MARCH 2022

On-Post
Quarterly Groundwater Monitoring Report

Prepared For

Department of the Army
Camp Stanley Storage Activity
Boerne, Texas

May 2022

EXECUTIVE SUMMARY

- Groundwater samples were collected from 41 of 43 on-post wells scheduled for sampling at Camp Stanley Storage Activity (CSSA) in March 2022. Two wells (CS-D and CS-MW11B-LGR) were not sampled due to the water level falling below the dedicated well pump.
- CSSA experienced below average rainfall during the first quarter of 2022 and the aquifer experienced a decrease from December 2021 to March 2022. The CSSA weather station (WS) at AOC-65 recorded 1.52 inches of rainfall from January to March and the MW18-WS recorded 1.97 inches during this period. The average rainfall for the Boerne area from January to March is 7.1 inches.
- At CSSA, the Middle Trinity aquifers' average groundwater elevation in March decreased 69.0 feet from the elevations measured in December 2022. The average depth to water in the wells was 271.62 feet below top of casing (BTOC) or 971.37 feet above mean sea level (MSL). As such, the Trinity-Glen Rose Groundwater Conservation District (TGRGCD) has moved to 'Stage 2' conservation measures. For the adjacent Edwards aquifer, the San Antonio Water System (SAWS) has also moved to 'Stage 2' watering restrictions implemented April 12, 2022.
- The maximum contaminant level (MCL) for VOCs was exceeded in 2 wells (CS-MW1-LGR and CS-MW36-LGR) sampled in March 2022.
- No wells sampled had metal detections above their corresponding MCL, action level (AL), or secondary standard (SS) in March 2022.
- Forty-five Westbay® Well zones were scheduled for sampling in March 2022. Seventeen zones had detections above the MCL in March. Due to increasing levels in the bottom portion of WB04 increased sampling is recommended. The remaining intervals should remain on the 15- and 30-month sampling schedules in the future as recommended in the LTMO study.
- All samples collected in March 2022 were in accordance with the 2020 update to the long-term monitoring optimization (LTMO) report that has been approved by the TCEQ and USEPA.

GEOSCIENTIST CERTIFICATION

MARCH 2022 ON-POST QUARTERLY GROUNDWATER MONITORING REPORT

FOR

DEPARTMENT OF THE ARMY
CAMP STANLEY STORAGE ACTIVITY
BOERNE, TEXAS

I, Adrien Lindley, Professional Geologist (P.G.), hereby certify that the March 2022 On-Post Quarterly Groundwater Monitoring Report for the Camp Stanley Storage Activity installation in Boerne, Texas accurately represents the site conditions of the subject area. This certification is limited only to geoscientific products contained in the subject report and is made on the basis of written and oral information provided by the CSSA Environmental Office, laboratory data provided by Eurofins TestAmerica Laboratories, and field data obtained during groundwater monitoring conducted at the site in March 2022 and is true and accurate to the best of my knowledge and belief.

STATE OF TEXAS
ADRIEN L. LINDLEY
GEOLOGY
10487
LICENSED
PROFESSIONAL GEOSCIENTIST

Adrien Lindley, P.G.
State of Texas
Geology License No. 10487

6/23/2022
Date

Parsons Government Services, Inc.
Firm Registration No. 50316

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ACRONYMS AND ABBREVIATIONS

µg/L	microgram per liter
§3008(h) Order	RCRA 3008(h) Administrative Order on Consent
AL	Action Level
AOC	Area of Concern
BS	Bexar Shale
BTOC	below top of casing
CC	Cow Creek
cis-1,2-DCE	*cis*-1,2-Dichloroethene
COC	constituents of concern
CSSA	Camp Stanley Storage Activity
DQO	Data Quality Objectives
ETA	Eurofins TestAmerica Laboratory
HSP	Health and Safety Plan
ISCO	In-Situ Chemical Oxidation
LGR	Lower Glen Rose
LTMO	Long-Term Monitoring Optimization
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
MSL	mean sea level
NA	Not Available
PCE	Tetrachloroethene
P.G.	Professional Geologist
Parsons	Parsons Government Services, Inc.
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RL	Reporting Limit
SAP	Sampling and Analysis Plan
SAWS	San Antonio Water System
SS	Secondary Standard
SWMU	Solid Waste Management Units
TCE	Trichloroethene
TCEQ	Texas Commission on Environmental Quality
TGRGCD	Trinity-Glen Rose Groundwater Conservation District
UGR	Upper Glen Rose
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
WS	Weather Station

MARCH 2022
GROUNDWATER MONITORING REPORT
CAMP STANLEY STORAGE ACTIVITY, TEXAS

1.0 INTRODUCTION

This report presents results from the on-post quarterly sampling performed at Camp Stanley Storage Activity (CSSA) in March 2022. Laboratory analytical results are presented along with potentiometric contour maps. Results from all four 2022 quarterly monitoring events (March, June, September, and December) will be described in detail in the 2022 Annual Report. The Annual Report will also provide an interpretation of all analytical results, present updated plume maps, and include an evaluation of any temporal or spatial trends observed in the groundwater contaminant plume during investigations and include revised VOC plume maps based on analytical results. For this specific quarter, groundwater monitoring was performed March 3rd through 30th, 2022 by Parsons Government Services, Inc. (Parsons).

Current objectives of the groundwater monitoring program are to determine groundwater flow direction and elevations, determine groundwater contaminant concentrations for characterization purposes, and identify meteorological and seasonal variations in physical and chemical properties. **Appendix A** identifies the data quality objectives (DQOs) for CSSA's groundwater monitoring program, along with an evaluation of whether each DQO was attained. The objectives listed in **Appendix A** also reference appropriate sections of the Resource Conservation and Recovery Act (RCRA) **§3008(h) Administrative Order on Consent** [§3008(h) Order].

The CSSA groundwater monitoring program follows the provisions of the groundwater monitoring program DQOs as well as the recommendations of the **Three-Tiered Long Term Monitoring Network Optimization (LTMO) Evaluation (Parsons, 2015)** which provided recommendations for sampling based on an LTMO study performed for the CSSA groundwater monitoring program. The LTMO evaluation was updated in 2020 using groundwater data from monitoring conducted between 2015 and 2019. The proposed LTMO changes/updates were approved by the TCEQ and USEPA on September 18, 2020. The updated LTMO study sampling frequencies were implemented in December 2020.

2.0 POST-WIDE FLOW DIRECTION AND GRADIENT

Below average rainfall to start the year showed the aquifer decline significantly from the end of 2021. In the first quarter of 2021 (January to March) the aquifer levels sustained a net loss of 69.0 feet in average water level elevation beneath CSSA however the water table remains 56.90 feet above the 15-year average (2007-2021). In the first quarter of 2022 the rainfall recorded was below average, 1.52 inches at the AOC-65 WS and 1.97 inches at the MW18 WS. The average rainfall from January through March for the Boerne area is 7.1 inches. The San Antonio Water System (SAWS) restrictions were moved to 'Stage 2' on April 12, 2022. SAWS has been under 'Stage 1" water restrictions since March 10, 2022. The Trinity-Glen Rose Groundwater Conservation District (TGRGCD) also moved to 'Stage 2' watering restrictions in May 2022.

The 30-year precipitation normal for the San Antonio area for the three-month period of January through March is 5.81 inches of rainfall. Over the 3-month period of record, the MW18 and AOC-65 weather stations at CSSA, recorded 1.97/1.52 inches of rainfall (0.48/0.34 inches in Jan., 1.15/0.9 inches in Feb., and 0.34/0.28 inches in March) respectively. Of the 16/13 rain events at the MW18 WS and AOC-65 WS during this timeframe, no events had a daily rainfall total in excess of 1 inch.

Fifty-five water level measurements were recorded on March 3, 2022, from on- and off-post monitoring wells completed in the Lower Glen Rose (LGR), Bexar Shale (BS), and Cow Creek (CC) formational members of the Middle Trinity Aquifer (**Tables 2.1 and 2.2**). The groundwater potentiometric surface maps illustrating groundwater elevations from the LGR, BS, and CC zones in March 2022 are shown in **Figures 2.1, 2.2, and 2.3**, respectively.

The March 2022 potentiometric surface map for LGR-screened wells (**Figure 2.1**) exhibits a wide range of groundwater elevations, from a minimum of 920.86 feet above mean sea level (MSL) at B3-EXW04 to a maximum of 1,007.31 feet above MSL at CS-I. Groundwater elevations are generally higher in the northern and central portions of CSSA and decrease to the southeast. As measured in all LGR screened wells, the average groundwater elevation measured in March 2022 was 967.91 feet above MSL. This is 62.07 feet below the 19.5-year average LGR groundwater elevation for the area (1029.98 feet) (**Figure 2.4**). Also shown in that figure is the 3-month precipitation total (2.38 inches) recorded at the San Antonio International Airport weather station (KSAT) and the resultant aquifer response. In March, an average decrease in LGR groundwater elevation of 65.87 feet was observed within CSSA LGR monitoring wells from the previous quarter.

Well CS-MW4-LGR, located in the central portion of CSSA, typically has one of the highest groundwater elevations of LGR-screened wells. During average and above-average aquifer elevations, the groundwater level is 20 to 30 feet higher than the nearest comparable wells (CS-MW2-LGR and CS-MW5-LGR), creating a pronounced groundwater mound in the central portion of the facility. Long-term monitoring has ascertained that when groundwater near CS-MW4-LGR rises above about 970 feet MSL, the mounding effect is evident. In March 2022, this mounding was observed as the groundwater elevation at CS-MW4-LGR (1,002.50 feet MSL) was 23.94 feet higher than CS-MW2-LGR (978.56 feet MSL) and 26.32 feet higher than CS-MW5-LGR (976.18 feet MSL).

Table 2.1
Measured Groundwater Elevation
March 2022

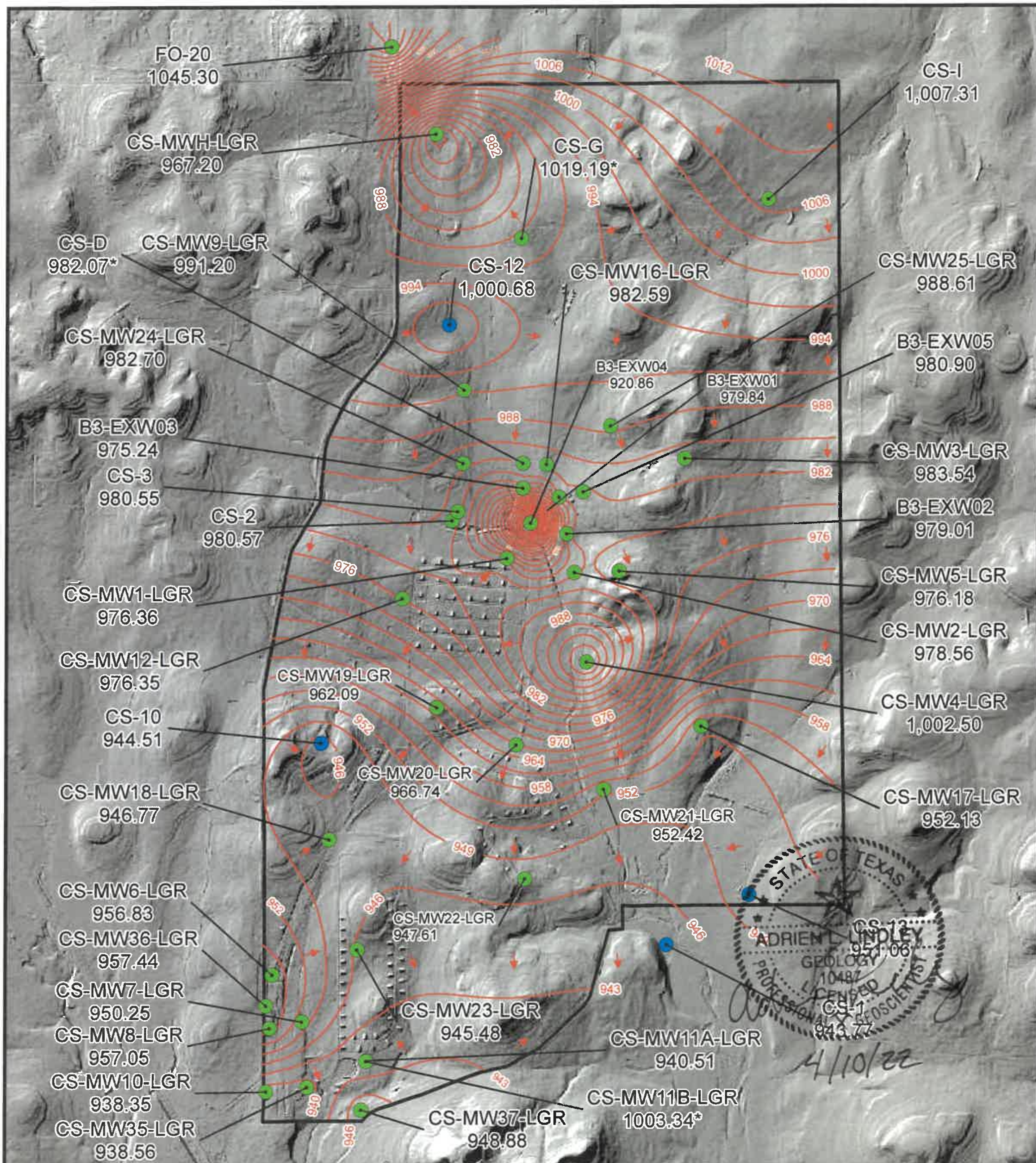
Well ID:	TOC elevation (ft MSL)	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)	Formations Screened			Date
				LGR	BS	CC	
CS-1	1169.27	225.50	943.77		ALL		3/3/2022
CS-2	**1237.59**	**257.02**	980.57	X	?		3/3/2022
CS-3	1240.17	259.62	980.55	X			3/3/2022
CS-10	**1331.51**	**387.00**	944.51		ALL		3/3/2022
CS-12	**1274.09**	**273.41**	1000.68		ALL		3/3/2022
CS-13	**1193.26**	**242.20**	951.06		ALL		3/3/2022
CS-D	1236.03	253.96	982.07	X			3/3/2022
CS-MWG-LGR	1328.14	308.95	1019.19	X			3/3/2022
CS-MWH-LGR*	1319.19	352.00	967.19	X			3/3/2022
CS-I	1315.20	307.89	1007.31	X			3/3/2022
CS-MW1-LGR	1220.73	244.37	976.36	X			3/3/2022
CS-MW1-BS	1221.09	233.90	987.19		X		3/3/2022
CS-MW1-CC	1221.39	230.35	991.04			X	3/3/2022
CS-MW2-LGR	1237.08	258.52	978.56	X			3/3/2022
CS-MW2-CC	1240.11	278.48	961.63			X	3/3/2022
CS-MW3-LGR	1334.14	350.60	983.54	X			3/3/2022
CS-MW4-LGR	1209.71	207.21	1002.50	X			3/3/2022
CS-MW5-LGR	1340.24	364.06	976.18	X			3/3/2022
CS-MW6-LGR	1232.25	275.42	956.83	X			3/3/2022
CS-MW6-BS	1232.67	270.07	962.60		X		3/3/2022
CS-MW6-CC	1233.21	271.95	961.26			X	3/3/2022
CS-MW7-LGR	1202.27	252.02	950.25	X			3/3/2022
CS-MW7-CC	1201.84	247.73	954.11			X	3/3/2022
CS-MW8-LGR	1208.35	251.30	957.05	X			3/3/2022
CS-MW8-CC	1206.13	250.21	955.92			X	3/3/2022
CS-MW9-LGR	1257.27	266.07	991.20	X			3/3/2022
CS-MW9-BS	1256.73	264.58	992.15		X		3/3/2022
CS-MW9-CC	1255.95	260.48	995.47			X	3/3/2022
CS-MW10-LGR	1189.53	251.18	938.35	X			3/3/2022
CS-MW10-CC	1190.04	256.93	933.11			X	3/3/2022
CS-MW11A-LGR	1204.03	263.52	940.51	X			3/3/2022
CS-MW11B-LGR	1203.52	200.18	1003.34	X			3/3/2022
CS-MW12-LGR	1259.07	282.72	976.35	X			3/3/2022
CS-MW12-BS	1258.37	271.03	987.34		X		3/3/2022
CS-MW12-CC	1257.31	265.71	991.60			X	3/3/2022
CS-MW16-LGR	1244.60	262.01	982.59	X			3/3/2022
CS-MW16-CC	1244.51	253.45	991.06			X	3/3/2022
B3-EXW01	1245.26	265.42	979.84	X			3/3/2022
B3-EXW02	1249.66	270.65	979.01	X			3/3/2022
B3-EXW03	1235.11	259.87	975.24	X			3/3/2022
B3-EXW04*	1228.46	307.60	920.86	X			3/3/2022
B3-EXW05	1279.46	298.56	980.90	X			3/3/2022
CS-MW17-LGR	1257.01	304.88	952.13	X			3/3/2022
CS-MW18-LGR	1283.61	336.84	946.77	X			3/3/2022
CS-MW19-LGR	1255.53	293.44	962.09	X			3/3/2022
CS-MW20-LGR	1209.42	242.68	966.74	X			3/3/2022
CS-MW21-LGR	1184.53	232.11	952.42	X			3/3/2022
CS-MW22-LGR	1280.49	332.88	947.61	X			3/3/2022
CS-MW23-LGR	1258.20	312.72	945.48	X			3/3/2022
CS-MW24-LGR	1253.90	271.20	982.70	X			3/3/2022
CS-MW25-LGR	1293.01	304.40	988.61	X			3/3/2022
CS-MW35-LGR	1186.97	248.41	938.56	X			3/3/2022
CS-MW36-LGR	1218.74	261.30	957.44	X			3/3/2022
CS-MW37-LGR	1205.83	256.95	948.88	X			3/3/2022
FO-20	**1327.00**	**281.70**	**1045.30**		ALL		3/3/2022
Number of wells screened in each formation.				37	4	9	
Average groundwater elevation in each formation given in feet (non pumping wells).				967.91	982.32	968.02	

