E351.2	E353.2	E365.4	Alkalinity by SM2320B	AM20GAX	SM2540C
								Sulfate	Nitrogen	Total Kjeldahl Nitrogen (TKN)	Nitrogen, Nitrate-Nitrite	Phosphorus	Alkalinity as CaCO3	Hydrogen	Total Dissolved Solids
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	nmol	µg/L
ZTS-MW148	10/24/2022	N	BL02	1B	Downgradient	35	Alluvium	2,640,000	38,500	20,400	18,100	35	107,000	5.4	5,420,000
LVWPS-MW107A	10/24/2022	N	BL02	1B	Downgradient	50	Alluvium	2,650,000	18,000	700	18,000	35	106,000	13	5,610,000
LVWPS-MW107B	10/21/2022	N	BL02	1B	Downgradient	50	UMCf	2,830,000	1,630	1,630	<50	<35	97,100	2 J	5,720,000
LVWPS-MW107C	10/24/2022	N	BL02	1B	Downgradient	50	UMCf (Semi-Cons)	42,000,000	638	638	50	139	85,700	36	80,600,000
Post-Construction Performance Monitoring Results															
ZTS-MW147	5/26/2023	N	PM01	1B	Upgradient	-50	Alluvium	2,570,000	28,000	<700	28,000	<35	103,000	49	5,380,000
ZTS-MW126	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	2,640,000	12,000	<560	12,000	35.2 J	115,000	34 J	5,650,000
ZTS-MW127R	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	2,610,000	17,900	<560	17,900	<35	108,000	45 J	5,730,000
ZTS-MW169	5/24/2023	N	PM01	1B	Upgradient	-8	Alluvium	2,490,000	18,100	<700	18,100	<35	107,000	45	5,270,000
ZTS-MW170	5/24/2023	N	PM01	1B	Upgradient	-8	UMCf	1,940,000	8,750	<280	8,750	57.7 J	107,000	29	4,390,000
ZTS-MW166	5/23/2023	N	PM01	1B	Center of Trench	0	Alluvium	2,310,000	2,680	2,680 J	<50	37.5 J	22,300	2,500	4,430,000
ZTS-MW171	5/22/2023	N	PM01	1B	Center of Trench	0	Alluvium	2,480,000	14,700	5,600	9,090	39.2 J	36,200	2,400	5,630,000
ZTS-MW178	5/25/2023	N	PM01	1B	Center of Trench	0	Alluvium	2,550,000	14,500	14,300	222	74 J	44,500	<0.49	5,400,000
ZTS-MW167	5/24/2023	N	PM01	1B	Downgradient	5	Alluvium	2,760,000	3,120	3,120	<50	46.6 J	22,200	<0.49	6,400,000
ZTS-MW172	5/23/2023	N	PM01	1B	Downgradient	5	Alluvium	2,470,000	16,800	11,900	4,900	<35	24,900	2.5	4,780,000
ZTS-MW172	5/23/2023	FD	PM01	1B	Downgradient	5	Alluvium	2,430,000	17,100	12,300	4,820	37.1 J	25,600	----	4,300,000
ZTS-MW173	5/25/2023	N	PM01	1B	Downgradient	5	UMCf	1,830,000	1,750	308	1,440	117	122,000	30	4,700,000
ZTS-MW179	5/25/2023	N	PM01	1B	Downgradient	5	Alluvium	2,460,000	17,700	16,600	1,120	140	38,100	68	7,200,000
ZTS-MW168	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	2,590,000	11,200	7,410	3,760	40.6 J	31,800	22	6,500,000
ZTS-MW174	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	2,540,000	12,500	4,140	8,400	73.9 J	44,200	----	6,200,000
ZTS-MW174	5/26/2023	N	PM01	1B	Downgradient	15	Alluvium	----	----	----	----	----	----	53	----
ZTS-MW177	5/25/2023	N	PM01	1B	Downgradient	15	Alluvium	2,200,000	6,130	4,950	1,180	129	33,800	40	6,700,000
ZTS-MW180	5/24/2023	N	PM01	1B	Downgradient	25	Alluvium	2,550,000	18,500 J	<700	18,500 J	<35	102,000	34	6,300,000
ZTS-MW180	5/24/2023	FD	PM01	1B	Downgradient	25	Alluvium	2,470,000	12,300 J	<700	12,300 J	47.8 J	100,000	----	5,130,000 J-
ZTS-MW148	5/25/2023	N	PM01	1B	Downgradient	35	Alluvium	2,470,000	13,600	4,480	9,100	53.8 J	45,700	39	6,600,000
LVWPS-MW107A	5/23/2023	N	PM01	1B	Downgradient	50	Alluvium	2,460,000	9,370	6,360	3,010	<35	32,600	<0.49	3,490,000
LVWPS-MW107B	5/23/2023	N	PM01	1B	Downgradient	50	UMCf	2,520,000	423	423	<50	38.9 J	94,400	7.9	4,210,000
LVWPS-MW107C	5/23/2023	N	PM01	1B	Downgradient	50	UMCf (Semi-Cons)	33,800,000	<50	<140	<50	84 J	92,800	11	53,400,000
ZTS-MW175	5/26/2023	N	PM01	1B	Downgradient	100	Alluvium	2,530,000	8,920	678	8,240	91.5 J	57,900	<0.49	5,380,000
ZTS-MW176	5/26/2023	N	PM01	1B	Downgradient	150	Alluvium	2,590,000	6,720	<140	6,720	52.3 J	58,900	<0.49	5,580,000
Test Area 2A															
Pre-Construction Baseline Results															
ZTS-MW137	10/20/2022	N	BL02	2A	Upgradient	-9	Alluvium	2,720,000	18,900	<700	18,900	<35	106,000	21	3,540,000
ZTS-MW118	9/1/2022	N	BL01	2A	Upgradient	-3	Alluvium	2,640,000	----	----	----	----	----	----	8,540,000
ZTS-MW118	10/21/2022	N	BL02	2A	Upgradient	-3	Alluvium	2,620,000	18,900	<700	18,900	<35	118,000	7 J+	5,830,000
ZTS-MW138	10/20/2022	N	BL02	2A	Downgradient	5	Alluvium	2,640,000	18,800	<700	18,800	<35	117,000	30	4,720,000
ZTS-MW139	10/21/2022	N	BL02	2A	Downgradient	5	Alluvium	2,590,000	18,600	<700	18,600	<35	111,000	15	6,030,000
LVWPS-MW102A	10/21/2022	N	BL02	2A	Downgradient	30	UMCf	5,630,000	4,980	337 J	4,640	132 J	89,000	1.8 J	10,600,000
LVWPS-MW102B	10/21/2022	N	BL02	2A	Downgradient	30	UMCf (Semi-Cons)	34,800,000	24,700	44,600	<50	199 J	96,300	1.6 J	52,600,000
ZTS-MW113	10/25/2022	N	BL02	2A	Cross/Downgradient	60	Alluvium	2,700,000	18,100	280	18,100	35	101,000	0.85 J	4,650,000
Post-Construction Performance Monitoring Results															
ZTS-MW137	5/31/2023	N	PM01	2A	Upgradient	-9	Alluvium	2,520,000	18,900	<700	18,900	43.2 J	107,000	43	5,930,000
ZTS-MW118	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	2,480,000	18,800	<700	18,800	36.4 J	114,000	66 J	5,560,000
ZTS-MW118	5/31/2023	FD	PM01	2A	Upgradient	-3	Alluvium	2,500,000	19,000	<700	19,000	53.4 J	115,000	----	5,790,000
ZTS-MW190	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	2,500,000	19,400	<1,400	19,400	67.1 J	109,000	67 J	5,650,000
ZTS-MW196	5/30/2023	N	PM01	2A	Upgradient	-3	Alluvium	2,460,000	19,400	<560	19,400	41.4 J	106,000	26	5,410,000
ZTS-MW202	5/30/2023	N	PM01	2A	Upgradient	-3	UMCf	2,200,000	16,200	<700	16,200	97.8 J	105,000	27	5,240,000
ZTS-MW192	5/22/2023	N	PM01	2A	Center of Array	0	Alluvium	2,380,000	16,800	<700	16,800	63 J	93,000	8.2	5,950,000
ZTS-MW191	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	2,520,000	9,260	5,290	3,970	144	41,900	<0.49	5,210,000
ZTS-MW195	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	2,560,000	17,800	<700	17,800	349	111,000	1,400	5,500,000

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
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Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Anions by E300.0/SW9065A	CALC	E351.2	E353.2	E365.4	Alkalinity by SM2320B	AM20GAX	SM2540C
								Sulfate	Nitrogen	Total Kjeldahl Nitrogen (TKN)	Nitrogen, Nitrate-Nitrite	Phosphorus	Alkalinity as CaCO3	Hydrogen	Total Dissolved Solids
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	nmol	µg/L
ZTS-MW138	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	2,460,000	19,100	<700	19,100	52.5 J	103,000	23	5,280,000
ZTS-MW139	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	2,600,000	16,300	<700	16,300	92.6 J	94,600	32	5,150,000
ZTS-MW193	5/25/2023	N	PM01	2A	Downgradient	5	Alluvium	2,560,000	16,900	<700	16,900	71.8 J	92,900	28 J	5,330,000
ZTS-MW193	5/25/2023	FD	PM01	2A	Downgradient	5	Alluvium	2,570,000	18,300	<700	18,300	70.1 J	99,900	----	5,130,000
ZTS-MW203	5/30/2023	N	PM01	2A	Downgradient	5	UMCf	2,360,000	14,400	<700	14,400	80.2 J	96,900	54 J	4,710,000
ZTS-MW194	5/25/2023	N	PM01	2A	Downgradient	15	Alluvium	2,630,000	19,100	<700	19,100	81.6 J	109,000	33 J	5,810,000
LVWPS-MW102A	5/30/2023	N	PM01	2A	Downgradient	30	UMCf	5,350,000	4,950	205 J	4,740	124	92,300	47	11,300,000
LVWPS-MW102B	5/26/2023	N	PM01	2A	Downgradient	30	UMCf (Semi-Cons)	34,900,000	485	485	<50	115	100,000	45	64,600,000
ZTS-MW197	5/26/2023	N	PM01	2A	Downgradient	55	Alluvium	2,550,000	18,700	<700	18,700	80.1 J	109,000	33	5,670,000
ZTS-MW113	5/26/2023	N	PM01	2A	Cross/Downgradient	60	Alluvium	2,510,000	19,200	<700	19,200	43.1 J	103,000	37	5,370,000
Test Area 2B															
Pre-Construction Baseline Results															
ZTS-MW133	10/20/2022	N	BL02	2B	Upgradient	-9	UMCf	2,750,000	2,020	<140	2,020	<35	85,900	35	3,020,000 J-
ZTS-MW117	9/1/2022	N	BL01	2B	Upgradient	-2	UMCf	1,460,000	----	----	----	----	----	----	2,730,000
ZTS-MW117	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	1,100,000	<50	<140	<50	<35	109,000	230	2,420,000
ZTS-MW117	10/19/2022	FD	BL02	2B	Upgradient	-2	UMCf	1,010,000	<50	<140	<50	<35	108,000	230	2,460,000
ZTS-MW134	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	2,460,000	18,400	<1,400	18,400	<35	100,000	0.49	4,580,000 J-
ZTS-MW135	10/19/2022	N	BL02	2B	Downgradient	7	UMCf	2,700,000	2,640	<140	2,640	<35	90,500	100	5,970,000
ZTS-MW136	10/20/2022	N	BL02	2B	Cross Gradient	7	UMCf	1,180,000	2,330	<140	2,160	<35	117,000	28	2,950,000
Post-Construction Performance Monitoring Results															
ZTS-MW133	5/23/2023	N	PM01	2B	Upgradient	-9	UMCf	2,680,000	2,660	<140	2,660 J-	55.5 J	89,400	160	4,270,000
ZTS-MW117	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	1,530,000	403	403	<50	83.6 J	98,600	38 J	4,000,000
ZTS-MW134	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	2,490,000	16,000	<700	16,000	43.4 J	102,000	37 J	6,400,000
ZTS-MW198	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	1,840,000	2,450	410 J+	2,040	334	87,700	3.8	5,610,000
ZTS-MW200	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	2,530,000	294	233 J	61.4 J	169	26,900	4,700	4,440,000
ZTS-MW200	5/23/2023	FD	PM01	2B	Downgradient	2	UMCf	2,470,000	394	321 J+	73.2 J	137	27,300	----	4,140,000
ZTS-MW201	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	2,050,000	775	488	287	322	100,000	32	5,100,000
ZTS-MW206	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	2,710,000	1,250	556	698	1,480	105,000	11	4,920,000 J-
ZTS-MW199	5/23/2023	N	PM01	2B	Downgradient	5	UMCf	2,640,000	3,110	446	2,660	1,480	94,200	37	4,620,000
ZTS-MW207	5/24/2023	N	PM01	2B	Downgradient	5	UMCf	1,550,000	1,430 J	241 J	1,190 J	189	123,000	14	4,700,000 J
ZTS-MW207	5/24/2023	FD	PM01	2B	Downgradient	5	UMCf	1,740,000	1,940 J	230 J	1,710 J	170	123,000	----	3,420,000 J
ZTS-MW135	5/26/2023	N	PM01	2B	Downgradient	7	UMCf	2,750,000	3,840	373	3,470	670	96,500	41	6,210,000
ZTS-MW136	5/26/2023	N	PM01	2B	Cross Gradient	7	UMCf	1,040,000	257 J	<140	257 J	76.5 J	111,000	28	2,870,000
ZTS-MW136	5/26/2023	FD	PM01	2B	Cross Gradient	7	UMCf	1,190,000	414 J	<140	414 J	83.3 J	110,000	----	2,930,000
ZTS-MW208	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	2,130,000	11,300	<700	11,300	104	100,000	42	5,300,000
ZTS-MW209	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	2,840,000	3,970	172 J	3,800	286	94,200	51 J	6,400,000
Test Area 2C															
Pre-Construction Baseline Results															
ZTS-MW140	10/21/2022	N	BL02	2C	Upgradient	-9	Alluvium	2,600,000	18,700	<700	18,700	<35	106,000	6 J+	5,590,000
ZTS-MW119	9/1/2022	N	BL01	2C	Upgradient	-3	Alluvium	2,530,000	----	----	----	----	----	----	9,080,000
ZTS-MW119	10/19/2022	N	BL02	2C	Upgradient	-3	Alluvium	2,820,000	17,900	<560	17,900	<35	109,000	1.7	3,650,000
ZTS-MW119	10/19/2022	FD	BL02	2C	Upgradient	-3	Alluvium	2,770,000	18,300	<700	18,300	<35	103,000	1.6	3,590,000
ZTS-MW141	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	2,720,000	17,900	280	17,900	35	111,000	8.8	4,950,000
ZTS-MW142	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	2,620,000	18,600	<700	18,600	<35	102,000	----	5,500,000
Post-Construction Performance Monitoring Results															
ZTS-MW140	5/25/2023	N	PM01	2C	Upgradient	-9	Alluvium	2,610,000	18,700	<700	18,700	98.9 J	104,000	29 J	4,390,000
ZTS-MW140	5/25/2023	FD	PM01	2C	Upgradient	-9	Alluvium	2,570,000	18,400	<700	18,400	50.5 J	102,000	----	5,050,000
ZTS-MW119	5/24/2023	N	PM01	2C	Upgradient	-3	Alluvium	2,480,000	18,200	<700	18,200	60.3 J	102,000	30	5,170,000
ZTS-MW181	5/25/2023	N	PM01	2C	Upgradient	-3	Alluvium	2,190,000	17,100	<700	17,100	96.7 J	107,000	32 J	4,250,000
ZTS-MW188	5/26/2023	N	PM01	2C	Upgradient	-3	Alluvium	2,520,000	18,300	<700	18,300	73.5 J	104,000	73	5,470,000

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Anions by E300.0/SW9065A	CALC	E351.2	E353.2	E365.4	Alkalinity by SM2320B	AM20GAX	SM2540C
								Sulfate	Nitrogen	Total Kjeldahl Nitrogen (TKN)	Nitrogen, Nitrate-Nitrite	Phosphorus	Alkalinity as CaCO3	Hydrogen	Total Dissolved Solids
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	nmol	µg/L
ZTS-MW204	5/25/2023	N	PM01	2C	Upgradient	-3	UMCf	1,110,000	3,860	<140	3,860 J-	143	117,000	26 J	2,090,000
ZTS-MW182	5/23/2023	N	PM01	2C	Center of Array	0	Alluvium	2,480,000	11,400	456 J	10,900	89.2 J	70,700	140	4,800,000
ZTS-MW183	5/23/2023	N	PM01	2C	Downgradient	1	Alluvium	2,300,000	15,700	<700	15,700	96 J	99,800	60	3,710,000
ZTS-MW187	5/24/2023	N	PM01	2C	Downgradient	1	Alluvium	2,430,000	14,700	<700	14,700	97.3 J	85,100	2.7	5,120,000
ZTS-MW141	5/25/2023	N	PM01	2C	Downgradient	5	Alluvium	2,600,000	19,400	<700	19,400	87.9 J	108,000	260 J	7,300,000
ZTS-MW142	5/26/2023	N	PM01	2C	Downgradient	5	Alluvium	2,590,000	15,800	<700	15,800	141	94,200	900	5,700,000
ZTS-MW184	5/24/2023	N	PM01	2C	Downgradient	5	Alluvium	2,430,000	17,200	<700	17,200	114	99,700	13	5,280,000
ZTS-MW205	5/24/2023	N	PM01	2C	Downgradient	5	UMCf	696,000	249	<140	249	116	127,000	46	1,890,000
ZTS-MW185	5/25/2023	N	PM01	2C	Downgradient	15	Alluvium	2,470,000	18,100	<700	18,100	123	111,000	11 J	7,800,000
ZTS-MW186	5/25/2023	N	PM01	2C	Downgradient	25	Alluvium	2,530,000	18,900	<700	18,900	212	116,000	47 J	6,800,000
ZTS-MW189	5/25/2023	N	PM01	2C	Downgradient	55	Alluvium	2,410,000	19,700	<700	19,700	55.9 J	108,000	880 J	6,300,000
General Vicinity															
Pre-Construction Baseline Results															
ZTS-MW116	9/1/2022	N	BL01	NA	NA	NA	UMCf	2,660,000	----	----	----	----	----	----	3,360,000
ZTS-MW116	10/25/2022	N	BL02	NA	NA	NA	UMCf	2,760,000	5,650	140	5,650	35	94,100	<0.49	4,510,000
ZTS-MW128	9/1/2022	N	BL01	NA	NA	NA	UMCf	2,060,000	----	----	----	----	----	----	3,050,000
ZTS-MW128	10/25/2022	N	BL02	NA	NA	NA	UMCf	2,630,000	12,600	616	12,000	131	96,500	4.9	7,670,000
Post-Construction Performance Monitoring Results															
ZTS-MW116	5/24/2023	N	PM01	NA	NA	NA	UMCf	2,490,000	5,520	<280	5,520	35.2 J	95,700	39	4,660,000
ZTS-MW128	5/24/2023	N	PM01	NA	NA	NA	UMCf	2,290,000	11,600	<700	11,600	55.5 J	94,800	17	4,900,000

Notes:

- bgs - below ground surface
- J- The result is an estimated quantity, but the result may be biased low.
- 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.
- 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.
- < The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- mg/L - milligram per liter
- mS/cm - milliSiemens per centimeter
- mV - millivolts
- nmol - nanomol
- SU - standard units
- N - normal field sample
- µg/L - micrograms per liter
- UMCf - Upper Muddy Creek formation
- FD - field duplicate

