PROGRESS REPORT

January 1, 2021 – December 31, 2021

(55th REPORT)

Camp Stanley Storage Activity

Boerne, Texas

USEPA ID No. TX2210020739

January 2022

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ATTACHMENTS

ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
AL	action level
APAR	Affected Property Assessment Report
APPL	Agriculture & Priority Pollutants Laboratories, Inc.
BTOC	Below top of casing
cis-1,2-DCE	*cis*-1,2-dichloroethene
CMI	Corrective Measures Implementation
CMS	Corrective Measures Study
CQAP	Construction Quality Assurance Plan
CSSA	Camp Stanley Storage Activity
DD	Decision Document
DO	dissolved oxygen
DQO	data quality objective
GAC	granular activated carbon
I/SM	interim/stabilization measures
ISCO	*in-situ* chemical oxidation
LTMO	long-term monitoring optimization
MCL	maximum contaminant level
MEC	munitions and explosives of concern
MSL	mean sea level
O&M	operations and maintenance
ORP	oxidation reduction potential
PCE	tetrachloroethene
QAPP	Quality Assurance Program Plan
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
RIR	Release Investigation Report
RL	reporting limit
RMU	Range Management Unit
SAWS	San Antonio Water System
SS	secondary standard
SWMU	Solid Waste Management Unit
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
TCLP-Pb	toxicity characteristic leaching procedure lead
TRRP	Texas Risk Reduction Program
UIC	underground injection control
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

PROGRESS REPORT
JANUARY 1, 2021 – DECEMBER 31, 2021
(55TH PERIOD)

INTRODUCTION

This 55th Progress Report for Camp Stanley Storage Activity (CSSA), Boerne, Texas, U.S. Environmental Protection Agency (USEPA) Identification Number TX2210020739, is submitted in accordance with the Administrative Order on Consent (Order) issued to CSSA on May 5, 1999, pursuant to §3008(h) of the Safe Drinking Water Act, as amended by the Resource Conservation and Recovery Act (RCRA), and further amended by the Hazardous and Solid Waste Act of 1984, 42 United States Code §6928(h). This report addresses the project progress from January 1 through December 31, 2021. In June 2006, CSSA switched from quarterly to semi-annual progress reporting, as approved by USEPA. In September 2017, the reporting frequency was changed from semi-annual to annual with USEPA approval.

Summary of Activities this Period

Between January 1 and December 31, 2021, significant activities related to the Order included:

- Completed the Release Investigation Report (RIR) for the canister diposal area known as Area of Concern 78 (AOC-78) which was approved by the Texas Commission on Environmental Quality (TCEQ) in September 2021;
- Completed investigation of a second canister disposal area known as AOC-79 in the North Pasture;
- Continued SWMU B-3 bioreactor corrective measures, including application of lactate (WilClear Plus substrate) into active trench sumps 1, 2, and 6 in June 2021;
- Continued AOC-65 *in-situ* chemical oxidation (ISCO) corrective measures, including application of permanganate in June 2021 to facilitate the remediation process;
- Continued the groundwater monitoring program under the regulator-approved DQOs;
- Continued maintenance of off-post granular activated carbon (GAC) systems;
- Continued administrative record maintenance;
- Held a virtual regulatory meeting on May 27, 2021;
- Collected per- and polyfluoroalkyl substances (PFAS) samples from on-post drinking water wells CS-1, CS-10, CS-12, and CS-13 in October 2021; and
- Developed an Environmental Assessment/Finding of No Significant Impact in accordance with the National Environmental Policy Act for the future conversion of the on-post drinking water system to the San Antonio Water System (SAWS).

Report Organization

This report details work completed on tasks associated with the Order. The Order outlined work to be conducted under four phases: Interim Measures, RCRA Facility Investigation (RFI), Corrective Measures Study (CMS), and Corrective Measures Implementation (CMI). With

completion of the Decision Document (DD) in July 2015, work at CSSA is focused on corrective measures implementation.

