

September 2013

Off-Post

Quarterly Groundwater Monitoring Report



Prepared For

**Department of the Army
Camp Stanley Storage Activity
Boerne, Texas**

January 2014

EXECUTIVE SUMMARY

- A total of 63 off-post samples were scheduled to be collected during the September 2013 monitoring event. Five samples (OFR-3, OFR-3-A2, RFR-9, JW-26, and JW-14) could not be collected due to unresponsive well owners. One new well, I10-10 was added to the sampling schedule.
- Analyses indicated off-post well RFR-10 exceeded the MCL for tetrachloroethene (PCE). Trichloroethene (TCE) was also detected above the laboratory reporting limit (RL). This well is equipped with granular activated carbon (GAC) filtration system.
- Well SLD-01 reported its first detection of PCE, below the RL. This well is 2.9 miles west of CSSA.
- GAC-filtered samples were collected in September 2013 and all analyses were non-detect indicating the GAC filtration systems are functioning properly. The next GAC-filtered samples will be collected during the December 2013 as part of the ISCO project.
- Semi-annual GAC maintenance was performed July 29, 2013. This involved replacing the first carbon canister in each GAC unit and other routine maintenance. This carbon exchange is performed semi-annually; the next carbon change-out will be due in January 2014.

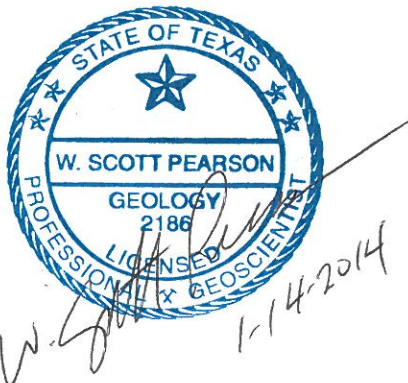
GEOSCIENTIST CERTIFICATION

September 2013 Off-Post Quarterly Groundwater Monitoring Report

For

Department of the Army
Camp Stanley Storage Activity
Boerne, Texas

I, W. Scott Pearson, P.G., hereby certify that the 2013 September Off-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 Camp Stanley Storage Activity Environmental Office, laboratory data provided by APPL, and field data obtained during groundwater monitoring conducted at the site in September 2013, and is true and accurate to the best of my knowledge and belief.



W. Scott Pearson

W. Scott Pearson, P.G.
State of Texas
Geology License No. 2186

1-14-2014

Date

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
GEOSCIENTIST CERTIFICATION.....	ii
APPENDICES	iii
LIST OF TABLES	iii
LIST OF FIGURES	iii
1.0 INTRODUCTION.....	1-1
2.0 SEPTEMBER 2013 ANALYTICAL RESULTS.....	2-1
3.0 SUMMARY AND RECOMMENDATIONS.....	3-1

LIST OF TABLES

Table 2.1	Sampling Rationale for September 2013	2-3
Table 2.2	September 2013 Off-Post Groundwater Results, Detected Analytes Only	2-5
Table 3.1	Sampling Rationale for December 2013.....	3-2

LIST OF FIGURES

Figure 2.1	On-Post and Off-Post Well Sampling Locations for September 2013	2-4
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LIST OF APPENDICES

Appendix A	Evaluation of Data Quality Objectives Attainment
Appendix B	September 2013 Quarterly Off-post Groundwater Analytical Results
Appendix C	Data Validation Reports

ABBREVIATIONS AND ACRONYMS

AOC	Area of Concern
APPL	Agriculture & Priority Pollutant Laboratory
CSSA	Camp Stanley Storage Activity
DCE	Dichloroethene
DQO	Data Quality Objective
FD	Field Duplicate
FO	Fair Oaks
GAC	Granular Activated Carbon
HS	Hidden Springs
I10	Interstate Highway 10
ISCO	In-Situ Chemical Oxidation
JW	Jackson Woods
LS	Leon Springs
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
MS/MSD	Matrix Spike/Matrix Spike Duplicate
N/A	Not Applicable
OFR	Old Fredericksburg Road
OW	The Oaks Water Supply Corporation
Parsons	Parsons Government Services, Inc.
PCE	Tetrachloroethene
P.G.	Professional Geologist
QAPP	Quality Assurance Program Plan
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RFR	Ralph Fair Road
RL	Reporting Limit
SAP	Sampling and Analysis Plan
SDWA	Safe Drinking Water Act
SWMU	Solid Waste Management Unit
SLD	Scenic Loop Drive
TCE	Trichloroethene
THM	Trihalomethanes
VOC	Volatile Organic Compound

SEPTEMBER 2013 OFF-POST GROUNDWATER MONITORING REPORT CAMP STANLEY STORAGE ACTIVITY

1.0 INTRODUCTION

This report presents results from the off-post quarterly sampling performed for Camp Stanley Storage Activity (CSSA) in September 2013 as required by the Administrative Order on Consent dated May 5, 1999. The purpose of this report is to present a summary of the sampling results. Results from all four 2013 quarterly monitoring events (March, June, September, and December) will be described in detail in an Annual Report to be submitted after December 2013. The Annual Report will also provide an interpretation of all analytical results and an evaluation of any temporal or spatial trends observed in the groundwater contaminant plume during investigations.

Groundwater monitoring was performed September 9-17, 2013. The quarterly off-post groundwater monitoring program was initiated in September 2001 in accordance with the **Off-Post Monitoring Program and Response Plan (CSSA, 2002)**, herein referred to as the “Plan”. Action levels for detection of volatile organic compounds (VOCs) and the rationale for sampling off-post wells are described in the Plan.