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	SM4500-P-E	SW9060A/SM5310B	SW9060A/SM5310B	SW9060A/SM5310B	SW9060A/SM5310B	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020
								Orthophosphorus as PO4	Dissolved Organic Carbon	Dissolved Organic Carbon	Total Inorganic Carbon	Total Organic Carbon	Aluminum	Antimony
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Test Area 1A														
Pre-Construction Baseline Results														
ZTS-MW124	8/31/2022	N	BL01	1A	Upgradient	-8	Alluvium	----	----	----	----	----	----	----
ZTS-MW124	8/31/2022	FD	BL01	1A	Upgradient	-8	Alluvium	----	----	----	----	----	----	----
ZTS-MW124	10/18/2022	N	BL02	1A	Upgradient	-8	Alluvium	<14	----	10,200 J	21,700	1,480 J+	<18.5	<1.03
ZTS-MW124	10/18/2022	FD	BL02	1A	Upgradient	-8	Alluvium	<14	----	1,230 J	23,900	1,580 J+	<18.5	<1.03
ZTS-MW125	8/31/2022	N	BL01	1A	Upgradient	-8	UMCf	----	----	----	----	----	----	----
ZTS-MW125	10/24/2022	N	BL02	1A	Upgradient	-8	UMCf	143	----	106	30,600	1,020	18.5	1.03
ZTS-MW125	10/24/2022	FD	BL02	1A	Upgradient	-8	UMCf	----	----	----	----	----	----	----
ZTS-MW143	10/18/2022	N	BL02	1A	Upgradient	-50	Alluvium	<14	----	<106	23,700	1,440 J+	<18.5	<1.03
ZTS-MW144	10/18/2022	N	BL02	1A	Downgradient	35	Alluvium	<14	----	1,270 J+	27,800	1,560 J+	<18.5	<1.03
Post-Construction Performance Monitoring Results														
ZTS-MW143	5/26/2023	N	PM01	1A	Upgradient	-50	Alluvium	16 J	1,200 J+	----	27,100	1,120 J+	<18.5	<1.03
ZTS-MW124R	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	26 J	970 J	----	27,200	1,350 J+	<18.5	<1.03
ZTS-MW125	5/25/2023	N	PM01	1A	Upgradient	-8	UMCf	82	392 J	----	31,300	571 J	<18.5	<1.03
ZTS-MW153	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	37	955 J	----	26,600	1,320 J+	<18.5	<1.03
ZTS-MW163	5/25/2023	N	PM01	1A	Upgradient	-8	Alluvium	<14	1,150 J+	----	26,600	889 J	<18.5	<1.03
ZTS-MW150	5/22/2023	N	PM01	1A	Center of Trench	0	Alluvium	136	1,130 J+	----	6,690	2,380 J+	<18.5	<1.03
ZTS-MW154	5/24/2023	N	PM01	1A	Center of Trench	0	Alluvium	<14	1,060 J+	----	5,770	902 J	<18.5	<1.03
ZTS-MW164	5/23/2023	N	PM01	1A	Center of Trench	0	Alluvium	<14	828 J	----	7,630	1,290 J+	<18.5	<1.03
ZTS-MW164	5/23/2023	FD	PM01	1A	Center of Trench	0	Alluvium	<14	897 J	----	7,420	1,310 J+	<18.5	<1.03
ZTS-MW151	5/25/2023	N	PM01	1A	Downgradient	5	Alluvium	31	877 J	----	17,200	1,040	<18.5	<1.03
ZTS-MW155	5/24/2023	N	PM01	1A	Downgradient	5	Alluvium	<14	1,110 J+	----	14,100	837 J	<18.5	<1.03
ZTS-MW155	5/24/2023	FD	PM01	1A	Downgradient	5	Alluvium	<14	1,110 J+	----	14,100	829 J	<18.5	<1.03
ZTS-MW156	5/24/2023	N	PM01	1A	Downgradient	5	UMCf	<14	500 J	----	28,200	312 J	<18.5	<1.03
ZTS-MW165	5/31/2023	N	PM01	1A	Downgradient	5	Alluvium	<14	1,250 J+	----	17,000	1,410 J+	<18.5	<1.03
ZTS-MW152	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	159	968 J	----	16,500	976 J	<18.5	<1.03
ZTS-MW157	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	51	1,120 J+	----	15,300	841 J	<18.5	<1.03
ZTS-MW162	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	30 J	1,020 J+	----	22,800	936 J	<18.5	<1.03
ZTS-MW149	5/31/2023	N	PM01	1A	Downgradient	25	Alluvium	42	1,360 J+	----	26,400	1,450 J+	<18.5	<1.03
ZTS-MW144	5/31/2023	N	PM01	1A	Downgradient	35	Alluvium	48	1,230 J+	----	18,500	1,150 J+	<18.5	<1.03
ZTS-MW158	5/24/2023	N	PM01	1A	Downgradient	50	Alluvium	<14	1,130	----	16,100	942 J	<18.5	<1.03
ZTS-MW159	5/24/2023	N	PM01	1A	Downgradient	50	UMCf	28 J	1,010 J+	----	29,200	1,120 J+	<18.5	2.04 J
ZTS-MW160	5/24/2023	N	PM01	1A	Downgradient	100	Alluvium	<14	1,130 J	----	21,500	1,280 J+	<18.5	<1.03
ZTS-MW161	5/26/2023	N	PM01	1A	Downgradient	150	Alluvium	17 J	1,120 J+	----	16,800 J-	1,280 J+	<18.5	<1.03
Between Test Area 1A and Test Area 1B														
Pre-Construction Baseline Results														
ZTS-MW145	10/24/2022	N	BL02	1A/1B	Upgradient	-50	UMCf	14	----	106	25,800	102	18.5	1.03
ZTS-MW146	10/24/2022	N	BL02	1A/1B	Downgradient	35	UMCf	14	----	1,390	29,800	1,590	18.5	1.03
Post-Construction Performance Monitoring Results														
ZTS-MW145	5/22/2023	N	PM01	1A/1B	Upgradient	-50	UMCf	<14	1,950 J-	----	31,500 J-	2,150 J+	53.1 J	<1.03
ZTS-MW146	5/26/2023	N	PM01	1A/1B	Downgradient	35	UMCf	42	1,310 J+	----	31,100	1,010 J+	<18.5	<1.03
Test Area 1B														
Pre-Construction Baseline Results														
ZTS-MW147	10/18/2022	N	BL02	1B	Upgradient	-50	Alluvium	<14	----	1,270 J+	22,800	1,700 J+	<18.5	<1.03
ZTS-MW126	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	----	----	----	----	----	----	----
ZTS-MW126	10/18/2022	N	BL02	1B	Upgradient	-8	Alluvium	<14	----	1,390 J+	25,500	1,830 J+	<18.5	<1.03
ZTS-MW126	10/18/2022	FD	BL02	1B	Upgradient	-8	Alluvium	<14	----	1,620 J+	24,900	1,670 J+	<18.5	<1.03
ZTS-MW127	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	----	----	----	----	----	----	----
ZTS-MW127	10/24/2022	N	BL02	1B	Upgradient	-8	Alluvium	14	----	2,230	24,400	2,430	18.5	1.03

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	SM4500-P-E	SW9060A/SM5310B	SW9060A/SM5310B	SW9060A/SM5310B	SW9060A/SM5310B	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020
								Orthophosphorus as PO4	Dissolved Organic Carbon	Dissolved Organic Carbon	Total Inorganic Carbon	Total Organic Carbon	Aluminum	Antimony
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ZTS-MW148	10/24/2022	N	BL02	1B	Downgradient	35	Alluvium	41	----	1,600	27,100	1,800	18.5	1.03
LVWPS-MW107A	10/24/2022	N	BL02	1B	Downgradient	50	Alluvium	14	----	1,300	24,800	1,850	18.5	1.03
LVWPS-MW107B	10/21/2022	N	BL02	1B	Downgradient	50	UMCf	<14	----	<106	20,600	<102	<18.5	<1.03
LVWPS-MW107C	10/24/2022	N	BL02	1B	Downgradient	50	UMCf (Semi-Cons)	537	----	4,390	17,300	4,990	18.5	103
Post-Construction Performance Monitoring Results														
ZTS-MW147	5/26/2023	N	PM01	1B	Upgradient	-50	Alluvium	20 J	1,190 J+	----	24,600	1,550 J+	<18.5	<1.03
ZTS-MW126	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	40	1,100 J+	----	28,500	986 J	<18.5	<1.03
ZTS-MW127R	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	19 J	1,510 J+	----	26,100	1,450	<18.5	<1.03
ZTS-MW169	5/24/2023	N	PM01	1B	Upgradient	-8	Alluvium	<14	1,500 J+	----	24,600	1,230	<18.5	<1.03
ZTS-MW170	5/24/2023	N	PM01	1B	Upgradient	-8	UMCf	53	997 J	----	24,800	851 J	<18.5	<1.03
ZTS-MW166	5/23/2023	N	PM01	1B	Center of Trench	0	Alluvium	<14	922 J	----	3,310	1,310 J+	<18.5	<1.03
ZTS-MW171	5/22/2023	N	PM01	1B	Center of Trench	0	Alluvium	53	1,460 J+	----	8,280	1,720 J+	<18.5	<1.03
ZTS-MW178	5/25/2023	N	PM01	1B	Center of Trench	0	Alluvium	<14	1,200 J+	----	752 J	1,060	<18.5	<1.03
ZTS-MW167	5/24/2023	N	PM01	1B	Downgradient	5	Alluvium	<14	1,380 J+	----	4,820	960 J	<18.5	<1.03
ZTS-MW172	5/23/2023	N	PM01	1B	Downgradient	5	Alluvium	<14	1,210	----	3,910	1,370 J+	<18.5	<1.03
ZTS-MW172	5/23/2023	FD	PM01	1B	Downgradient	5	Alluvium	<14	1,170	----	4,370	1,390 J+	<18.5	<1.03
ZTS-MW173	5/25/2023	N	PM01	1B	Downgradient	5	UMCf	186	1,750 J+	----	29,300	1,410	<18.5	11.5
ZTS-MW179	5/25/2023	N	PM01	1B	Downgradient	5	Alluvium	<14	1,250 J+	----	2,040	1,120	<18.5	<1.03
ZTS-MW168	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	<14	1,350 J+	----	5,400	1,070 J+	<18.5	<1.03
ZTS-MW174	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	32	1,500 J+	----	9,940	1,370 J+	<18.5	<1.03
ZTS-MW174	5/26/2023	N	PM01	1B	Downgradient	15	Alluvium	----	----	----	----	----	----	----
ZTS-MW177	5/25/2023	N	PM01	1B	Downgradient	15	Alluvium	32	1,410 J+	----	5,320	1,140	<18.5	<1.03
ZTS-MW180	5/24/2023	N	PM01	1B	Downgradient	25	Alluvium	<14	1,440 J+	----	25,600	1,170 J+	35.3 J	<1.03
ZTS-MW180	5/24/2023	FD	PM01	1B	Downgradient	25	Alluvium	<14	1,500 J+	----	25,900	1,140 J+	<18.5	<1.03
ZTS-MW148	5/25/2023	N	PM01	1B	Downgradient	35	Alluvium	16 J	1,160 J+	----	9,820	1,160	<18.5	<1.03
LVWPS-MW107A	5/23/2023	N	PM01	1B	Downgradient	50	Alluvium	<14	1,120	----	6,070	1,600 J+	43.7 J	<1.03
LVWPS-MW107B	5/23/2023	N	PM01	1B	Downgradient	50	UMCf	<14	576 J	----	24,900	797 J	<18.5	<1.03
LVWPS-MW107C	5/23/2023	N	PM01	1B	Downgradient	50	UMCf (Semi-Cons)	465	3,740	----	21,100	4,430	<18.5	<1.03
ZTS-MW175	5/26/2023	N	PM01	1B	Downgradient	100	Alluvium	31	1,270 J+	----	11,800	1,550 J+	<18.5	<1.03
ZTS-MW176	5/26/2023	N	PM01	1B	Downgradient	150	Alluvium	20 J	1,200 J+	----	13,200	2,270 J+	<18.5	<1.03
Test Area 2A														
Pre-Construction Baseline Results														
ZTS-MW137	10/20/2022	N	BL02	2A	Upgradient	-9	Alluvium	90	----	1,690 J+	21,300	2,240 J+	<18.5	<1.03
ZTS-MW118	9/1/2022	N	BL01	2A	Upgradient	-3	Alluvium	----	----	----	----	----	----	----
ZTS-MW118	10/21/2022	N	BL02	2A	Upgradient	-3	Alluvium	<14	----	2,120 J	23,400 J-	2,050	<18.5	<1.03
ZTS-MW138	10/20/2022	N	BL02	2A	Downgradient	5	Alluvium	114	----	1,840 J+	20,400 J-	2,060 J+	<18.5	<1.03
ZTS-MW139	10/21/2022	N	BL02	2A	Downgradient	5	Alluvium	40	----	1,740 J+	25,200	2,030	<18.5	<1.03
LVWPS-MW102A	10/21/2022	N	BL02	2A	Downgradient	30	UMCf	132	----	1,050 J+	19,200	<102	<18.5	<1.03
LVWPS-MW102B	10/21/2022	N	BL02	2A	Downgradient	30	UMCf (Semi-Cons)	426	----	4,660 J+	18,900	2,650	<18.5	<103
ZTS-MW113	10/25/2022	N	BL02	2A	Cross/Downgradient	60	Alluvium	14	----	1,640	22,700	1,580	18.5	1.03
Post-Construction Performance Monitoring Results														
ZTS-MW137	5/31/2023	N	PM01	2A	Upgradient	-9	Alluvium	26 J	2,010 J+	----	25,700	1,820 J+	27.1 J	<1.03
ZTS-MW118	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	34	1,630 J+	----	27,800	1,730 J+	<18.5	<1.03
ZTS-MW118	5/31/2023	FD	PM01	2A	Upgradient	-3	Alluvium	36	1,670 J+	----	27,800	1,720 J+	<18.5	<1.03
ZTS-MW190	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	31	1,520 J+	----	26,000	1,640 J+	<18.5	<1.03
ZTS-MW196	5/30/2023	N	PM01	2A	Upgradient	-3	Alluvium	14 J	1,420 J+	----	26,000	1,670 J+	<18.5	<1.03
ZTS-MW202	5/30/2023	N	PM01	2A	Upgradient	-3	UMCf	35	510 J	----	25,500	1,600 J+	<18.5	<1.03
ZTS-MW192	5/22/2023	N	PM01	2A	Center of Array	0	Alluvium	17 J	1,620 J+	----	21,900	1,830 J+	<18.5	<1.03
ZTS-MW191	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	22 J	1,240 J+	----	6,990	2,010 J+	69.1 J	<1.03
ZTS-MW195	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	62	1,340 J+	----	24,400	1,670 J+	<18.5	<1.03

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	SM4500-P-E	SW9060A/SM5310B	SW9060A/SM5310B	SW9060A/SM5310B	SW9060A/SM5310B	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020
								Orthophosphorus as PO4	Dissolved Organic Carbon	Dissolved Organic Carbon	Total Inorganic Carbon	Total Organic Carbon	Aluminum	Antimony
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ZTS-MW138	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	45	1,190 J+	----	23,800	2,430	<18.5	<1.03
ZTS-MW139	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	51	1,400 J+	----	21,700	1,180 J+	<18.5	<1.03
ZTS-MW193	5/25/2023	N	PM01	2A	Downgradient	5	Alluvium	53	1,480 J+	----	23,900	1,200 J+	<18.5	<1.03
ZTS-MW193	5/25/2023	FD	PM01	2A	Downgradient	5	Alluvium	53	1,210 J	----	23,800	1,450 J+	<18.5	<1.03
ZTS-MW203	5/30/2023	N	PM01	2A	Downgradient	5	UMCf	48	1,720 J+	----	23,500	1,370 J+	<18.5	<1.03
ZTS-MW194	5/25/2023	N	PM01	2A	Downgradient	15	Alluvium	76	1,460 J+	----	24,800	1,310 J+	<18.5	<1.03
LVWPS-MW102A	5/30/2023	N	PM01	2A	Downgradient	30	UMCf	53	1,250 J+	----	21,200	1,080 J+	<18.5	<1.03
LVWPS-MW102B	5/26/2023	N	PM01	2A	Downgradient	30	UMCf (Semi-Cons)	405	4,020	----	19,900	4,050	<18.5	<51.5
ZTS-MW197	5/26/2023	N	PM01	2A	Downgradient	55	Alluvium	35	1,400 J+	----	24,500	1,850 J+	<18.5	<1.03
ZTS-MW113	5/26/2023	N	PM01	2A	Cross/Downgradient	60	Alluvium	22 J	1,540 J+	----	24,100	1,920 J+	<18.5	<1.03
Test Area 2B														
Pre-Construction Baseline Results														
ZTS-MW133	10/20/2022	N	BL02	2B	Upgradient	-9	UMCf	73	----	1,180 J+	17,600	1,050 J+	<18.5	<1.03
ZTS-MW117	9/1/2022	N	BL01	2B	Upgradient	-2	UMCf	----	----	----	----	----	----	----
ZTS-MW117	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	64	----	<106	23,800	<102	<18.5	<1.03
ZTS-MW117	10/19/2022	FD	BL02	2B	Upgradient	-2	UMCf	63	----	<106	23,900	<102	<18.5	<1.03
ZTS-MW134	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	<14	----	1,740 J+	21,200	1,540 J+	<18.5	<1.03
ZTS-MW135	10/19/2022	N	BL02	2B	Downgradient	7	UMCf	62	----	<106	18,200	<102	<18.5	<1.03
ZTS-MW136	10/20/2022	N	BL02	2B	Cross Gradient	7	UMCf	61	----	<106	25,000	1,680 J+	<18.5	<1.03
Post-Construction Performance Monitoring Results														
ZTS-MW133	5/23/2023	N	PM01	2B	Upgradient	-9	UMCf	24 J	517 J	----	20,400	740 J	78.2 J	<1.03
ZTS-MW117	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	38	765 J	----	23,600	758 J	25.2 J	<1.03
ZTS-MW134	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	224	1,410 J+	----	24,400	1,250	<18.5	<1.03
ZTS-MW198	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	141	1,030 J+	----	20,600	1,500 J+	<18.5	<1.03
ZTS-MW200	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	<14	838 J	----	4,160 J+	1,070 J+	<18.5	<1.03
ZTS-MW200	5/23/2023	FD	PM01	2B	Downgradient	2	UMCf	<14	577 J	----	3,990 J+	1,130 J+	<18.5	<1.03
ZTS-MW201	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	81	833 J	----	25,200	742 J	<18.5	1.11 J
ZTS-MW206	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	<14	735 J	----	26,000	775 J	28.9 J	<1.03
ZTS-MW199	5/23/2023	N	PM01	2B	Downgradient	5	UMCf	1,570	1,070 J+	----	20,800	1,240 J+	<18.5	<1.03
ZTS-MW207	5/24/2023	N	PM01	2B	Downgradient	5	UMCf	165	1,150 J+	----	31,900	868 J	<18.5	<1.03
ZTS-MW207	5/24/2023	FD	PM01	2B	Downgradient	5	UMCf	160	1,270 J+	----	30,800	901 J	<18.5	<1.03
ZTS-MW135	5/26/2023	N	PM01	2B	Downgradient	7	UMCf	676	647 J	----	22,300	934 J	<18.5	<1.03
ZTS-MW136	5/26/2023	N	PM01	2B	Cross Gradient	7	UMCf	43	369 J	----	26,400	681 J	<18.5	<1.03
ZTS-MW136	5/26/2023	FD	PM01	2B	Cross Gradient	7	UMCf	49	999 J	----	24,600	690 J	<18.5	<1.03
ZTS-MW208	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	114	891 J	----	24,000	1,200	<18.5	<1.03
ZTS-MW209	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	380	646 J	----	20,800	406 J	<18.5	<1.03
Test Area 2C														
Pre-Construction Baseline Results														
ZTS-MW140	10/21/2022	N	BL02	2C	Upgradient	-9	Alluvium	139	----	1,670 J+	22,300 J	1,370	<18.5	<1.03
ZTS-MW119	9/1/2022	N	BL01	2C	Upgradient	-3	Alluvium	----	----	----	----	----	----	----
ZTS-MW119	10/19/2022	N	BL02	2C	Upgradient	-3	Alluvium	<14	----	1,260 J+	22,900	1,850 J+	<18.5	<1.03
ZTS-MW119	10/19/2022	FD	BL02	2C	Upgradient	-3	Alluvium	<14	----	1,760 J+	22,100	1,620 J+	<18.5	<1.03
ZTS-MW141	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	39	----	1,330	24,800	3,430	18.5	1.03
ZTS-MW142	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	58	----	1,900 J+	22,100	1,150	<18.5	<1.03
Post-Construction Performance Monitoring Results														
ZTS-MW140	5/25/2023	N	PM01	2C	Upgradient	-9	Alluvium	24 J	1,050 J+	----	24,500	1,560	<18.5	<1.03
ZTS-MW140	5/25/2023	FD	PM01	2C	Upgradient	-9	Alluvium	24 J	1,170 J+	----	24,400	1,130	<18.5	<1.03
ZTS-MW119	5/24/2023	N	PM01	2C	Upgradient	-3	Alluvium	22 J	1,490 J+	----	25,000	1,200	<18.5	<1.03
ZTS-MW181	5/25/2023	N	PM01	2C	Upgradient	-3	Alluvium	47	1,320 J+	----	25,300	1,360	<18.5	<1.03
ZTS-MW188	5/26/2023	N	PM01	2C	Upgradient	-3	Alluvium	33	1,500 J+	----	23,000	1,770 J+	<18.5	<1.03