Notes:
Bold wells: CS-2, CS-10, CS-12, CS-13, and FO-20 are open boreholes across more than one formational unit.
? = Exact screening information unknown for this well.
Shaded wells are routinely pumped for either domestic, livestock, or environmental remediation purposes, and therefore are not used in calculating statistics.
CS-1, CS-10, CS-12, and CS-13 are current active drinking water wells.
CS-MW16-LGR, CS-MW16-CC, B3-EXW01 through B3-EXW05 pumps are cycling continuously to feed the B-3 Bioreactor.
* = submersible pump running at time of water level measurement.
Formational average groundwater elevation is calculated from non-pumping wells screened in only one formation.
All measurements given in feet.
NA = Data not available

Table 2.2
Change in Groundwater Elevation from Previous Quarter
March 2022

Well ID	Dec. 2021 Elevations	Mar. 2022 Elevations	GW elevation change (Mar. minus Dec.)	Formations Screened LGR	Formations Screened BS	Formations Screened CC
CS-1	976.74	943.77	-32.97	ALL		
CS-2	1028.14	980.57	-47.57	X	?	
CS-3	1032.46	980.55	-51.91	X		
CS-10	1032.79	944.51	-88.28	ALL		
CS-12	1032.48	1000.68	-31.80	ALL		
CS-13	1020.66	951.06	-69.60	ALL		
CS-D	1029.80	982.07	-47.73	X		
CS-MWG-LGR	1046.14	1019.19	-26.95	X		
CS-MWH-LGR*	977.82	967.19	-10.63	X		
CS-I	1045.89	1007.31	-38.58	X		
CS-MW1-LGR	1042.98	976.36	-66.62	X		
CS-MW1-BS	1050.79	987.19	-63.60		X	
CS-MW1-CC	1037.61	991.04	-46.57			X
CS-MW2-LGR	1044.39	978.56	-65.83	X		
CS-MW2-CC	1040.97	961.63	-79.34			X
CS-MW3-LGR	1084.94	983.54	-101.40	X		
CS-MW4-LGR	1109.71	1002.50	-107.21	X		
CS-MW5-LGR	1040.49	976.18	-64.31	X		
CS-MW6-LGR	1045.83	956.83	-89.00	X		
CS-MW6-BS	1042.56	962.60	-79.96		X	
CS-MW6-CC	1041.90	961.26	-80.64			X
CS-MW7-LGR	1038.22	950.25	-87.97	X		
CS-MW7-CC	1037.33	954.11	-83.22			X
CS-MW8-LGR	1044.52	957.05	-87.47	X		
CS-MW8-CC	1038.67	955.92	-82.75			X
CS-MW9-LGR	1030.54	991.20	-39.34	X		
CS-MW9-BS	1040.91	992.15	-48.76		X	
CS-MW9-CC	1039.70	995.47	-44.23			X
CS-MW10-LGR	1037.21	938.35	-98.86	X		
CS-MW10-CC	1024.45	933.11	-91.34			X
CS-MW11A-LGR	1022.20	940.51	-81.69	X		
CS-MW11B-LGR	1014.47	1003.34	-11.13	X		
CS-MW12-LGR	1036.45	976.35	-60.10	X		
CS-MW12-BS	1052.17	987.34	-64.83		X	
CS-MW12-CC	1041.07	991.60	-49.47			X
CS-MW16-LGR	1031.91	982.59	-49.32	X		
CS-MW16-CC*	949.72	991.06	41.34			X
B3-EXW01*	978.98	979.84	0.86	X		
B3-EXW02*	981.04	979.01	-2.03	X		
B3-EXW03*	1013.08	975.24	-37.84	X		
B3-EXW04*	1038.79	920.86	-117.93	X		
B3-EXW05	1032.72	980.90	-51.82	X		
CS-MW17-LGR	1037.38	952.13	-85.25	X		
CS-MW18-LGR	1034.00	946.77	-87.23	X		
CS-MW19-LGR	1052.46	962.09	-90.37	X		
CS-MW20-LGR	1060.11	966.74	-93.37	X		
CS-MW21-LGR	1040.00	952.42	-87.58	X		
CS-MW22-LGR	1032.39	947.61	-84.78	X		
CS-MW23-LGR	1030.00	945.48	-84.52	X		
CS-MW24-LGR	1029.63	982.70	-46.93	X		
CS-MW25-LGR	1032.47	988.61	-43.86	X		
CS-MW35-LGR	1036.74	938.56	-98.18	X		
CS-MW36-LGR	1045.46	957.44	-88.02	X		
CS-MW37-LGR	1033.89	948.88	-85.01	X		
FO-20	**1055.22**	**1045.30**	-9.92	ALL		
Average groundwater elevation change (all wells minus pumping wells)			**-69.00**			
Average groundwater elevation change in each formation (non pumping wells)				**-73.65**	**-64.29**	**-69.70**

Notes:
Bold wells: CS-2, CS-10, CS-12, CS-13, and FO-20 are open boreholes across more than one formational unit.
? = Exact screening information unknown for this well.
Shaded wells are routinely pumped for either domestic, livestock, or environmental remediation purposes, and therefore are not used in calculating statistics.
CS-1, CS-10, CS-12, and CS-13 are current active drinking water wells.
CS-MW16-LGR, CS-MW16-CC, B3-EXW01 through B3-EXW05 pumps are cycling continuously to feed the B-3 Bioreactor.
* = submersible pump running at time of water level measurement.
Formational average groundwater elevation change is calculated from non-pumping wells screened in only one formation.
All measurements given in feet.
NA = Data not available



N

0 0.5 Miles

Flow direction

Outer fence

LGR Groundwater Contours

LGR Wells and groundwater elevation (ft above msl)

Drinking water wells (may be completed in LGR, BS, and/or CC)

* Not a fully penetrating well into LGR. Groundwater elevation not used in contouring

Figure 2.1

March 2022 Potentiometric Surface Map, LGR Wells

Camp Stanley Storage Activity

PARSONS

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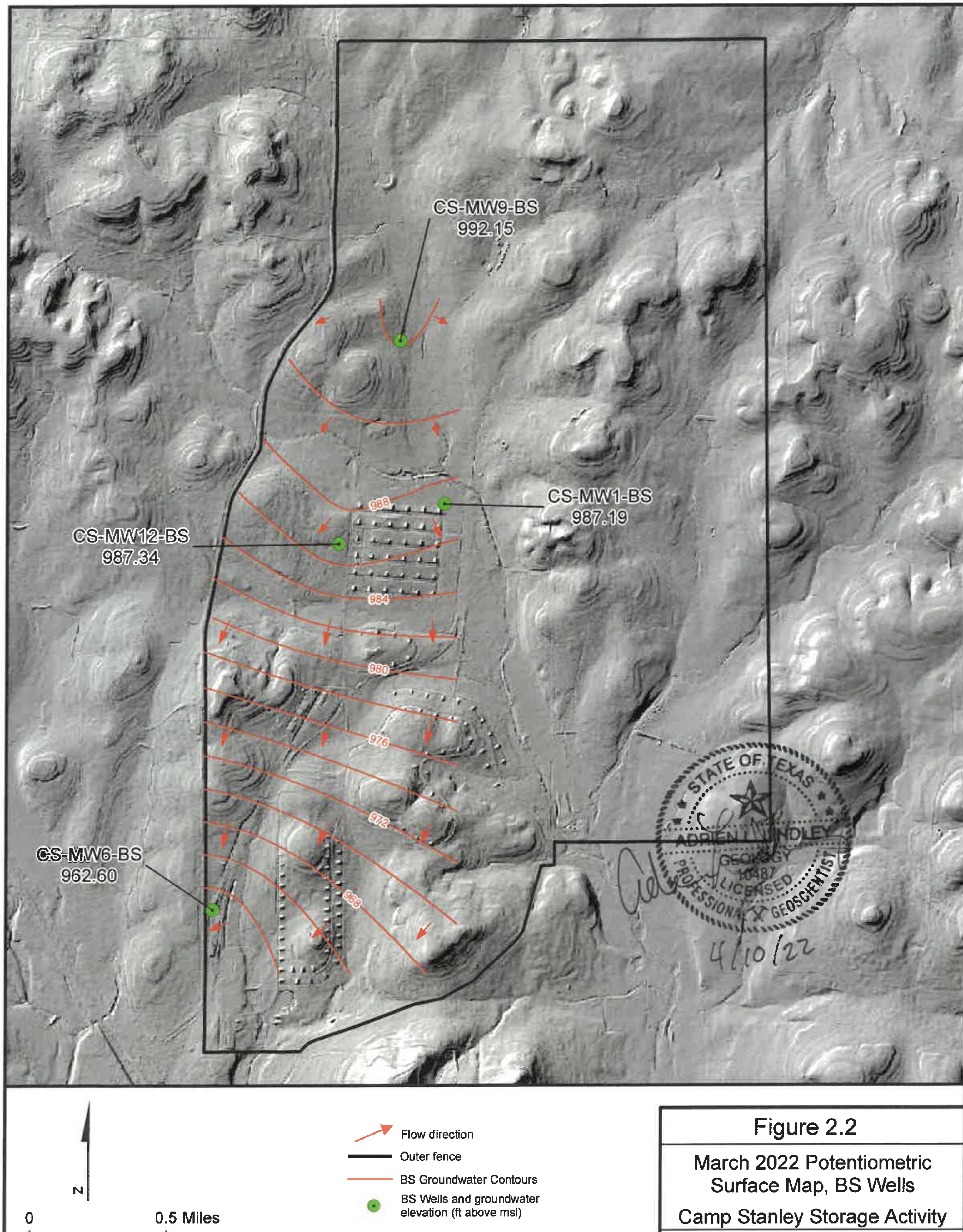

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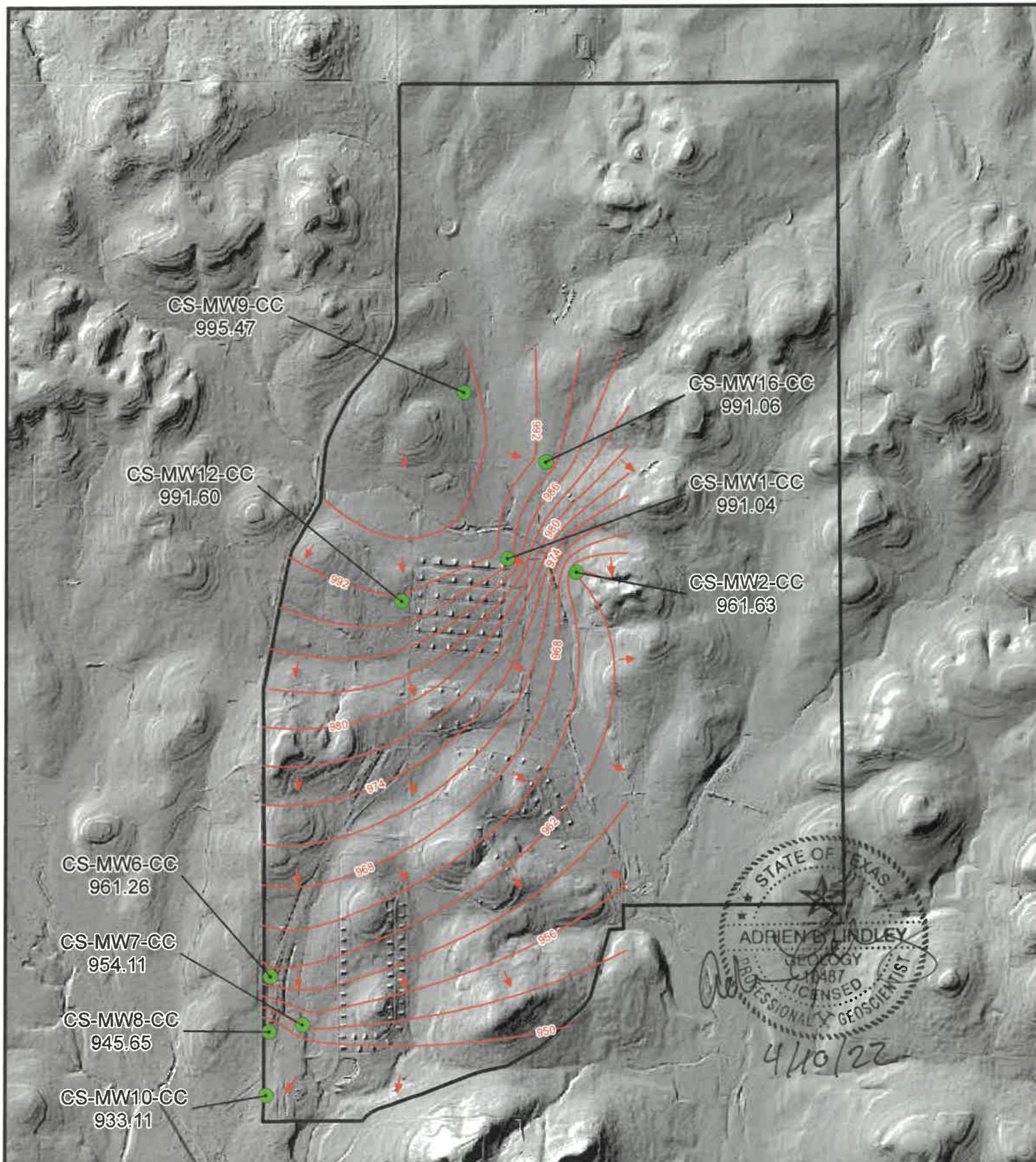
Figure 2.2

March 2022 Potentiometric Surface Map, BS Wells

Camp Stanley Storage Activity

PARSONS



N

0 0.5 Miles

Flow direction
Outer fence
CC Groundwater Contours
CC Wells and groundwater elevation (ft above msl)

Figure 2.3

March 2022 Potentiometric Surface Map, CC Wells

Camp Stanley Storage Activity

PARSONS

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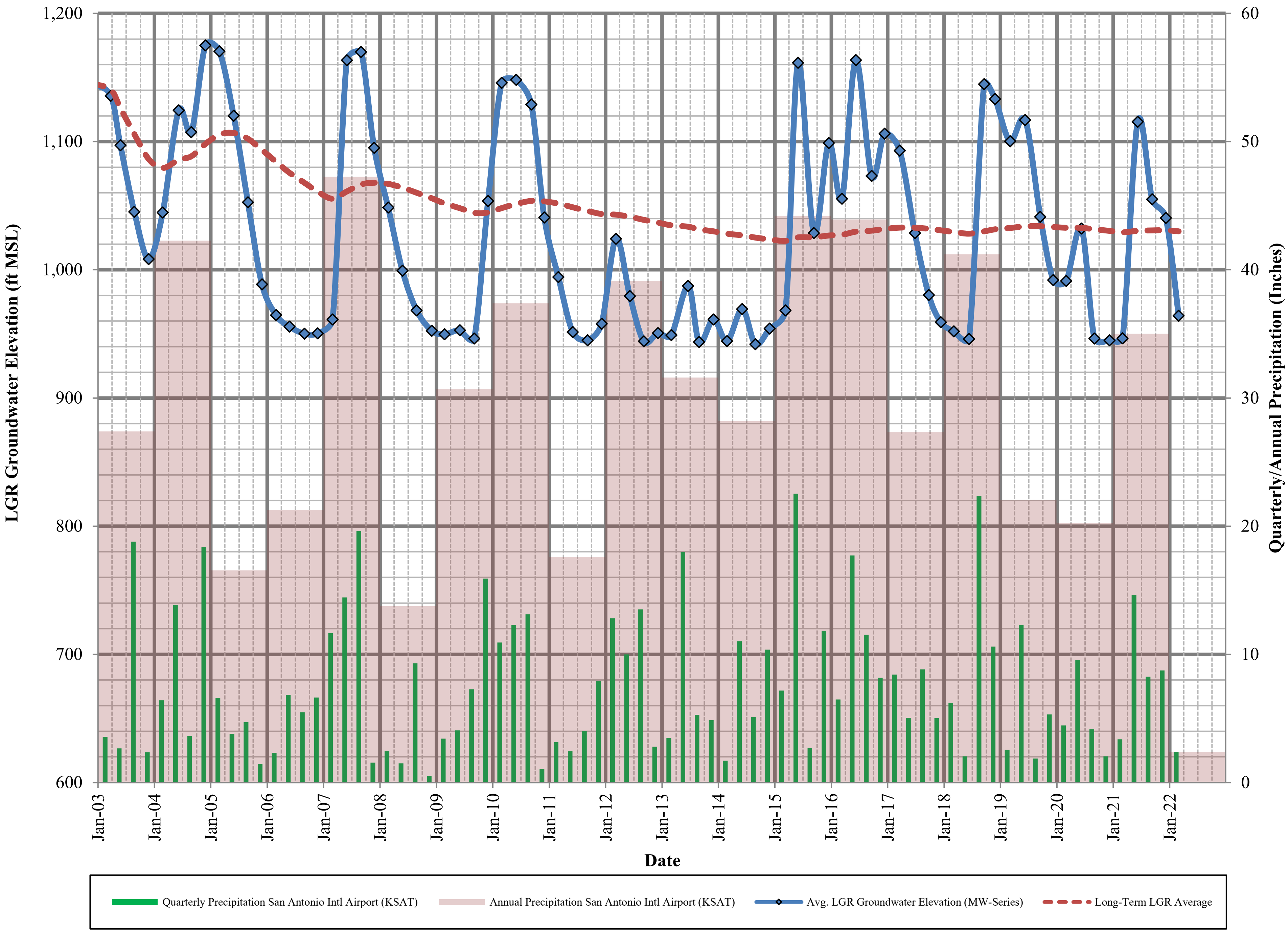
Figure 2.4 - Average LGR Groundwater Elevations and Quarterly/Annual Precipitation



It should be noted that well pumping on and around CSSA affects the potentiometric surface. On-post wells CS-MW16-LGR, CS-MW16-CC, B3-EXW01, B3-EXW02, B3-EXW03, B3-EXW04, and B3-EXW05 are cyclically pumped as part of the Bioreactor remediation system at Solid Waste Management Unit (SWMU) B-3. These remediation wells provide groundwater to the Bioreactor system and are automatically operated based upon water level within each well and availability within the storage tanks. Influences from the pumping of the Bioreactor extraction wells may be manifested as "cones of depression". The Bioreactor cone of depression is induced into the aquifer to extract contaminated water within its direct zone of influence, and otherwise retard the flow of the groundwater that cannot be directly captured by the extraction wells away from the site. The typical "cone of depression" is observed in the March 2022 LGR potentiometric surface map.