Phase names and task names listed in **Table 1** are taken directly from the Order. Information for tasks active from January 1 through December 31, 2021 is provided in this report. No current information is provided for tasks that are not active; however, a summary of all tasks, subtasks, and their status has been presented in previous reports. Details of the evaluation of the percent complete by awarded projects are included in **Table 2**.

Table 1 §3008(h) Administrative Order on Consent Project Phases

3008(h) Order Phase and Subtasks	Phase Purpose	Phase's % of Overall Order	Subtask's % of Phase	Physical % Complete of Subtask	Subtask portion of Phase % Complete	Physical % Complete of Phase	Active During P55
Interim Measures	Mitigate a current or potential threat to human health and/or the environment.	30%				100%	
Interim Measures Work Plan			7%	100%	7%		No
Interim Measures Implementation			70%	100%	70%		No
Reports			23%	100%	23%		No
RCRA Facility Investigation	Characterize the environmental setting of CSSA; define the sources of contamination; define the degree and extent of contamination; identify actual or potential receptors; and assess whether any additional interim/stabilization measures may be warranted.	30%				100%	
Preliminary Report			5%	100%	5%		No
RFI Work Plan			5%	100%	5%		No
Facility Investigation			40%	100%	40%		No
Risk Assessment			10%	100%	10%		No
Investigation Analysis			10%	100%	10%		No
Groundwater Investigation			15%	100%	15%		No
Treatability Studies			10%	100%	10%		No
Progress Reports			5%	100%	5%		No
Corrective Measures Study	Identification, screening, and development of alternatives for removal, containment, treatment, and/or	10%				100%	
Identify and Develop Alternatives			15%	100%	15%		No
Evaluate Alternatives			60%	100%	60%		No
Reports			25%	100%	25%		No
Corrective Measures Implementation	Design, construct, operate, maintain, and monitor the performance of corrective measure(s) selected to protect human health and the environment.	30%				98%	
Implementation Program Plan			5%	100%	5%		No
Corrective Measure Design			15%	100%	15%		No
Corrective Measure Construction			60%	100%	60%		No
Corrective Measures Report			10%	100%	10%		No
Progress Reports			10%	60%	6%		Yes
				% of All Phases Complete		99%	

AOC-78 Canister Area

AOC-78 was an approximately 1,000-square-foot (0.023-acre) site located in the southeastern portion of CSSA's Inner Cantonment Area approximately 500 feet northwest of the southern CSSA boundary identified during a bird survey in the spring of 2019. Work performed at the site during Period 54 included x-ray fluorescence analysis of soil samples, soil sampling for laboratory analyses, inspection for unexploded ordnance (none was found), the removal and proper disposal of soil containing contaminants above TCEQ Tier 1 Protective Concentration Levels (PCLs), and appropriate documentation of all activities, including the preparation of an RIR that was submitted to TCEQ in February 2021. TCEQ subsequently approved closure of AOC-78 on September 9, 2021.

AOC-79 Canister Area (within Range Management Unit 1)

AOC-79 was a small area of discarded munitions shipping canisters identified in the East Pasture late in Period 54 (December 2020). A field effort conducted that month included the removal of the canisters for recycling and the collection of surface soil samples from below the canister piles for laboratory analysis. In total, 380 canisters were removed from the AOC-79 area. The canisters were placed into the Motor Pool recycling bin for off-post recycling. Analytical results indicated nine of the ten soil samples (exceeding lead concentrations ranged from 94 mg/kg to 2,447 mg/kg) exceeded the 84.5-mg/kg Tier 1 PCL for lead, and zinc was detected in excess of its 120-mg/kg Tier 1 PCL at two locations (exceeding zinc concentrations ranged from 144 mg/kg to 464 mg/kg). Due to the lead concentrations in soil, waste characterization samples were analyzed for toxicity characteristic leaching procedure lead (TCLP-Pb) and the results indicated that the soil met Texas' non-hazardous criteria for waste management purposes. No further investigation nor remedial actions will be performed at AOC-79 until such time as the active range (Range Management Unit [RMU]-1) is closed, per correspondence with the USEPA date February 29, 2012.