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	SM4500-P-E	SW9060A/SM5310B	SW9060A/SM5310B	SW9060A/SM5310B	SW9060A/SM5310B	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020
								Orthophosphorus as PO4	Dissolved Organic Carbon	Dissolved Organic Carbon	Total Inorganic Carbon	Total Organic Carbon	Aluminum	Antimony
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ZTS-MW204	5/25/2023	N	PM01	2C	Upgradient	-3	UMCf	72	476 J	----	27,900 J-	726 J	<18.5	<1.03
ZTS-MW182	5/23/2023	N	PM01	2C	Center of Array	0	Alluvium	32	1,380	----	17,900	3,300	32.8 J	<1.03
ZTS-MW183	5/23/2023	N	PM01	2C	Downgradient	1	Alluvium	27 J	1,300	----	23,000	1,280 J+	<18.5	<1.03
ZTS-MW187	5/24/2023	N	PM01	2C	Downgradient	1	Alluvium	51	1,360 J+	----	19,700	1,280 J+	<18.5	<1.03
ZTS-MW141	5/25/2023	N	PM01	2C	Downgradient	5	Alluvium	479	1,500 J	----	25,600	1,390	<18.5	<1.03
ZTS-MW142	5/26/2023	N	PM01	2C	Downgradient	5	Alluvium	55	1,380 J+	----	22,500	1,690 J+	<18.5	<1.03
ZTS-MW184	5/24/2023	N	PM01	2C	Downgradient	5	Alluvium	37	1,420 J+	----	22,800	1,170 J+	<18.5	<1.03
ZTS-MW205	5/24/2023	N	PM01	2C	Downgradient	5	UMCf	75	546 J	----	30,000	262 J	<18.5	1.43 J
ZTS-MW185	5/25/2023	N	PM01	2C	Downgradient	15	Alluvium	89	1,370 J	----	25,800	2,060	<18.5	<1.03
ZTS-MW186	5/25/2023	N	PM01	2C	Downgradient	25	Alluvium	89	1,430 J	----	25,700	1,170	<18.5	<1.03
ZTS-MW189	5/25/2023	N	PM01	2C	Downgradient	55	Alluvium	53	1,120 J	----	24,000	2,230	<18.5	<1.03
General Vicinity														
Pre-Construction Baseline Results														
ZTS-MW116	9/1/2022	N	BL01	NA	NA	NA	UMCf	----	----	----	----	----	----	----
ZTS-MW116	10/25/2022	N	BL02	NA	NA	NA	UMCf	89	----	106	21,300	6,160	18.5	1.03
ZTS-MW128	9/1/2022	N	BL01	NA	NA	NA	UMCf	----	----	----	----	----	----	----
ZTS-MW128	10/25/2022	N	BL02	NA	NA	NA	UMCf	316	----	1,120	22,000	102	18.5	1.03
Post-Construction Performance Monitoring Results														
ZTS-MW116	5/24/2023	N	PM01	NA	NA	NA	UMCf	18 J	966 J	----	22,400	1,090 J+	<18.5	<1.03
ZTS-MW128	5/24/2023	N	PM01	NA	NA	NA	UMCf	40	982 J	----	22,900	911 J	<18.5	<1.03

Notes:

- bgs - below ground surface
- J- The result is an estimated quantity, but the result may be biased low.
- 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.
- 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.
- < The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- mg/L - milligram per liter
- mS/cm - milliSiemens per centimeter
- mV - millivolts
- nmol - nanomol
- SU - standard units
- N - normal field sample
- µg/L - micrograms per liter
- UMCf - Upper Muddy Creek formation
- FD - field duplicate

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020
								Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Test Area 1A															
Pre-Construction Baseline Results															
ZTS-MW124	8/31/2022	N	BL01	1A	Upgradient	-8	Alluvium	44	----	----	----	----	545,000	31.6	----
ZTS-MW124	8/31/2022	FD	BL01	1A	Upgradient	-8	Alluvium	43.7	----	----	----	----	544,000	30.8	----
ZTS-MW124	10/18/2022	N	BL02	1A	Upgradient	-8	Alluvium	47.1 J	20.7 J	<0.19	2,370 J	<0.15	574,000 J	32.2 J	<0.0596
ZTS-MW124	10/18/2022	FD	BL02	1A	Upgradient	-8	Alluvium	<0.18 UJ	87.3 J	<0.19	59.6 J	<0.15	47,400 J	<1.24 UJ	<0.0596
ZTS-MW125	8/31/2022	N	BL01	1A	Upgradient	-8	UMCf	40.1	----	----	----	----	466,000	16.1	----
ZTS-MW125	10/24/2022	N	BL02	1A	Upgradient	-8	UMCf	22.2	33.2	0.19	1,560	0.15	199,000	1.24	0.0596
ZTS-MW125	10/24/2022	FD	BL02	1A	Upgradient	-8	UMCf	----	----	----	----	----	----	----	----
ZTS-MW143	10/18/2022	N	BL02	1A	Upgradient	-50	Alluvium	52.7	20.6	<0.19	2,070	<0.15	641,000	34.1	<0.0596
ZTS-MW144	10/18/2022	N	BL02	1A	Downgradient	35	Alluvium	47.2	20.2	<0.19	2,310	<0.15	717,000	25.2	<0.0596
Post-Construction Performance Monitoring Results															
ZTS-MW143	5/26/2023	N	PM01	1A	Upgradient	-50	Alluvium	45.7	22	<0.19	2,490	<0.15	637,000	29.5	0.654 J
ZTS-MW124R	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	47.1	18.4	<0.19	1,920	<0.15	545,000	30.4	0.516 J
ZTS-MW125	5/25/2023	N	PM01	1A	Upgradient	-8	UMCf	7.45	26.8	<0.19	1,380	<0.15	174,000	<1.24	0.0621 J
ZTS-MW153	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	48.3	16.2	<0.19	2,130	<0.15	556,000	31.5	0.584 J
ZTS-MW163	5/25/2023	N	PM01	1A	Upgradient	-8	Alluvium	51.7	18	<0.19	2,200	<0.15	573,000	33.9	0.576 J
ZTS-MW150	5/22/2023	N	PM01	1A	Center of Trench	0	Alluvium	<0.18	27.1	<0.19	1,770	<0.15	474,000	<1.24	0.206 J
ZTS-MW154	5/24/2023	N	PM01	1A	Center of Trench	0	Alluvium	<0.18	25.1	<0.19	2,130	<0.15	509,000	<1.24	0.215
ZTS-MW164	5/23/2023	N	PM01	1A	Center of Trench	0	Alluvium	<0.18	29.3	<0.19	2,140	<0.15	524,000	<1.24	0.451 J
ZTS-MW164	5/23/2023	FD	PM01	1A	Center of Trench	0	Alluvium	<0.18	29.2	<0.19	2,180	<0.15	526,000	<1.24	0.44 J
ZTS-MW151	5/25/2023	N	PM01	1A	Downgradient	5	Alluvium	8.53	24.3	<0.19	2,030	<0.15	558,000	<1.24	0.536 J
ZTS-MW155	5/24/2023	N	PM01	1A	Downgradient	5	Alluvium	0.249	58.5	<0.19	2,140	<0.15	575,000	<1.24	4.51
ZTS-MW155	5/24/2023	FD	PM01	1A	Downgradient	5	Alluvium	0.338	58	<0.19	2,300	<0.15	567,000	<1.24	4.29
ZTS-MW156	5/24/2023	N	PM01	1A	Downgradient	5	UMCf	1.23	25.9	<0.19	1,380	<0.15	157,000	<1.24	<0.0596
ZTS-MW165	5/31/2023	N	PM01	1A	Downgradient	5	Alluvium	2.63	33.3	<0.19	2,200	<0.15	537,000	<1.24	1.52 J
ZTS-MW152	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	29.6	18	<0.19	2,100	0.151 J	585,000	<1.24	1.01 J
ZTS-MW157	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	7.5	40.3	<0.19	2,170	<0.15	544,000	<1.24	2.76
ZTS-MW162	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	6.8	20.7	<0.19	2,260	<0.15	566,000	<1.24	1.02 J
ZTS-MW149	5/31/2023	N	PM01	1A	Downgradient	25	Alluvium	30.3	23.7	<0.19	1,930	<0.15	528,000	13.5	0.574 J
ZTS-MW144	5/31/2023	N	PM01	1A	Downgradient	35	Alluvium	14.9	20	<0.19	2,000	<0.15	552,000	3.26	0.623 J
ZTS-MW158	5/24/2023	N	PM01	1A	Downgradient	50	Alluvium	17.3	19.5	<0.19	2,170	<0.15	553,000	<1.24	0.401 J
ZTS-MW159	5/24/2023	N	PM01	1A	Downgradient	50	UMCf	8.4	37.2	<0.19	1,360	<0.15	241,000	1.33 J	0.934 J
ZTS-MW160	5/24/2023	N	PM01	1A	Downgradient	100	Alluvium	32.5	15.1	<0.19	2,060	<0.15	559,000	10.9	0.509 J
ZTS-MW161	5/26/2023	N	PM01	1A	Downgradient	150	Alluvium	34.2	15.9	<0.19	2,080	<0.15	540,000	2.47	0.331 J
Between Test Area 1A and Test Area 1B															
Pre-Construction Baseline Results															
ZTS-MW145	10/24/2022	N	BL02	1A/1B	Upgradient	-50	UMCf	16.3	27.3	0.19	1,830	0.15	355,000	1.24	0.0596
ZTS-MW146	10/24/2022	N	BL02	1A/1B	Downgradient	35	UMCf	23.1	33.1	0.19	2,250	0.15	436,000	1.24	0.0596
Post-Construction Performance Monitoring Results															
ZTS-MW145	5/22/2023	N	PM01	1A/1B	Upgradient	-50	UMCf	2.25	92	<0.19	387	<0.15	101,000	1.5 J	<0.0596
ZTS-MW146	5/26/2023	N	PM01	1A/1B	Downgradient	35	UMCf	8.3	38.7	<0.19	1,650	<0.15	279,000	<1.24	0.23 J
Test Area 1B															
Pre-Construction Baseline Results															
ZTS-MW147	10/18/2022	N	BL02	1B	Upgradient	-50	Alluvium	59.9	27	<0.19	2,540	<0.15	691,000	100	<0.0596
ZTS-MW126	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	37.3	----	----	----	----	600,000	43.3	----
ZTS-MW126	10/18/2022	N	BL02	1B	Upgradient	-8	Alluvium	52.4	24.7	<0.19	2,460	<0.15	643,000	73.4	<0.0596
ZTS-MW126	10/18/2022	FD	BL02	1B	Upgradient	-8	Alluvium	58.1	24.1	<0.19	2,550	<0.15	696,000	77.8	<0.0596
ZTS-MW127	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	29.7	----	----	----	----	632,000	74.4	----
ZTS-MW127	10/24/2022	N	BL02	1B	Upgradient	-8	Alluvium	40.7	20.4	0.19	3,270	0.15	660,000	74.8	0.0596

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020
								Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ZTS-MW148	10/24/2022	N	BL02	1B	Downgradient	35	Alluvium	51.2	25.3	0.19	3,220	0.15	643,000	86.8	0.0596
LVWPS-MW107A	10/24/2022	N	BL02	1B	Downgradient	50	Alluvium	49.8	23.6	0.19	3,330	0.15	643,000	87.6	0.0596
LVWPS-MW107B	10/21/2022	N	BL02	1B	Downgradient	50	UMCf	<0.18	21.2	<0.19	1,720	<0.15	257,000	<1.24	<0.0596
LVWPS-MW107C	10/24/2022	N	BL02	1B	Downgradient	50	UMCf (Semi-Cons)	2.48	2,760	19	11,000	0.15	531,000	1.24	0.0596
Post-Construction Performance Monitoring Results															
ZTS-MW147	5/26/2023	N	PM01	1B	Upgradient	-50	Alluvium	52.2	24.8	<0.19	2,600	<0.15	604,000	86.5	0.683 J
ZTS-MW126	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	64.4	24.5	<0.19	2,370	<0.15	591,000	37.6	0.705 J
ZTS-MW127R	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	43	21	<0.19	2,610	<0.15	635,000	79.6	0.732 J
ZTS-MW169	5/24/2023	N	PM01	1B	Upgradient	-8	Alluvium	49.6	22.3	<0.19	2,770	<0.15	644,000	81.6	0.631 J
ZTS-MW170	5/24/2023	N	PM01	1B	Upgradient	-8	UMCf	31.3	19.2	<0.19	1,890	<0.15	408,000	25	0.493 J
ZTS-MW166	5/23/2023	N	PM01	1B	Center of Trench	0	Alluvium	<0.18	32.9	<0.19	2,520	<0.15	567,000	<1.24	0.302 J
ZTS-MW171	5/22/2023	N	PM01	1B	Center of Trench	0	Alluvium	0.214 J	24.6	<0.19	2,300	<0.15	559,000	<1.24	0.675 J
ZTS-MW178	5/25/2023	N	PM01	1B	Center of Trench	0	Alluvium	0.221 J	36	<0.19	2,460	<0.15	573,000	<1.24	0.207 J
ZTS-MW167	5/24/2023	N	PM01	1B	Downgradient	5	Alluvium	3.49 J+	54.9	<0.19	2,170 J+	<0.15	572,000	<1.24	2 J
ZTS-MW172	5/23/2023	N	PM01	1B	Downgradient	5	Alluvium	15	19.5	<0.19	2,680	<0.15	603,000	<1.24	0.617 J
ZTS-MW172	5/23/2023	FD	PM01	1B	Downgradient	5	Alluvium	15.2	20.1	<0.19	2,620	<0.15	599,000	<1.24	0.594 J
ZTS-MW173	5/25/2023	N	PM01	1B	Downgradient	5	UMCf	13	54.2	<0.19	1,480	<0.15	316,000	6.45	0.872 J
ZTS-MW179	5/25/2023	N	PM01	1B	Downgradient	5	Alluvium	19.1	27.6	<0.19	2,360	<0.15	584,000	<1.24	1.17 J
ZTS-MW168	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	13.8	21.7	<0.19	2,190 J+	<0.15	588,000	<1.24	0.738 J
ZTS-MW174	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	18.6	25.8	<0.19	2,270	<0.15	611,000	<1.24	0.601 J
ZTS-MW174	5/26/2023	N	PM01	1B	Downgradient	15	Alluvium	----	----	----	----	----	----	----	----
ZTS-MW177	5/25/2023	N	PM01	1B	Downgradient	15	Alluvium	11.4	22.3	<0.19	2,580	<0.15	571,000	<1.24	0.635 J
ZTS-MW180	5/24/2023	N	PM01	1B	Downgradient	25	Alluvium	48.6	18.3	<0.19	2,690	<0.15	656,000	86.4	0.769 J
ZTS-MW180	5/24/2023	FD	PM01	1B	Downgradient	25	Alluvium	44.9	16.8	<0.19	2,260	<0.15	599,000	81	0.753 J
ZTS-MW148	5/25/2023	N	PM01	1B	Downgradient	35	Alluvium	20.7	19.5	<0.19	2,510	<0.15	587,000	<1.24	0.418 J
LVWPS-MW107A	5/23/2023	N	PM01	1B	Downgradient	50	Alluvium	11.3	19.2	<0.19	2,560	<0.15	575,000	<1.24	0.44 J
LVWPS-MW107B	5/23/2023	N	PM01	1B	Downgradient	50	UMCf	1.88 J	16.2	<0.19	1,820	<0.15	252,000	<1.24	<0.0596
LVWPS-MW107C	5/23/2023	N	PM01	1B	Downgradient	50	UMCf (Semi-Cons)	0.28 J	23.4	<0.19	11,300	<0.15	544,000	<1.24	0.132 J
ZTS-MW175	5/26/2023	N	PM01	1B	Downgradient	100	Alluvium	46.6	19.9	<0.19	2,620	<0.15	579,000	1.44 J	0.43 J
ZTS-MW176	5/26/2023	N	PM01	1B	Downgradient	150	Alluvium	51.9	20	<0.19	2,490	<0.15	582,000	4.97	0.379 J
Test Area 2A															
Pre-Construction Baseline Results															
ZTS-MW137	10/20/2022	N	BL02	2A	Upgradient	-9	Alluvium	52.4	29.1	<0.19	2,710	<0.15	633,000	95.3	<0.0596
ZTS-MW118	9/1/2022	N	BL01	2A	Upgradient	-3	Alluvium	36.1	----	----	----	----	687,000	48.7	----
ZTS-MW118	10/21/2022	N	BL02	2A	Upgradient	-3	Alluvium	48.8	27.1	<0.19	3,190	<0.15	702,000	61.7	<0.0596
ZTS-MW138	10/20/2022	N	BL02	2A	Downgradient	5	Alluvium	44.5	39.1	<0.19	2,630	<0.15	662,000	97.6	<0.0596
ZTS-MW139	10/21/2022	N	BL02	2A	Downgradient	5	Alluvium	29.8	39	<0.19	2,970	<0.15	732,000	56.3	<0.0596
LVWPS-MW102A	10/21/2022	N	BL02	2A	Downgradient	30	UMCf	71.1	11.2	<0.19	2,360	<0.15	529,000	14.6	<0.0596
LVWPS-MW102B	10/21/2022	N	BL02	2A	Downgradient	30	UMCf (Semi-Cons)	<0.18	<38.1	<0.19	12,400	<0.15	552,000	<1.24	<0.0596
ZTS-MW113	10/25/2022	N	BL02	2A	Cross/Downgradient	60	Alluvium	56.5	25.8	0.19	2,660	0.15	628,000	102	0.0596
Post-Construction Performance Monitoring Results															
ZTS-MW137	5/31/2023	N	PM01	2A	Upgradient	-9	Alluvium	53.1	23.7	<0.19	2,790	<0.15	627,000	89.9	0.681 J
ZTS-MW118	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	42.9	23.2	<0.19	2,600	<0.15	607,000	65	0.713 J
ZTS-MW118	5/31/2023	FD	PM01	2A	Upgradient	-3	Alluvium	44	24.7	<0.19	2,870	<0.15	657,000	67	0.732 J
ZTS-MW190	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	48.1	23.4	<0.19	2,920	<0.15	623,000	85.4	0.613 J
ZTS-MW196	5/30/2023	N	PM01	2A	Upgradient	-3	Alluvium	52.3	24.1	<0.19	2,770	<0.15	598,000	90.7	0.628 J
ZTS-MW202	5/30/2023	N	PM01	2A	Upgradient	-3	UMCf	41.8	21.9	<0.19	2,400	<0.15	558,000	87	0.635 J
ZTS-MW192	5/22/2023	N	PM01	2A	Center of Array	0	Alluvium	35.2	39.3	<0.19	2,350	<0.15	618,000	56.5	0.913 J
ZTS-MW191	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	3.5	36.9	<0.19	2,320	<0.15	568,000	1.43 J	0.339 J
ZTS-MW195	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	43.9	28.2	<0.19	2,830	<0.15	606,000	72.3	0.639 J