CSSA drinking water wells CS-1, CS-10, CS-12, and CS-13 are also cycled on and off to maintain the drinking water system currently in place at CSSA and, as a result, may manifest a cone of depression. In March, a slight cone of depression is observed at drinking water well CS-10. Additionally, water is pumped from well CS-MWH-LGR to maintain the water level within a stock tank in the north pasture. This pumping action resulted in a cone of depression in the northwest corner of the post. Additionally, off-post water supply wells along Ralph Fair Road may also exert a subtle influence on gradients along the western and southern boundaries of the post.

Historical groundwater monitoring at CSSA has demonstrated that the aquifer gradient typically slopes in a south-southeast direction; however, variable aquifer levels and well-pumping scenarios can affect the localized and regional gradients (**Figure 2.1**). Below average precipitation recorded during the quarter has resulted in a decrease in water levels since December 2021. The typical south-southeasterly gradient is not observed in the northern and central portions of the post in March 2022; instead, gradients are influenced by the presence of cones of depression centered at well CS-MWH-LGR, at the bioreactor extraction wells, a slightly depressed area around CS-10, as well as the groundwater mound at well CS-MW4-LGR. Pumps were running at the time water level measurements were collected at wells CS-MWH-LGR and bioreactor extraction well B3-EXW-04. In the southern (central) portion of the post, a more typical southerly gradient is observed, however, in the southeast corner of the post the gradient is more southwesterly, and in the southwest corner, slight mounding at well CS-MW37-LGR results in a northerly gradient.

Pumping action at wells CS-1, CS-10, CS-12, CS-13, CS-MW16-LGR/CC, B3-EXW01 through B3-EXW05, CS-MWH-LGR, CS-I, and even off-post wells (Fair Oaks Ranch) can significantly alter the LGR groundwater gradient. The overall groundwater gradient averaged across CSSA, is typically measured from CS-MWH-LGR to CS-1, however, with continued pumping at CS-MWH-LGR and the resulting cone of depression at this location, a gradient calculated from this well would not be representative of the overall gradient across the site. Off-post well FO-20 is a viable substitute for CS-MWH-LGR. The gradient calculated from well FO-20 to CS-1 in March was 0.005706 ft/ft indicating southerly flow.

Under normal conditions, the potentiometric surface in both the BS and CC members of the aquifer generally trend in a southerly direction, similar to the LGR, but during periods of above-average water levels or intense aquifer recharge, an eastward component in both the BS and CC may develop. In March 2022, the average groundwater elevation of the BS was 982.32 feet MSL, a decrease of 64.29 feet since December; and groundwater flow was to the south-southwest across the post (**Figure 2.2**).

A review of historical data has shown that the CC potentiometric surface develops a predominantly easterly gradient when the average CC groundwater elevation is higher than 995 feet MSL. Below 995 feet MSL, the gradient resumes a more southerly flow direction. In March 2022, the average groundwater elevation for all non-pumping CC wells was 968.02 feet MSL, and a mostly southerly gradient is evident, however an easterly gradient is observed in the central portion of the post (**Figure 2.3**).

Groundwater elevations have been measured and recorded since 1992. Previous droughts resulted in water levels decreasing substantially in 1996, 1999, 2000, 2006, 2008, 2009, 2011 through 2014 and most recently from June 2017 to August 2018. In September 2018, historic rainfalls and above-average rains in the fourth quarter contributed to an average LGR groundwater elevation of 1,133.18 feet MSL by December (101.62 feet above the 16-year long-term average). Below average rainfall in the third and fourth quarters of 2019 resulted in a 124.76-foot decline in water level elevation from June to December. Continuing that trend through September 2020, the below average precipitation received resulted in an additional 47-foot decline in the water level elevation since December 2019. From September 2020 through March 2021, below average precipitation persisted, resulting in a less than 2-foot fluctuation in the average LGR groundwater elevation. Above average rain in March resulted in a significant increase in water levels and an end to drought conditions, however average rains through the remainder of 2021 could not maintain the above average water levels within the aquifer. With well below average precipitation recorded during first quarter of 2022, the water level within the LGR has fallen 76.34 feet since December 2021 to 964.11 feet MSL, which is 65.84 feet below the long-term average of 1029.98 feet (now at 19.5 years).

It is worth noting that, based on more than 19 years of program history, the post wide LGR groundwater level has declined by 114.63 feet (see **Figure 2.4**). As can be expected with sparse data sets, the largest rate of change/decline (90 feet) came during the initial 4 years of the groundwater monitoring program. Over the past 10 years, the average decline rate has subdued, with only a 11.38-foot difference in average water groundwater elevation. This 10-year period included 24 quarters with below average groundwater elevations and 16 quarters of above average groundwater elevations. Over the course of the 19.5-year history of CSSA groundwater monitoring, the aquifer level is “below average” approximately 62.8 percent of the time. Over the last three years (12 monitoring events), the aquifer has been “below average” 58 percent of the time.

3.0 MARCH ANALYTICAL RESULTS

3.1 Monitoring Wells

Under the provisions of the groundwater monitoring DQOs and the 2020 LTMO evaluation, the schedule for sampling on-post in March 2022 included 43 wells. Forty-one of forty-three wells were sampled in March. Two wells (CS-D and CS-MW11B-LGR) were not sampled due to the water level falling below the dedicated bladder pump. In conjunction with the off-post monitoring initiative (under a separate report) the March 2022 groundwater sampling constituted a "30 month snapshot" event as outlined in the 2020 LTMO schedule, which was implemented in December 2020.

Additional samples were collected as part of the SWMU B-3 bioreactor Corrective Measures operations; these results will be documented in separate reports. **Tables 3.1** and **3.2** provide a sampling overview for March 2022 and the schedule under the LTMO recommendations. The wells listed in **Table 3.1** are sampled using dedicated low-flow gas-operated bladder pumps. Wells CS-1, CS-10, CS-12, CS-13, CS-MWH-LGR, and CS-I were sampled using dedicated electric or solar submersible pumps. **Figure 3.1** shows well sampling locations.

All wells sampled were purged until the field parameters of pH, temperature, and conductivity stabilized. The on-post wells were sampled in March 2022 for volatile organic compounds (VOCs) analytes which include *cis*-1,2-dichloroethene (*cis*-1,2-DCE), tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride. Metals analyses is included in active groundwater remediation sites (AOC-65 and B-3), as well as on-post drinking water wells. As such, active drinking water wells CS-1, CS-10, CS-12, and CS-13 were analyzed for the same VOC analytes and metals (arsenic, barium, chromium, copper, zinc, cadmium, mercury, and lead).

Samples were analyzed by Eurofins TestAmerica (ETA) in Arvada, Colorado. All detected concentrations of VOCs and metals are presented in **Table 3.3**. Full analytical results are presented in **Appendix B**.

Two wells (CS-MW1-LGR and CS-MW36-LGR) sampled this quarter had VOCs detected above the applicable Maximum Contaminant Levels (MCL). A comparison of VOC concentrations versus water level for select wells is presented in **Figure 3.2**. The overall trend for CS-MW1-LGR and CS-MW5-LGR sampled in March 2022 was a slight increase in VOC concentrations with a significant decrease in groundwater elevation. Wells MW36-LGR and CS-3 showed a decrease in VOC concentrations as well as a decrease in groundwater elevation. CS-MW5-LGR has been sampled since 2001, but it did not show concentrations of PCE and TCE above the MCL until December 2015. PCE and TCE remained above the MCL through 2017 then dropped back below in 2018. TCE was detected above the MCL again in December 2019. In December 2020 and March 2022 no VOC were above the MCL in well CS-MW5-LGR. This quarter the overall groundwater elevation in all wells indicates a steep drop in elevation following the significant recovery from June 2021. Wells presented in **Figure 3.2** are sampled every 15 months according to the current LTMO, with the next scheduled event occurring in June 2023. Also, well CS-D was not sampled in March 2022 due to the water level falling below the well pump.

Table 3-1
Overview of On-Post Sampling for March 2022

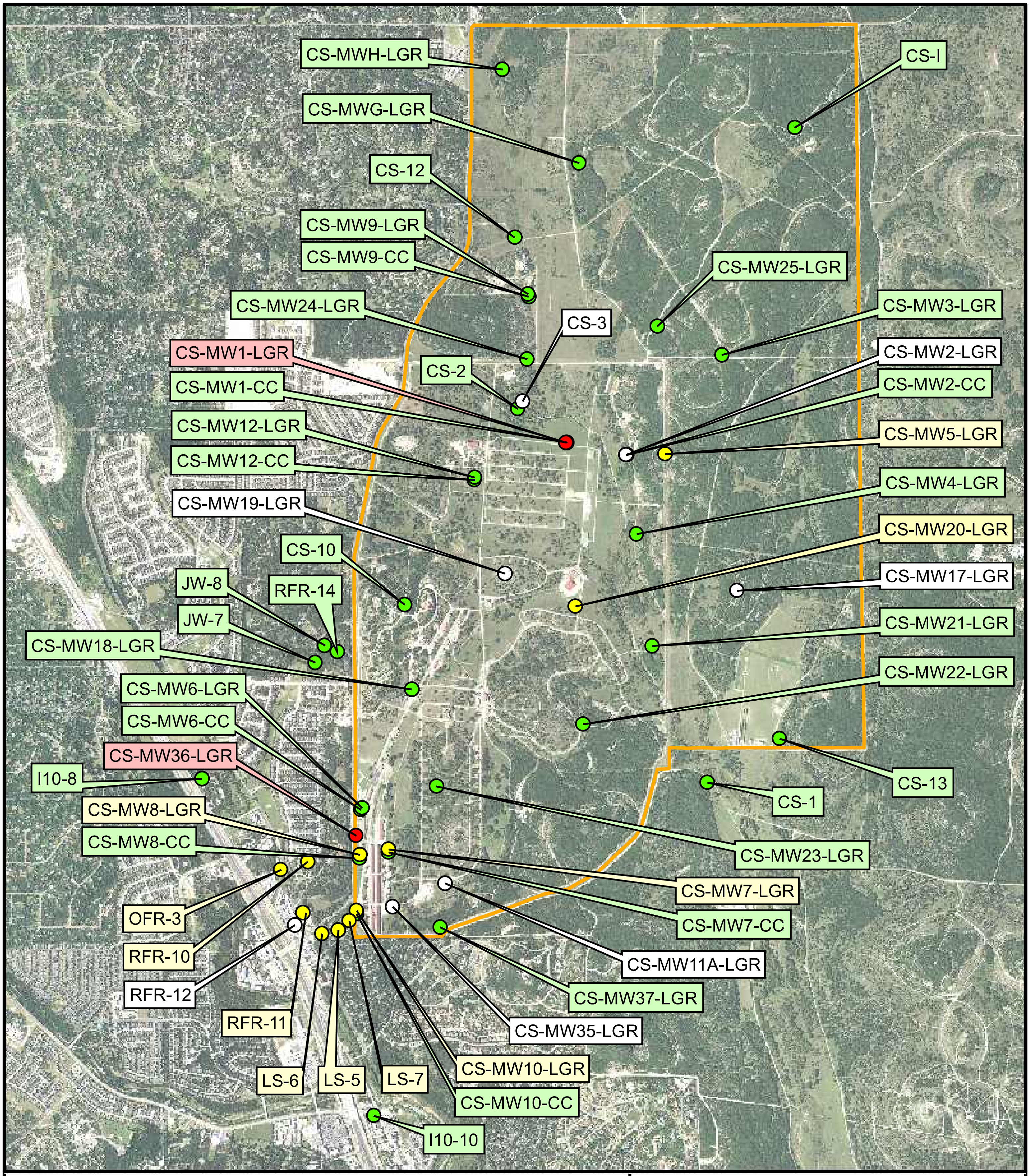
Count	Well ID	Analytes	Last Sample Date	Jun-21	Sep-21	Dec-21	Mar-22 (30 month)	LTMO Sampling Frequency*
1	CS-MW1-LGR	VOCs	Dec-20	NS	NS	NS	S	15 months
	CS-MW1-BS	VOCs	Dec-12	NS	NS	NS	NS	as needed
2	CS-MW1-CC	VOCs	Dec-19	NS	NS	NS	S	30 months
3	CS-MW2-LGR	VOCs	Dec-19	NS	NS	NS	S	30 months
4	CS-MW2-CC	VOCs	Dec-19	NS	NS	NS	S	30 months
5	CS-MW3-LGR	VOCs	Dec-19	NS	NS	NS	S	30 months
6	CS-MW4-LGR	VOCs	Dec-19	NS	NS	NS	S	30 months
7	CS-MW5-LGR	VOCs	Dec-20	NS	NS	NS	S	15 months
8	CS-MW6-LGR	VOCs	Dec-20	NS	NS	NS	S	15 months
	CS-MW6-BS	VOCs	Dec-12	NS	NS	NS	NS	as needed
9	CS-MW6-CC	VOCs	Dec-19	NS	NS	NS	S	30 months
10	CS-MW7-LGR	VOCs	Dec-20	NS	NS	NS	S	15 months
11	CS-MW7-CC	VOCs	Dec-19	NS	NS	NS	S	30 months
12	CS-MW8-LGR	VOCs	Dec-20	NS	NS	NS	S	15 months
13	CS-MW8-CC	VOCs	Dec-20	NS	NS	NS	S	15 months
14	CS-MW9-LGR	VOCs	Dec-19	NS	NS	NS	S	30 months
	CS-MW9-BS	VOCs	Dec-12	NS	NS	NS	NS	as needed
15	CS-MW9-CC	VOCs	Dec-19	NS	NS	NS	S	30 months
16	CS-MW10-LGR	VOCs	Dec-19	NS	NS	NS	S	15 months
17	CS-MW10-CC	VOCs	Dec-19	NS	NS	NS	S	30 months
18	CS-MW11A-LGR	VOCs	Dec-20	NS	NS	NS	S	15 months
19	CS-MW11B-LGR	VOCs	Sep-18	NS	NS	NS	NSWL	15 months
20	CS-MW12-LGR	VOCs	Dec-20	NS	NS	NS	S	15 months
	CS-MW12-BS	VOCs	Dec-12	NS	NS	NS	NS	as needed
21	CS-MW12-CC	VOCs	Dec-19	NS	NS	NS	S	30 months
22	CW-MW17-LGR	VOCs	Dec-20	NS	NS	NS	S	15 months
23	CS-MW18-LGR	VOCs	Dec-19	NS	NS	NS	S	30 months
24	CS-MW19-LGR	VOCs	Dec-19	NS	NS	NS	S	30 months
25	CS-1	VOCs & metals (As,Ba,Cr, Cu,Cd,Hg,Pb,Zn)	Dec-21	S	S	S	S	Quarterly
26	CS-2	VOCs	Jun-20	NS	NS	NS	S	30 months
27	CS-3	VOCs	Dec-20	NS	NS	NS	S	15 months
28	CS-10	VOCs & metals (As,Ba,Cr, Cu,Cd,Hg,Pb,Zn)	Dec-21	S	S	S	S	Quarterly
29	CS-12	VOCs & metals (As,Ba,Cr, Cu,Cd,Hg,Pb,Zn)	Dec-21	S	S	S	S	Quarterly
30	CS-13	VOCs & metals (As,Ba,Cr, Cu,Cd,Hg,Pb,Zn)	Dec-21	S	S	S	S	Quarterly
31	CS-D	VOCs	Dec-19	NS	NS	NS	NSWL	15 months
32	CS-MWG-LGR	VOCs	Dec-19	NS	NS	NS	S	30 months
33	CS-MWH-LGR	VOCs	Jun-17	NS	NS	NS	S	30 months
34	CS-I	VOCs	Dec-19	NS	NS	NS	S	30 months
35	CS-MW20-LGR	VOCs	Dec-19	NS	NS	NS	S	30 months
36	CS-MW21-LGR	VOCs	Dec-19	NS	NS	NS	S	30 months
37	CS-MW22-LGR	VOCs	Dec-19	NS	NS	NS	S	30 months
38	CS-MW23-LGR	VOCs	Dec-19	NS	NS	NS	S	30 months
39	CS-MW24-LGR	VOCs	Dec-19	NS	NS	NS	S	30 months
40	CS-MW25-LGR	VOCs	Dec-19	NS	NS	NS	S	30 months
41	CS-MW35-LGR	VOCs	Dec-20	NS	NS	NS	S	15 months
42	CS-MW36-LGR	VOCs	Dec-20	NS	NS	NS	S	15 months
43	CS-MW37-LGR	VOCs	Dec-20	NS	NS	NS	S	15 months

Notes/Abrreviations:
* New LTMO sampling frequency implemented December 2020.
S = Sample
NS = No Sample
NSWL = no sample due to water level falling below dedicated pump.