CORRECTIVE MEASURES STUDY

Investigation results were used to develop and evaluate alternatives during the CMS. The CMS consisted of the identification, screening, and development of alternatives for removal, containment, treatment, and/or other remediation of the contamination identified at CSSA. The CMS is based on results of the RFI, identified corrective measure technologies, and results of any treatability studies. The CMS Report, approved by USEPA on January 22, 2015, recommended the following corrective measures:

- Implement institutional and engineering land use controls to prevent contact with contaminated media;
- Current off-post GAC units would continue to be operated and monitored, and new GAC units would be installed at additional off-post drinking water wells if necessary;
- Continued use of bioremediation (bioreactor) to treat the source area at SWMU B-3; and
- Continued use of ISCO to treat source area contamination at AOC-65.

The most recent public meeting was held in January 2015. Following the public comment period, during which USEPA received no comments, USEPA prepared the DD which was published in July 2015.

CORRECTIVE MEASURES IMPLEMENTATION

The CMI Program Plan and the Corrective Measures Design Report were approved by USEPA on March 11, 2016. The Construction Quality Assurance Plan (CQAP) was approved by USEPA on September 28, 2016. The CMI Report was submitted to USEPA on September 7, 2017, and was approved by USEPA on January 5, 2018.

Five-year reviews will be conducted to evaluate the implementation and performance of the corrective measures in place, and to determine whether they remain protective of human health and the environment. Five-year reviews will continue throughout the life of the sites until contaminants no longer remain on site at levels that do not allow for unrestricted use. The first five-year review was submitted to USEPA in July 2020, and it was approved by USEPA and TCEQ in September 2020. The review concluded that the approved corrective measures are performing as intended and are protective of human health and the environment. In addition, it concluded that O&M of the corrective measures systems/programs should continue.

A summary of corrective measures conducted this period is provided in the following paragraphs.

SWMU B-3 Bioreactor

Monthly operations and maintenance (O&M) of the bioreactor continued in Period 55. Approximately 275 million gallons of groundwater extracted (as of 12/1/21) from CS-MW16-LGR, CS-MW16-CC, CS-B3-EXW01, CS-B3-EXW02, CS-B3-EXW03, CS-B3-EXW04, and CS-B3-EXW05 have been injected into the bioreactor trenches since the start of injection in 2007. An annual underground injection control (UIC) report was submitted to the TCEQ in mid-Period 55 (June 2021) in accordance with CSSA's Class V Aquifer Remediation Injection Well Permit, TCEQ Authorization No. 5X2600431; WWC12002216. Additionally, an annual SWMU B-3 Bioreactor Performance Status Report was submitted to CSSA in June 2021.

Groundwater samples were collected from sumps, monitoring wells, Westbay-equipped wells, and the injection discharge. Sampling frequency was based on permit requirements and water availability. In general, injected groundwater samples are collected quarterly and monitoring samples from injection trench sumps and the upper most saturated zone within Westbay-equipped monitoring wells (LGR-03B) are collected semi-annually. Additional Westbay-equipped monitoring well zones, extraction well, and monitoring well performance samples are collected every nine months. All samples were analyzed for permit parameters – volatile organic compounds (VOCs), total dissolved solids, and other selected performance parameters. Analyses were performed by Agriculture & Priority Pollutants Lab Inc. (APPL), DHL Laboratory, Microbial Insights, and Microseeps Laboratory. Collected field data included injection volumes, injection pressures, and the pH of recovered groundwater for TCEQ permit compliance. Analytical data collected for performance parameters include:

- Methane, Ethane, and Ethene;
- Hydrogen[1];
- Temperature, pH, and specific conductivity;
- Oxidation Reduction Potential (ORP);

[1] The 2020 LTMO Update, implemented following the September 2020 (i.e., Period 54) groundwater sampling event, designates the sampling frequency for these parameters as "as needed" for future events (including December 2020).

- Dissolved Oxygen (DO);
- Total Organic Carbon;
- Carbon Dioxide;
- Hydrogen;
- Sulfide[1];
- Additional ions/metals including Sulfate[1], Chloride[1], Ferrous Iron[1], Arsenic, and Manganese; and
- *Dehalococcoides* populations.