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 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020
								Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ZTS-MW138	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	56.4	26.3	<0.19	2,730	<0.15	626,000	92.1	0.681 J
ZTS-MW139	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	45.6	26	<0.19	2,730	<0.15	630,000	69.8	0.641 J
ZTS-MW193	5/25/2023	N	PM01	2A	Downgradient	5	Alluvium	49	26.8	<0.19	2,780	<0.15	642,000	83.4	0.697 J
ZTS-MW193	5/25/2023	FD	PM01	2A	Downgradient	5	Alluvium	48.8	27.1	<0.19	2,700	<0.15	618,000	82.2	0.7 J
ZTS-MW203	5/30/2023	N	PM01	2A	Downgradient	5	UMCf	38.6	18.3	<0.19	2,120	<0.15	584,000	62.7	0.892 J
ZTS-MW194	5/25/2023	N	PM01	2A	Downgradient	15	Alluvium	58.1	23.8	<0.19	2,870	<0.15	615,000	99.1	0.714 J
LVWPS-MW102A	5/30/2023	N	PM01	2A	Downgradient	30	UMCf	70.1	10.3	<0.19	2,320	<0.15	499,000	13.8	0.138 J
LVWPS-MW102B	5/26/2023	N	PM01	2A	Downgradient	30	UMCf (Semi-Cons)	0.661 J	27.3 J	<0.19	11,800	<0.15	513,000	1.37 J	0.0623 J
ZTS-MW197	5/26/2023	N	PM01	2A	Downgradient	55	Alluvium	47	24.8	<0.19	2,540	<0.15	604,000	85.9	0.74 J
ZTS-MW113	5/26/2023	N	PM01	2A	Cross/Downgradient	60	Alluvium	56.4	25.9	<0.19	2,810	<0.15	628,000	95.8	0.666 J
Test Area 2B															
Pre-Construction Baseline Results															
ZTS-MW133	10/20/2022	N	BL02	2B	Upgradient	-9	UMCf	77.1	12.9	<0.19	1,250	<0.15	464,000	5.13	<0.0596
ZTS-MW117	9/1/2022	N	BL01	2B	Upgradient	-2	UMCf	77.9	----	----	----	----	229,000	10.8	----
ZTS-MW117	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	39	23.5	<0.19	1,110	<0.15	182,000	<24.8	<0.0596
ZTS-MW117	10/19/2022	FD	BL02	2B	Upgradient	-2	UMCf	37.9	23.1	<0.19	1,110	<0.15	176,000	<12.4	<0.0596
ZTS-MW134	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	50.3	28.9	<0.19	2,570	<0.15	785,000	<62	<0.0596
ZTS-MW135	10/19/2022	N	BL02	2B	Downgradient	7	UMCf	78.1	13.1	<0.19	1,490	<0.15	579,000	<24.8	<0.0596
ZTS-MW136	10/20/2022	N	BL02	2B	Cross Gradient	7	UMCf	8.02	38.5	<0.19	1,330	<0.15	258,000	10.2	<0.0596
Post-Construction Performance Monitoring Results															
ZTS-MW133	5/23/2023	N	PM01	2B	Upgradient	-9	UMCf	82.5	10.6	<0.19	1,650	<0.15	465,000	7.38	0.0868 J
ZTS-MW117	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	7.33	52.4	<0.19	870	<0.15	202,000	<1.24	<0.0596
ZTS-MW134	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	51	22.6	<0.19	2,400	<0.15	628,000	82.9	0.796 J
ZTS-MW198	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	13.7	30.4	<0.19	1,240	<0.15	390,000	2.49	0.704 J
ZTS-MW200	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	0.503 J	30.9	<0.19	1,070	<0.15	455,000	<1.24	0.0735 J
ZTS-MW200	5/23/2023	FD	PM01	2B	Downgradient	2	UMCf	0.486 J	31.3	<0.19	1,110	<0.15	456,000	<1.24	0.0701 J
ZTS-MW201	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	32.6	31.8	<0.19	1,410	<0.15	367,000	<1.24	0.342 J
ZTS-MW206	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	89.4	21.9	<0.19	1,490	<0.15	463,000	<1.24	1.15 J
ZTS-MW199	5/23/2023	N	PM01	2B	Downgradient	5	UMCf	99.9	16.1	<0.19	1,560	<0.15	492,000	2.34	1.05 J
ZTS-MW207	5/24/2023	N	PM01	2B	Downgradient	5	UMCf	20.8	37	<0.19	1,510	<0.15	292,000	1.49 J	0.696 J
ZTS-MW207	5/24/2023	FD	PM01	2B	Downgradient	5	UMCf	23.5	40.7	<0.19	1,610	<0.15	337,000	2.4	0.784 J
ZTS-MW135	5/26/2023	N	PM01	2B	Downgradient	7	UMCf	114	13.6	<0.19	1,670	<0.15	523,000	8.72	0.914 J
ZTS-MW136	5/26/2023	N	PM01	2B	Cross Gradient	7	UMCf	6.79	20.1	<0.19	1,220	<0.15	179,000	<1.24	0.218 J
ZTS-MW136	5/26/2023	FD	PM01	2B	Cross Gradient	7	UMCf	6.76	20.5	<0.19	1,220	<0.15	182,000	<1.24	0.194 J
ZTS-MW208	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	46.6	19.9	<0.19	2,220	<0.15	509,000	58.2	0.624 J
ZTS-MW209	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	120	10.4	<0.19	1,580	<0.15	508,000	5.18	0.295 J
Test Area 2C															
Pre-Construction Baseline Results															
ZTS-MW140	10/21/2022	N	BL02	2C	Upgradient	-9	Alluvium	53.4	32.1	<0.19	2,710	<0.15	668,000	94.9	<0.0596
ZTS-MW119	9/1/2022	N	BL01	2C	Upgradient	-3	Alluvium	26.7	----	----	----	----	663,000	44.9	----
ZTS-MW119	10/19/2022	N	BL02	2C	Upgradient	-3	Alluvium	55.6	28.9	<0.19	2,440	<0.15	711,000	91.8	<0.0596
ZTS-MW119	10/19/2022	FD	BL02	2C	Upgradient	-3	Alluvium	53.3	29.2	<0.19	3,000	<0.15	750,000	<62	<0.0596
ZTS-MW141	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	45.8	30.9	0.19	2,660	0.15	614,000	69.8	0.0596
ZTS-MW142	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	56.4	29.5	<0.19	2,520	<0.15	659,000	88.6	<0.0596
Post-Construction Performance Monitoring Results															
ZTS-MW140	5/25/2023	N	PM01	2C	Upgradient	-9	Alluvium	54.2	23.5	<0.19	2,570	<0.15	625,000	105	0.712 J
ZTS-MW140	5/25/2023	FD	PM01	2C	Upgradient	-9	Alluvium	54.5	23.9	<0.19	2,760	<0.15	637,000	104	0.737 J
ZTS-MW119	5/24/2023	N	PM01	2C	Upgradient	-3	Alluvium	53.5	24.8	<0.19	2,690	<0.15	603,000	99.1	0.637 J
ZTS-MW181	5/25/2023	N	PM01	2C	Upgradient	-3	Alluvium	42.5	28.3	<0.19	2,610	<0.15	630,000	85.2	0.815 J
ZTS-MW188	5/26/2023	N	PM01	2C	Upgradient	-3	Alluvium	53.6	26	<0.19	2,630	<0.15	630,000	104	0.717 J

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Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020
								Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ZTS-MW204	5/25/2023	N	PM01	2C	Upgradient	-3	UMCf	23.2	39.1	<0.19	1,710	<0.15	304,000	36.9	0.572 J
ZTS-MW182	5/23/2023	N	PM01	2C	Center of Array	0	Alluvium	24.1	35.5	<0.19	2,780	<0.15	608,000	34.1	0.665 J
ZTS-MW183	5/23/2023	N	PM01	2C	Downgradient	1	Alluvium	31	29.5	<0.19	2,850	<0.15	617,000	52.1	0.727 J
ZTS-MW187	5/24/2023	N	PM01	2C	Downgradient	1	Alluvium	39.8	34.1	<0.19	2,500	<0.15	623,000	69	0.599 J
ZTS-MW141	5/25/2023	N	PM01	2C	Downgradient	5	Alluvium	51.4	24.3	<0.19	2,800	<0.15	627,000	88.6	0.774 J
ZTS-MW142	5/26/2023	N	PM01	2C	Downgradient	5	Alluvium	41.4	26.6	<0.19	2,650	<0.15	587,000	69.2	0.764 J
ZTS-MW184	5/24/2023	N	PM01	2C	Downgradient	5	Alluvium	42	28.2	<0.19	2,710	<0.15	644,000	72.3	0.708 J
ZTS-MW205	5/24/2023	N	PM01	2C	Downgradient	5	UMCf	8.83	29.6	<0.19	1,020	<0.15	121,000	<1.24	0.316 J
ZTS-MW185	5/25/2023	N	PM01	2C	Downgradient	15	Alluvium	46.1	28.1	<0.19	2,720	<0.15	639,000	83.5	0.848 J
ZTS-MW186	5/25/2023	N	PM01	2C	Downgradient	25	Alluvium	42.5	26.1	<0.19	2,800	<0.15	629,000	82.2	0.794 J
ZTS-MW189	5/25/2023	N	PM01	2C	Downgradient	55	Alluvium	51.4	29.3	<0.19	2,600	<0.15	609,000	93.1	0.698 J
General Vicinity															
Pre-Construction Baseline Results															
ZTS-MW116	9/1/2022	N	BL01	NA	NA	NA	UMCf	33.7	----	----	----	----	436,000	21.6	----
ZTS-MW116	10/25/2022	N	BL02	NA	NA	NA	UMCf	51.7	14.7	0.19	2,440	0.15	424,000	33	0.0596
ZTS-MW128	9/1/2022	N	BL01	NA	NA	NA	UMCf	15.6	----	----	----	----	344,000	4.76	----
ZTS-MW128	10/25/2022	N	BL02	NA	NA	NA	UMCf	23.4	27.8	0.19	2,190	0.15	498,000	22.9	0.0596
Post-Construction Performance Monitoring Results															
ZTS-MW116	5/24/2023	N	PM01	NA	NA	NA	UMCf	54.7	15.1	<0.19	2,500	<0.15	439,000	35.8	0.171 J
ZTS-MW128	5/24/2023	N	PM01	NA	NA	NA	UMCf	35.2	20.5	<0.19	2,000	<0.15	496,000	31.1	0.606 J

Notes:

- bgs - below ground surface
- J- The result is an estimated quantity, but the result may be biased low.
- 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.
- 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.
- < The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- mg/L - milligram per liter
- mS/cm - milliSiemens per centimeter
- mV - millivolts
- nmol - nanomol
- SU - standard units
- N - normal field sample
- µg/L - micrograms per liter
- UMCf - Upper Muddy Creek formation
- FD - field duplicate

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020
								Copper	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	Potassium
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Test Area 1A															
Pre-Construction Baseline Results															
ZTS-MW124	8/31/2022	N	BL01	1A	Upgradient	-8	Alluvium	----	<28.1	----	----	21.1	----	----	----
ZTS-MW124	8/31/2022	FD	BL01	1A	Upgradient	-8	Alluvium	----	<28.1	----	----	20	----	----	----
ZTS-MW124	10/18/2022	N	BL02	1A	Upgradient	-8	Alluvium	<1.51	<28.1	<0.849	205,000 J	<0.704	376 J	2.19 J+	61,800 J
ZTS-MW124	10/18/2022	FD	BL02	1A	Upgradient	-8	Alluvium	<1.51	<28.1	<0.849	11,300 J	<0.704	<0.348 UJ	<0.816	<108 UJ
ZTS-MW125	8/31/2022	N	BL01	1A	Upgradient	-8	UMCf	----	<28.1	----	----	105	----	----	----
ZTS-MW125	10/24/2022	N	BL02	1A	Upgradient	-8	UMCf	1.51	28.1	0.849	142,000	322	83.7	0.816	145,000
ZTS-MW125	10/24/2022	FD	BL02	1A	Upgradient	-8	UMCf	----	----	----	----	----	----	----	----
ZTS-MW143	10/18/2022	N	BL02	1A	Upgradient	-50	Alluvium	<1.51	<28.1	<0.849	246,000	6.85	391	2.03	66,100
ZTS-MW144	10/18/2022	N	BL02	1A	Downgradient	35	Alluvium	<1.51	<28.1	<0.849	272,000	27.9	329	2.85	69,000
Post-Construction Performance Monitoring Results															
ZTS-MW143	5/26/2023	N	PM01	1A	Upgradient	-50	Alluvium	5.4	<28.1	<0.849	239,000	<0.704	410	1.7 J	63,300
ZTS-MW124R	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	1.59 J	<28.1	<0.849	206,000	2.29 J	332	4.2	65,200
ZTS-MW125	5/25/2023	N	PM01	1A	Upgradient	-8	UMCf	1.85 J	<28.1	<0.849	147,000	149	34.7	1.65 J	162,000
ZTS-MW153	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	2.38 J	38.2 J	<0.849	211,000	2.37 J	351	3.79	64,600
ZTS-MW163	5/25/2023	N	PM01	1A	Upgradient	-8	Alluvium	2.33 J	<28.1	<0.849	234,000	<0.704	367	1.77 J	70,000
ZTS-MW150	5/22/2023	N	PM01	1A	Center of Trench	0	Alluvium	<1.51	5,450	<0.849	203,000	246	69.6	1.94 J	65,400
ZTS-MW154	5/24/2023	N	PM01	1A	Center of Trench	0	Alluvium	<1.51	<28.1	<0.849	225,000	187	88.7	2.28	66,900
ZTS-MW164	5/23/2023	N	PM01	1A	Center of Trench	0	Alluvium	<1.51	1,080	<0.849	232,000	322	121	3.12	65,500
ZTS-MW164	5/23/2023	FD	PM01	1A	Center of Trench	0	Alluvium	<1.51	1,160	<0.849	228,000	322	117	3.06	64,800
ZTS-MW151	5/25/2023	N	PM01	1A	Downgradient	5	Alluvium	<1.51	<28.1	<0.849	215,000	510	254	4.76	62,500
ZTS-MW155	5/24/2023	N	PM01	1A	Downgradient	5	Alluvium	<1.51	<28.1	<0.849	237,000	985	164	6.04	65,000
ZTS-MW155	5/24/2023	FD	PM01	1A	Downgradient	5	Alluvium	<1.51	<28.1	<0.849	238,000	892	166	5.89	65,000
ZTS-MW156	5/24/2023	N	PM01	1A	Downgradient	5	UMCf	<1.51	<28.1	<0.849	167,000	52.9	3.17	<0.816	185,000
ZTS-MW165	5/31/2023	N	PM01	1A	Downgradient	5	Alluvium	2.92 J	44.1 J	<0.849	246,000	326	226	4.46	73,100
ZTS-MW152	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	<1.51	<28.1	<0.849	222,000	899	271	6.44	66,600
ZTS-MW157	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	1.82 J	28.9 J	<0.849	237,000	679	160	5.38	62,400
ZTS-MW162	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	<1.51	<28.1	<0.849	262,000	245	153	5.14	68,600
ZTS-MW149	5/31/2023	N	PM01	1A	Downgradient	25	Alluvium	2.39 J	<28.1	<0.849	204,000	138	334	3.21	56,900
ZTS-MW144	5/31/2023	N	PM01	1A	Downgradient	35	Alluvium	2.09 J	<28.1	<0.849	245,000	406	192	6.03	63,400
ZTS-MW158	5/24/2023	N	PM01	1A	Downgradient	50	Alluvium	<1.51	<28.1	<0.849	255,000	1.7 J	112	2.9	65,600
ZTS-MW159	5/24/2023	N	PM01	1A	Downgradient	50	UMCf	2 J	<28.1	<0.849	146,000	885	62.4	2.85	107,000
ZTS-MW160	5/24/2023	N	PM01	1A	Downgradient	100	Alluvium	2.57 J	<28.1	<0.849	240,000	3.15 J	237	2.39	64,900
ZTS-MW161	5/26/2023	N	PM01	1A	Downgradient	150	Alluvium	1.65 J	<28.1	<0.849	214,000	5.86	252	1.89 J	66,400
Between Test Area 1A and Test Area 1B															
Pre-Construction Baseline Results															
ZTS-MW145	10/24/2022	N	BL02	1A/1B	Upgradient	-50	UMCf	1.51	28.1	0.849	208,000	374	168	2.07	121,000
ZTS-MW146	10/24/2022	N	BL02	1A/1B	Downgradient	35	UMCf	1.51	28.1	0.849	270,000	1,160	156	5.01	170,000
Post-Construction Performance Monitoring Results															
ZTS-MW145	5/22/2023	N	PM01	1A/1B	Upgradient	-50	UMCf	5.59	<28.1	<0.849	62,900	12.1	9.92	3.34	41,600
ZTS-MW146	5/26/2023	N	PM01	1A/1B	Downgradient	35	UMCf	3.93 J	140	<0.849	259,000	426	46.8	1.11 J	238,000
Test Area 1B															
Pre-Construction Baseline Results															
ZTS-MW147	10/18/2022	N	BL02	1B	Upgradient	-50	Alluvium	<1.51	<28.1	<0.849	264,000	10.6	99.7	4.72	139,000
ZTS-MW126	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	----	<28.1	----	----	388	----	----	----
ZTS-MW126	10/18/2022	N	BL02	1B	Upgradient	-8	Alluvium	<1.51	<28.1	<0.849	255,000	33.6	122	4.31 J+	108,000
ZTS-MW126	10/18/2022	FD	BL02	1B	Upgradient	-8	Alluvium	<1.51	<28.1	<0.849	289,000	37.6	119	3.19	112,000
ZTS-MW127	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	----	<28.1	----	----	245	----	----	----
ZTS-MW127	10/24/2022	N	BL02	1B	Upgradient	-8	Alluvium	1.51	28.1	0.849	241,000	45.6	91.8	9.01	90,500

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								Copper	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	Potassium
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ZTS-MW148	10/24/2022	N	BL02	1B	Downgradient	35	Alluvium	1.51	28.1	0.849	244,000	20.9	95.9	2.38	125,000
LVWPS-MW107A	10/24/2022	N	BL02	1B	Downgradient	50	Alluvium	1.51	28.1	0.849	248,000	0.704	92.1	2.01	123,000
LVWPS-MW107B	10/21/2022	N	BL02	1B	Downgradient	50	UMCf	<1.51	<28.1	<0.849	387,000	14.5	<0.348	<0.816	546,000
LVWPS-MW107C	10/24/2022	N	BL02	1B	Downgradient	50	UMCf (Semi-Cons)	1.51	28.1	84.9	6,410,000	314	34.8	0.816	5,770,000
Post-Construction Performance Monitoring Results															
ZTS-MW147	5/26/2023	N	PM01	1B	Upgradient	-50	Alluvium	2 J	<28.1	<0.849	243,000	<0.704	93.4	3.36	127,000
ZTS-MW126	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	<1.51	<28.1	<0.849	270,000	<0.704	151	3.44	99,900
ZTS-MW127R	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	2.35 J	<28.1	<0.849	243,000	2.04 J	93.3	5.76	106,000
ZTS-MW169	5/24/2023	N	PM01	1B	Upgradient	-8	Alluvium	<1.51	<28.1	<0.849	246,000	1.36 J	95.9	6.95	132,000
ZTS-MW170	5/24/2023	N	PM01	1B	Upgradient	-8	UMCf	<1.51	<28.1	<0.849	232,000	44.6	<0.348	18.3	108,000
ZTS-MW166	5/23/2023	N	PM01	1B	Center of Trench	0	Alluvium	<1.51	309	<0.849	253,000	554	35.3	2.2	91,500
ZTS-MW171	5/22/2023	N	PM01	1B	Center of Trench	0	Alluvium	<1.51	2,590	<0.849	233,000	297	56.9	2.62	131,000
ZTS-MW178	5/25/2023	N	PM01	1B	Center of Trench	0	Alluvium	<1.51	215	<0.849	229,000	442	16.4	1.96 J	122,000
ZTS-MW167	5/24/2023	N	PM01	1B	Downgradient	5	Alluvium	<1.51	<28.1	<0.849	259,000	931	40	3.38	116,000
ZTS-MW172	5/23/2023	N	PM01	1B	Downgradient	5	Alluvium	<1.51	<28.1	<0.849	230,000	340	40	2.46	115,000
ZTS-MW172	5/23/2023	FD	PM01	1B	Downgradient	5	Alluvium	<1.51	<28.1	<0.849	227,000	354	38.9	2.35	113,000
ZTS-MW173	5/25/2023	N	PM01	1B	Downgradient	5	UMCf	<1.51	39.2 J	<0.849	205,000	307	50.8	2.18	122,000
ZTS-MW179	5/25/2023	N	PM01	1B	Downgradient	5	Alluvium	<1.51	<28.1	<0.849	218,000	614	24.7	2.62	123,000
ZTS-MW168	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	<1.51	<28.1	<0.849	234,000	284	55.8	2.33	125,000
ZTS-MW174	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	<1.51	<28.1	<0.849	235,000	262	65.8	2.99	137,000
ZTS-MW174	5/26/2023	N	PM01	1B	Downgradient	15	Alluvium	----	----	----	----	----	----	----	----
ZTS-MW177	5/25/2023	N	PM01	1B	Downgradient	15	Alluvium	1.68 J	<28.1	<0.849	228,000	258	59.3	3.02	118,000
ZTS-MW180	5/24/2023	N	PM01	1B	Downgradient	25	Alluvium	<1.51	<28.1	<0.849	233,000	1.43 J	85.2	2.44	136,000
ZTS-MW180	5/24/2023	FD	PM01	1B	Downgradient	25	Alluvium	<1.51	<28.1	<0.849	209,000	1.39 J	78.8	1.88 J	125,000
ZTS-MW148	5/25/2023	N	PM01	1B	Downgradient	35	Alluvium	<1.51	<28.1	<0.849	232,000	14.5	71.3	2.49	130,000
LVWPS-MW107A	5/23/2023	N	PM01	1B	Downgradient	50	Alluvium	<1.51	<28.1	<0.849	228,000	174	58.7	2.65	122,000
LVWPS-MW107B	5/23/2023	N	PM01	1B	Downgradient	50	UMCf	<1.51	39.1 J	<0.849	369,000	12.8	0.62 J	<0.816	492,000
LVWPS-MW107C	5/23/2023	N	PM01	1B	Downgradient	50	UMCf (Semi-Cons)	<1.51	50.8 J	<17	5,950,000	206	<0.348	<0.816	5,590,000
ZTS-MW175	5/26/2023	N	PM01	1B	Downgradient	100	Alluvium	<1.51	<28.1	<0.849	224,000	6.99	99.9	1.99 J	120,000
ZTS-MW176	5/26/2023	N	PM01	1B	Downgradient	150	Alluvium	<1.51	<28.1	<0.849	227,000	<0.704	133	2.46	104,000
Test Area 2A															
Pre-Construction Baseline Results															
ZTS-MW137	10/20/2022	N	BL02	2A	Upgradient	-9	Alluvium	<1.51	<28.1	<0.849	234,000	33.9	85.8	4.69	157,000
ZTS-MW118	9/1/2022	N	BL01	2A	Upgradient	-3	Alluvium	----	<28.1	----	----	71.2	----	----	----
ZTS-MW118	10/21/2022	N	BL02	2A	Upgradient	-3	Alluvium	<1.51	<28.1	<0.849	254,000	<0.704	82.4	3.14	117,000
ZTS-MW138	10/20/2022	N	BL02	2A	Downgradient	5	Alluvium	<1.51	<28.1	<0.849	214,000	73.3	76.9	3.16	162,000
ZTS-MW139	10/21/2022	N	BL02	2A	Downgradient	5	Alluvium	<1.51	<28.1	<0.849	248,000	317	80.5	6.12	129,000
LVWPS-MW102A	10/21/2022	N	BL02	2A	Downgradient	30	UMCf	<1.51	<28.1	<0.849	910,000	20	73.1	<0.816	519,000
LVWPS-MW102B	10/21/2022	N	BL02	2A	Downgradient	30	UMCf (Semi-Cons)	<1.51	<28.1	<84.9	5,840,000	204	<34.8	<0.816	4,840,000
ZTS-MW113	10/25/2022	N	BL02	2A	Cross/Downgradient	60	Alluvium	1.51	28.1	0.849	210,000	0.704	73.7	2.85	155,000
Post-Construction Performance Monitoring Results															
ZTS-MW137	5/31/2023	N	PM01	2A	Upgradient	-9	Alluvium	2.43 J	<28.1	<0.849	235,000	1.35 J	83.2	2.22	131,000
ZTS-MW118	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	2.26 J	<28.1	<0.849	223,000	0.901 J	73.3	2.21	105,000
ZTS-MW118	5/31/2023	FD	PM01	2A	Upgradient	-3	Alluvium	<1.51	<28.1	<0.849	247,000	<0.704	80	2.16	114,000
ZTS-MW190	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	1.78 J	<28.1	<0.849	240,000	2.94 J	85.7	2.17	128,000
ZTS-MW196	5/30/2023	N	PM01	2A	Upgradient	-3	Alluvium	1.83 J	<28.1	<0.849	218,000	0.707 J	78.7	1.97 J	134,000
ZTS-MW202	5/30/2023	N	PM01	2A	Upgradient	-3	UMCf	1.89 J	<28.1	<0.849	219,000	20.2	71.6	2.16	136,000
ZTS-MW192	5/22/2023	N	PM01	2A	Center of Array	0	Alluvium	2.26 J	<28.1	<0.849	215,000	168	77.6	3.29	133,000
ZTS-MW191	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	4.15 J	65.7 J	<0.849	212,000	392	37.6	2.7	122,000
ZTS-MW195	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	1.77 J	<28.1	<0.849	213,000	70.3	74.3	2.7	127,000