Table 3-2
Overview of Westbay Sampling for March 2022

Westbay Interval	Last Sample Date	Jun-21	Sep-21	Dec-21	Mar-22 (30 month)	LTMO Sampling Frequency (as of Dec. 2020)
CS-WB01-UGR-01	Sep-18	NS	NS	NS	NSWL	15 months
CS-WB01-LGR-01	Dec-20	NS	NS	NS	S	15 months
CS-WB01-LGR-02	Dec-20	NS	NS	NS	S	15 months
CS-WB01-LGR-03	Dec-20	NS	NS	NS	S	15 months
CS-WB01-LGR-04	Dec-20	NS	NS	NS	S	15 months
CS-WB01-LGR-05	Dec-20	NS	NS	NS	S	15 months
CS-WB01-LGR-06	Dec-20	NS	NS	NS	S	15 months
CS-WB01-LGR-07	Dec-20	NS	NS	NS	S	15 months
CS-WB01-LGR-08	Dec-20	NS	NS	NS	S	15 months
CS-WB01-LGR-09	Dec-20	NS	NS	NS	S	15 months
CS-WB02-UGR-01	Dec-04	NS	NS	NS	NS	port clogged
CS-WB02-LGR-01	Sep-18	NS	NS	NS	NSWL	15 months
CS-WB02-LGR-02	Sep-18	NS	NS	NS	NSWL	15 months
CS-WB02-LGR-03	Dec-20	NS	NS	NS	S	15 months
CS-WB02-LGR-04	Dec-20	NS	NS	NS	S	15 months
CS-WB02-LGR-05	Dec-20	NS	NS	NS	S	15 months
CS-WB02-LGR-06	Dec-20	NS	NS	NS	S	15 months
CS-WB02-LGR-07	Dec-20	NS	NS	NS	S	15 months
CS-WB02-LGR-08	Dec-20	NS	NS	NS	S	15 months
CS-WB02-LGR-09	Dec-20	NS	NS	NS	S	15 months
CS-WB03-UGR-01	Dec-20	NS	NS	NS	S	15 months
CS-WB03-LGR-01	Dec-19	NS	NS	NS	NSWL	15 months
CS-WB03-LGR-02	Jun-16	NS	NS	NS	NSWL	15 months
CS-WB03-LGR-03	Dec-20	NS	NS	NS	S	15 months
CS-WB03-LGR-04	Dec-20	NS	NS	NS	S	15 months
CS-WB03-LGR-05	Dec-20	NS	NS	NS	S	15 months
CS-WB03-LGR-06	Dec-20	NS	NS	NS	S	15 months
CS-WB03-LGR-07	Dec-20	NS	NS	NS	S	15 months
CS-WB03-LGR-08	Dec-20	NS	NS	NS	S	15 months
CS-WB03-LGR-09	Dec-20	NS	NS	NS	S	15 months
CS-WB04-UGR-01	Nov-04	NS	NS	NS	NSWL	15 months
CS-WB04-LGR-01	Dec-20	NS	NS	NS	S	15 months
CS-WB04-LGR-02	Mar-10	NS	NS	NS	NSWL	30 months
CS-WB04-LGR-03	Dec-19	NS	NS	NS	S	30 months
CS-WB04-LGR-04	Dec-19	NS	NS	NS	S	30 months
CS-WB04-LGR-06	Dec-20	NS	NS	NS	S	15 months
CS-WB04-LGR-07	Dec-20	NS	NS	NS	S	15 months
CS-WB04-LGR-08	Dec-20	NS	NS	NS	S	15 months
CS-WB04-LGR-09	Dec-20	NS	NS	NS	S	15 months
CS-WB04-LGR-10	Dec-20	NS	NS	NS	S	15 months
CS-WB04-LGR-11	Dec-20	NS	NS	NS	S	15 months
CS-WB04-BS-01	Dec-20	NS	NS	NS	S	15 months
CS-WB04-BS-02	Dec-20	NS	NS	NS	S	15 months
CS-WB04-CC-01	Dec-20	NS	NS	NS	S	15 months
CS-WB04-CC-02	Dec-20	NS	NS	NS	S	15 months
CS-WB04-CC-03	Dec-20	NS	NS	NS	S	15 months

Profiling performed quarterly, in conjunction with post wide water levels.
S = sample
NS = no sample
NSWL = no sample due to dry port.



N
W E
S

0 0.25 0.5 Miles

Sampled Wells March 2022

- > MCL (VOC's) only
- > LOQ (VOC's) only
- > DL (VOC's) only
- ND

C:\CSSA\GIS\MXD\GW_QUARTERLY\Mar22_Sampled_Wells_fig2_color-coded_labels.mxd 5/12/2022 8:31:12 AM wayne.simoneau@parsons.com

Figure 3-1

On-Post and Off-Post Well Sampling Locations for March 2022

Camp Stanley Storage Activity

PARSONS

Table 3-3
March 2022 On-Post Quarterly Groundwater Results, Detected Analytes

Well ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Zinc	Mercury
CSSA Drinking Water Well System									
CS-1	3/24/2022	--	**0.0363**	--	**0.000990F**	--	--	**0.0345F**	--
CS-1 FD	3/24/2022	--	**0.0362**	--	--	--	--	**0.0334F**	--
CS-10	3/24/2022	--	**0.0383**	--	--	--	--	**0.0708F**	--
CS-12	3/24/2022	--	**0.0323**	--	**0.000758F**	**0.00429F**	--	**0.204**	--
CS-13	3/24/2022	--	**0.0295**	--	--	**0.00701F**	--	**0.267M**	--
Comparison Criteria									
Detection Limit (DL)		**0.00441**	**0.000820**	**0.000452**	**0.000663**	**0.00420**	**0.00274**	**0.00453**	**0.0000270**
Limit of Quantitation (LOQ)		**0.0250**	**0.0100**	**0.00500**	**0.0150**	**0.0150**	**0.0150**	**0.150**	**0.000200**
Max. Contaminant Level (MCL)		**0.01**	**2**	**0.005**	**0.1**	**AL=1.3**	**AL=0.015**	**SS=5.0**	**0.002**

Well ID	Sample Date	cis-1,2-DCE	PCE	TCE	Vinyl Chloride
CS-MW1-LGR	3/14/2022	**21.7**	**16.4**	**28.5**	--
CS-MW1-CC	3/14/2022	--	--	--	--
CS-MW2-LGR	3/10/2022	**0.249F**	--	--	--
CS-MW2-CC	3/30/2022	--	--	--	--
CS-MW3-LGR	3/16/2022	--	--	--	--
CS-MW4-LGR	3/10/2022	--	--	--	--
CS-MW4-LGR FD	3/10/2022	--	--	--	--
CS-MW5-LGR	3/14/2022	**9.49**	**2.38**	**4.78**	--
CS-MW6-LGR	3/21/2022	--	--	--	--
CS-MW6-CC	3/21/2022	--	--	--	--
CS-MW7-LGR	3/21/2022	--	**2.51J**	**0.606F**	--
CS-MW7-CC	3/21/2022	--	--	--	--
CS-MW8-LGR	3/21/2022	--	**2.80**	--	--
CS-MW8-LGR FD	3/21/2022	--	**3.20**	--	--
CS-MW8-CC	3/30/2022	--	--	--	--
CS-MW9-LGR	3/21/2022	--	--	--	--
CS-MW9-CC	3/30/2022	--	--	--	--
CS-MW10-LGR	3/16/2022	--	**2.04**	**0.519F**	--
CS-MW10-CC	3/21/2022	--	--	--	--
CS-MW11A-LGR	3/16/2022	--	**0.612F**	--	--
CS-MW12-LGR	3/10/2022	--	--	--	--
CS-MW12-CC	3/15/2022	--	--	--	--
CS-MW17-LGR	3/9/2022	--	**0.712F**	--	--
CS-MW18-LGR	3/15/2022	--	--	--	--
CS-MW19-LGR	3/10/2022	--	**0.739F**	--	--
CS-MW20-LGR	3/9/2022	--	**1.16**	--	--
CS-MW21-LGR	3/10/2022	--	--	--	--
CS-MW22-LGR	3/16/2022	--	--	--	--
CS-MW23-LGR	3/15/2022	--	--	--	--
CS-MW23-LGR FD	3/15/2022	--	--	--	--
CS-MW24-LGR	3/9/2022	--	--	--	--
CS-MW25-LGR	3/9/2022	--	--	--	--
CS-MW25-LGR FD	3/9/2022	--	--	--	--
CS-MW35-LGR	3/16/2022	--	**0.564F**	--	--
CS-MW36-LGR	3/30/2022	**0.595F**	**21.2**	**27.6**	--
CS-MW37-LGR	3/16/2022	--	--	--	--
CS-MWG-LGR	3/9/2022	--	--	--	--
CS-MWH-LGR	3/9/2022	--	--	--	--
CS-I	3/9/2022	--	--	--	--
CS-2	3/14/2022	--	--	--	--
CS-3	3/14/2022	--	**0.436F**	--	--
CSSA Drinking Water Well System					
CS-1	3/24/2022	--	--	--	--

Table 3-3
March 2022 On-Post Quarterly Groundwater Results, Detected Analytes

CS-1 FD	3/24/2022	--	--	--	--
CS-10	3/24/2022	--	--	--	--
CS-12	3/24/2022	--	--	--	--
CS-13	3/24/2022	--	--	--	--
Comparison Criteria					
Detection Limit (DL)		**0.150**	**0.200**	**0.160**	**0.100**
Limit of Quantitation (LOQ)		**1.00**	**1.00**	**1.00**	**1.50**
Max. Contaminant Level (MCL)		**70**	**5**	**5**	**2**

BOLD	= Above the DL
BOLD	= Above the LOQ
BOLD	= Above the MCL

Precipitation per Quarter:	Mar-22
AOC-65 Weaterh Sation (AOC-65 WS):	1.52
MW18 Weather Station (MW18 WS):	1.97

All samples were analyzed by Eurofins TestAmerica
VOC data reported in ug/L & metals data reported in mg/L.

Abbreviations/Notes:

FD	Field Duplicate
TCE	Trichloroethene
PCE	Tetrachloroethene
DCE	Dichloroethene
AL	Action Level
SS	Secondary Standard
NA	Not Analyzed for this parameter

Data Qualifiers

--The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
F-The analyte was positively identified but the associated numerical value is below the RL.
J-The analyte was positively identified; the quantitation is an estimation.
M-Concentration is estimated due to a matrix effect.

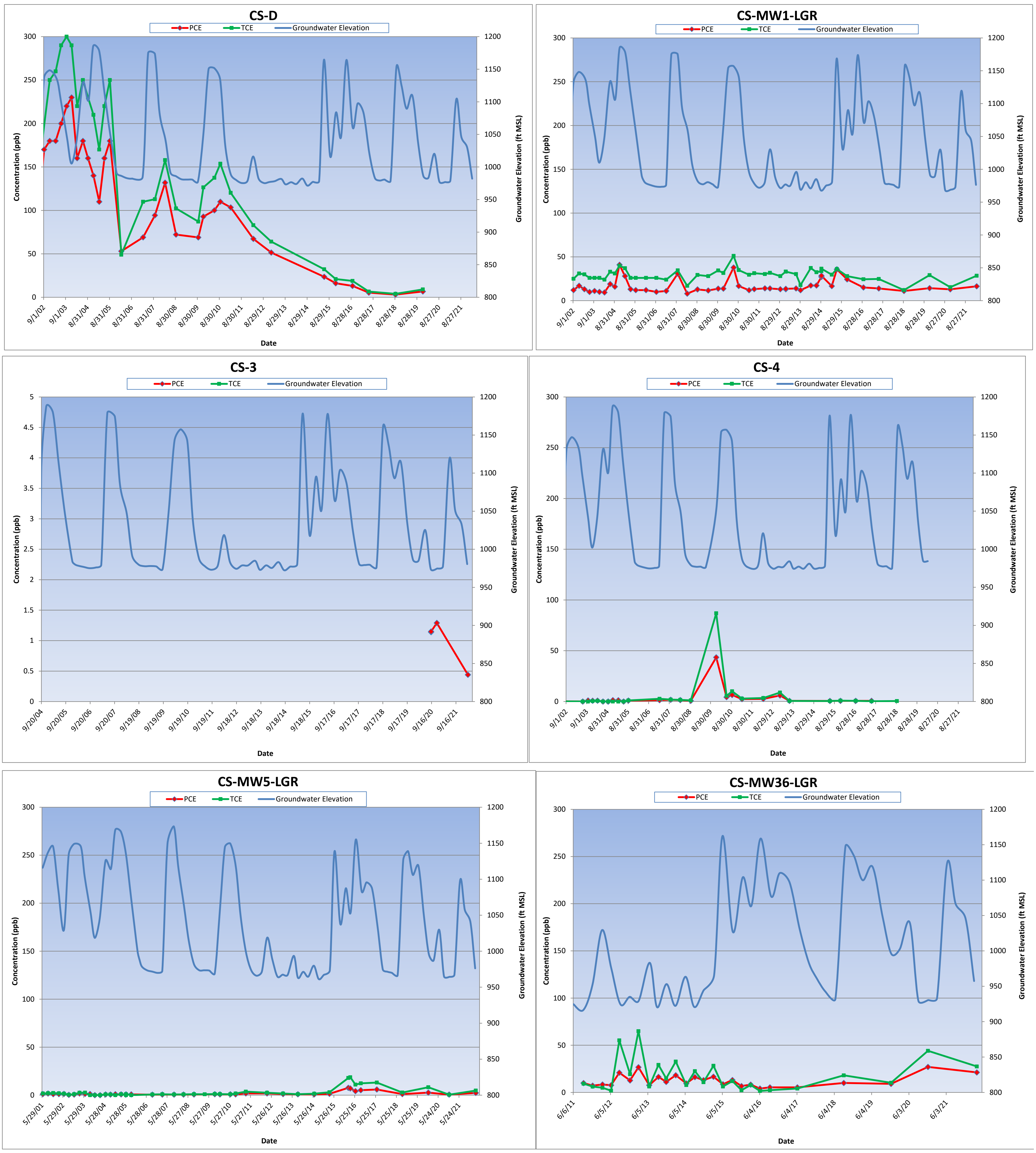
Table 3.4
March 2022 Westbay Analytical Results, Detected Analytes