During Period 55, the bioreactor remained at saturated conditions due to the continued supply of water from wells CS-MW16-CC, CS-MW16-LGR, B3-EXW01, B3-EXW02, B3-EXW03, B3-EXW04, and B3-EXW05, as well as occasional rainfall events during the period. Approximately 18 million gallons of water were injected into Trenches 1, 2, and 6 in 2021. Four totes of lactate (WilClear Plus substrate) were applied to active trench sumps 1, 2, and 6 in June 2021 to enhance the biodegradation process.

Monitoring results continue to indicate that effective treatment of injected groundwater in the bioreactor is occurring. Breakdown products of highly chlorinated species, such as tetrachloroethene (PCE) and trichloroethene (TCE), are present in groundwater samples from locations surrounding the bioreactor; however, VOC components remain in strata adjacent to and beneath the trenches.

AOC-65 In-Situ Chemical Oxidation

Groundwater samples were collected from existing monitoring wells and infiltration galleries and analyzed for VOCs, metals, and anions (chloride and sulfate) to track the progress of ISCO applications. Water quality parameters (pH, DO, ORP, and conductivity) were also collected. Permanganate/persulfate-infused paraffin wax cylinders were originally installed in six wells in December 2016 and monitoring has continued on a quarterly basis to track the progress of ISCO applications. An annual underground injection control (UIC) report was submitted to the TCEQ in June 2021 in accordance with CSSA's Class V Aquifer Remediation Injection Well Permit, TCEQ Authorization No. 5X2600465.

Two semi-annual ISCO sampling events were conducted during this period. Liquid permanganate injections were performed in June 2021 which included a 5% permanganate solution applied to all four infiltration cells and injection wells IIW01, IIW02, and IIW04.

- March 2021: Semi-annual monitoring event for all primary AOC-65 monitoring points
- September 2021: Semi-annual monitoring event for all primary AOC-65 monitoring points

Groundwater Monitoring

On- and off-post groundwater monitoring was conducted in accordance with regulator-approved DQOs during Period 55. Sampling frequencies for on-post and off-post wells were determined by the LTMO study updated in July 2020 and approved by TCEQ and USEPA in September 2020 (Period 54). A map of the well locations is provided in **Attachment 1** of this report.

Sampling Dates	Dec 2-10, 2020	March 1-5, 2021	June 2-11, 2021	Sept 1-24, 2021	December 2021 In Progress
Groundwater Sampling					

No. of On-Post Wells Sampled	19	4	4	4	4
No. of Off-Post Wells Sampled	9	6	6	6	6
No. of GAC Locations Sampled (pre- and post-GAC)	6	13	6	13	6
No. of Wells with COCs above Maximum Contaminant Levels (MCLs)	2	0	0	0	In Progress
Average water elevation (ft above msl)	949.83	950.94	1103.63	1055.75	
AOC-65/ISCO Sampling					
ISCO Monitoring Wells	0	33	0	33	0
ISCO Westbay Zones	0	12	0	12	0
SWMU B-3 Sampling					
Bioreactor Monitoring Wells and Sumps	16	10	UIC only	32	UIC only
Bioreactor Westbay Zones	23	4	0	27	0

The analyte list for each monitoring event was in accordance with the applicable work plans and DQOs. On- and off-post monitoring wells and Westbay-equipped wells were sampled for the SW-846 Method 8260B VOCs cis-1,2-dichloroethene (cis-1,2-DCE), PCE, TCE, and vinyl chloride). On-post drinking water wells were also sampled for metals: barium, arsenic, chromium, cadmium, copper, mercury, lead, and zinc. Additional samples were collected off-post and from wells with GAC filtration systems. Samples were analyzed by APPL in Clovis, California. Chemists validated and verified the data in accordance with the CSSA Quality Assurance Program Plan (QAPP). All detected concentrations of VOCs and metals are presented in **Attachment 4**.

December 2020 Sampling

The December 2020 groundwater monitoring included 19 on-post and 9 off-post wells. In addition, 43 zones of Westbay wells 01 through 04 were sampled and profiled to collect water level data in the area. This December sampling event is refered to as a "15-month event" in the 2020 LTMO schedule. Sampling was conducted December 2 - 10, 2020, and results are included in Attachment 4. Results were not available in Period 53 and are therefore presented here.