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 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020
								Copper	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	Potassium
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ZTS-MW138	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	<1.51	<28.1	<0.849	217,000	9.67	80	3.84	147,000
ZTS-MW139	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	<1.51	<28.1	<0.849	220,000	96.1	85.5	2.98	136,000
ZTS-MW193	5/25/2023	N	PM01	2A	Downgradient	5	Alluvium	6.52	38.2 J	<0.849	215,000	8.14	79.3	3	129,000
ZTS-MW193	5/25/2023	FD	PM01	2A	Downgradient	5	Alluvium	6.56	58.2 J	<0.849	222,000	9.8	79.6	2.71	124,000
ZTS-MW203	5/30/2023	N	PM01	2A	Downgradient	5	UMCf	2.16 J	<28.1	<0.849	229,000	27.3	67.8	2.97	124,000
ZTS-MW194	5/25/2023	N	PM01	2A	Downgradient	15	Alluvium	6.45	<28.1	<0.849	211,000	13	79.5	2.64	145,000
LVWPS-MW102A	5/30/2023	N	PM01	2A	Downgradient	30	UMCf	<1.51	<28.1	<0.849	874,000	23.9	81.8	<0.816	514,000
LVWPS-MW102B	5/26/2023	N	PM01	2A	Downgradient	30	UMCf (Semi-Cons)	<1.51	89.9 J	<42.4	5,920,000	183	<17.4	<0.816	4,840,000
ZTS-MW197	5/26/2023	N	PM01	2A	Downgradient	55	Alluvium	1.62 J	<28.1	<0.849	208,000	6.28	75.9	2.01	127,000
ZTS-MW113	5/26/2023	N	PM01	2A	Cross/Downgradient	60	Alluvium	<1.51	<28.1	<0.849	209,000	0.954 J	77.9	2.54	149,000
Test Area 2B															
Pre-Construction Baseline Results															
ZTS-MW133	10/20/2022	N	BL02	2B	Upgradient	-9	UMCf	<1.51	<28.1	<0.849	397,000	21.7	75	<0.816	151,000
ZTS-MW117	9/1/2022	N	BL01	2B	Upgradient	-2	UMCf	----	<28.1	----	----	122	----	----	----
ZTS-MW117	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	<1.51	<28.1	<0.849	137,000	123	27.4	<0.816	94,700
ZTS-MW117	10/19/2022	FD	BL02	2B	Upgradient	-2	UMCf	<1.51	<28.1	<0.849	135,000	117	27.5	<0.816	93,800
ZTS-MW134	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	<1.51	<28.1	<0.849	238,000	26.6	71.6	2.85	179,000
ZTS-MW135	10/19/2022	N	BL02	2B	Downgradient	7	UMCf	<1.51	<28.1	<0.849	431,000	30.7	54.7	<0.816	153,000
ZTS-MW136	10/20/2022	N	BL02	2B	Cross Gradient	7	UMCf	<1.51	<28.1	<0.849	155,000	361	31.2	<0.816	102,000
Post-Construction Performance Monitoring Results															
ZTS-MW133	5/23/2023	N	PM01	2B	Upgradient	-9	UMCf	2.03 J	41.1 J	<0.849	398,000	6.45	108	<0.816	152,000
ZTS-MW117	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	<1.51	104	<0.849	151,000	65.5	12.1	1.01 J	80,200
ZTS-MW134	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	2.37 J	<28.1	<0.849	229,000	17.7	72.1	3.32	138,000
ZTS-MW198	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	<1.51	<28.1	<0.849	262,000	187	29.8	3	120,000
ZTS-MW200	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	<1.51	72.2 J	<0.849	351,000	493	35	0.903 J	134,000
ZTS-MW200	5/23/2023	FD	PM01	2B	Downgradient	2	UMCf	<1.51	72.7 J	<0.849	346,000	484	34.7	0.855 J	137,000
ZTS-MW201	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	<1.51	<28.1	<0.849	284,000	218	79.2	3.15	127,000
ZTS-MW206	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	<1.51	<28.1	<0.849	381,000	527	82.2	3.28	153,000
ZTS-MW199	5/23/2023	N	PM01	2B	Downgradient	5	UMCf	<1.51	<28.1	<0.849	396,000	281	95.8	1.96 J	130,000
ZTS-MW207	5/24/2023	N	PM01	2B	Downgradient	5	UMCf	<1.51	<28.1	<0.849	182,000	228	59.8	2.17	108,000
ZTS-MW207	5/24/2023	FD	PM01	2B	Downgradient	5	UMCf	<1.51	<28.1	<0.849	209,000	266	67.7	2.45	122,000
ZTS-MW135	5/26/2023	N	PM01	2B	Downgradient	7	UMCf	<1.51	<28.1	<0.849	435,000	505	123	3.35	138,000
ZTS-MW136	5/26/2023	N	PM01	2B	Cross Gradient	7	UMCf	<1.51	147	<0.849	150,000	153	80.4	<0.816	99,300
ZTS-MW136	5/26/2023	FD	PM01	2B	Cross Gradient	7	UMCf	<1.51	141	<0.849	153,000	152	80.7	<0.816	103,000
ZTS-MW208	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	2.27 J	<28.1	<0.849	228,000	58.4	64.3	4.11	134,000
ZTS-MW209	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	<1.51	<28.1	<0.849	431,000	186	158	1.44 J	146,000
Test Area 2C															
Pre-Construction Baseline Results															
ZTS-MW140	10/21/2022	N	BL02	2C	Upgradient	-9	Alluvium	<1.51	<28.1	<0.849	267,000	43.3	96.9	3.26	141,000
ZTS-MW119	9/1/2022	N	BL01	2C	Upgradient	-3	Alluvium	----	<28.1	----	----	95.2	----	----	----
ZTS-MW119	10/19/2022	N	BL02	2C	Upgradient	-3	Alluvium	<1.51	<28.1	<0.849	243,000	<0.704	102	2.42	131,000
ZTS-MW119	10/19/2022	FD	BL02	2C	Upgradient	-3	Alluvium	9.21	<28.1	<0.849	263,000	<0.704	96.8	2.23	137,000
ZTS-MW141	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	1.51	28.1	0.849	241,000	28.8	96.8	2.94	116,000
ZTS-MW142	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	<1.51	<28.1	<0.849	268,000	5.99	110	2.79	135,000
Post-Construction Performance Monitoring Results															
ZTS-MW140	5/25/2023	N	PM01	2C	Upgradient	-9	Alluvium	6.51	<28.1	<0.849	245,000	<0.704	98.8	2.25	118,000
ZTS-MW140	5/25/2023	FD	PM01	2C	Upgradient	-9	Alluvium	5.81	<28.1	<0.849	234,000	<0.704	101	2.28	118,000
ZTS-MW119	5/24/2023	N	PM01	2C	Upgradient	-3	Alluvium	1.94 J	<28.1	<0.849	232,000	0.704 J	95.5	2.4	121,000
ZTS-MW181	5/25/2023	N	PM01	2C	Upgradient	-3	Alluvium	5.96	<28.1	<0.849	244,000	2 J	102	2.48	96,300
ZTS-MW188	5/26/2023	N	PM01	2C	Upgradient	-3	Alluvium	2.13 J	34.8 J	<0.849	238,000	2.33 J	95	3.82	122,000

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020
								Copper	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	Potassium
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ZTS-MW204	5/25/2023	N	PM01	2C	Upgradient	-3	UMCf	3.98 J	<28.1	<0.849	173,000	273	41.5	1.56 J	86,500
ZTS-MW182	5/23/2023	N	PM01	2C	Center of Array	0	Alluvium	1.8 J	243 J+	<0.849	231,000	165	78	3.05	114,000
ZTS-MW183	5/23/2023	N	PM01	2C	Downgradient	1	Alluvium	2.43 J	<28.1	<0.849	231,000	54.4	91.9	3.53	112,000
ZTS-MW187	5/24/2023	N	PM01	2C	Downgradient	1	Alluvium	<1.51	<28.1	<0.849	226,000	89.4	88.2	2.25	119,000
ZTS-MW141	5/25/2023	N	PM01	2C	Downgradient	5	Alluvium	2.54 J	33.9 J	<0.849	242,000	28.4	92.7	10.1	119,000
ZTS-MW142	5/26/2023	N	PM01	2C	Downgradient	5	Alluvium	2.37 J	30.8 J	<0.849	225,000	78.9	97.6	7.89	113,000
ZTS-MW184	5/24/2023	N	PM01	2C	Downgradient	5	Alluvium	<1.51	<28.1	<0.849	227,000	8.31	94.1	2.47	101,000
ZTS-MW205	5/24/2023	N	PM01	2C	Downgradient	5	UMCf	<1.51	<28.1	<0.849	87,100	318	6.42	1.63 J	63,500
ZTS-MW185	5/25/2023	N	PM01	2C	Downgradient	15	Alluvium	1.77 J	35.5 J	<0.849	240,000	8.18	89.2	8.23	104,000
ZTS-MW186	5/25/2023	N	PM01	2C	Downgradient	25	Alluvium	<1.51	<28.1	<0.849	235,000	6.18	91.5	6.08	111,000
ZTS-MW189	5/25/2023	N	PM01	2C	Downgradient	55	Alluvium	1.7 J	<28.1	<0.849	227,000	8.02	85.6	6.98	143,000
General Vicinity															
Pre-Construction Baseline Results															
ZTS-MW116	9/1/2022	N	BL01	NA	NA	NA	UMCf	----	<28.1	----	----	132	----	----	----
ZTS-MW116	10/25/2022	N	BL02	NA	NA	NA	UMCf	1.51	28.1	0.849	241,000	20.4	71	2.28	189,000
ZTS-MW128	9/1/2022	N	BL01	NA	NA	NA	UMCf	----	<28.1	----	----	379	----	----	----
ZTS-MW128	10/25/2022	N	BL02	NA	NA	NA	UMCf	1.51	28.1	0.849	269,000	172	31.3	3.66	139,000
Post-Construction Performance Monitoring Results															
ZTS-MW116	5/24/2023	N	PM01	NA	NA	NA	UMCf	<1.51	<28.1	<0.849	255,000	17.8	77.8	1.32 J	204,000
ZTS-MW128	5/24/2023	N	PM01	NA	NA	NA	UMCf	<1.51	<28.1	<0.849	271,000	53.6	29.5	2.42	145,000

Notes:

- bgs - below ground surface
- J- The result is an estimated quantity, but the result may be biased low.
- 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.
- 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.
- < The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- mg/L - milligram per liter
- mS/cm - milliSiemens per centimeter
- mV - millivolts
- nmol - nanomol
- SU - standard units
- N - normal field sample
- µg/L - micrograms per liter
- UMCf - Upper Muddy Creek formation
- FD - field duplicate

Table 2
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 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020
								Selenium	Silicon	Silver	Sodium	Strontium	Sulfur	Thallium	Tin
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Test Area 1A															
Pre-Construction Baseline Results															
ZTS-MW124	8/31/2022	N	BL01	1A	Upgradient	-8	Alluvium	----	----	----	----	----	----	----	----
ZTS-MW124	8/31/2022	FD	BL01	1A	Upgradient	-8	Alluvium	----	----	----	----	----	----	----	----
ZTS-MW124	10/18/2022	N	BL02	1A	Upgradient	-8	Alluvium	47.6 J	33,200	<0.07	591,000 J	12,400 J	730,000	<0.121	<0.655
ZTS-MW124	10/18/2022	FD	BL02	1A	Upgradient	-8	Alluvium	<0.3 UJ	32,200	<0.07	4,440 J	91.5 J	710,000	<0.121	<0.655
ZTS-MW125	8/31/2022	N	BL01	1A	Upgradient	-8	UMCf	----	----	----	----	----	----	----	----
ZTS-MW125	10/24/2022	N	BL02	1A	Upgradient	-8	UMCf	4.28	23,000	0.07	501,000	11,800	387,000	0.121	0.655
ZTS-MW125	10/24/2022	FD	BL02	1A	Upgradient	-8	UMCf	----	----	----	----	----	----	----	----
ZTS-MW143	10/18/2022	N	BL02	1A	Upgradient	-50	Alluvium	51.2	33,800	<0.07	695,000	12,100	755,000	<0.121	<0.655
ZTS-MW144	10/18/2022	N	BL02	1A	Downgradient	35	Alluvium	51.3	35,100	<0.07	768,000	13,900	770,000	<0.121	<0.655
Post-Construction Performance Monitoring Results															
ZTS-MW143	5/26/2023	N	PM01	1A	Upgradient	-50	Alluvium	60.4	37,300	<0.07	671,000	12,200	----	<0.121	0.951 J
ZTS-MW124R	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	49.6	33,100	<0.07	598,000	10,400	----	<0.121	0.761 J
ZTS-MW125	5/25/2023	N	PM01	1A	Upgradient	-8	UMCf	2.07	31,200	<0.07	473,000	12,100	----	<0.121	0.743 J
ZTS-MW153	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	51.3	35,400	<0.07	641,000	11,400	----	<0.121	1.15 J
ZTS-MW163	5/25/2023	N	PM01	1A	Upgradient	-8	Alluvium	50	35,800	<0.07	643,000	12,000	----	0.124 J	<0.655
ZTS-MW150	5/22/2023	N	PM01	1A	Center of Trench	0	Alluvium	1.85 J	716	<0.07	575,000	9,940	----	<0.121	<0.655
ZTS-MW154	5/24/2023	N	PM01	1A	Center of Trench	0	Alluvium	1.61	769	<0.07	628,000	10,400	----	<0.121	<0.655
ZTS-MW164	5/23/2023	N	PM01	1A	Center of Trench	0	Alluvium	10.5	4,160	<0.07	646,000	11,500	----	<0.121	<0.655
ZTS-MW164	5/23/2023	FD	PM01	1A	Center of Trench	0	Alluvium	9.63	3,750	<0.07	638,000	11,400	----	<0.121	1.79 J
ZTS-MW151	5/25/2023	N	PM01	1A	Downgradient	5	Alluvium	29.6	10,000	<0.07	641,000	11,400	----	0.124 J	<0.655
ZTS-MW155	5/24/2023	N	PM01	1A	Downgradient	5	Alluvium	13.2	4,380	<0.07	651,000	11,200	----	0.147	<0.655
ZTS-MW155	5/24/2023	FD	PM01	1A	Downgradient	5	Alluvium	13.4	4,590	<0.07	650,000	11,700	----	<0.121	<0.655
ZTS-MW156	5/24/2023	N	PM01	1A	Downgradient	5	UMCf	<0.3	32,000	<0.07	476,000	6,190	----	<0.121	0.688
ZTS-MW165	5/31/2023	N	PM01	1A	Downgradient	5	Alluvium	25.6	8,680	<0.07	671,000	10,900	----	<0.121	<0.655
ZTS-MW152	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	31	13,400	<0.07	654,000	11,700	----	<0.121	0.904 J
ZTS-MW157	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	16.1	6,140	<0.07	692,000	11,700	----	0.145 J	<0.655
ZTS-MW162	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	20.8	13,200	<0.07	668,000	12,500	----	<0.121	<0.655
ZTS-MW149	5/31/2023	N	PM01	1A	Downgradient	25	Alluvium	45.5	28,300	<0.07	591,000	10,600	----	<0.121	<0.655
ZTS-MW144	5/31/2023	N	PM01	1A	Downgradient	35	Alluvium	21.4	10,500	<0.07	679,000	11,000	----	0.121 J	<0.655
ZTS-MW158	5/24/2023	N	PM01	1A	Downgradient	50	Alluvium	14.5	14,700	<0.07	681,000	12,800	----	<0.121	<0.655
ZTS-MW159	5/24/2023	N	PM01	1A	Downgradient	50	UMCf	6.64	25,000	<0.07	451,000	10,300	----	<0.121	<0.655
ZTS-MW160	5/24/2023	N	PM01	1A	Downgradient	100	Alluvium	31.9	21,300	<0.07	613,000	12,400	----	0.161 J	<0.655
ZTS-MW161	5/26/2023	N	PM01	1A	Downgradient	150	Alluvium	22.8	22,800	<0.07	634,000	11,100	----	<0.121	0.75 J
Between Test Area 1A and Test Area 1B															
Pre-Construction Baseline Results															
ZTS-MW145	10/24/2022	N	BL02	1A/1B	Upgradient	-50	UMCf	12.5	25,100	0.07	549,000	6,830	559,000	0.121	0.655
ZTS-MW146	10/24/2022	N	BL02	1A/1B	Downgradient	35	UMCf	16	25,000	0.07	669,000	11,600	727,000	0.121	0.655
Post-Construction Performance Monitoring Results															
ZTS-MW145	5/22/2023	N	PM01	1A/1B	Upgradient	-50	UMCf	1.45 J	11,300	<0.07	192,000	1,880	----	<0.121	0.946 J
ZTS-MW146	5/26/2023	N	PM01	1A/1B	Downgradient	35	UMCf	8.37	28,900	<0.07	634,000	7,920	----	<0.121	0.778 J
Test Area 1B															
Pre-Construction Baseline Results															
ZTS-MW147	10/18/2022	N	BL02	1B	Upgradient	-50	Alluvium	40.2	39,300	<0.07	770,000	14,100	765,000	<0.121	<0.655
ZTS-MW126	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	----	----	----	----	----	----	----	----
ZTS-MW126	10/18/2022	N	BL02	1B	Upgradient	-8	Alluvium	36.7	40,000	<0.07	680,000	13,100	796,000	<0.121	<0.655
ZTS-MW126	10/18/2022	FD	BL02	1B	Upgradient	-8	Alluvium	39.2	39,800	<0.07	770,000	15,600	797,000	<0.121	<0.655
ZTS-MW127	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	----	----	----	----	----	----	----	----
ZTS-MW127	10/24/2022	N	BL02	1B	Upgradient	-8	Alluvium	42.9	34,100	0.07	685,000	14,500	791,000	0.121	2.39