Well ID	Date Sampled	cis-1,2-DCE (cis-1,2-dichloroethene)	TCE (trichloroethene)	PCE (tetrachloroethene)	Vinyl Chloride
CS-WB01-LGR-01	3/17/2022	--	**0.639F**	**3.38**	--
CS-WB01-LGR-02	3/17/2022	--	**2.35**	**16.5**	--
CS-WB01-LGR-03	3/17/2022	**0.214F**	**5.39**	**3.37**	--
CS-WB01-LGR-04	3/17/2022	**1.25**	--	--	--
CS-WB01-LGR-05	3/17/2022	**2.73**	**0.229F**	--	--
CS-WB01-LGR-06	3/17/2022	**4.02**	**13.5**	**0.344F**	--
CS-WB01-LGR-07	3/17/2022	**8.43**	**5.64**	**4.73**	--
CS-WB01-LGR-08	3/17/2022	**14.4**	--	--	--
CS-WB01-LGR-09	3/17/2022	**3.55**	**12.6**	**13.6**	--
CS-WB02-LGR-03	3/18/2022	--	**0.225F**	**1.88**	--
CS-WB02-LGR-04	3/18/2022	--	**3.14**	**3.17**	--
CS-WB02-LGR-05	3/18/2022	**0.316F**	**1.34**	**0.513F**	--
CS-WB02-LGR-06	3/18/2022	**0.705F**	**0.783F**	**3.12**	--
CS-WB02-LGR-07	3/18/2022	**0.723F**	**0.644F**	--	--
CS-WB02-LGR-08	3/18/2022	**2.47**	--	--	--
CS-WB02-LGR-09	3/17/2022	--	**9.79**	**11.9**	--
CS-WB03-UGR-01	3/22/2022	--	**171F***	**20300***	--
CS-WB03-LGR-03	3/22/2022	--	**0.742F**	**3.22**	--
CS-WB03-LGR-04	3/22/2022	**1.80**	**4.09**	**11.9**	--
CS-WB03-LGR-05	3/22/2022	**21.3**	**1.54**	--	--
CS-WB03-LGR-06	3/22/2022	**2.22**	--	--	--
CS-WB03-LGR-07	3/22/2022	**1.65**	--	--	**0.318F**
CS-WB03-LGR-08	3/22/2022	**1.47**	**0.222F**	--	--
CS-WB03-LGR-09	3/22/2022	--	**2.16**	**3.69**	--
CS-WB04-LGR-01	3/23/2022	--	--	**1.30**	--
CS-WB04-LGR-03	3/23/2022	--	--	**0.734F**	--
CS-WB04-LGR-04	3/23/2022	--	**0.162F**	**0.406F**	--
CS-WB04-LGR-06	3/23/2022	**2.86**	**6.78**	**21.5**	--
CS-WB04-LGR-07	3/23/2022	**4.93**	**11.1**	**7.49**	--
CS-WB04-LGR-08	3/23/2022	**0.878F**	**0.228F**	**1.07**	--
CS-WB04-LGR-09	3/23/2022	--	**4.03**	**6.62**	--
CS-WB04-LGR-10	3/23/2022	--	**0.298F**	**3.24**	--
CS-WB04-LGR-11	3/23/2022	--	--	**1.94**	--
CS-WB04-BS-01	3/23/2022	--	--	**1.14**	--
CS-WB04-BS-02	3/23/2022	--	--	**2.43**	--
CS-WB04-CC-01	3/23/2022	**1.24**	--	**2.27**	--
CS-WB04-CC-02	3/23/2022	--	--	**3.68**	--
CS-WB04-CC-03	3/23/2022	--	--	**18.6**	--
Comparison Criteria					
Detection Limit	**DL**	**0.150**	**0.160**	**0.200**	**0.100**
Limit of Quantitation	**LOQ**	**1.00**	**1.00**	**1.00**	**1.50**
Max. Contaminant Level	**MCL**	**70**	**5**	**5**	**2**

Data Qualifiers
'--' indicates the result was non-detect.
F-The analyte was positively identified but the associated numerical value is below the RL.
* dilution of 200 run for this sample.
All values are reported in µg/L.

BOLD = Above the DL
BOLD (blue) = Above the LOQ
BOLD (red) = Above the MCL

Figure 3.2
On-Post Cumulative Analytical vs. Groundwater Elevation



NOTE: Sampling dates are indicated by the squares on the trend line.

Results from on-post monitoring wells are considered definitive data and are subject to data validation and verification under provisions of the CSSA Quality Assurance Project Plan (QAPP). Parsons data packages numbered 280-159712, 280-159703, 280-159879, 280-159984, 280-146, 280-160340 containing the analytical results from this sampling event, were received by Parsons March 22 through April 15, 2022. Data validation was conducted, and data validation reports are presented in **Appendix C**.

3.2 Westbay-equipped Wells

The latest updated LTMO schedule was implemented in December 2020. In March 2022, 45 Westbay Well zones were scheduled for sampling. These wells (CS-WB01, CS-WB02, CS-WB03, and CS-WB04) were also profiled to capture water level data. These Westbay wells are located in the vicinity of AOC-65 and are part of the post-wide quarterly groundwater monitoring program. Per the approved 2020 LTMO, the Upper Glen Rose (UGR)/LGR/BS/CC zones are to be sampled on a 15-month schedule. Select LGR zones from WB04 are sampled on a 30-month schedule. The sampling of these wells began in September 2003.

There are four other Westbay wells (CS-WB05, CS-WB06, CS-WB07, and CS-WB08) that are located at the SWMU B-3 remediation site. Those wells are sampled on a separate schedule in association with the SWMU B-3 bioreactor monitoring. Results for those wells are presented in the SWMU B-3 Performance Status Reports.

Due to low groundwater elevations, certain zones (CS-WB01-UGR-01, CS-WB02-LGR-01, CS-WB02-LGR-02, CS-WB03-LGR-01, CS-WB03-LGR-02, CS-WB04-UGR-01, and CS-WB04-LGR-02) could not be sampled in March because they were dry. CS-WB02-UGR-01 was not sampled due to a clogged sampling port and CS-WB04-LGR-05 was not sampled due to a non-operational sampling port. The remaining 38 zones scheduled for sampling contained water and were sampled. The Westbay®-equipped wells are sampled using Westbay Instruments, Inc., equipment and sampling methods.

4.0 MARCH 2022 SUMMARY

- Groundwater samples were collected from 41 of 43 on-post wells scheduled for monitoring in March 2022 at CSSA.
- From January 1st through March 31st, 2022, CSSA's AOC-65 weather stations recorded 1.52 inches of rainfall and the MW18 weather station recorded 1.97 inches. Most of the rainfall this quarter fell in February. The AOC-65 and MW18 WSs recorded 0.34/0.48 inches in January, 0.9/1.15 inches in February, and 0.28/0.34 inches in March. No events had greater than one inch of daily rainfall during this period.
- The Middle Trinity aquifer levels (LGR, BS, and CC) decreased an average of 69.0 feet per non-pumping well since last quarter. The average water level in March (excluding pumping wells) was 280.94 feet BTOC (968.47 feet MSL).
- VOCs were detected above the MCL in 2 wells (CS-MW36-LGR and CS-MW1-LGR) sampled in March 2022. (**Table 3.3**).
- There were no metals detected above the MCL/AL/SS in the wells sampled in March 2022.
- Seventeen Westbay® intervals had detections above the MCL in March 2022. Most notably WB04-CC-03 showed a significant increase in PCE from non-detect in January 2021 to 18.6 µg/L in March 2022. Due to increasing levels in the bottom portion of WB04 increased sampling is recommended for the 3 WB04-CC zones along with the WB04-LGR-11 zone. These zones will be sampled quarterly for one year to determine new trends or plume movement in the area. The remaining intervals should remain on the 15- and 30-month sampling schedules in the future as recommended in the LTMO study.
- The 2020 update to the LTMO and DQOs was approved by the EPA and TCEQ in September 2020, see **Appendix D**. These updated schedules were implemented in December 2020.

APPENDIX A

EVALUATION OF DATA QUALITY OBJECTIVES ATTAINMENT

Appendix A Evaluation of Data Quality Objectives Attainment

Activity	Objectives	Action	Objective Attained?	Recommendations
Field Sampling	Conduct field sampling in accordance with procedures defined in the project work plan, SAP, QAPP, PSHEP, and LTMO recommendations.	All sampling was conducted in accordance with the procedures described in the project plans.	Yes.	NA
Characterization of Environmental Setting (Hydrogeology)	Prepare water-level contour and/or potentiometric maps for each formation of the Middle Trinity Aquifer (3.5.3).	Potentiometric surface maps were prepared based on water levels measured in each of CSSA's wells screened in three formations on March 3, 2022.	To the extent possible with data available. Due to the limited data available and the fact that wells are completed across multiple water-bearing units, potentiometric maps should only be used for regional water flow direction, not local. Ongoing pumping in the CSSA area likely affects the natural groundwater flow direction.	As additional wells are installed screened in distinct formations, future evaluations will eliminate reliance on wells screened across multiple formations.
	Describe the flow system, including the vertical and horizontal components of flow (2.1.9).	Potentiometric maps were created using March 3, 2022, water level data, and horizontal flow direction was tentatively identified. Insufficient data are currently available to determine vertical component of flow.	As described above, due to the lack of aquifer-specific water level information, potentiometric surface maps should only be used as an estimate of regional flow direction.	Same as above.
	Define formation(s) in the Middle Trinity Aquifer are impacted by the VOC contaminants (2.1.3).	Quarterly groundwater monitoring provides information on Middle Trinity Aquifer impacts. Monitoring wells equipped with Westbay® - multi-port samplers are sampled every 15 or 30 months.	Yes.	Continue sampling.

Activity	Objectives	Action	Objective Attained?	Recommendations
Characterization of Environmental Setting (Hydrogeology) (Continued)	Identify any temporal changes in hydraulic gradients due to seasonal influences (2.1.5).	Downloaded data from continuous-reading transducers in wells: CS-MW4-LGR, CS-MW12-LGR, CS-MW12-CC, CS-MW8-CC. CS-MW10-LGR, and CS-MW10-CC. Additional continuous reading transducers were added to the program through the SCADA project. The following wells can be uploaded to see real time water level data: CS-MW16-LGR, CS-MW16-CC, CS-1, CS-12, CS-13, and CS-10. Data was also downloaded from the AOC-65, MW18, and B-3 weather stations. Water levels will be graphed at these wells against precipitation data through December 2021 and included in the annual groundwater report.	Yes.	Continue collection of transducer data and possibly install transducers in other cluster wells.
	Characterize the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the Facility (3.1.2).	Samples for laboratory analysis were collected from 41 of 43 CSSA wells. The 4 BS wells are sampled on an 'as needed' basis as part of the groundwater program.	The horizontal and vertical extent of groundwater contamination is continuously monitored.	Continue groundwater monitoring and construct additional wells as necessary.

Activity	Objectives	Action	Objective Attained?	Recommendations
Contamination Characterization (Ground Water Contamination)	Determine the horizontal and vertical concentration profiles of all constituents of concern (COC) in the groundwater that are measured by USEPA-approved procedures (3.1.2). COCs are those chemicals that have been detected in groundwater in the past and their daughter (breakdown) products.	Groundwater samples were collected from wells: CS-1, CS-10, CS-12, CS-13, CS-MW1-LGR, CS-MW1-CC, CS-MW2-LGR, CS-MW2-CC, CS-MW3-LGR, CS-MW4-LGR, CS-MW5-LGR, CS-MW6-LGR, CS-MW6-CC, CS-MW7-LGR, CS-MW7-CC, CS-MW8-LGR, CS-MW8-CC, CS-MW9-LGR CS-MW9-CC, CS-MW10-LGR, CS-MW10-CC, CS0MW11A-LGR, CS-MW12-LGR, CS-MW12-CC, CS-MW17-LGR, CS-MW18-LGR, CS-MW19-LGR, CS-MW20-LGR, CS-MW21-LGR, CS-MW22-LGR, CS-M23-LGR, CS-MW24-LGR, CS-MW25-LGR, CS-MW35-LGR, CS-MW36-LGR, CS-MW37-LGR, CS-2, CS-3, CS-MWG-LGR, CS-I, and CS-MWH-LGR . Two well were not sampled due to water level falling below the pump (CS-D and CS-MW11B-LGR. Samples were analyzed for the short list of VOCs using USEPA method SW8260B. The drinking water wells were also sampled for metals (arsenic, barium, chromium, copper, cadmium, mercury, lead, and zinc). Analyses were conducted in accordance with the CSSA QAPP and approved variances. All reporting limits (RL) were below MCLs, as listed below:	Yes.	Continue sampling.
Contamination Characterization (Ground Water Contamination) (Continued)	Determine the horizontal and vertical concentration profiles of all constituents of concern (COC) in the groundwater that are measured by USEPA-approved procedures (3.1.2).	**ANALYTE** / **LOQ (µg /L)** / **MCL(µg/L)** *cis*-1,2-DCE / 1.0 / 70 PCE / 1.0 / 5 TCE / 1.0 / 5 Vinyl chloride / 1.5 / 2	Yes.	Continue sampling.

Activity	Objectives	Action	Objective Attained?	Recommendations
Contamination Characterization (Ground Water Contamination) (Continued)	COCs are those chemicals that have been detected in groundwater in the past and their daughter (breakdown) products.	**ANALYTE** / **LOQ (µg/L)** / **MCL/AL (µg /L)** Barium 10 2,000 Chromium 15 100 Copper 15 1,300 Zinc 150 5,000 Arsenic 25 10 Cadmium 5 5 Lead 15 15 Mercury 0.2 2	Yes.	Continue sampling.
	Meet CSSA QAPP quality assurance requirements.	Samples were analyzed in accordance with the CSSA QAPP and approved variances. Parsons chemists verified all data.	Yes.	NA
		All data flagged with a "U," "J," "M," and "Q" are usable for characterizing contamination. All "R" flagged data are considered unusable.	Yes.	NA
	Meet CSSA QAPP quality assurance requirements. (Continued)	Previously, a method detection limit (MDL) study for arsenic, cadmium, and lead was not performed within a year of the analyses, as required by the AFCEE QAPP.	The laboratory performed new MDL studies in February 2001 for these metals and the new MDL values were found to be almost identical to the previous MDLs and all met the associated AFCEE QAPP requirements. MDLs for these three metals are well below MCLs. In addition, the laboratory performed daily calibrations and RL verifications for these metals, both of which demonstrate the laboratory's ability to detect and quantitate these metals at RL levels. These daily analyses also indicate that concentrations above the laboratory RL for these compounds were not affected by the expired MDL study.	Use results for groundwater characterization purposes.

Activity	Objectives	Action	Objective Attained?	Recommendations
Remediation	Determine goals and create cost-effective and technologically appropriate methods for remediation (2.2.1).	Continued data collection will provide analytical results for accomplishing this objective.	Ongoing.	Continue sampling and evaluation, including quarterly groundwater monitoring teleconferences to address remediation.
	Determine placement of new wells for monitoring (2.3.1, 3.6)	Sampling frequency and sample locations to be monitored (including any new wells) will be based on trend data from monitoring event(s) (3.1.5).	Ongoing.	Continue quarterly groundwater teleconferences to discuss sampling frequency and placement of new monitor wells.
Project schedule/ Reporting	Produce a quarterly monitoring project schedule as a road map for sampling, analysis, validation, verification, reviews, and reports.	Prepare schedules and sampling guidelines prior to each quarterly sampling event.	Yes.	Continue sampling schedule preparation each quarter.

APPENDIX B

QUARTERLY ON-POST GROUNDWATER MONITORING ANALYTICAL RESULTS MARCH 2022

Appendix B
Quarterly On-Post Groundwater Monitoring Analytical Results, March 2022

Well ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Zinc	Mercury
CSSA Drinking Water Well System									
CS-1	3/24/2022	0.00441U	**0.0363**	0.000452U	**0.000990F**	0.00420U	0.00274U	**0.0345F**	0.0000270U
CS-1 FD	3/24/2022	0.00441U	**0.0362**	0.000452U	0.000663U	0.00420U	0.00274U	**0.0334F**	0.0000270U
CS-10	3/24/2022	0.00441U	**0.0383**	0.000452U	0.000663U	0.00420U	0.00274U	**0.0708F**	0.0000270U
CS-12	3/24/2022	0.00441U	**0.0323**	0.000452U	**0.000758F**	**0.00429F**	0.00274U	**0.204**	0.0000270U
CS-13	3/24/2022	0.00441U	**0.0295**	0.000452U	0.000663U	**0.00701F**	0.00274U	**0.267M**	0.0000270U