On-post public water supply wells were sampled and analyzed for select VOCs (CSSA short list) and metals (arsenic, barium, chromium, copper cadmium, mercury, lead, and zinc). There were no metals or VOCs detected above the MCL/AL/SS in the drinking water wells. Two on-post wells (CS-MW1-LGR and CS-MW36-LGR) had VOC detections above the MCL in Decemeber 2020.

Analyses indicated off-post well RFR-10 exceeded the MCL for PCE. This well is equipped with a GAC filtration system. All other off-post wells sampled were below the MCLs.

The Middle Trinity aquifer's average groundwater elevation in December 2020 decreased 1.01 feet from elevations measured in September 2020. The average depth to water in the wells was 293.16 feet below top of casing (BTOC) or 949.83 feet above mean sea level (msl).

March 2021 Sampling

Four on-post wells, 6 off-post wells, and 7 post-GAC locations were sampled in March 2021 in accordance with the LTMO schedule. Analytical results from the March 2021 sampling event are included in Attachment 4.

Sampling was conducted March 1 through 5, 2021. Average groundwater elevation in March 2021 decreased 2.24 feet from the elevations measured in December 2020. The average depth to water in the wells was 292.99 feet BTOC or 950.94 feet above msl.

On-post well samples were analyzed for select VOCs (CSSA short list) and public water supply wells were also sampled for metals (arsenic, barium, chromium, copper cadmium, mercury, lead, and zinc). There were no metals or VOCs detected above the MCL/AL/SS in on-post wells sampled in March 2021. Westbay wells 01 through 04 were not scheduled for sampling in March 2021 but profile data were collected to capture the water levels in that area.

Six off-post wells and 7 post-GAC samples were also collected in March 2021. One off-post well sampled in March 2021 (RFR-10) exceeded the MCLs for VOCs. Semi-annual GAC maintenance was performed April 1, 2021. This involved replacing the first carbon canister in each GAC system and other routine maintenance. Post-GAC samples were collected after the maintenance was completed to ensure the systems are functioning properly. All post-GAC samples were non-detect in March and April 2021.

June 2021 Sampling

Four on-post wells and 6 off-post wells were sampled in June 2021 in accordance with the LTMO schedule. Analytical results from the June 2021 sampling event are included in Attachment 4.

Sampling was conducted June 1 through 11, 2021. Average groundwater elevation in June 2021 increased 155.34 feet from the elevations measured in March 2021. The average depth to water in the wells was 139.36 feet BTOC or 1103.63 feet above msl.

On-post drinking water well samples were analyzed for select VOCs (CSSA short list) and metals (arsenic, barium, chromium, copper, cadmium, mercury, lead, and zinc). There were no metals or VOCs detected above the MCL/AL/SS in on-post sampled wells in June 2021. Westbay wells 01 through 04 were not scheduled for sampling in June 2021, but profile data was collected to capture the water level data in that area.

Six off-post samples were also collected in June 2021. One off-post well (RFR-10) exceeded the MCL for PCE and TCE. This well is equipped with a GAC filtration system. All other wells were below the MCLs. Post-GAC samples are collected semi-annually (March and September) and were not collected this quarter.

September 2021 Sampling

Four on-post wells, 6 off-post wells, and 7 post-GAC locations were sampled in September 2021 in accordance with the LTMO schedule. Analytical results from the September 2021 sampling event are included in Attachment 4.

Sampling was conducted September 1 through 24, 2021. Average groundwater elevation in September 2021 decreased 47.35 feet from the elevations measured in June 2021. The average depth to water in the wells was 187.24 feet BTOC or 1055.75 feet above msl.

On-post public water supply well samples were analyzed for selected VOCs (CSSA short list) and metals (arsenic, barium, chromium, copper, cadmium, mercury, lead, and zinc). There were no metals or VOCs detected above the MCL/AL/SS in on-post sampled wells in September 2021. Westbay wells 01 through 04 were not scheduled for sampling in September 2021, but profile data was collected to capture the water level data in that area.