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								Selenium	Silicon	Silver	Sodium	Strontium	Sulfur	Thallium	Tin
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ZTS-MW148	10/24/2022	N	BL02	1B	Downgradient	35	Alluvium	39.3	34,400	0.07	672,000	14,000	780,000	0.121	0.655
LVWPS-MW107A	10/24/2022	N	BL02	1B	Downgradient	50	Alluvium	38.8	33,500	0.07	670,000	13,800	772,000	0.121	0.655
LVWPS-MW107B	10/21/2022	N	BL02	1B	Downgradient	50	UMCf	<0.3	24,800	<0.07	736,000	7,290	846,000	<0.121	<0.655
LVWPS-MW107C	10/24/2022	N	BL02	1B	Downgradient	50	UMCf (Semi-Cons)	0.3	4,040	7	9,210,000	7,650	11,200,000	12.1	65.5
Post-Construction Performance Monitoring Results															
ZTS-MW147	5/26/2023	N	PM01	1B	Upgradient	-50	Alluvium	38	39,800	<0.07	726,000	12,600	----	0.137 J	1.19 J
ZTS-MW126	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	30.7	43,400	<0.07	652,000	13,900	----	0.212 J	<0.655
ZTS-MW127R	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	37.4	40,600	<0.07	711,000	15,300	----	<0.121	<0.655
ZTS-MW169	5/24/2023	N	PM01	1B	Upgradient	-8	Alluvium	40.9	41,200	<0.07	745,000	15,000	----	<0.121	0.762 J
ZTS-MW170	5/24/2023	N	PM01	1B	Upgradient	-8	UMCf	20.7	37,800	<0.07	587,000	11,000	----	0.134 J	<0.655
ZTS-MW166	5/23/2023	N	PM01	1B	Center of Trench	0	Alluvium	<0.3	323 J+	<0.07	711,000	13,500	----	<0.121	<0.655
ZTS-MW171	5/22/2023	N	PM01	1B	Center of Trench	0	Alluvium	8.47	720	<0.07	713,000	13,300	----	<0.121	0.831 J
ZTS-MW178	5/25/2023	N	PM01	1B	Center of Trench	0	Alluvium	<0.3	222	<0.07	702,000	14,300	----	<0.121	<0.655
ZTS-MW167	5/24/2023	N	PM01	1B	Downgradient	5	Alluvium	0.468 J	2,540	<0.07	711,000	13,600	----	0.175 J	<0.655
ZTS-MW172	5/23/2023	N	PM01	1B	Downgradient	5	Alluvium	1.51 J	8,940	<0.07	717,000	13,800	----	0.149 J	<0.655
ZTS-MW172	5/23/2023	FD	PM01	1B	Downgradient	5	Alluvium	1.5 J	9,140	<0.07	707,000	13,400	----	0.134 J	<0.655
ZTS-MW173	5/25/2023	N	PM01	1B	Downgradient	5	UMCf	6.02	24,900	<0.07	532,000	9,080	----	<0.121	0.941 J
ZTS-MW179	5/25/2023	N	PM01	1B	Downgradient	5	Alluvium	0.483 J	10,100	<0.07	680,000	14,600	----	0.306 J	<0.655
ZTS-MW168	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	2.21 J	6,130	<0.07	728,000	13,300	----	0.233 J	<0.655
ZTS-MW174	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	8.8	9,430	<0.07	732,000	13,700	----	0.196 J	<0.655
ZTS-MW174	5/26/2023	N	PM01	1B	Downgradient	15	Alluvium	----	----	----	----	----	----	----	----
ZTS-MW177	5/25/2023	N	PM01	1B	Downgradient	15	Alluvium	4.65	9,490	<0.07	708,000	14,200	----	0.184 J	0.774 J
ZTS-MW180	5/24/2023	N	PM01	1B	Downgradient	25	Alluvium	41.1	34,300	<0.07	674,000	13,700	----	<0.121	<0.655
ZTS-MW180	5/24/2023	FD	PM01	1B	Downgradient	25	Alluvium	39.9	34,600	<0.07	646,000	14,100	----	0.138 J	<0.655
ZTS-MW148	5/25/2023	N	PM01	1B	Downgradient	35	Alluvium	10	9,570	<0.07	708,000	13,400	----	0.189 J	<0.655
LVWPS-MW107A	5/23/2023	N	PM01	1B	Downgradient	50	Alluvium	6.31	7,410	<0.07	689,000	13,200	----	0.258 J	<0.655
LVWPS-MW107B	5/23/2023	N	PM01	1B	Downgradient	50	UMCf	<0.3	23,900	<0.07	746,000	7,710	----	<0.121	<0.655
LVWPS-MW107C	5/23/2023	N	PM01	1B	Downgradient	50	UMCf (Semi-Cons)	<0.3	4,320	<0.07	8,170,000	8,290	----	<2.42	<0.655
ZTS-MW175	5/26/2023	N	PM01	1B	Downgradient	100	Alluvium	12.7	29,500	<0.07	733,000	13,500	----	0.137 J	0.892 J
ZTS-MW176	5/26/2023	N	PM01	1B	Downgradient	150	Alluvium	10.2	34,000	<0.07	724,000	14,200	----	0.212 J	1.03 J
Test Area 2A															
Pre-Construction Baseline Results															
ZTS-MW137	10/20/2022	N	BL02	2A	Upgradient	-9	Alluvium	42.8	39,200	<0.07	718,000	12,400	793,000	<0.121	<0.655
ZTS-MW118	9/1/2022	N	BL01	2A	Upgradient	-3	Alluvium	----	----	----	----	----	----	----	----
ZTS-MW118	10/21/2022	N	BL02	2A	Upgradient	-3	Alluvium	42.3	41,400	<0.07	780,000	16,700	818,000	<0.121	<0.655
ZTS-MW138	10/20/2022	N	BL02	2A	Downgradient	5	Alluvium	42.3	36,500	<0.07	717,000	11,600	770,000	<0.121	<0.655
ZTS-MW139	10/21/2022	N	BL02	2A	Downgradient	5	Alluvium	41.1	37,500	<0.07	762,000	14,900	795,000	<0.121	<0.655
LVWPS-MW102A	10/21/2022	N	BL02	2A	Downgradient	30	UMCf	56.5	28,000	<0.07	1,250,000	10,600	1,630,000	<0.121	<0.655
LVWPS-MW102B	10/21/2022	N	BL02	2A	Downgradient	30	UMCf (Semi-Cons)	<0.3	<1,400	<7	8,060,000	10,400	9,820,000	<12.1	<65.5
ZTS-MW113	10/25/2022	N	BL02	2A	Cross/Downgradient	60	Alluvium	46.2	3,520	0.07	635,000	13,200	69,300	0.121	0.655
Post-Construction Performance Monitoring Results															
ZTS-MW137	5/31/2023	N	PM01	2A	Upgradient	-9	Alluvium	38.2	32,800	<0.07	726,000	11,400	----	<0.121	<0.655
ZTS-MW118	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	38.7	36,000	<0.07	688,000	14,300 J	----	2.09	<0.655
ZTS-MW118	5/31/2023	FD	PM01	2A	Upgradient	-3	Alluvium	40.6	36,700	<0.07	752,000	14,100	----	1.85 J	<0.655
ZTS-MW190	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	36.9	36,200	<0.07	727,000	12,400	----	<0.121	<0.655
ZTS-MW196	5/30/2023	N	PM01	2A	Upgradient	-3	Alluvium	35.8	35,000	<0.07	686,000	11,500	----	<0.121	<0.655
ZTS-MW202	5/30/2023	N	PM01	2A	Upgradient	-3	UMCf	34.8	34,300	<0.07	662,000	9,400	----	0.152 J	<0.655
ZTS-MW192	5/22/2023	N	PM01	2A	Center of Array	0	Alluvium	36.4	29,600	<0.07	706,000	11,500	----	<0.121	1.15 J
ZTS-MW191	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	8.63	7,120	<0.07	741,000	12,300	----	<0.121	0.667 J
ZTS-MW195	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	34.5	36,100	<0.07	714,000	12,400	----	<0.121	<0.655

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 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020
								Selenium	Silicon	Silver	Sodium	Strontium	Sulfur	Thallium	Tin
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ZTS-MW138	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	39.5	39,100	<0.07	684,000	10,900	----	0.13 J	<0.655
ZTS-MW139	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	32.7	35,300	<0.07	693,000	11,300	----	<0.121	<0.655
ZTS-MW193	5/25/2023	N	PM01	2A	Downgradient	5	Alluvium	38.5	36,400	<0.07	709,000	12,500	----	0.124 J	0.66 J
ZTS-MW193	5/25/2023	FD	PM01	2A	Downgradient	5	Alluvium	39.1	37,500	<0.07	690,000	12,200	----	<0.121	<0.655
ZTS-MW203	5/30/2023	N	PM01	2A	Downgradient	5	UMCf	30.3	33,900	<0.07	652,000	10,400	----	0.153 J	<0.655
ZTS-MW194	5/25/2023	N	PM01	2A	Downgradient	15	Alluvium	39.9	38,800	<0.07	683,000	11,000	----	0.152 J	<0.655
LVWPS-MW102A	5/30/2023	N	PM01	2A	Downgradient	30	UMCf	55.8	26,200	<0.07	1,240,000	10,900	----	<0.121	<0.655
LVWPS-MW102B	5/26/2023	N	PM01	2A	Downgradient	30	UMCf (Semi-Cons)	<0.3	4,960	<3.5	8,030,000	10,900	----	<6.05	<32.8
ZTS-MW197	5/26/2023	N	PM01	2A	Downgradient	55	Alluvium	36.6	38,900	<0.07	680,000	12,100	----	0.131 J	<0.655
ZTS-MW113	5/26/2023	N	PM01	2A	Cross/Downgradient	60	Alluvium	38.8	39,700	<0.07	684,000	11,300	----	0.162 J	0.847 J
Test Area 2B															
Pre-Construction Baseline Results															
ZTS-MW133	10/20/2022	N	BL02	2B	Upgradient	-9	UMCf	35.1	28,300	<0.07	780,000	8,890	799,000	<0.121	<0.655
ZTS-MW117	9/1/2022	N	BL01	2B	Upgradient	-2	UMCf	----	----	----	----	----	----	----	----
ZTS-MW117	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	<0.3	29,500	<0.07	426,000	3,420	303,000	<0.121	<0.655
ZTS-MW117	10/19/2022	FD	BL02	2B	Upgradient	-2	UMCf	<0.3	29,000	<0.07	416,000	3,380	303,000	<0.121	<0.655
ZTS-MW134	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	40.4	36,000	<0.07	704,000	11,400	768,000	<0.121	<0.655
ZTS-MW135	10/19/2022	N	BL02	2B	Downgradient	7	UMCf	38.8	28,000	<0.07	765,000	11,100	862,000	<0.121	<0.655
ZTS-MW136	10/20/2022	N	BL02	2B	Cross Gradient	7	UMCf	8.42	32,400	<0.07	458,000	5,240	388,000	<0.121	<0.655
Post-Construction Performance Monitoring Results															
ZTS-MW133	5/23/2023	N	PM01	2B	Upgradient	-9	UMCf	40.1	30,400	<0.07	743,000	11,200	----	<0.121	7.29
ZTS-MW117	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	<0.3	21,200	<0.07	381,000	4,330	----	<0.121	0.844 J
ZTS-MW134	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	35.4	36,300	<0.07	657,000	11,600	----	<0.121	0.869 J
ZTS-MW198	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	4.73	25,900	<0.07	622,000	8,550	----	<0.121	1.05 J
ZTS-MW200	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	0.873 J	952	<0.07	753,000	10,200	----	<0.121	0.957 J
ZTS-MW200	5/23/2023	FD	PM01	2B	Downgradient	2	UMCf	0.781 J	956	<0.07	739,000	10,100	----	<0.121	<0.655
ZTS-MW201	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	7.21	30,600	<0.07	617,000	8,300	----	<0.121	<0.655
ZTS-MW206	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	19.1	28,300	<0.07	733,000	9,800	----	<0.121	<0.655
ZTS-MW199	5/23/2023	N	PM01	2B	Downgradient	5	UMCf	44.2	27,200	<0.07	758,000	11,100	----	<0.121	0.817 J
ZTS-MW207	5/24/2023	N	PM01	2B	Downgradient	5	UMCf	5.59	29,800	<0.07	526,000	6,520	----	<0.121	<0.655
ZTS-MW207	5/24/2023	FD	PM01	2B	Downgradient	5	UMCf	6.02	32,900	<0.07	548,000	7,440	----	<0.121	<0.655
ZTS-MW135	5/26/2023	N	PM01	2B	Downgradient	7	UMCf	54.3	30,300	<0.07	796,000	11,700	----	0.165 J	0.982 J
ZTS-MW136	5/26/2023	N	PM01	2B	Cross Gradient	7	UMCf	0.76 J	33,200	<0.07	428,000	4,130	----	<0.121	<0.655
ZTS-MW136	5/26/2023	FD	PM01	2B	Cross Gradient	7	UMCf	0.761 J	34,300	<0.07	429,000	4,010	----	<0.121	<0.655
ZTS-MW208	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	26.9	37,000	<0.07	626,000	10,800	----	0.138 J	0.75 J
ZTS-MW209	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	52.9	27,400	<0.07	807,000	12,100	----	<0.121	<0.655
Test Area 2C															
Pre-Construction Baseline Results															
ZTS-MW140	10/21/2022	N	BL02	2C	Upgradient	-9	Alluvium	40.2	41,400	<0.07	782,000	12,100	795,000	<0.121	<0.655
ZTS-MW119	9/1/2022	N	BL01	2C	Upgradient	-3	Alluvium	----	----	----	----	----	----	----	----
ZTS-MW119	10/19/2022	N	BL02	2C	Upgradient	-3	Alluvium	39.7	21,200 J	<0.07	701,000	13,300	2,980 J	<0.121	<0.655
ZTS-MW119	10/19/2022	FD	BL02	2C	Upgradient	-3	Alluvium	40.2	40,200 J	<0.07	755,000	13,900	800,000 J	<0.121	<0.655
ZTS-MW141	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	43	3,830	0.07	716,000	13,900	73,800	0.121	0.655
ZTS-MW142	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	39.5	41,000	<0.07	686,000	12,100	788,000	<0.121	<0.655
Post-Construction Performance Monitoring Results															
ZTS-MW140	5/25/2023	N	PM01	2C	Upgradient	-9	Alluvium	39.9	40,400	<0.07	698,000	11,300	----	<0.121	0.726 J
ZTS-MW140	5/25/2023	FD	PM01	2C	Upgradient	-9	Alluvium	40.9	40,300	<0.07	728,000	11,900	----	<0.121	<0.655
ZTS-MW119	5/24/2023	N	PM01	2C	Upgradient	-3	Alluvium	39.1	38,800	<0.07	689,000	11,000	----	<0.121	<0.655
ZTS-MW181	5/25/2023	N	PM01	2C	Upgradient	-3	Alluvium	40	40,500	<0.07	703,000	12,500	----	<0.121	<0.655
ZTS-MW188	5/26/2023	N	PM01	2C	Upgradient	-3	Alluvium	39.5	36,000	<0.07	729,000	11,500	----	<0.121	0.732 J

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Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020
								Selenium	Silicon	Silver	Sodium	Strontium	Sulfur	Thallium	Tin
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ZTS-MW204	5/25/2023	N	PM01	2C	Upgradient	-3	UMCf	16.9	35,200	<0.07	480,000	6,380	----	<0.121	<0.655
ZTS-MW182	5/23/2023	N	PM01	2C	Center of Array	0	Alluvium	28.1	25,000	<0.07	709,000	13,100	----	<0.121	0.881 J
ZTS-MW183	5/23/2023	N	PM01	2C	Downgradient	1	Alluvium	31.8	32,800	<0.07	709,000	13,300	----	<0.121	0.799 J
ZTS-MW187	5/24/2023	N	PM01	2C	Downgradient	1	Alluvium	31.1	33,400	<0.07	693,000	11,700	----	<0.121	<0.655
ZTS-MW141	5/25/2023	N	PM01	2C	Downgradient	5	Alluvium	37.4	37,500	<0.07	711,000	13,000	----	<0.121	<0.655
ZTS-MW142	5/26/2023	N	PM01	2C	Downgradient	5	Alluvium	32.4	36,400	<0.07	711,000	12,200	----	<0.121	0.679 J
ZTS-MW184	5/24/2023	N	PM01	2C	Downgradient	5	Alluvium	36.3	38,400	<0.07	699,000	14,000	----	<0.121	<0.655
ZTS-MW205	5/24/2023	N	PM01	2C	Downgradient	5	UMCf	0.524 J	32,700	<0.07	324,000	2,930	----	<0.121	<0.655
ZTS-MW185	5/25/2023	N	PM01	2C	Downgradient	15	Alluvium	36.4	37,200	<0.07	719,000	14,800	----	0.143 J	0.718 J
ZTS-MW186	5/25/2023	N	PM01	2C	Downgradient	25	Alluvium	34.7	36,200	<0.07	707,000	14,400	----	<0.121	<0.655
ZTS-MW189	5/25/2023	N	PM01	2C	Downgradient	55	Alluvium	36.3	38,900	<0.07	688,000	12,500	----	<0.121	<0.655
General Vicinity															
Pre-Construction Baseline Results															
ZTS-MW116	9/1/2022	N	BL01	NA	NA	NA	UMCf	----	----	----	----	----	----	----	----
ZTS-MW116	10/25/2022	N	BL02	NA	NA	NA	UMCf	16.4	3,370	0.07	703,000	11,500	77,700	0.121	0.655
ZTS-MW128	9/1/2022	N	BL01	NA	NA	NA	UMCf	----	----	----	----	----	----	----	----
ZTS-MW128	10/25/2022	N	BL02	NA	NA	NA	UMCf	30.5	3,160	0.07	665,000	12,700	69,700	0.121	0.655
Post-Construction Performance Monitoring Results															
ZTS-MW116	5/24/2023	N	PM01	NA	NA	NA	UMCf	14.4	36,600	<0.07	667,000	10,900	----	0.269 J	<0.655
ZTS-MW128	5/24/2023	N	PM01	NA	NA	NA	UMCf	26.9	38,100	<0.07	645,000	11,600	----	0.215 J	<0.655

Notes:

- bgs - below ground surface
- J- The result is an estimated quantity, but the result may be biased low.
- 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.
- 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.
- < The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- mg/L - milligram per liter
- mS/cm - milliSiemens per centimeter
- mV - millivolts
- nmol - nanomol
- SU - standard units
- N - normal field sample
- µg/L - micrograms per liter
- UMCf - Upper Muddy Creek formation
- FD - field duplicate

Table 2
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Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020	FIELD TESTS	FIELD TESTS	FIELD TESTS	FIELD TESTS	FIELD TESTS
								Titanium	Vanadium	Zinc	Conductivity	Dissolved Oxygen	Ferrous Iron	Oxidation-Reduction Potential	pH
								µg/L	µg/L	µg/L	mS/cm	mg/L	mg/L	mV	SU
Test Area 1A															
Pre-Construction Baseline Results															
ZTS-MW124	8/31/2022	N	BL01	1A	Upgradient	-8	Alluvium	----	----	----	6.3	3.9	----	134.4	7.04
ZTS-MW124	8/31/2022	FD	BL01	1A	Upgradient	-8	Alluvium	----	----	----	----	----	----	----	----
ZTS-MW124	10/18/2022	N	BL02	1A	Upgradient	-8	Alluvium	<2.18	25.2 J	<3.02	6.208	4.32	0 U	106.3	7.16
ZTS-MW124	10/18/2022	FD	BL02	1A	Upgradient	-8	Alluvium	<2.18	<0.664 UJ	<3.02	----	----	----	----	----
ZTS-MW125	8/31/2022	N	BL01	1A	Upgradient	-8	UMCf	----	----	----	6.736	1.97	----	117.1	7.17
ZTS-MW125	10/24/2022	N	BL02	1A	Upgradient	-8	UMCf	2.18	0.664	3.02	3.123	1.61	0 U	-17.9	7.4
ZTS-MW125	10/24/2022	FD	BL02	1A	Upgradient	-8	UMCf	----	----	----	----	----	----	----	----
ZTS-MW143	10/18/2022	N	BL02	1A	Upgradient	-50	Alluvium	<2.18	27	91.5	4.62	4.28	0 U	218.2	7.08
ZTS-MW144	10/18/2022	N	BL02	1A	Downgradient	35	Alluvium	<2.18	23.5	125	4.384	2.79	0 U	146.8	7.05
Post-Construction Performance Monitoring Results															
ZTS-MW143	5/26/2023	N	PM01	1A	Upgradient	-50	Alluvium	<2.18	24.4	<3.02	7.019	3.68	0 U	124.3	7.02
ZTS-MW124R	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	<2.18	25.3	<3.02	6.982	4.37	0 U	145.3	7.1
ZTS-MW125	5/25/2023	N	PM01	1A	Upgradient	-8	UMCf	<2.18	1.77 J	12.2 J	5.464	0.59	0 U	66.5	7.46
ZTS-MW153	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	<2.18	25.5	<3.02	6.979	4.71	0 U	134.8	7.11
ZTS-MW163	5/25/2023	N	PM01	1A	Upgradient	-8	Alluvium	<2.18	25.8	<3.02	7.291	3.76	0 U	184.5	7.17
ZTS-MW150	5/22/2023	N	PM01	1A	Center of Trench	0	Alluvium	<2.18	<0.664	<3.02	4.896	0.17	6.5	-386.4	8.09
ZTS-MW154	5/24/2023	N	PM01	1A	Center of Trench	0	Alluvium	<2.18	<0.664	6.88	5.789	0.19	6.5	-346.5	8.4
ZTS-MW164	5/23/2023	N	PM01	1A	Center of Trench	0	Alluvium	<2.18	<0.664	<3.02	6.482	0.46	0.5	-241.1	8.27
ZTS-MW164	5/23/2023	FD	PM01	1A	Center of Trench	0	Alluvium	<2.18	<0.664	<3.02	----	----	----	----	----
ZTS-MW151	5/25/2023	N	PM01	1A	Downgradient	5	Alluvium	<2.18	6.68	<3.02	8.659	0.73	0 U	11.4	6.87
ZTS-MW155	5/24/2023	N	PM01	1A	Downgradient	5	Alluvium	<2.18	<0.664	3.97	5.914	0.57	1	-37.6	7.07
ZTS-MW155	5/24/2023	FD	PM01	1A	Downgradient	5	Alluvium	<2.18	<0.664	5.79	----	----	----	----	----
ZTS-MW156	5/24/2023	N	PM01	1A	Downgradient	5	UMCf	<2.18	<0.664	4.42	4.892	0.39	1.5	-205.4	7.55
ZTS-MW165	5/31/2023	N	PM01	1A	Downgradient	5	Alluvium	<2.18	2.76 J	4.21 J	8.746	0.25	0 U	5.9	7.5
ZTS-MW152	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	<2.18	14.5	<3.02	8.979	0.75	0 U	66	6.5
ZTS-MW157	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	<2.18	5.33	<3.02	9.444	0.79	0 U	93.5	6.46
ZTS-MW162	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	<2.18	6.12	<3.02	9.658	0.8	0 U	102.3	6.86
ZTS-MW149	5/31/2023	N	PM01	1A	Downgradient	25	Alluvium	<2.18	20	<3.02	8.418	4.42	0 U	93.5	7.28
ZTS-MW144	5/31/2023	N	PM01	1A	Downgradient	35	Alluvium	<2.18	9.21	<3.02	9.078	1.38	0 U	78.6	7.38
ZTS-MW158	5/24/2023	N	PM01	1A	Downgradient	50	Alluvium	<2.18	10.3	<3.02	7.49	0.42	0 U	107.3	7.44
ZTS-MW159	5/24/2023	N	PM01	1A	Downgradient	50	UMCf	<2.18	2.51 J	5.36 J	4.995	0.85	0 U	49.4	7.71
ZTS-MW160	5/24/2023	N	PM01	1A	Downgradient	100	Alluvium	<2.18	16.8	<3.02	6.523	0.57	0 U	170.6	7.43
ZTS-MW161	5/26/2023	N	PM01	1A	Downgradient	150	Alluvium	<2.18	18.1	<3.02	3.943	1.02	0 U	189.1	7.33
Between Test Area 1A and Test Area 1B															
Pre-Construction Baseline Results															
ZTS-MW145	10/24/2022	N	BL02	1A/1B	Upgradient	-50	UMCf	2.18	0.664	3.02	4.985	0.47	0 U	-1.5	7.38
ZTS-MW146	10/24/2022	N	BL02	1A/1B	Downgradient	35	UMCf	2.18	6.72	3.02	3.424	2.24	0 U	36	7.26
Post-Construction Performance Monitoring Results															
ZTS-MW145	5/22/2023	N	PM01	1A/1B	Upgradient	-50	UMCf	<2.18	1.17 J	20.7 J	1.198	6.32	0 U	142.7	8.04
ZTS-MW146	5/26/2023	N	PM01	1A/1B	Downgradient	35	UMCf	<2.18	<0.664	3.14 J	6.142	1.47	0 U	-146.5	7.49
Test Area 1B															
Pre-Construction Baseline Results															
ZTS-MW147	10/18/2022	N	BL02	1B	Upgradient	-50	Alluvium	<2.18	20.8	<3.02	4.784	4.99	0 U	142.2	7.16
ZTS-MW126	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	----	----	----	7.382	1.91	----	111.1	7.25
ZTS-MW126	10/18/2022	N	BL02	1B	Upgradient	-8	Alluvium	<2.18	21.2	<3.02	7.111	3.65	0 U	102.8	7.19
ZTS-MW126	10/18/2022	FD	BL02	1B	Upgradient	-8	Alluvium	<2.18	22.7	<3.02	----	----	----	----	----
ZTS-MW127	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	----	----	----	7.583	2.86	----	124	7.01
ZTS-MW127	10/24/2022	N	BL02	1B	Upgradient	-8	Alluvium	2.18	19.2	3.02	4.654	2.58	0 U	51.2	6.95