Well ID	Sample Date	cis-1,2-DCE	PCE	TCE	Vinyl Chloride
CS-MW1-LGR	3/14/2022	**21.7**	**16.4**	**28.5**	0.100U
CS-MW1-CC	3/14/2022	0.150U	0.200U	0.160U	0.100U
CS-MW2-LGR	3/10/2022	**0.249F**	0.200U	0.160U	0.100U
CS-MW2-CC	3/30/2022	0.150U	0.200U	0.160U	0.100U
CS-MW3-LGR	3/16/2022	0.150U	0.200U	0.160U	0.100U
CS-MW4-LGR	3/10/2022	0.150U	0.200U	0.160U	0.100U
CS-MW4-LGR FD	3/10/2022	0.150U	0.200U	0.160U	0.100U
CS-MW5-LGR	3/14/2022	**9.49**	**2.38**	**4.78**	0.100U
CS-MW6-LGR	3/21/2022	0.150U	0.200U	0.160U	0.100U
CS-MW6-CC	3/21/2022	0.150U	0.200U	0.160U	0.100U
CS-MW7-LGR	3/21/2022	0.150U	**2.51J**	**0.606F**	0.100U
CS-MW7-CC	3/21/2022	0.150U	0.200U	0.160U	0.100U
CS-MW8-LGR	3/21/2022	0.150U	**2.80**	0.160U	0.100U
CS-MW8-LGR FD	3/21/2022	0.150U	**3.20**	0.160U	0.100U
CS-MW8-CC	3/30/2022	0.150U	0.200U	0.160U	0.100U
CS-MW9-LGR	3/21/2022	0.150U	0.200U	0.160U	0.100U
CS-MW9-CC	3/30/2022	0.150U	0.200U	0.160U	0.100U
CS-MW10-LGR	3/16/2022	0.150U	**2.04**	**0.519F**	0.100U
CS-MW10-CC	3/21/2022	0.150U	0.200U	0.160U	0.100U
CS-MW11A-LGR	3/16/2022	0.150U	**0.612F**	0.160U	0.100U
CS-MW12-LGR	3/10/2022	0.150U	0.200U	0.160U	0.100U
CS-MW12-CC	3/15/2022	0.150U	0.200U	0.160U	0.100U
CS-MW17-LGR	3/9/2022	0.150U	**0.712F**	0.160U	0.100U
CS-MW18-LGR	3/15/2022	0.150U	0.200U	0.160U	0.100U
CS-MW19-LGR	3/10/2022	0.150U	**0.739F**	0.160U	0.100U
CS-MW20-LGR	3/9/2022	0.150U	**1.16**	0.160U	0.100U
CS-MW21-LGR	3/10/2022	0.150U	0.200U	0.160U	0.100U
CS-MW22-LGR	3/16/2022	0.150U	0.200U	0.160U	0.100U
CS-MW23-LGR	3/15/2022	0.150U	0.200U	0.160U	0.100U
CS-MW23-LGR FD	3/15/2022	0.150U	0.200U	0.160U	0.100U
CS-MW24-LGR	3/9/2022	0.150U	0.200U	0.160U	0.100U
CS-MW25-LGR	3/9/2022	0.150U	0.200U	0.160U	0.100U
CS-MW25-LGR FD	3/9/2022	0.150U	0.200U	0.160U	0.100U
CS-MW35-LGR	3/16/2022	0.150U	**0.564F**	0.160U	0.100U
CS-MW36-LGR	3/30/2022	**0.595F**	**21.2**	**27.6**	0.100U
CS-MW37-LGR	3/16/2022	0.150U	0.200U	0.160U	0.100U
CS-MWG-LGR	3/9/2022	0.150U	0.200U	0.160U	0.100U
CS-MWH-LGR	3/9/2022	0.150U	0.200U	0.160U	0.100U
CS-I	3/9/2022	0.150U	0.200U	0.160U	0.100U
CS-2	3/14/2022	0.150U	0.200U	0.160U	0.100U
CS-3	3/14/2022	0.150U	**0.436F**	0.160U	0.100U
CSSA Drinking Water Well System					
CS-1	3/24/2022	0.150U	0.200U	0.160U	0.100U
CS-1 FD	3/24/2022	0.150U	0.200U	0.160U	0.100U
CS-10	3/24/2022	0.150U	0.200U	0.160U	0.100U
CS-12	3/24/2022	0.150U	0.200U	0.160U	0.100U
CS-13	3/24/2022	0.150U	0.200U	0.160U	0.100U

Appendix B
Quarterly On-Post Groundwater Monitoring Analytical Results, March 2022

BOLD	= Above the MDL
BOLD	= Above the RL
BOLD	= Above the MCL

All samples were analyzed by Eurofins TestAmerica

VOC data reported in ug/L & metals data reported in mg/L.

Abbreviations/Notes:

FD	Field Duplicate
TCE	Trichloroethene
PCE	Tetrachloroethene
DCE	Dichloroethene
AL	Action Level
SS	Secondary Standard
NA	Not Analyzed for this parameter

Data Qualifiers

U-The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.

F-The analyte was positively identified but the associated numerical value is below the RL.

J-The analyte was positively identified; the quantitation is an estimation.

M-Concentration is estimated due to a matrix effect.

APPENDIX C

DATA VALIDATION REPORT
280-159703
280-159712
280-159879
280-159984
280-160146
280-160340

DATA VERIFICATION SUMMARY REPORT

for groundwater samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Sandra de las Fuentes
Parsons - Austin

INTRODUCTION

The following data verification summary report covers thirteen groundwater samples collected from Camp Stanley Storage Activity (CSSA) March 10 and 14, 2022. The samples were assigned to the following Work Order (WO).

280-159703

The field QC sample associated with this WO was one trip blank (TB) and one field duplicate (FD). No ambient blanks were collected. During the initiation of this project, it was determined that ambient blanks were not necessary, due to the absence of a source at these sites.

All samples were collected by Parsons and analyzed by Eurofins TestAmerica in Denver, Colorado (ETA) following the procedures outlined in the DRAFT CSSA QAPP (pending approval, Parsons 2022) and in PO #0012175. Samples in this WO were shipped to the laboratory in a single cooler, which was received by the laboratory at an acceptable temperature of 3.3ºC. Note that well JW-8 was correctly labeled on the sample bottles but was mislabeled on the COC. The lab revised the COC as per instructions from Parsons.

SAMPLE IDs AND REQUESTED PARAMETERS

Sample ID	Lab ID	Matrix	VOCs	Comments
TB-1	280-159703-1	Water	X	
CS-MW19-LGR	280-159703-2	Water	X	
CS-MW4-LGR	280-159703-3	Water	X	
CS-MW4-LGR_FD	280-159703-4	Water	X	FD of CS-MW4-LGR
CS-MW2-LGR	280-159703-5	Water	X	
CS-MW2-CC	280-159703-6	Water	X	Not analyzed*
CS-MW12-LGR	280-159703-7	Water	X	
CS-MW21-LGR	280-159703-8	Water	X	
JW-8	280-159703-9	Water	X	
CS-2	280-159703-10	Water	X	

Sample ID	Lab ID	Matrix	VOCs	Comments
CS-3	280-159703-11	Water	X	
CS-MW1-CC	280-159703-12	Water	X	
CS-MW1-LGR	280-159703-13	Water	X	
C5-MW5-LGR	280-159703-14	Water	X	

* = sample was lost due to a malfunctioning instrument. Sample was recollected and reported in 280-160340.

EXTRACTION, ANALYTICAL, AND REPORTING DETAILS

Parameter	Matrix	Prep Method	Analytical Method	Units
VOCs	Water	SW5030B	SW8260C	µg/L

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in in the DRAFT CSSA QAPP (Parsons 2022) and in PO #0012175. The control limits used to evaluate the surrogates, laboratory control samples (LCSs), and MS/MSDs are also referenced in the DoD QSM, version 5.3 for the methods in this data set. Information reviewed in the data package included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the PO and DRAFT CSSA QAPP were met.

A table detailing the data qualifiers applied, removed, or changed (if any) for the samples in this WO as a result of the data validation process is included at the end of this report.

VOLATILES

General

The volatiles portion of this data package consisted of fourteen (14) groundwater samples, including one (1) TB and one (1) FD. All samples were collected on March 10 and 14, 2022 and analyzed for a reduced list of VOCs which included: *cis*-1,2-dichloroethene (cis 1,2-DCE), tetrachloroethene, trichloroethene (TCE), and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260C. The samples were analyzed in three analytical batches, #569159, #569447 and #569902, under one initial calibration (ICAL). All samples were analyzed following the procedures outlined in the DRAFT CSSA QAPP and were prepared and analyzed within the holding time required by the method. All analyses were performed undiluted.

In accordance with client's instructions, the ID for JW-7 (280-159703-9) was revised to JW-8. A revised report and EDD were issued by the laboratory.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control sample (LCS), LCS duplicate (LCSD), and the surrogate spikes. There were no samples designated as the MS/MSD on the COC.

All LCS and LCSD spike recoveries were within acceptance criteria.

All surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the LCS/LCSD results. Precision was further evaluated by comparing the field duplicate analyte results. Samples CS-MW4-LGR_FD was collected and analyzed as the field duplicate of CS-MW4-LGR.

The LCS/LCSD RPDs were within acceptance criteria.

Only target VOCs above the limit of quantitation (LOQ) in both the parent and FD samples are evaluated. There were no target VOCs detected above the LOQ in either the parent or FD sample.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the DRAFT CSSA QAPP;
- Comparing actual analytical procedures to those described in the DRAFT CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blank and TB for cross contamination of samples during sample collection, transportation, and analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the DRAFT CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- All initial calibration verification (ICV) criteria were met. The ICV was prepared using a secondary source standard.
- All continuing calibration verification (CCV) criteria were met.

- All internal standard criteria were met.

Three method blanks were associated with the VOC analyses in this WO. The MBs were non-detect for all target VOCs.

There was one trip blank sample associated with the VOC analyses in this WO. The TB was non-detect for all target VOCs.

Completeness

Completeness has been evaluated in accordance with the DRAFT CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All VOC results for the samples in this WO were considered usable. The completeness for this WO is 100%, which meets the minimum acceptance criteria of 90%.

DATA QUALIFIER DEFINITIONS

The data qualifiers are defined in Table 36.3 of the project-specific DRAFT CSSA QAPP, as follows:

Data Validation Codes and Definitions

Data Qualifiers	Definitions
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the Detection Limit (DL).
F	The analyte was positively identified; the quantitation is an estimation above the DL and below the Limit of Quantitation (LOQ).
J	The analyte was positively identified, but the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
UJ	The analyte was analyzed for, but not detected; the associated numerical value is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	A matrix effect was present.
R	Data is rejected as unusable due to serious deficiencies in meeting certain analyte-specific quality control criteria.

DATA QUALIFIER CHANGES

There were no data qualifiers were added, removed, or changed as a result of the data validation process.

DATA VERIFICATION SUMMARY REPORT

for groundwater samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Sandra de las Fuentes
Parsons - Austin

INTRODUCTION

The following data verification summary report covers twenty-five groundwater samples collected from Camp Stanley Storage Activity (CSSA) March 8 and 9, 2022. The samples were assigned to the following Work Order (WO).

280-159712

The field QC sample associated with this WO was one trip blank (TB), one matrix spike/matrix spike duplicate (MS/MSD) set, and two field duplicates (FD). No ambient blanks were collected. During the initiation of this project, it was determined that ambient blanks were not necessary, due to the absence of a source at these sites.

All samples were collected by Parsons and analyzed by Eurofins TestAmerica in Denver, Colorado (ETA) following the procedures outlined in the DRAFT CSSA QAPP (pending approval, Parsons 2022) and in PO #0012175. Samples in this WO were shipped to the laboratory in a single cooler, which was received by the laboratory at an acceptable temperature of 3.3ºC.

SAMPLE IDs AND REQUESTED PARAMETERS

Sample ID	Lab ID	Matrix	VOCs	Comments
TB-1	280-159712-1	Water	X	
LS-7	280-159712-2	Water	X	
LS-7-A2	280-159712-3	Water	X	
LS-5	280-159712-4	Water	X	
LS-5-A2	280-159712-5	Water	X	
OFR-3	280-159712-6	Water	X	
OFR-3-A2	280-159712-7	Water	X	
RFR-10	280-159712-8	Water	X	
RFR-10-A2	280-159712-9	Water	X	
RFR-10-B2	280-159712-10	Water	X	
RFR-10-B2_FD	280-159712-11	Water	X	FD of RFR-10-B2
RFR-11	280-159712-12	Water	X	

Sample ID	Lab ID	Matrix	VOCs	Comments
RFR-11-A2	280-159712-13	Water	X	
LS-6	280-159712-14	Water	X	
LS-6-A2	280-159712-15	Water	X	
JW-7	280-159712-16	Water	X	
RFR-14	280-159712-17	Water	X	
I10-10	280-159712-18	Water	X	
I10-8	280-159712-19	Water	X	
CS-MWH-LGR	280-159712-20	Water	X	MS/MSD
CS-MWG-LGR	280-159712-23	Water	X	
CS-I	280-159712-24	Water	X	
CS-MW25-LGR	280-159712-25	Water	X	
CS-MW25-LGR_FD	280-159712-26	Water	X	FD of CS-MW25-LGR
CS-MW17-LGR	280-159712-27	Water	X	
CS-MW20-LGR	280-159712-28	Water	X	
CS-MW24-LGR	280-159712-29	Water	X	

EXTRACTION, ANALYTICAL, AND REPORTING DETAILS

Parameter	Matrix	Prep Method	Analytical Method	Units
VOCs	Water	SW5030B	SW8260C	µg/L

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in in the DRAFT CSSA QAPP (Parsons 2022) and in PO #0012175. The control limits used to evaluate the surrogates, laboratory control samples (LCSs), and MS/MSDs are also referenced in the DoD QSM, version 5.3 for the methods in this data set. Information reviewed in the data package included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the PO and DRAFT CSSA QAPP were met.

A table detailing the data qualifiers applied, removed, or changed (if any) for the samples in this WO as a result of the data validation process is included at the end of this report.

VOLATILES

General

The volatiles portion of this data package consisted of twenty-nine (29) groundwater samples, including one (1) TB, one (1) MS/MSD set and two (2) FDs. All samples were collected on March 8 and 9, 2022 and analyzed for a reduced list of VOCs which included: *cis*-1,2-dichloroethene (cis 1,2-DCE), tetrachloroethene, trichloroethene (TCE), and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260C. The samples were analyzed in two analytical batches, #569147 and #569148, under one initial calibration (ICAL). All samples were analyzed following the procedures outlined in the DRAFT CSSA QAPP and were prepared and analyzed within the holding time required by the method. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control sample (LCS), LCS duplicate (LCSD), the MS, MSD, and the surrogate spikes. Sample CS-MWH-LRG was designated as the MS/MSD on the COC.

All LCS, LCSD, MS and MSD spike recoveries were within acceptance criteria.

All surrogate spike recoveries were within acceptance criteria, except as follows.

Sample ID	Surrogate	Recovery	Recovery Criteria
MB 280-569148/10	1,2-Dichloroethane-d4	76	81-118%

The surrogate listed above recovered low. All associated samples had surrogate recoveries within control limits, therefore data quality was not impacted. This surrogate was associated with the TCE results in the MB, which, the laboratory qualified with a 'Q' flag. Since data quality was not affected, the data validator removed the Q flags from the surrogate and TCE results in the MB.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the LCS/LCSD and MS/MSD results. Precision was further evaluated by comparing the field duplicate analyte results. Samples RFR-10-B2_FD and CS-MW25-LGR_FD were collected and analyzed as the field duplicates of RFR-10-B2 and CS-MW25-LGR.

The LCS/LCSD and MS/MSD RPDs were within acceptance criteria.

There were no target VOCs detected above the limit of quantitation (LOQ) in any of the parent or FD samples.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the DRAFT CSSA QAPP;

- Comparing actual analytical procedures to those described in the DRAFT CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blank and TB for cross contamination of samples during sample collection, transportation, and analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the DRAFT CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- All initial calibration verification (ICV) criteria were met. The ICV was prepared using a secondary source standard.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

Two method blanks were associated with the VOC analyses in this WO. The MBs were non-detect for all target VOCs.

There was one trip blank sample associated with the VOC analyses in this WO. The TB was non-detect for all target VOCs.

Completeness

Completeness has been evaluated in accordance with the DRAFT CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All VOC results for the samples in this WO were considered usable. The completeness for this WO is 100%, which meets the minimum acceptance criteria of 90%.

DATA QUALIFIER DEFINITIONS

The data qualifiers are defined in Table 36.3 of the project-specific DRAFT CSSA QAPP, as follows:

Data Validation Codes and Definitions

Data Qualifiers	Definitions
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the Detection Limit (DL).
F	The analyte was positively identified; the quantitation is an estimation above the DL and below the LOQ (LOQ).
J	The analyte was positively identified, but the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

Data Qualifiers	Definitions
UJ	The analyte was analyzed for, but not detected; the associated numerical value is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	A matrix effect was present.
R	Data is rejected as unusable due to serious deficiencies in meeting certain analyte-specific quality control criteria.

DATA QUALIFIER CHANGES

There were no data qualifiers were added, removed, or changed as a result of the data validation process.

DATA VERIFICATION SUMMARY REPORT

for groundwater samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Sandra de las Fuentes
Parsons - Austin

INTRODUCTION

The following data verification summary report covers eleven groundwater samples collected from Camp Stanley Storage Activity (CSSA) March 15 and 16, 2022. The samples were assigned to the following Work Oder (WO).

280-159879

The field QC sample associated with this WO was one trip blank (TB), one matrix spike/matrix spike duplicate (MS/MSD) set, and one field duplicate (FD). No ambient blanks were collected. During the initiation of this project, it was determined that ambient blanks were not necessary, due to the absence of a source at these sites.

All samples were collected by Parsons and analyzed by Eurofins TestAmerica in Denver, Colorado (ETA) following the procedures outlined in the DRAFT CSSA QAPP (pending approval, Parsons 2022) and in PO #0012175. Samples in this WO were shipped to the laboratory in a single cooler, which was received by the laboratory at an acceptable temperature of 0.1ºC.

SAMPLE IDs AND REQUESTED PARAMETERS

Sample ID	Lab ID	Matrix	VOCs	Comments
TB-1	280-159879-1	Water	X	
CS-MW12-CC	280-159879-2	Water	X	
CS-MW23-LGR	280-159879-3	Water	X	
C-MW23-LGR_FD	280-159879-4	Water	X	FD of CS-MW23-LGR
CS-MW18-LGR	280-159879-5	Water	X	
RFR-12	280-159879-6	Water	X	
CS-MW3-LGR	280-159879-7	Water	X	
CS-MW37-LGR	280-159879-8	Water	X	
CS-MW35-LGR	280-159879-9	Water	X	
CS-MW22-LGR	280-159879-10	Water	X	MS/MSD
CS-MW10-LGR	280-159879-11	Water	X	
CS-MW11A-LGR	280-159879-12	Water	X	

EXTRACTION, ANALYTICAL, AND REPORTING DETAILS

Parameter	Matrix	Prep Method	Analytical Method	Units
VOCs	Water	SW5030B	SW8260C	µg/L

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in in the DRAFT CSSA QAPP (Parsons 2022) and in PO #0012175. The control limits used to evaluate the surrogates, laboratory control samples (LCSs), and MS/MSDs are also referenced in the DoD QSM, version 5.3 for the methods in this data set. Information reviewed in the data package included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the PO and DRAFT CSSA QAPP were met.