Six off-post wells and 7 post-GAC samples were collected in September 2021. Two off-post well (OFR-3 and RFR-10) exceeded the MCL for PCE. These wells are equipped with GAC filtration systems. All other wells were below the MCLs. Post GAC samples were non-detect with the exception of LS-6-A2 which reported a trace detection of *cis*-1,2-DCE. Because this trace detection (0.16 ppb) is only slightly above the laboratory's method detection limit for *cis*-1,2-DCE (0.07 ppb), and also because no *cis*-1,2-DCE was detected in the sample from well (LS-6) prior to entry into the GAC filtration system, the presence of cis-1,2-DCE at the reported value is uncertain and questionable. Semi-annual GAC maintenance was performed October 19, 2021. This involved replacing the first carbon canister in each GAC system and other routine maintenance. Post-GAC samples were collected after the maintenance was completed to ensure the systems are functioning properly. All post-GAC samples were non-detect in October 2021.

October 2021 PFAS Sampling

Four samples were collected from on-post drinking water wells CS-1, CS-10, CS-12, and CS-13 in October 2021 for laboratory analysis of PFAS. PFAS was not detected above established regulatory limits at any location. Wells CS-1 and CS-12 each included the positive identification of one analyte, though the results are "F" flags (estimate above the detection limit but below the reporting limit). Well CS-10 included three F-flagged detections as well as two positive detections above the RL: PFHxS (Perflurohexanesulfonic acid) at 5.4 ng/L and PFOS (Perfluorooctanesulfonic acid) at 8.4 ng/L. The established limits for the positively identified compounds are:

- PFHxS – 93 ng/L (TCEQ Tier 1 PCL)
- PFOS – 560 ng/L (TCEQ Tier 1 PCL); 70 ng/L (USEPA Lifetime Health Advisory Value); 400 ng/L (USEPA Risk-based Screening Level)

December 2021 Sampling

Four on-post wells and 6 off-post wells are scheduled to be sampled in December 2021 in accordance with the latest (2020) LTMO schedule. This December sampling event is refered to as a "quarterly" in the LTMO schedule. Sampling began on December 1 and is anticipated to be completed by December 10th. Laboratory results will be received in January 2022 and summarized in the Period 56 progress report.

Off-Post GAC Systems

Based on sampling results received in 2001, 2002, and 2011 indicating VOC levels above or approaching the MCL, GAC filtration systems were installed at six off-post wells. In accordance with the *CSSA Off-Post Monitoring Program Response Plan* dated June 2002 and addended July 2016, and the Groundwater Monitoring DQOs, the off-post GAC filtration systems are maintained by CSSA and sampled every six months.

Monthly O&M activities for the off-post residential GAC filtration systems were performed this period. Work included inspection and replacement, as needed, of the pre- and post-GAC filters at wells LS-5, LS-6, LS-7, OFR-3, RFR-10, and RFR-11.

Semi-annual GAC maintenance was performed April 1 and October 19, 2021. This included moving the second carbon canister into the first position and replacing the second carbon canister, as well as ultraviolet bulb replacement if necessary.

Post-GAC confirmation samples were collected from all of the off-post GAC systems after the semi-annual maintenance was performed in April and October. All VOC sample results were non-detect, indicating that the GAC filtration systems are functioning properly.

Data Validation and Verification

Laboratory results from sampling efforts and investigations are validated and verified by chemists to ensure results are in compliance with CSSA QAPP requirements. Data validation and verification continued during Period 55.

Meetings

One regulatory meeting was held during Period 55 on May 27, 2021 with regulators from USEPA and TCEQ. Topics discussed included SWMU B-3 and AOC-65 operations and progress, SWMU B-2 closure, AOC-78 and AOC-79 canister removal, and stormwater and public water system projects (e.g., connection to SAWS) at CSSA.