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	Dissolved Metals by SW6010B/SW6020	FIELD TESTS	FIELD TESTS	FIELD TESTS	FIELD TESTS	FIELD TESTS
								Titanium	Vanadium	Zinc	Conductivity	Dissolved Oxygen	Ferrous Iron	Oxidation-Reduction Potential	pH
								µg/L	µg/L	µg/L	mS/cm	mg/L	mg/L	mV	SU
ZTS-MW148	10/24/2022	N	BL02	1B	Downgradient	35	Alluvium	2.18	19.5	3.02	6.419	8.1	0 U	107.4	7.37
LVWPS-MW107A	10/24/2022	N	BL02	1B	Downgradient	50	Alluvium	2.18	20.8	3.02	6.222	5.9	0 U	84	7.12
LVWPS-MW107B	10/21/2022	N	BL02	1B	Downgradient	50	UMCf	<2.18	<0.664	<3.02	7.344	2.22	0 U	-170	7.28
LVWPS-MW107C	10/24/2022	N	BL02	1B	Downgradient	50	UMCf (Semi-Cons)	2.18	0.664	3.02	63.475	3.92	0 U	-5.8	7.46
Post-Construction Performance Monitoring Results															
ZTS-MW147	5/26/2023	N	PM01	1B	Upgradient	-50	Alluvium	<2.18	19.9	<3.02	8.526	1.07	0 U	81.9	7.1
ZTS-MW126	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	<2.18	26.1	3.26 J	8.193	1.5	0 U	128.8	7.13
ZTS-MW127R	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	<2.18	19.7	<3.02	7.884	4.31	0 U	141	7.13
ZTS-MW169	5/24/2023	N	PM01	1B	Upgradient	-8	Alluvium	<2.18	18.5	5.26 J	8.117	2.89	0 U	85.2	7.29
ZTS-MW170	5/24/2023	N	PM01	1B	Upgradient	-8	UMCf	<2.18	15.5	6.72 J	6.764	1.22	0 U	77.7	7.47
ZTS-MW166	5/23/2023	N	PM01	1B	Center of Trench	0	Alluvium	<2.18	<0.664	<3.02	7.856	0.25	0.5	-226.4	8.43
ZTS-MW171	5/22/2023	N	PM01	1B	Center of Trench	0	Alluvium	<2.18	<0.664	<3.02	5.916	1.4	1.5	-163.5	7.28
ZTS-MW178	5/25/2023	N	PM01	1B	Center of Trench	0	Alluvium	<2.18	<0.664	<3.02	6.683	0.05	1.5	-234.7	9.24
ZTS-MW167	5/24/2023	N	PM01	1B	Downgradient	5	Alluvium	<2.18	3.28 J	<3.02	6.449	0.23	0.5	33.3	8.17
ZTS-MW172	5/23/2023	N	PM01	1B	Downgradient	5	Alluvium	<2.18	12	<3.02	6.918	0.23	0.2	38.5	8.26
ZTS-MW172	5/23/2023	FD	PM01	1B	Downgradient	5	Alluvium	<2.18	12.2	<3.02	----	----	----	----	----
ZTS-MW173	5/25/2023	N	PM01	1B	Downgradient	5	UMCf	<2.18	5.38	3.46 J	4.497	0.29	0 U	-58.2	7.29
ZTS-MW179	5/25/2023	N	PM01	1B	Downgradient	5	Alluvium	<2.18	12.9	<3.02	6.227	0.25	0.2	21.7	8.34
ZTS-MW168	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	<2.18	9.61 J+	3.32 J	6.583	0.18	0 U	51.1	8.14
ZTS-MW174	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	<2.18	9.17 J+	4.25 J	7.138	0.35	0.2	93.5	7.6
ZTS-MW174	5/26/2023	N	PM01	1B	Downgradient	15	Alluvium	----	----	----	----	----	----	----	----
ZTS-MW177	5/25/2023	N	PM01	1B	Downgradient	15	Alluvium	<2.18	8.16	<3.02	6.585	0.39	0 U	57.8	7.76
ZTS-MW180	5/24/2023	N	PM01	1B	Downgradient	25	Alluvium	<2.18	22.2	4.21 J	6.314	2.63	0.2	104.1	7.1
ZTS-MW180	5/24/2023	FD	PM01	1B	Downgradient	25	Alluvium	<2.18	20.8	<3.02	----	----	----	----	----
ZTS-MW148	5/25/2023	N	PM01	1B	Downgradient	35	Alluvium	<2.18	10.4	<3.02	6.532	2.2	0.2	87.6	7.59
LVWPS-MW107A	5/23/2023	N	PM01	1B	Downgradient	50	Alluvium	<2.18	7.23	<3.02	7.217	0.49	0.2	66.9	7.8
LVWPS-MW107B	5/23/2023	N	PM01	1B	Downgradient	50	UMCf	<2.18	<0.664	<3.02	8.326	0.94	0 U	-183.7	7.4
LVWPS-MW107C	5/23/2023	N	PM01	1B	Downgradient	50	UMCf (Semi-Cons)	<2.18	<0.664	<3.02	65.406	0.37	0 U	-236	7.47
ZTS-MW175	5/26/2023	N	PM01	1B	Downgradient	100	Alluvium	<2.18	19.5	<3.02	5.253	1.18	0 U	171.3	7.38
ZTS-MW176	5/26/2023	N	PM01	1B	Downgradient	150	Alluvium	<2.18	21.7	<3.02	4.807	1.27	0 U	265.1	7.38
Test Area 2A															
Pre-Construction Baseline Results															
ZTS-MW137	10/20/2022	N	BL02	2A	Upgradient	-9	Alluvium	<2.18	18.4	<3.02	4.917	5.37	0 U	106.5	7.07
ZTS-MW118	9/1/2022	N	BL01	2A	Upgradient	-3	Alluvium	----	----	----	7.639	3.07	----	105.5	7.06
ZTS-MW118	10/21/2022	N	BL02	2A	Upgradient	-3	Alluvium	<2.18	18	<3.02	4.031	3.4	0 U	94.6	6.98
ZTS-MW138	10/20/2022	N	BL02	2A	Downgradient	5	Alluvium	<2.18	14.7	<3.02	5.205	4.22	0 U	117.7	8.02
ZTS-MW139	10/21/2022	N	BL02	2A	Downgradient	5	Alluvium	<2.18	12.5	<3.02	4.133	3.25	0 U	76.8	7.05
LVWPS-MW102A	10/21/2022	N	BL02	2A	Downgradient	30	UMCf	<2.18	27.5	<3.02	11.664	0.55	0 U	-35	7.26
LVWPS-MW102B	10/21/2022	N	BL02	2A	Downgradient	30	UMCf (Semi-Cons)	<2.18	<0.664	<3.02	49.317	0.48	0 U	-240.7	7.38
ZTS-MW113	10/25/2022	N	BL02	2A	Cross/Downgradient	60	Alluvium	2.18	19.2	3.02	7.997	2.89	0 U	91.9	7.13
Post-Construction Performance Monitoring Results															
ZTS-MW137	5/31/2023	N	PM01	2A	Upgradient	-9	Alluvium	<2.18	18	<3.02	7.054	4.96	0 U	76.1	7.01
ZTS-MW118	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	<2.18	15.2	<3.02	6.733	3.67	0 U	95.4	7.01
ZTS-MW118	5/31/2023	FD	PM01	2A	Upgradient	-3	Alluvium	<2.18	15.9	<3.02	----	----	----	----	----
ZTS-MW190	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	<2.18	16.9	<3.02	6.859	4.29	0 U	75	6.99
ZTS-MW196	5/30/2023	N	PM01	2A	Upgradient	-3	Alluvium	<2.18	16.9	<3.02	7.466	4.85	0.5	123.9	7.1
ZTS-MW202	5/30/2023	N	PM01	2A	Upgradient	-3	UMCf	<2.18	14.6	3.2 J	7.119	4.56	0.5	101.5	7.19
ZTS-MW192	5/22/2023	N	PM01	2A	Center of Array	0	Alluvium	<2.18	11.6	<3.02	6.886	4.71	0 U	148.3	7.58
ZTS-MW191	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	<2.18	1.23 J	<3.02	6.105	1.63	0 U	-246	8.47
ZTS-MW195	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	<2.18	14.4	<3.02	5.918	3.42	0 U	73.2	7.16

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Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020	FIELD TESTS	FIELD TESTS	FIELD TESTS	FIELD TESTS	FIELD TESTS
								Titanium	Vanadium	Zinc	Conductivity	Dissolved Oxygen	Ferrous Iron	Oxidation-Reduction Potential	pH
								µg/L	µg/L	µg/L	mS/cm	mg/L	mg/L	mV	SU
ZTS-MW138	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	<2.18	17.6	3.79 J	7.03	4.93	0 U	108.5	7.18
ZTS-MW139	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	<2.18	16	6.02 J	7.002	1.14	0 U	36.4	7.12
ZTS-MW193	5/25/2023	N	PM01	2A	Downgradient	5	Alluvium	<2.18	15.4	<3.02	7.165	1.54	0 U	26.4	7.01
ZTS-MW193	5/25/2023	FD	PM01	2A	Downgradient	5	Alluvium	<2.18	15.9	<3.02	----	----	----	----	----
ZTS-MW203	5/30/2023	N	PM01	2A	Downgradient	5	UMCf	<2.18	15.5	3.85 J	6.503	0.85	0 U	19.5	6.98
ZTS-MW194	5/25/2023	N	PM01	2A	Downgradient	15	Alluvium	<2.18	17.7	<3.02	6.727	3.82	0 U	71.3	6.97
LVWPS-MW102A	5/30/2023	N	PM01	2A	Downgradient	30	UMCf	<2.18	27.2	<3.02	12.755	0.65	0 U	24.9	7.1
LVWPS-MW102B	5/26/2023	N	PM01	2A	Downgradient	30	UMCf (Semi-Cons)	<2.18	<0.664	<3.02	57.269	0.51	0 U	-179.9	7.35
ZTS-MW197	5/26/2023	N	PM01	2A	Downgradient	55	Alluvium	<2.18	15.3	<3.02	6.438	3.92	0 U	81.7	6.99
ZTS-MW113	5/26/2023	N	PM01	2A	Cross/Downgradient	60	Alluvium	<2.18	17.7	<3.02	6.666	4.65	0 U	91.2	7.07
Test Area 2B															
Pre-Construction Baseline Results															
ZTS-MW133	10/20/2022	N	BL02	2B	Upgradient	-9	UMCf	<2.18	23.8	<3.02	4.71	1.35	0 U	19.7	7.25
ZTS-MW117	9/1/2022	N	BL01	2B	Upgradient	-2	UMCf	----	----	----	5.788	2.29	----	88.4	7.3
ZTS-MW117	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	<2.18	<0.664	<3.02	2.013	1.7	0 U	-116.3	7.43
ZTS-MW117	10/19/2022	FD	BL02	2B	Upgradient	-2	UMCf	<2.18	<0.664	<3.02	----	----	----	----	----
ZTS-MW134	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	<2.18	16.3	162	3.823	4.84	0 U	136	7.18
ZTS-MW135	10/19/2022	N	BL02	2B	Downgradient	7	UMCf	<2.18	24.9	39.8	4.194	1.41	0 U	18.2	7.31
ZTS-MW136	10/20/2022	N	BL02	2B	Cross Gradient	7	UMCf	<2.18	<0.664	<3.02	3.095	1.23	0 U	-128.5	7.4
Post-Construction Performance Monitoring Results															
ZTS-MW133	5/23/2023	N	PM01	2B	Upgradient	-9	UMCf	<2.18	24.8	19.3 J	4.27	1.18	0 U	79.3	7.36
ZTS-MW117	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	<2.18	<0.664	3.16 J	4.048	2.35	0.2	-129.2	7.49
ZTS-MW134	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	<2.18	17.5	8.21 J	8.134	4	0 U	112	7.27
ZTS-MW198	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	<2.18	4.53 J	3.27 J	6.361	9.99	0 U	-42.4	7.72
ZTS-MW200	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	<2.18	<0.664	<3.02	7.098	5.5	0 U	-224.7	8.46
ZTS-MW200	5/23/2023	FD	PM01	2B	Downgradient	2	UMCf	<2.18	<0.664	<3.02	----	----	----	----	----
ZTS-MW201	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	<2.18	2.17 J	8.27 J	6.689	1.43	0.2	-54.3	7.32
ZTS-MW206	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	<2.18	15	4.15 J	8.368	0.44	0.2	-161.4	7.25
ZTS-MW199	5/23/2023	N	PM01	2B	Downgradient	5	UMCf	<2.18	21.6	<3.02	7.899	5.73	0 U	-48.6	7.26
ZTS-MW207	5/24/2023	N	PM01	2B	Downgradient	5	UMCf	<2.18	4.77 J	8.01 J	5.178	2.32	0 U	-69.2	7.45
ZTS-MW207	5/24/2023	FD	PM01	2B	Downgradient	5	UMCf	<2.18	5.16	7.63 J	----	----	----	----	----
ZTS-MW135	5/26/2023	N	PM01	2B	Downgradient	7	UMCf	<2.18	25.9	<3.02	7.334	0.48	0 U	-95.1	7.34
ZTS-MW136	5/26/2023	N	PM01	2B	Cross Gradient	7	UMCf	<2.18	<0.664	<3.02	3.703	1.01	0.5	-139	7.58
ZTS-MW136	5/26/2023	FD	PM01	2B	Cross Gradient	7	UMCf	<2.18	<0.664	<3.02	----	----	----	----	----
ZTS-MW208	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	<2.18	14.4	6.16 J	6.576	4.63	0 U	103.8	7.33
ZTS-MW209	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	<2.18	23.9	<3.02	8.446	0.79	0 U	90.4	7.38
Test Area 2C															
Pre-Construction Baseline Results															
ZTS-MW140	10/21/2022	N	BL02	2C	Upgradient	-9	Alluvium	<2.18	19.9	<3.02	4.139	4.97	0 U	112.3	7.08
ZTS-MW119	9/1/2022	N	BL01	2C	Upgradient	-3	Alluvium	----	----	----	7.085	3.05	----	115.6	7.03
ZTS-MW119	10/19/2022	N	BL02	2C	Upgradient	-3	Alluvium	<2.18	20.1	<3.02	6.421	4.57	0 U	164.2	7.04
ZTS-MW119	10/19/2022	FD	BL02	2C	Upgradient	-3	Alluvium	<2.18	19.7	<3.02	----	----	----	----	----
ZTS-MW141	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	2.18	18.4	3.02	8.367	3.42	0 U	98.6	7.1
ZTS-MW142	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	<2.18	22.2	<3.02	4.16	4.54	0 U	111.6	7.06
Post-Construction Performance Monitoring Results															
ZTS-MW140	5/25/2023	N	PM01	2C	Upgradient	-9	Alluvium	<2.18	19.9	<3.02	3.4	5.48	0 U	198.2	6.91
ZTS-MW140	5/25/2023	FD	PM01	2C	Upgradient	-9	Alluvium	<2.18	19.6	<3.02	----	----	----	----	----
ZTS-MW119	5/24/2023	N	PM01	2C	Upgradient	-3	Alluvium	<2.18	19.6	4.28 J	5.041	5.51	0 U	171.1	6.45
ZTS-MW181	5/25/2023	N	PM01	2C	Upgradient	-3	Alluvium	<2.18	17.8	<3.02	4.69	4.79	0 U	171.3	6.9
ZTS-MW188	5/26/2023	N	PM01	2C	Upgradient	-3	Alluvium	<2.18	20.1	<3.02	6.728	5.46	0 U	85.9	7.28

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020	Dissolved Metals by SW6010B/ SW6020	FIELD TESTS	FIELD TESTS	FIELD TESTS	FIELD TESTS	FIELD TESTS
								Titanium	Vanadium	Zinc	Conductivity	Dissolved Oxygen	Ferrous Iron	Oxidation-Reduction Potential	pH
								µg/L	µg/L	µg/L	mS/cm	mg/L	mg/L	mV	SU
ZTS-MW204	5/25/2023	N	PM01	2C	Upgradient	-3	UMCf	<2.18	7.13	<3.02	2.65	1.3	0 U	-14.8	7.24
ZTS-MW182	5/23/2023	N	PM01	2C	Center of Array	0	Alluvium	<2.18	9.68	12.6 J	5.733	2.29	0 U	103.9	7.11
ZTS-MW183	5/23/2023	N	PM01	2C	Downgradient	1	Alluvium	<2.18	12.4	15 J	6.083	2.17	0 U	154.5	6.98
ZTS-MW187	5/24/2023	N	PM01	2C	Downgradient	1	Alluvium	<2.18	14.7	6.17 J	5.845	4.41	0 U	170.6	7.08
ZTS-MW141	5/25/2023	N	PM01	2C	Downgradient	5	Alluvium	<2.18	18.4	<3.02	0.064	7.42	0 U	177.3	7.98
ZTS-MW142	5/26/2023	N	PM01	2C	Downgradient	5	Alluvium	<2.18	16.4	<3.02	6.48	2.78	0 U	115	7.09
ZTS-MW184	5/24/2023	N	PM01	2C	Downgradient	5	Alluvium	<2.18	17.1	4.74 J	5.921	2.7	0 U	161.6	6.9
ZTS-MW205	5/24/2023	N	PM01	2C	Downgradient	5	UMCf	<2.18	2.65 J	5.8 J	2.703	2.04	0 U	112.4	7.31
ZTS-MW185	5/25/2023	N	PM01	2C	Downgradient	15	Alluvium	<2.18	17.3	3.45 J	6.051	5.64	0 U	172.6	7.21
ZTS-MW186	5/25/2023	N	PM01	2C	Downgradient	25	Alluvium	<2.18	16.4	<3.02	6.186	5.54	0 U	190.7	7.23
ZTS-MW189	5/25/2023	N	PM01	2C	Downgradient	55	Alluvium	<2.18	17	3.65 J	6.172	3.91	0 U	140.5	7.2
General Vicinity															
Pre-Construction Baseline Results															
ZTS-MW116	9/1/2022	N	BL01	NA	NA	NA	UMCf	----	----	----	6.685	0.36	----	-0.2	7.34
ZTS-MW116	10/25/2022	N	BL02	NA	NA	NA	UMCf	2.18	15.4	3.02	7.049	0.46	0 U	-17.7	7.35
ZTS-MW128	9/1/2022	N	BL01	NA	NA	NA	UMCf	----	----	----	7.153	0.53	----	85.2	7.34
ZTS-MW128	10/25/2022	N	BL02	NA	NA	NA	UMCf	2.18	11	3.02	7.65	0.65	0 U	40.8	7.22
Post-Construction Performance Monitoring Results															
ZTS-MW116	5/24/2023	N	PM01	NA	NA	NA	UMCf	<2.18	15.9	4.24 J	3.951	1.13	0 U	68.3	6.82
ZTS-MW128	5/24/2023	N	PM01	NA	NA	NA	UMCf	<2.18	16.4	7.14 J	4.951	1.18	0 U	47.5	6.58