A table detailing the data qualifiers applied, removed, or changed (if any) for the samples in this WO as a result of the data validation process is included at the end of this report.

VOLATILES

General

The volatiles portion of this data package consisted of fourteen (14) groundwater samples, including one (1) TB, one (1) MS/MSD set and one (1) FD. All samples were collected on March 15 and 16, 2022 and analyzed for a reduced list of VOCs which included: *cis*-1,2-dichloroethene (cis 1,2-DCE), tetrachloroethene, trichloroethene (TCE), and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260C. The samples were analyzed in two analytical batches, #569902 and #570030, under one initial calibration (ICAL). All samples were analyzed following the procedures outlined in the DRAFT CSSA QAPP and were prepared and analyzed within the holding time required by the method. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control sample (LCS), LCS duplicate (LCSD), the MS, MSD, and the surrogate spikes. Sample CS-MW22-LRG was designated as the MS/MSD on the COC.

All LCS, LCSD, MS and MSD spike recoveries were within acceptance criteria.

All surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the LCS/LCSD and MS/MSD results. Precision was further evaluated by comparing the field duplicate analyte results. Sample CS-MW23-LGR_FD was collected and analyzed as the field duplicate of CS-MW23-LGR.

The LCS/LCSD and MS/MSD RPDs were within acceptance criteria.

Only target VOCs above the limit of quantitation (LOQ) in both the parent and FD samples are evaluated. There were no target VOCs detected above the LOQ in either the parent or FD sample.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the DRAFT CSSA QAPP;
- Comparing actual analytical procedures to those described in the DRAFT CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blank and TB for cross contamination of samples during sample collection, transportation, and analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the DRAFT CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- All initial calibration verification (ICV) criteria were met. The ICV was prepared using a secondary source standard.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

Two method blanks were associated with the VOC analyses in this WO. The MBs were non-detect for all target VOCs.

There was one trip blank sample associated with the VOC analyses in this WO. The TB was non-detect for all target VOCs.

Completeness

Completeness has been evaluated in accordance with the DRAFT CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All VOC results for the samples in this WO were considered usable. The completeness for this WO is 100%, which meets the minimum acceptance criteria of 90%.

DATA QUALIFIER DEFINITIONS

The data qualifiers are defined in Table 36.3 of the project-specific DRAFT CSSA QAPP, as follows:

Data Validation Codes and Definitions

Data Qualifiers	Definitions
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the Detection Limit (DL).
F	The analyte was positively identified; the quantitation is an estimation above the DL and below the Limit of Quantitation (LOQ).
J	The analyte was positively identified, but the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
UJ	The analyte was analyzed for, but not detected; the associated numerical value is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	A matrix effect was present.
R	Data is rejected as unusable due to serious deficiencies in meeting certain analyte-specific quality control criteria.

DATA QUALIFIER CHANGES

There were no data qualifiers were added, removed, or changed as a result of the data validation process.

DATA VERIFICATION SUMMARY REPORT

for groundwater samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Sandra de las Fuentes
Parsons - Austin

INTRODUCTION

The following data verification summary report covers eight groundwater samples collected from Camp Stanley Storage Activity (CSSA) March 21, 2022. The samples were assigned to the following Work Order (WO).

280-159984

The field QC sample associated with this WO was one trip blank (TB) and one field duplicate (FD). No ambient blanks were collected. During the initiation of this project, it was determined that ambient blanks were not necessary, due to the absence of a source at these sites.

All samples were collected by Parsons and analyzed by Eurofins TestAmerica in Denver, Colorado (ETA) following the procedures outlined in the DRAFT CSSA QAPP (pending approval, Parsons 2022) and in PO #0012175. Samples in this WO were shipped to the laboratory in a single cooler, which was received by the laboratory at an acceptable temperature of 0.4ºC.

SAMPLE IDs AND REQUESTED PARAMETERS

Sample ID	Lab ID	Matrix	VOCs	Comments
TB-1	280-159984-1	Water	X	
CS-MW9-LGR	280-159984-2	Water	X	
CS-MW6-LGR	280-159984-3	Water	X	
CS-MW6-CC	280-159984-4	Water	X	
CS-MW7-LGR	280-159984-5	Water	X	
CS-MW7-CC	280-159984-6	Water	X	
CS-MW10-CC	280-159984-7	Water	X	
CS-MW8-LGR	280-159984-8	Water	X	
CS-MW8-LGR_FD	280-159984-9	Water	X	FD of CS-MW8-LGR

EXTRACTION, ANALYTICAL, AND REPORTING DETAILS

Parameter	Matrix	Prep Method	Analytical Method	Units
VOCs	Water	SW5030B	SW8260C	µg/L

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in in the DRAFT CSSA QAPP (Parsons 2022) and in PO #0012175. The control limits used to evaluate the surrogates, laboratory control samples (LCSs), and MS/MSDs are also referenced in the DoD QSM, version 5.3 for the methods in this data set. Information reviewed in the data package included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the PO and DRAFT CSSA QAPP were met.

A table detailing the data qualifiers applied, removed, or changed (if any) for the samples in this WO as a result of the data validation process is included at the end of this report.

VOLATILES

General

The volatiles portion of this data package consisted of nine (9) groundwater samples, including one (1) TB and one (1) FD. All samples were collected on March 21, 2022 and analyzed for a reduced list of VOCs which included: *cis*-1,2-dichloroethene (cis 1,2-DCE), tetrachloroethene, trichloroethene (TCE), and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260C. The samples were analyzed in a single analytical batch, #570594, under one initial calibration (ICAL). All samples were analyzed following the procedures outlined in the DRAFT CSSA QAPP and were prepared and analyzed within the holding time required by the method. All analyses were performed undiluted.

As per the laboratory, the method requirement for no headspace was not met. The following volatile samples contained headspace: TB-1, CS-MW7-CC, CS-MW8-LGR and CS-MW8-LGR_FD. The laboratory selects the VOA vials with the least amount of headspace for analyses.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control sample (LCS), LCS duplicate (LCSD), and the surrogate spikes. There were no samples designated as the MS/MSD on the COC.

All LCS and LCSD spike recoveries were within acceptance criteria.

All surrogate spike recoveries were within acceptance criteria, except as follows. The surrogate, 4-Bromofluorobenzene, in one of the continuing calibration verification samples (CCV) associated with batch #570594 recovered above the control limit of 20 at 22. This QC sample's analyte recoveries and the surrogates in the associated samples were within control limits, therefore corrective action was not required. The laboratory applied "Q" flags to the associated results although the data validator removed them.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the LCS/LCSD results. Precision was further evaluated by comparing the field duplicate analyte results. Samples CS-MW8-LGR_FD was collected and analyzed as the field duplicate of CS-MW8-LGR.

The LCS/LCSD RPDs were within acceptance criteria.

Only target VOCs above the limit of quantitation (LOQ) in both the parent and FD samples are evaluated. The target VOC detected above the LOQ for both the parent and FD sample, met criteria as follows.

Analyte	Parent (µg/L)	FD (µg/L)	RPD	Criteria
Tetrachloroethene	2.80	3.20	13.3	RPD ≤ 20

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the DRAFT CSSA QAPP;
- Comparing actual analytical procedures to those described in the DRAFT CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blank and TB for cross contamination of samples during sample collection, transportation, and analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the DRAFT CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- All initial calibration verification (ICV) criteria were met. The ICV was prepared using a secondary source standard.
- All continuing calibration verification (CCV) criteria were met, except as follows.

The continuing calibration verification (CCV) associated with batch 280-570594 recovered above the upper control limit for Tetrachloroethene (21.6 Limit 20). The samples associated with this CCV were non-detects for the affected analyte; therefore, corrective action was not required. The data validator removed the “Q” flags applied by the laboratory from the associated data.

Tetrachloroethene was 21.6%D, which was outside control limits of 20% in the CCV associated with batch 280-570594. The only associated sample, CS-MW7-LGR, had a detection for this analyte greater than the LOQ. The “Q” flag applied to the Tetrachloroethene result applied by the laboratory was replaced with an estimated flag, “J”, by the data validator.

- All internal standard criteria were met.

One method blank was associated with the VOC analyses in this WO. The MB was non-detect for all target VOCs.

There was one trip blank sample associated with the VOC analyses in this WO. The TB was non-detect for all target VOCs.

Completeness

Completeness has been evaluated in accordance with the DRAFT CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All VOC results for the samples in this WO were considered usable. The completeness for this WO is 100%, which meets the minimum acceptance criteria of 90%.

DATA QUALIFIER DEFINITIONS

The data qualifiers are defined in Table 36.3 of the project-specific DRAFT CSSA QAPP, as follows:

Data Validation Codes and Definitions

Data Qualifiers	Definitions
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the Detection Limit (DL).
F	The analyte was positively identified; the quantitation is an estimation above the DL and below the Limit of Quantitation (LOQ).
J	The analyte was positively identified, but the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
UJ	The analyte was analyzed for, but not detected; the associated numerical value is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	A matrix effect was present.

Data Qualifiers	Definitions
R	Data is rejected as unusable due to serious deficiencies in meeting certain analyte-specific quality control criteria.

DATA QUALIFIER CHANGES

The following data qualifiers were added, removed, or changed as a result of the data validation process:

Sample ID	Analyte	Units	Original Result	Final Result	Reason Code
CS-MW7-LGR	Tetrachloroethene	µg/L	2.51 Q	2.51 J	C3

REASON CODE DEFINITIONS

The data validation reason codes were used to document the logic behind all data validation qualifiers. The following reason codes for data qualification were associated with the samples in this SDG:

C3: ICV/CCV Infraction with High Bias

DATA VERIFICATION SUMMARY REPORT

for groundwater samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Sandra de las Fuentes
Parsons - Austin

INTRODUCTION

The following data verification summary report covers four groundwater samples collected from Camp Stanley Storage Activity (CSSA) March 24, 2022. The samples were assigned to the following Work Order (WO).

280-160146

The field QC sample associated with this WO was one trip blank (TB), one matrix spike/matrix spike duplicate (MS/MSD) set, and one field duplicate (FD). No ambient blanks were collected. During the initiation of this project, it was determined that ambient blanks were not necessary, due to the absence of a source at these sites.

All samples were collected by Parsons and analyzed by Eurofins TestAmerica in Denver, Colorado (ETA) following the procedures outlined in the DRAFT CSSA QAPP (pending approval, Parsons 2022) and in PO #0012175. Samples in this WO were shipped to the laboratory in a single cooler, which was received by the laboratory at an acceptable temperature of 2.2ºC.

SAMPLE IDs AND REQUESTED PARAMETERS

Sample ID	Lab ID	Matrix	VOCs	Metals	Mercury	Comments
TB-1	280-160146-1	Water	X			
CS-12	280-160146-2	Water	X	X	X	
CS-13	280-160146-3	Water	X	X	X	MS/MSD
CS-1	280-160146-4	Water	X	X	X	
CS-1_FD	280-160146-5	Water	X	X	X	FD of CS-1
CS-10	280-160146-6	Water	X	X	X	

EXTRACTION, ANALYTICAL, AND REPORTING DETAILS

Parameter	Matrix	Prep Method	Analytical Method	Units
VOCs	Water	SW5030B	SW8260C	µg/L
Metals	Water	SW3010A	SW6010C	mg/L
Mercury	Water	SW7470A	SW7470A	mg/L

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in in the DRAFT CSSA QAPP (Parsons 2022) and in PO #0012175. The control limits used to evaluate the surrogates, laboratory control samples (LCSs), and MS/MSDs are also referenced in the DoD QSM, version 5.3 for the methods in this data set. Information reviewed in the data package included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the PO and DRAFT CSSA QAPP were met.

A table detailing the data qualifiers applied, removed, or changed (if any) for the samples in this WO as a result of the data validation process is included at the end of this report.

VOLATILES

General

The volatiles portion of this data package consisted of eight (8) groundwater samples, including one (1) TB, one (1) MS/MSD set and one (1) FD. All samples were collected on March 24, 2022 and analyzed for a reduced list of VOCs which included: *cis*-1,2-dichloroethene (cis 1,2-DCE), tetrachloroethene, trichloroethene (TCE), and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260C. The samples were analyzed in a single analytical batch, #51032, under one initial calibration (ICAL). All samples were analyzed following the procedures outlined in the DRAFT CSSA QAPP and were prepared and analyzed within the holding time required by the method. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control sample (LCS), LCS duplicate (LCSD), the MS, MSD, and the surrogate spikes. Sample CS-13 was designated as the MS/MSD on the COC.

All LCS, LCSD, MS and MSD spike recoveries were within acceptance criteria.

All surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the LCS/LCSD and MS/MSD results. Precision was further evaluated by comparing the field duplicate analyte results. Sample CS-1_FD was collected and analyzed as the field duplicate of CS-1.

The LCS/LCSD and MS/MSD RPDs were within acceptance criteria.

Only target VOCs above the limit of quantitation (LOQ) in both the parent and FD samples are evaluated. There were no target VOCs detected above the LOQ in either the parent or FD sample.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the DRAFT CSSA QAPP;
- Comparing actual analytical procedures to those described in the DRAFT CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blank and TB for cross contamination of samples during sample collection, transportation, and analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the DRAFT CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- All initial calibration verification (ICV) criteria were met. The ICV was prepared using a secondary source standard.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

One method blank was associated with the VOC analyses in this WO. The MB was non-detect for all target VOCs.

There was one trip blank sample associated with the VOC analyses in this WO. The TB was non-detect for all target VOCs.

Completeness

Completeness has been evaluated in accordance with the DRAFT CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All VOC results for the samples in this WO were considered usable. The completeness for this WO is 100%, which meets the minimum acceptance criteria of 90%.

ICP-AES METALS

General

The ICP portion of this WO consisted of seven (7) groundwater samples, including one (1) MS/MSD set and one (1) FD. All samples were collected on March 24, 2022. The samples were analyzed for arsenic, barium, cadmium, chromium, copper, lead, and zinc.

The ICP metals analyses were performed using USEPA SW846 Method 6010C. All samples were analyzed following the procedures outlined in the PO and DRAFT CSSA QAPP and were prepared and analyzed within the holding time required by the method. The samples for ICP metals were analyzed in batch #571005. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control sample (LCS), LCS duplicate (LCSD), the MS and MSD. Sample CS-13 was designated as the MS/MSD on the COC.

All LCS and LCSD spike recoveries were within acceptance criteria.

All MS and MSD spike recoveries were within acceptance criteria, except as follows.

Spiked Sample: CS-13

Metal	MS %R	MSD %R	Criteria
Zinc	85	85	88-113

Zinc was qualified as estimated (J) in the parent sample due to the low MS and MSD recoveries. The data validator revised the qualifier applied by the laboratory from 'J1' to 'M'.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the LCS/LCSD and MS/MSD results. Precision was further evaluated by comparing the field duplicate analyte results. Sample CS-1_FD was collected and analyzed as the field duplicate of CS-1.

The LCS/LCSD and MS/MSD RPDs were within acceptance criteria.

Only target metals above the LOQ in both the parent and FD samples are evaluated. Barium was detected above the LOQ in both the parent and FD samples. Barium met the RPD criterion for metals of 20.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the DRAFT CSSA QAPP;
- Comparing actual analytical procedures to those described in the DRAFT CSSA QAPP;
- Evaluating preservation and holding times; and
- Examining laboratory blank for cross contamination of samples during analysis.

All samples were analyzed following the COC and the analytical procedures described in the DRAFT CSSA QAPP, prepared and analyzed within the holding time required by the method.

- All initial calibration criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All CCV criteria were met.
- All CCVL criteria were met.
- All interference check (ICSA/ICSAB) criteria were met, except as follows. The interference check standard solution (ICSA) associated with batch #571005 had results for one or more elements at a level greater than the limit of detection (LOD). The initial ICSA result for Barium was 13.3ppb which is greater than the LOD of 2ppb. As per the laboratory, this element has been shown to be a trace impurity in the ICSA standard by MS. These results are not indicative of a matrix interference. The laboratory applied "Q" flags to all barium results in the associated samples, although the data validator removed the "Q" flags.
- The serial dilution test (DT) was performed on the same sample as the MS/MSD. A DT is only applicable for those target metals where the sample concentration is ≥ 50x the MDL and the MS and/or MSD failed recovery criteria. The DT was applicable for zinc only, although it did not meet the minimal concentration required to evaluate the serial dilution test.
- The post digestion spike (PDS) was performed on the same samples as the MS/MSD. A PDS is only applicable for those metals that failed the MS/MSD and DT criteria. The PDS was applicable for zinc and was within the criteria of 80-120% at 93%.
- The initial calibration blank (ICB) and continuing calibration blank (CCB) samples were all non-detect.