Environmental Encyclopedia Updates

The CSSA website (www.stanley.army.mil) was updated with documents added to the Environmental Encyclopedia through the end of December 2021. The website serves as CSSA's Administrative Record as required under the Order. Documents uploaded to the Environmental Encyclopedia in Period 55 included the following:

- Final June 2020 Off-Post Groundwater Report
- Period 54 USEPA Progress Report
- March Groundwater Sample Notification Letter to EPA
- Final December 2020 Well Owner Letters
- Final 2020 Annual Groundwater Report
- Final AOC-65 In-Situ Chemical Oxidation (ISCO) Operations and Maintenance Manual
- June Groundwater Sample Notification Letter to EPA
- Final March 2021 Well Owner Letters
- Project Memorandum: Field Investigation Effort at AOC-79
- Final March 2021 On-post Groundwater Monitoring Report
- Final March 2021 Off-post Groundwater Monitoring Report

Summary of Contacts

Letters summarizing the results of the December 2020 and March, June, and September 2021 off-post groundwater monitoring events were mailed to owners of the off-post wells in Period 55. Groundwater sampling notification letters were sent to the USEPA and TCEQ one month prior to the start of the sampling events. Other Order-related correspondence during Period 55 included submittal of the Period 54 Semi-Annual USEPA Progress Report (January 9, 2020).

PROJECTED WORK FOR THE NEXT PERIOD

Groundwater Monitoring

As outlined in the CMS and approved by the DD, routine off-post groundwater sampling which began in 2001 will continue into the foreseeable future. Quarterly groundwater monitoring on- and off-post will continue in accordance with the approved LTMO and DQOs. During Period 56 (January-December 2022), these events will be conducted in March, June, September, and

December. Quarterly and annual groundwater monitoring reports will be submitted next period. O&M at the residential GAC filtration systems (LS-5, LS-6, LS-7, OFR-3, RFR-10, and RFR-11) will be conducted every three weeks during Period 56. The semi-annual carbon exchange will be performed in March and September 2022.

SWMU B-3 Bioreactor

Monitoring of the bioreactor at SWMU B-3 will continue during Period 56 as described in the CMS and approved by the DD. Monitoring requirements will be performed to meet TCEQ's UIC authorization requirements. Performance monitoring data will be collected in accordance with the SWMU B-3 Bioreactor O&M Manual.

AOC-65 ISCO

CSSA will continue semi-annual monitoring, per the 2020 LTMO recommendations approved by TCEQ/USEPA, of the designated ISCO wells as identified in the AOC-65 O&M Plan and in accordance the CMS and approved by the DD. Scheduled semi-annual groundwater monitoring will continue during Period 56 for permit-required and performance-based parameters.

Meetings

Internal quarterly groundwater meetings will be held prior to quarterly events scheduled in March, June, September, and December 2022 to discuss the progress and continued implementation of the remedies outlined in the CMS and approved by the DD. One regulatory meeting is anticipated to be held next period.

Table 2, Environmental Project Task Completion to Date

Project Number	Description of Task	Relation to Order	Percent Complete	Start/End Dates
Order 37	UST Investigations	NA	100%	1991-1995
Order 52	Investigation of F-14	I/SM/RFI	100%	1992-1993
Order 67	Groundwater sampling, Water Well Inventory, Hydrogeologic Report	I/SM/RFI	100%	1992-1996
Order 71	Environmental Assessment	I/M	100%	1992-1993
Order 126	B-20, F-14 Investigations, Background Soils Study	RFI	100%	1994-1996
RL17	Geophysical surveys, Well Installations Soil Sampling and Groundwater sampling	I/SM/RFI	100%	1995-2003
RL33	Site investigations, B-20 treatability studies and unexploded ordnance investigation	RFI	100%	1996-2002
Order 23	Groundwater Sampling	RFI	100%	1996-1998
RL53	SWMU and AOC Investigations	RFI	100%	1997-2003
RL83	Geophysical Surveys	RFI	100%	1999-2003
RL74	Current Conditions Report, Community Relations, Groundwater Monitoring	RFI	100%	1999-2001
DO5068	Soil Gas Surveys	RFI	100%	1999-2002
DO23	Groundwater Monitoring	RFI	100%	1998-2001
DO5084	Building 90 Investigation, Groundwater Monitoring	RFI	100%	2000-2003
TO0058	Treatability Study for AOC-65	RFI	100%	2001-2005
TO0042	Well Installations and Groundwater Monitoring	I/SM/RFI	100%	2001-2006
TO0017	East Pasture Removal Action	Other	100%	2005-2006
TO0019	SWMU Closures	RFI	100%	2003-2006
TO0005	Environmental Program Technical Support	I/SM/RFI	100%	2003-2007
TO0098	Miscellaneous Studies	Other	100%	2004-2007
TO0008	Groundwater Monitoring	I/SM/RFI	100%	2003-2008
TO0006	SWMU B-3 and AOC-65 Remediation	I/SM/RFI	100%	2004-2008
TO0207	Environmental Support, Groundwater Monitoring	I/SM/RFI	100%	2006-2008
DY01 (Weston)	Affected Property Assessment Investigations	RFI	100%	2006-2007
DY01 (Parsons)	Environmental Compliance, SWMU, and AOC Closure Investigations	RFI	100%	2006-2010
DY02 (Parsons)	Environmental Compliance, SWMU and AOC closure Investigations	I/SM/RFI	100%	2007-2009
DO11 (Parsons)	Environmental and Groundwater Investigations	RFI	100%	2008-2010