Notes:

- bgs - below ground surface
- J- The result is an estimated quantity, but the result may be biased low.
- 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.
- 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.
- < The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- mg/L - milligram per liter
- mS/cm - milliSiemens per centimeter
- mV - millivolts
- nmol - nanomol
- SU - standard units
- N - normal field sample
- µg/L - micrograms per liter
- UMCf - Upper Muddy Creek formation
- FD - field duplicate

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	FIELD TESTS	FIELD TESTS	FIELD TESTS	FIELD TESTS
								Purge Rate	Sulfide	Temperature	Turbidity
								mL/min	mg/L	C	NTU
Test Area 1A											
Pre-Construction Baseline Results											
ZTS-MW124	8/31/2022	N	BL01	1A	Upgradient	-8	Alluvium	300	----	26.7	-3.7
ZTS-MW124	8/31/2022	FD	BL01	1A	Upgradient	-8	Alluvium	----	----	----	----
ZTS-MW124	10/18/2022	N	BL02	1A	Upgradient	-8	Alluvium	200	0 U	25.7	3.5
ZTS-MW124	10/18/2022	FD	BL02	1A	Upgradient	-8	Alluvium	----	----	----	----
ZTS-MW125	8/31/2022	N	BL01	1A	Upgradient	-8	UMCf	100	----	31.2	7.5
ZTS-MW125	10/24/2022	N	BL02	1A	Upgradient	-8	UMCf	140	0 U	19.2	22.1
ZTS-MW125	10/24/2022	FD	BL02	1A	Upgradient	-8	UMCf	----	----	----	----
ZTS-MW143	10/18/2022	N	BL02	1A	Upgradient	-50	Alluvium	300	0 U	24.8	7.2
ZTS-MW144	10/18/2022	N	BL02	1A	Downgradient	35	Alluvium	300	0 U	22.9	8.2
Post-Construction Performance Monitoring Results											
ZTS-MW143	5/26/2023	N	PM01	1A	Upgradient	-50	Alluvium	200	0 U	24.1	7.5
ZTS-MW124R	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	200	0 U	25.8	11.1
ZTS-MW125	5/25/2023	N	PM01	1A	Upgradient	-8	UMCf	150	0.1	30.5	7.2
ZTS-MW153	5/26/2023	N	PM01	1A	Upgradient	-8	Alluvium	200	0 U	24.1	57.2
ZTS-MW163	5/25/2023	N	PM01	1A	Upgradient	-8	Alluvium	200	0 U	25.4	5.4
ZTS-MW150	5/22/2023	N	PM01	1A	Center of Trench	0	Alluvium	200	0 U	25.7	73.9
ZTS-MW154	5/24/2023	N	PM01	1A	Center of Trench	0	Alluvium	200	0 U	26.3	110.5
ZTS-MW164	5/23/2023	N	PM01	1A	Center of Trench	0	Alluvium	220	0 U	28.2	77.7
ZTS-MW164	5/23/2023	FD	PM01	1A	Center of Trench	0	Alluvium	----	----	----	----
ZTS-MW151	5/25/2023	N	PM01	1A	Downgradient	5	Alluvium	200	0 U	24	16.7
ZTS-MW155	5/24/2023	N	PM01	1A	Downgradient	5	Alluvium	200	0 U	24.3	169.9
ZTS-MW155	5/24/2023	FD	PM01	1A	Downgradient	5	Alluvium	----	----	----	----
ZTS-MW156	5/24/2023	N	PM01	1A	Downgradient	5	UMCf	120	0 U	33	162.9
ZTS-MW165	5/31/2023	N	PM01	1A	Downgradient	5	Alluvium	300	0 U	23.7	-0.6
ZTS-MW152	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	200	0 U	24.8	36.6
ZTS-MW157	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	200	0 U	25.6	10.7
ZTS-MW162	5/25/2023	N	PM01	1A	Downgradient	15	Alluvium	200	0 U	26.1	8.6
ZTS-MW149	5/31/2023	N	PM01	1A	Downgradient	25	Alluvium	300	0 U	24.8	52.6
ZTS-MW144	5/31/2023	N	PM01	1A	Downgradient	35	Alluvium	300	0 U	24.7	-1
ZTS-MW158	5/24/2023	N	PM01	1A	Downgradient	50	Alluvium	200	0 U	26.1	35.5
ZTS-MW159	5/24/2023	N	PM01	1A	Downgradient	50	UMCf	100	0 U	33.7	4.5
ZTS-MW160	5/24/2023	N	PM01	1A	Downgradient	100	Alluvium	200	0 U	24.8	2.6
ZTS-MW161	5/26/2023	N	PM01	1A	Downgradient	150	Alluvium	180	0 U	22.7	17.9
Between Test Area 1A and Test Area 1B											
Pre-Construction Baseline Results											
ZTS-MW145	10/24/2022	N	BL02	1A/1B	Upgradient	-50	UMCf	200	0 U	23.3	9.5
ZTS-MW146	10/24/2022	N	BL02	1A/1B	Downgradient	35	UMCf	100	0 U	18.1	5
Post-Construction Performance Monitoring Results											
ZTS-MW145	5/22/2023	N	PM01	1A/1B	Upgradient	-50	UMCf	20	0 U	29.2	2.9
ZTS-MW146	5/26/2023	N	PM01	1A/1B	Downgradient	35	UMCf	200	0 U	24.8	5.3
Test Area 1B											
Pre-Construction Baseline Results											
ZTS-MW147	10/18/2022	N	BL02	1B	Upgradient	-50	Alluvium	300	0 U	23.3	34.8
ZTS-MW126	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	300	----	26.9	5
ZTS-MW126	10/18/2022	N	BL02	1B	Upgradient	-8	Alluvium	300	0 U	24.8	14.2
ZTS-MW126	10/18/2022	FD	BL02	1B	Upgradient	-8	Alluvium	----	----	----	----
ZTS-MW127	8/31/2022	N	BL01	1B	Upgradient	-8	Alluvium	300	----	28	6.3
ZTS-MW127	10/24/2022	N	BL02	1B	Upgradient	-8	Alluvium	285	0 U	22.4	12.9

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	FIELD TESTS	FIELD TESTS	FIELD TESTS	FIELD TESTS
								Purge Rate	Sulfide	Temperature	Turbidity
								mL/min	mg/L	C	NTU
ZTS-MW148	10/24/2022	N	BL02	1B	Downgradient	35	Alluvium	300	0 U	23.1	20.8
LVWPS-MW107A	10/24/2022	N	BL02	1B	Downgradient	50	Alluvium	300	0 U	21.7	5.6
LVWPS-MW107B	10/21/2022	N	BL02	1B	Downgradient	50	UMCf	100	0 U	26.6	8.9
LVWPS-MW107C	10/24/2022	N	BL02	1B	Downgradient	50	UMCf (Semi-Cons)	80	0 U	21.3	333.7
Post-Construction Performance Monitoring Results											
ZTS-MW147	5/26/2023	N	PM01	1B	Upgradient	-50	Alluvium	200	0 U	26.8	7.4
ZTS-MW126	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	200	0 U	27.7	14.1
ZTS-MW127R	5/25/2023	N	PM01	1B	Upgradient	-8	Alluvium	240	0 U	23.8	13.8
ZTS-MW169	5/24/2023	N	PM01	1B	Upgradient	-8	Alluvium	200	0 U	27	9.8
ZTS-MW170	5/24/2023	N	PM01	1B	Upgradient	-8	UMCf	200	0 U	26.7	20.5
ZTS-MW166	5/23/2023	N	PM01	1B	Center of Trench	0	Alluvium	360	0 U	32.1	13.1
ZTS-MW171	5/22/2023	N	PM01	1B	Center of Trench	0	Alluvium	200	0 U	25.5	255
ZTS-MW178	5/25/2023	N	PM01	1B	Center of Trench	0	Alluvium	200	0 U	27.4	74.7
ZTS-MW167	5/24/2023	N	PM01	1B	Downgradient	5	Alluvium	200	0 U	25.1	8.4
ZTS-MW172	5/23/2023	N	PM01	1B	Downgradient	5	Alluvium	200	0 U	24	7.7
ZTS-MW172	5/23/2023	FD	PM01	1B	Downgradient	5	Alluvium	----	----	----	----
ZTS-MW173	5/25/2023	N	PM01	1B	Downgradient	5	UMCf	200	0 U	23.6	14.5
ZTS-MW179	5/25/2023	N	PM01	1B	Downgradient	5	Alluvium	200	0 U	24	8.1
ZTS-MW168	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	200	0 U	25.9	11.2
ZTS-MW174	5/24/2023	N	PM01	1B	Downgradient	15	Alluvium	200	0 U	23.5	55.2
ZTS-MW174	5/26/2023	N	PM01	1B	Downgradient	15	Alluvium	----	----	----	----
ZTS-MW177	5/25/2023	N	PM01	1B	Downgradient	15	Alluvium	200	0 U	26.3	66.5
ZTS-MW180	5/24/2023	N	PM01	1B	Downgradient	25	Alluvium	200	0 U	23.8	7
ZTS-MW180	5/24/2023	FD	PM01	1B	Downgradient	25	Alluvium	----	----	----	----
ZTS-MW148	5/25/2023	N	PM01	1B	Downgradient	35	Alluvium	200	0 U	25.3	8.9
LVWPS-MW107A	5/23/2023	N	PM01	1B	Downgradient	50	Alluvium	200	0 U	27.1	6.2
LVWPS-MW107B	5/23/2023	N	PM01	1B	Downgradient	50	UMCf	200	0 U	28	10.9
LVWPS-MW107C	5/23/2023	N	PM01	1B	Downgradient	50	UMCf (Semi-Cons)	200	0 U	26.8	94.3
ZTS-MW175	5/26/2023	N	PM01	1B	Downgradient	100	Alluvium	180	0 U	23.4	53
ZTS-MW176	5/26/2023	N	PM01	1B	Downgradient	150	Alluvium	180	0 U	22.3	8.6
Test Area 2A											
Pre-Construction Baseline Results											
ZTS-MW137	10/20/2022	N	BL02	2A	Upgradient	-9	Alluvium	315	0 U	23.4	35.6
ZTS-MW118	9/1/2022	N	BL01	2A	Upgradient	-3	Alluvium	300	----	27.1	17
ZTS-MW118	10/21/2022	N	BL02	2A	Upgradient	-3	Alluvium	300	0 U	22.6	6.8
ZTS-MW138	10/20/2022	N	BL02	2A	Downgradient	5	Alluvium	300	0 U	23.5	68.3
ZTS-MW139	10/21/2022	N	BL02	2A	Downgradient	5	Alluvium	300	0 U	23.5	21.2
LVWPS-MW102A	10/21/2022	N	BL02	2A	Downgradient	30	UMCf	300	0 U	23	146
LVWPS-MW102B	10/21/2022	N	BL02	2A	Downgradient	30	UMCf (Semi-Cons)	100	0 U	23.9	116.3
ZTS-MW113	10/25/2022	N	BL02	2A	Cross/Downgradient	60	Alluvium	300	0 U	22.9	4.1
Post-Construction Performance Monitoring Results											
ZTS-MW137	5/31/2023	N	PM01	2A	Upgradient	-9	Alluvium	420	0 U	26.7	32.7
ZTS-MW118	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	420	0 U	24.1	5.9
ZTS-MW118	5/31/2023	FD	PM01	2A	Upgradient	-3	Alluvium	----	----	----	----
ZTS-MW190	5/31/2023	N	PM01	2A	Upgradient	-3	Alluvium	480	0 U	25.3	33
ZTS-MW196	5/30/2023	N	PM01	2A	Upgradient	-3	Alluvium	270	0 U	25.5	63.8
ZTS-MW202	5/30/2023	N	PM01	2A	Upgradient	-3	UMCf	300	0 U	25.9	20
ZTS-MW192	5/22/2023	N	PM01	2A	Center of Array	0	Alluvium	100	0 U	26.4	22.7
ZTS-MW191	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	300	0 U	25	70.1
ZTS-MW195	5/26/2023	N	PM01	2A	Downgradient	1	Alluvium	300	0 U	23.1	346.9

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	FIELD TESTS	FIELD TESTS	FIELD TESTS	FIELD TESTS
								Purge Rate	Sulfide	Temperature	Turbidity
								mL/min	mg/L	C	NTU
ZTS-MW138	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	240	0 U	26.1	18.9
ZTS-MW139	5/24/2023	N	PM01	2A	Downgradient	5	Alluvium	320	0 U	25.8	25.3
ZTS-MW193	5/25/2023	N	PM01	2A	Downgradient	5	Alluvium	240	0 U	27.2	81.5
ZTS-MW193	5/25/2023	FD	PM01	2A	Downgradient	5	Alluvium	----	----	----	----
ZTS-MW203	5/30/2023	N	PM01	2A	Downgradient	5	UMCf	420	0 U	26.5	19
ZTS-MW194	5/25/2023	N	PM01	2A	Downgradient	15	Alluvium	360	0 U	24.6	22.1
LVWPS-MW102A	5/30/2023	N	PM01	2A	Downgradient	30	UMCf	400	0 U	24	199
LVWPS-MW102B	5/26/2023	N	PM01	2A	Downgradient	30	UMCf (Semi-Cons)	300	0.6	27.2	85.5
ZTS-MW197	5/26/2023	N	PM01	2A	Downgradient	55	Alluvium	480	0 U	22.8	40.4
ZTS-MW113	5/26/2023	N	PM01	2A	Cross/Downgradient	60	Alluvium	420	0 U	24	2.4
Test Area 2B											
Pre-Construction Baseline Results											
ZTS-MW133	10/20/2022	N	BL02	2B	Upgradient	-9	UMCf	165	0 U	21.1	115.7
ZTS-MW117	9/1/2022	N	BL01	2B	Upgradient	-2	UMCf	80	----	34.6	25
ZTS-MW117	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	100	0 U	21.1	8.3
ZTS-MW117	10/19/2022	FD	BL02	2B	Upgradient	-2	UMCf	----	----	----	----
ZTS-MW134	10/19/2022	N	BL02	2B	Upgradient	-2	UMCf	0	0 U	24.6	8.4
ZTS-MW135	10/19/2022	N	BL02	2B	Downgradient	7	UMCf	225	0 U	24.4	98.2
ZTS-MW136	10/20/2022	N	BL02	2B	Cross Gradient	7	UMCf	100	0 U	23	71.9
Post-Construction Performance Monitoring Results											
ZTS-MW133	5/23/2023	N	PM01	2B	Upgradient	-9	UMCf	210	0 U	23	33
ZTS-MW117	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	240	0.1	30.4	2
ZTS-MW134	5/25/2023	N	PM01	2B	Upgradient	-2	UMCf	120	0 U	30.1	28.7
ZTS-MW198	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	180	0 U	26.8	55.2
ZTS-MW200	5/23/2023	N	PM01	2B	Downgradient	2	UMCf	240	0 U	26.3	104
ZTS-MW200	5/23/2023	FD	PM01	2B	Downgradient	2	UMCf	----	----	----	----
ZTS-MW201	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	200	0 U	25.3	15.1
ZTS-MW206	5/24/2023	N	PM01	2B	Downgradient	2	UMCf	220	0 U	25.4	15.9
ZTS-MW199	5/23/2023	N	PM01	2B	Downgradient	5	UMCf	240	0 U	29.4	16.7
ZTS-MW207	5/24/2023	N	PM01	2B	Downgradient	5	UMCf	240	0 U	25.2	9.6
ZTS-MW207	5/24/2023	FD	PM01	2B	Downgradient	5	UMCf	----	----	----	----
ZTS-MW135	5/26/2023	N	PM01	2B	Downgradient	7	UMCf	240	0 U	23.1	20.7
ZTS-MW136	5/26/2023	N	PM01	2B	Cross Gradient	7	UMCf	280	0 U	24	13.7
ZTS-MW136	5/26/2023	FD	PM01	2B	Cross Gradient	7	UMCf	----	----	----	----
ZTS-MW208	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	240	0 U	23.6	50.4
ZTS-MW209	5/25/2023	N	PM01	2B	Downgradient	15	UMCf	240	0 U	24.9	71.5
Test Area 2C											
Pre-Construction Baseline Results											
ZTS-MW140	10/21/2022	N	BL02	2C	Upgradient	-9	Alluvium	300	0 U	23.6	82.3
ZTS-MW119	9/1/2022	N	BL01	2C	Upgradient	-3	Alluvium	285	----	26	33.3
ZTS-MW119	10/19/2022	N	BL02	2C	Upgradient	-3	Alluvium	300	0 U	23.9	15.2
ZTS-MW119	10/19/2022	FD	BL02	2C	Upgradient	-3	Alluvium	----	----	----	----
ZTS-MW141	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	300	0 U	24.2	38.6
ZTS-MW142	10/21/2022	N	BL02	2C	Downgradient	5	Alluvium	315	0 U	24.3	106.7
Post-Construction Performance Monitoring Results											
ZTS-MW140	5/25/2023	N	PM01	2C	Upgradient	-9	Alluvium	160	0 U	21.5	59.8
ZTS-MW140	5/25/2023	FD	PM01	2C	Upgradient	-9	Alluvium	----	----	----	----
ZTS-MW119	5/24/2023	N	PM01	2C	Upgradient	-3	Alluvium	180	0 U	24.5	22.1
ZTS-MW181	5/25/2023	N	PM01	2C	Upgradient	-3	Alluvium	160	0 U	22.7	127.1
ZTS-MW188	5/26/2023	N	PM01	2C	Upgradient	-3	Alluvium	280	0 U	24.5	19.3

Table 2
Post-Construction Performance Monitoring Groundwater Sampling Results
 Las Vegas Wash ZVI-Enhanced Bioremediation Treatability Study

Well	Sample Date	QC Type	Event	Test Area	Location	Approximate Distance from ZVI Wall	Screened Lithology	FIELD TESTS	FIELD TESTS	FIELD TESTS	FIELD TESTS
								Purge Rate	Sulfide	Temperature	Turbidity
								mL/min	mg/L	C	NTU
ZTS-MW204	5/25/2023	N	PM01	2C	Upgradient	-3	UMCf	180	0 U	23.3	56
ZTS-MW182	5/23/2023	N	PM01	2C	Center of Array	0	Alluvium	300	0 U	24.8	145.5
ZTS-MW183	5/23/2023	N	PM01	2C	Downgradient	1	Alluvium	300	0 U	27.9	41.1
ZTS-MW187	5/24/2023	N	PM01	2C	Downgradient	1	Alluvium	300	0 U	25.2	31.6
ZTS-MW141	5/25/2023	N	PM01	2C	Downgradient	5	Alluvium	300	0 U	31.7	112.3
ZTS-MW142	5/26/2023	N	PM01	2C	Downgradient	5	Alluvium	300	0 U	26.8	-0.8
ZTS-MW184	5/24/2023	N	PM01	2C	Downgradient	5	Alluvium	300	0 U	25.3	68.6
ZTS-MW205	5/24/2023	N	PM01	2C	Downgradient	5	UMCf	100	0 U	30.7	72.6
ZTS-MW185	5/25/2023	N	PM01	2C	Downgradient	15	Alluvium	300	0 U	23.1	107.2
ZTS-MW186	5/25/2023	N	PM01	2C	Downgradient	25	Alluvium	300	0 U	24.6	152
ZTS-MW189	5/25/2023	N	PM01	2C	Downgradient	55	Alluvium	300	0 U	24.4	9
General Vicinity											
Pre-Construction Baseline Results											
ZTS-MW116	9/1/2022	N	BL01	NA	NA	NA	UMCf	300	----	27	478.2
ZTS-MW116	10/25/2022	N	BL02	NA	NA	NA	UMCf	200	0 U	21.5	36.8
ZTS-MW128	9/1/2022	N	BL01	NA	NA	NA	UMCf	90	----	35.2	55.2
ZTS-MW128	10/25/2022	N	BL02	NA	NA	NA	UMCf	100	0 U	23.3	41.3
Post-Construction Performance Monitoring Results											
ZTS-MW116	5/24/2023	N	PM01	NA	NA	NA	UMCf	160	0 U	23.2	25.3
ZTS-MW128	5/24/2023	N	PM01	NA	NA	NA	UMCf	160	0 U	26.1	8.8

Notes:

- bgs - below ground surface
- J- The result is an estimated quantity, but the result may be biased low.
- 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.
- 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.
- < The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- mg/L - milligram per liter
- mS/cm - milliSiemens per centimeter
- mV - millivolts
- nmol - nanomol
- SU - standard units
- N - normal field sample
- µg/L - micrograms per liter
- UMCf - Upper Muddy Creek formation
- FD - field duplicate