One method blank was analyzed in association with the ICP analyses in this WO. The method blank was free of target metals.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All ICP metals results for the samples in this WO were considered usable. The completeness for the ICP metals portion of this WO is 100%, which meets the minimum acceptance criteria of 90%.

MERCURY

General

The mercury portion of this WO consisted of seven (7) groundwater samples, including one (1) MS/MSD set and one (1) FD. All samples were collected on March 24, 2022 and were analyzed for mercury.

The mercury analyses were performed using USEPA SW846 Method 7470A. The samples were analyzed following the procedures outlined in the PO and DRAFT CSSA QAPP, prepared and analyzed within the holding time required by the method.

The mercury samples were analyzed in batch #570572. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the LCS, LCSD, the MS and the MSD. Sample CS-13 was designated as the MS/MSD on the COC.

All LCS, LCSD, MS, and MSD recoveries were within acceptance criteria.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the LCS/LCSD and MS/MSD results. Precision was further evaluated by comparing the field duplicate analyte results. Sample CS-1_FD was collected and analyzed as the field duplicate of CS-1.

The LCS/LCSD and MS/MSD RPDs were within acceptance criteria.

Only mercury above the LOQ in both the parent and FD samples are evaluated. There was no mercury detected above the LOQ in either the parent or FD sample.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the DRAFT CSSA QAPP;
- Comparing actual analytical procedures to those described in the DRAFT CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blanks for cross contamination of samples during analysis.

All samples were analyzed following the COC and the analytical procedures described in the DRAFT CSSA QAPP, prepared and analyzed within the holding times required by the method.

- All initial calibration criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All CCV criteria were met.
- The serial dilution test (DT) was performed on the same sample as the MS/MSD. A DT is only applicable for mercury where the sample concentration is $\geq$ 50x the MDL and the MS and/or MSD failed recovery criteria. The DT was not required since the MS and MSD passed recovery criterion.
- The post digestion spike (PDS) was performed on the same sample as the MS/MSD. A PDS is only applicable for mercury when it failed the MS/MSD and DT criteria. The PDS was not required since the MS and MSD passed recovery criterion.

There was one method blank, and several calibration blanks associated with the mercury analyses in this WO. All blanks were free of mercury.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

Mercury result for the samples in this WO was considered usable. The completeness for the mercury portion of this WO is 100%, which meets the minimum acceptance criteria of 90%.

DATA QUALIFIER DEFINITIONS

The data qualifiers are defined in Table 36.3 of the project-specific DRAFT CSSA QAPP, as follows:

Data Validation Codes and Definitions

Data Qualifiers	Definitions
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the Detection Limit (DL).
F	The analyte was positively identified; the quantitation is an estimation above the DL and below the Limit of Quantitation (LOQ).
J	The analyte was positively identified, but the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
UJ	The analyte was analyzed for, but not detected; the associated numerical value is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	A matrix effect was present.

Data Qualifiers	Definitions
R	Data is rejected as unusable due to serious deficiencies in meeting certain analyte-specific quality control criteria.

DATA QUALIFIER CHANGES

The following data qualifiers were added, removed, or changed as a result of the data validation process:

Sample ID	Analyte	Units	Original Result	Final Result	Reason Code
CS-13	Zinc	mg/L	0.267 J1	0.267 M	M3

REASON CODE DEFINITIONS

The data validation reason codes were used to document the logic behind all data validation qualifiers. The following reason codes for data qualification were associated with the samples in this SDG:

M3: MS/MSD percent recovery Infraction with Low Bias

DATA VERIFICATION SUMMARY REPORT

for groundwater samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Sandra de las Fuentes
Parsons - Austin

INTRODUCTION

The following data verification summary report covers four groundwater samples collected from Camp Stanley Storage Activity (CSSA) March 30, 2022. The samples were assigned to the following Work Order (WO).

280-160340

The field QC sample associated with this WO was one trip blank (TB). No ambient blanks were collected. During the initiation of this project, it was determined that ambient blanks were not necessary, due to the absence of a source at these sites.

All samples were collected by Parsons and analyzed by Eurofins TestAmerica in Denver, Colorado (ETA) following the procedures outlined in the DRAFT CSSA QAPP (pending approval, Parsons 2022) and in PO #0012175. Samples in this WO were shipped to the laboratory in a single cooler, which was received by the laboratory at an acceptable temperature of 2.8ºC.

SAMPLE IDs AND REQUESTED PARAMETERS

Sample ID	Lab ID	Matrix	VOCs	Comments
TB-1	280-160340-1	Water	X	
CS-MW36-LGR	280-160340-2	Water	X	
CS-MW8-CC	280-160340-3	Water	X	
CS-MW2-CC*	280-160340-4	Water	X	
CS-MW9-CC	280-160340-5	Water	X	

* = sample was originally collected as part of 280-160340. Due to an instrument malfunction, the sample was not reported.

EXTRACTION, ANALYTICAL, AND REPORTING DETAILS

Parameter	Matrix	Prep Method	Analytical Method	Units
VOCs	Water	SW5030B	SW8260C	µg/L

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in in the DRAFT CSSA QAPP (Parsons 2022) and in PO #0012175. The control limits used to evaluate the surrogates, laboratory control samples (LCSs), and MS/MSDs are also referenced in the DoD QSM, version 5.3 for the methods in this data set. Information reviewed in the data package included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the PO and DRAFT CSSA QAPP were met.

A table detailing the data qualifiers applied, removed, or changed (if any) for the samples in this WO as a result of the data validation process is included at the end of this report.

VOLATILES

General

The volatiles portion of this data package consisted of five (5) groundwater samples, including one (1) TB. All samples were collected on March 30, 2022 and analyzed for a reduced list of VOCs which included: *cis*-1,2-dichloroethene (cis 1,2-DCE), tetrachloroethene, trichloroethene (TCE), and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260C. The samples were analyzed in a single analytical batch, #571673, under one initial calibration (ICAL). All samples were analyzed following the procedures outlined in the DRAFT CSSA QAPP and were prepared and analyzed within the holding time required by the method. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control sample (LCS), LCS duplicate (LCSD), and the surrogate spikes. There were no samples designated as the MS/MSD on the COC.

All LCS and LCSD spike recoveries were within acceptance criteria.

All surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the LCS/LCSD results.

The LCS/LCSD RPDs were within acceptance criteria.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the DRAFT CSSA QAPP;
- Comparing actual analytical procedures to those described in the DRAFT CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blank and TB for cross contamination of samples during sample collection, transportation, and analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the DRAFT CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- All initial calibration verification (ICV) criteria were met. The ICV was prepared using a secondary source standard.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

One method blank was associated with the VOC analyses in this WO. The MB was non-detect for all target VOCs.

There was one trip blank sample associated with the VOC analyses in this WO. The TB was non-detect for all target VOCs.

Completeness

Completeness has been evaluated in accordance with the DRAFT CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All VOC results for the samples in this WO were considered usable. The completeness for this WO is 100%, which meets the minimum acceptance criteria of 90%.

DATA QUALIFIER DEFINITIONS

The data qualifiers are defined in Table 36.3 of the project-specific DRAFT CSSA QAPP, as follows:

Data Validation Codes and Definitions

Data Qualifiers	Definitions
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the Detection Limit (DL).
F	The analyte was positively identified; the quantitation is an estimation above the DL and below the Limit of Quantitation (LOQ).

J	The analyte was positively identified, but the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
UJ	The analyte was analyzed for, but not detected; the associated numerical value is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	A matrix effect was present.
R	Data is rejected as unusable due to serious deficiencies in meeting certain analyte-specific quality control criteria.

DATA QUALIFIER CHANGES

There were no data qualifiers were added, removed, or changed as a result of the data validation process.

APPENDIX D

LTMO AND DQO APPROVAL LETTERS FROM THE TCEQ AND EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1201 Elm Street, Suite 500
Dallas, Texas 75270-2102

Transmitted via e-mail

September 23, 2020

Mr. John Ferguson
Acting Installation Manager
Camp Stanley Storage Activity
25800 Ralph Fair Road
Boerne, TX 78015-4800

RE: *2020 Revision of Data Quality Objectives (DQOs) – Groundwater Monitoring Program*
Camp Stanley Storage Activity, Boerne, Texas

Dear Mr. Ferguson:

The 2020 Revision of Data Quality Objectives (DQOs) – Groundwater Monitoring Program for Camp Stanley Storage Activity (CSSA) has been reviewed by the U.S. EPA in accordance with the final Resource Conservation and Recovery Act (RCRA) § 3008(h) Administrative Order on Consent for CSSA, (Order) Docket No. RCRA-VI 002(h)99-H FY99, dated May 5, 1999.

The purpose of the 2020 DQOs revision is to incorporate recent changes in the groundwater monitoring program, including implementing the 2020 Long Term Monitoring Optimization (LTMO) recommendations for both on-post and off post wells. The revised DQO's meets the temporal and spatial objectives of the CSSA groundwater monitoring program. The EPA approves the 2020 Revision, and it should be incorporated into the overall CSSA groundwater monitoring program.

Please add the 2020 DQO Revision to the Administrative Record at *https://www.stanley.army.mil*. If you have any questions, please feel to contact me at 214-665-8317 or via e-mail at *lyssy.gregory@epa.gov*.

Sincerely,

Greg J. Lyssy

Greg J. Lyssy
Senior Project Manager
RCRA Corrective Action Section (6LCR-RC)

cc: Margarita Loya, CSSA
Tim Brown, TCEQ
Jorge Salazar, TCEQ
Laurie King, EPA
Julie Burdey, Parsons
Shannon Schoepflin, Parsons
Scott Pearson. Parsons

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1201 Elm Street, Suite 500
Dallas, Texas 75270-2102

Transmitted via e-mail

September 18, 2020

Mr. John Ferguson
Acting Installation Manager
Camp Stanley Storage Activity
25800 Ralph Fair Road
Boerne, TX 78015-4800

RE: *RCRA Three-Tiered Long Term Monitoring Network Optimization Evaluation*
Camp Stanley Storage Activity, Boerne, Texas

Dear Mr. Ferguson:

The Three-Tiered Long Term Monitoring Network Optimization (LTMO) Evaluation, dated May 2020, for Camp Stanley Storage Activity (CSSA), has been reviewed by the U.S. EPA in accordance with the final Resource Conservation and Recovery Act (RCRA) § 3008(h) Administrative Order on Consent for CSSA, (Order) Docket No. RCRA-VI 002(h)99-H FY99, dated May 5, 1999.

The purpose of the LTMO Evaluation is to ensure that the groundwater monitoring program adequately addresses the monitoring requirements of the remedial actions at the Site, both temporally and spatially. CSSA has been collecting groundwater data since the early 1990's and has optimized the monitoring program several times to ensure that an optimal monitoring program is in place. The proposed sampling schedule in the LTMO Evaluation meets the temporal and spatial objectives of the CSSA groundwater monitoring program and is hereby approved.

Please add the Evaluation to the Administrative Record at *https://www.stanley.army.mil*. If you have any questions, please feel to contact me at 214-665-8317 or via e-mail at *lyssy.gregory@epa.gov*.

Sincerely,

Greg J. Lyssy

Greg J. Lyssy
Senior Project Manager
RCRA Corrective Action Section (6LCR-RC)

cc: Margarita Loya, CSSA
Tim Brown, TCEQ
Jorge Salazar, TCEQ
Laurie King, EPA
Julie Burdey, Parsons
Shannon Schoepflin, Parsons
Adrian Lindley, Parsons

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

September 18, 2020

Via E-mail

Mr. John Ferguson
Installation Manager
Camp Stanley Storage Activity
25800 Ralph Fair Road
Boerne, TX 78015

Re: Approval
Data Quality Objectives Groundwater Monitoring Program and Three-Tiered Long-Term Monitoring Network Optimization Evaluation, dated September 15, 2020
Camp Stanley Storage Activity, Boerne, Texas
TCEQ SWR No. 69026; CN602728206; RN100662840
EPA ID No. TX2210020739

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above-referenced submittal that documented the optimization of the sampling and analysis plans for the site. The TCEQ concurs with the recommended optimization; please proceed with its implementation.

Questions concerning this letter should be directed to me at (512) 239-6526. When responding by mail, please submit one paper copy and one electronic copy (on USB or disc) of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals. Note that the electronic and hard copies should be identical, complete copies. A Correspondence ID Form (TCEQ Form 20428) must accompany each document submitted to the Remediation Division and should be affixed to the front of your submittal. The Correspondence ID Form helps ensure that your documents are identified correctly and are routed to the applicable program for a timely response.

Sincerely,

Timothy Brown

Timothy Brown, Project Manager
Team 1, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

TKB/mdh

cc: Ms. Julie Burdy, Parsons Inc., 9101 Burnet Road, Suite 210, Austin, TX 78758
Via E-mail

Mr. Cameron Lopez, Waste Section Manager, TCEQ Region 13 Office, San Antonio
Via E-mail

APPENDIX E

WESTBAY ANALYTICAL RESULTS, MARCH 2022

Appendix E
Westbay Analytical Results, March 2022

Well ID	Date Sampled	cis-1,2-DCE (cis-1,2-dichloroethene)	TCE (trichloroethene)	PCE (tetrachloroethene)	Vinyl Chloride
CS-WB01-LGR-01	3/17/2022	<0.150	**0.639F**	**3.38**	<0.100
CS-WB01-LGR-02	3/17/2022	<0.150	**2.35**	**16.5**	<0.100
CS-WB01-LGR-03	3/17/2022	**0.214F**	**5.39**	**3.37**	<0.100
CS-WB01-LGR-04	3/17/2022	**1.25**	<0.160	<0.200	<0.100
CS-WB01-LGR-05	3/17/2022	**2.73**	**0.229F**	<0.200	<0.100
CS-WB01-LGR-06	3/17/2022	**4.02**	**13.5**	**0.344F**	<0.100
CS-WB01-LGR-07	3/17/2022	**8.43**	**5.64**	**4.73**	<0.100
CS-WB01-LGR-08	3/17/2022	**14.4**	<0.160	<0.200	<0.100
CS-WB01-LGR-09	3/17/2022	**3.55**	**12.6**	**13.6**	<0.100
CS-WB02-LGR-03	3/18/2022	<0.150	**0.225F**	**1.88**	<0.100
CS-WB02-LGR-04	3/18/2022	<0.150	**3.14**	**3.17**	<0.100
CS-WB02-LGR-05	3/18/2022	**0.316F**	**1.34**	**0.513F**	<0.100
CS-WB02-LGR-06	3/18/2022	**0.705F**	**0.783F**	**3.12**	<0.100
CS-WB02-LGR-07	3/18/2022	**0.723F**	**0.644F**	<0.200	<0.100
CS-WB02-LGR-08	3/18/2022	**2.47**	<0.160	<0.200	<0.100
CS-WB02-LGR-09	3/17/2022	<0.150	**9.79**	**11.9**	<0.100
CS-WB03-UGR-01	3/22/2022	<30.0*	**171F***	**20300***	<20.0*
CS-WB03-LGR-03	3/22/2022	<0.150	**0.742F**	**3.22**	<0.100
CS-WB03-LGR-04	3/22/2022	**1.80**	**4.09**	**11.9**	<0.100
CS-WB03-LGR-05	3/22/2022	**21.3**	**1.54**	<0.200	<0.100
CS-WB03-LGR-06	3/22/2022	**2.22**	<0.160	<0.200	<0.100
CS-WB03-LGR-07	3/22/2022	**1.65**	<0.160	<0.200	**0.318F**
CS-WB03-LGR-08	3/22/2022	**1.47**	**0.222F**	<0.200	<0.100
CS-WB03-LGR-09	3/22/2022	<0.150	**2.16**	**3.69**	<0.100
CS-WB04-LGR-01	3/23/2022	<0.150	<0.160	**1.30**	<0.100
CS-WB04-LGR-03	3/23/2022	<0.150	<0.160	**0.734F**	<0.100
CS-WB04-LGR-04	3/23/2022	<0.150	**0.162F**	**0.406F**	<0.100
CS-WB04-LGR-06	3/23/2022	**2.86**	**6.78**	**21.5**	<0.100
CS-WB04-LGR-07	3/23/2022	**4.93**	**11.1**	**7.49**	<0.100
CS-WB04-LGR-08	3/23/2022	**0.878F**	**0.228F**	**1.07**	<0.100
CS-WB04-LGR-09	3/23/2022	<0.150	**4.03**	**6.62**	<0.100
CS-WB04-LGR-10	3/23/2022	<0.150	**0.298F**	**3.24**	<0.100
CS-WB04-LGR-11	3/23/2022	<0.150	<0.160	**1.94**	<0.100
CS-WB04-BS-01	3/23/2022	<0.150	<0.160	**1.14**	<0.100
CS-WB04-BS-02	3/23/2022	<0.150	<0.160	**2.43**	<0.100
CS-WB04-CC-01	3/23/2022	**1.24**	<0.160	**2.27**	<0.100
CS-WB04-CC-02	3/23/2022	<0.150	<0.160	**3.68**	<0.100
CS-WB04-CC-03	3/23/2022	<0.150	<0.160	**18.6**	<0.100

Data Qualifiers
F-The analyte was positively identified but the associated numerical value is below the RL.
* The analyte was run at a dilution of 200.
All values are reported in µg/L.

BOLD = Above the DL
BOLD = Above the LOQ
BOLD = Above the MCL