Table 2 Continued, Environmental Project Task Completion to Date

Project Number	Description of Task	Relation to Order	Percent Complete
DY02 (Weston)	Removal Action at AOC-64, B-71	RFI	100%
H&A (Parsons)	Administrative Support and Environmental Services	Other/RFI	100%
DO50 (Parsons)	Environmental and Groundwater Investigations	RFI	100%
Army Contract (Parsons)	Environmental and Groundwater Investigations	RFI	100%
DO07 (Parsons)	Environmental Program Support	RFI	100%
Army Contract TO1 (Parsons)	Program Management	RFI	100%
Army Contract TO2 (Parsons)	O&M, Compliance, & Monitoring	RFI	100%
Army Contract TO3 (Parsons)	Site Investigations and Closures	RFI	100%
Army Contract TO4 (Parsons)	Environmental Studies	RFI/Other	100%
Army Contract TO7 (Parsons)	Environmental Program Support	RFI/CMS	100%
Army Contract TO8 (Parsons)	Environmental Program Support	RFI/CMS	100%
Army Contract TO9 (Parsons)	Environmental Program Support	CMI	100%
Army Contract TO10 (Parsons)	Environmental Program Support	CMI	100%
Army Contract TO11 (Parsons)	Environmental Program Support	CMI	100%
Army Contract TO12 (Parsons)	Environmental Program Support	CMI	100%

Table 3, Project Team Contact Information

Name	Organization/Role	Street Address	City, State, Zip	Phone No.	Fax No.	E-mail
Arciniaga, Laura	Parsons, Task Mgr	9101 Burnet Rd., Suite 210	Austin, TX 78758	(512) 719-6855	(512) 719-6099	laura.arciniaga@parsons.com
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Moore, T. Glen	CSSA Installation Manager	25800 Ralph Fair Road	Boerne, TX 78015-4800	(210) 295-7416	(210) 295-7386	Thomas.G.Moore.civ@mail.mil
Moreno-Fergusson, Gabriel	CSSA Environmental Program Manager	25800 Ralph Fair Road	Boerne, TX 78015-4800	(210) 295-7067	(210) 295-7386	morenog@cssamma.com
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Rice, Ken	Parsons, Task Mgr	9101 Burnet Rd., Suite 210	Austin, TX 78758	(512) 719-6050	(512) 719-6099	ken.r.rice@parsons.com
Salazar, Jorge	TCEQ	14250 Judson Road	San Antonio, TX 78233	(210) 403-4059		jsalazar@tceq.state.tx.us

ATTACHMENT 1

ON-POST AND OFF-POST SAMPLED WELLS FIGURE

ATTACHMENT 2

SUMMARY OF STATUS OF EACH SWMU/AOC/RMU SITE

ATTACHMENT 3

OVERALL H ORDER PERCENT COMPLETE

ATTACHMENT 4

GROUNDWATER RESULTS SUMMARY