The CSSA groundwater monitoring program also follows the provisions of the groundwater monitoring program data quality objectives (DQOs) as well as the recommendations of all applicable project-specific work plans. **Appendix A** provides an evaluation of the Data Quality Objective Attainment for this sampling event.

The primary objective of the off-post groundwater monitoring program is to determine whether concentrations of chlorinated VOCs detected in off-post public and private drinking water wells exceed safe drinking water standards. Other objectives are to determine the lateral and vertical extent of the contaminant plumes and identify trends (decreasing or increasing) in contaminant levels over time in the sampled wells.

2.0 SEPTEMBER 2013 ANALYTICAL RESULTS

During the September 2013 event, groundwater samples were collected from 53 off-post wells shown in **Figure 2.1**. A sample from wells OFR-3, JW-14, JW-26, and RFR-9 were also scheduled to be collected during this event, but could not be collected due to the inability to schedule access with the well owners for various reasons. GAC (granular activated carbon) filtered samples (LS-5-A2, LS-6-A2, LS-7-A2, RFR-10-A2, RFR-10-B2, and RFR-11-A2) are collected semi-annually and were also collected this event. Post GAC sample OFR-3-A2 was not collected because the electricity has been disconnected to the property. **Table 2.1** includes the rationale for selection of the wells sampled in September 2013, and **Figure 2.1** provides well locations for the following sampled wells:

- Four public supply wells in the Fair Oaks area (FO-8, FO-17, FO-J1 & FO-22).
- Three public wells in the Hidden Springs Estates subdivision (HS-1, HS-2 & HS-3).
- Three wells used by the general public (I10-2, I10-5 & I10-8) and three privately-owned wells in the Interstate I-10 area (I10-4, I10-7 & I10-10).
- Twelve privately-owned wells in the Jackson Woods subdivision (JW-5, JW-6, JW-7, JW-8, JW-9, JW-13, JW-15, JW-27, JW-28, JW-29, JW-30, and JW-31).
- Five wells in the Leon Springs Villa area (two public supply wells removed from service: LS-1, and LS-4; and three privately-owned wells: LS-5, LS-6, and LS-7).
- Privately-owned wells on Old Fredericksburg Road (OFR-1 & OFR-4).
- Nine privately-owned wells in the Ralph Fair Road area (RFR-3, RFR-4, RFR-5, RFR-8, RFR-10, RFR-11, RFR-12, RFR-13, and RFR-14);
- Eight public supply wells from The Oaks Water Supply System (OW-HH1, OW-HH2, OW-HH3, OW-CE1, OW-CE2, OW-MT2, OW-BARNOWL, OW-DAIRYBARN);
- Two public supply well in the Scenic Loop Drive area, SLD-01 and SLD-02.
- One privately owned well along Boerne Stage Road (BSR-03) and one public supply well (BSR-04).

All active wells with submersible pumps were sampled from a tap located as close to the wellhead as possible. Most taps were previously installed by CSSA to obtain a representative groundwater sample before pressurization or storage of groundwater in the water supply distribution system. Water was purged to engage the well pump prior to sample collection. Conductivity, pH, and temperature readings were recorded to confirm adequate purging while the well was pumping. Generally, this required an average of 20 gallons to be purged prior to sample collection. Three wells (LS-1, LS-4 and I10-4) was sampled using a disposable bailer. The samples from these wells are not subject to purging/sample parameter requirements.

A total of 59 groundwater samples, five trip blanks, five field duplicates (FD), and four matrix spike/matrix spike duplicates (MS/MSD) were submitted to Agriculture & Priority Pollutant Laboratory (APPL) in Clovis, California for analysis. Additional FDs and MS/MSDs were collected with the on-post wells associated with this sample data groups for QA/QC purposes. Groundwater samples were analyzed for the short list of VOCs using SW-846 Method 8260B. The approved short list of VOCs includes *cis*-1,2-dichloroethene (*cis*-1,2-DCE), *trans*-1,2-DCE, 1,1-DCE, PCE, TCE, and vinyl chloride.

The data packages (Parsons internal reference 748350-#148, -#149, -#150, and -#153) contain the analytical results for this sampling event and are presented in **Appendix C**. Laboratory results were reviewed and verified according to the guidelines outlined in the CSSA Quality Assurance Project Plan (QAPP), Version 1.0. Parsons received data packages October 2-14, 2013.

Concentrations of the VOCs detected in September 2013 are presented in **Table 2.2**. Full analytical results from the September 2013 sampling event are presented in **Appendix B**. As shown in **Table 2.1**, 63 samples were scheduled for collection in September 2013; five samples (OFR-3, OFR-3-A2, RFR-9, JW-26, and JW-14) were not collected due to the inability to schedule access with the property owner. The access agreement was received for well I10-10 prior to the event and this location was added to the sampling schedule.

Table 2-2 September 2013 Off-Post Groundwater Results, Detected Analytes Only

Subdivision	Well ID	Sample Date	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	TCE	Vinyl Chloride
Boerne Stage Road	BSR-03	9/13/2013	--	--	--	--	--	--
	BSR-04	9/12/2013	--	--	--	--	--	--
Fair Oaks Ranch	FO-8	9/9/2013	--	--	--	--	--	--
	FO-17	9/9/2013	--	--	--	--	--	--
	FO-22	9/9/2013	--	--	--	--	--	--
	FO-J1	9/13/2013	--	--	--	0.24F	--	--
Hidden Springs	HS-1	9/11/2013	--	--	--	--	--	--
	HS-2	9/11/2013	--	--	--	--	--	--
	HS-3	9/11/2013	--	--	--	--	--	--
IH-10	I10-2	9/9/2013	--	--	--	--	--	--
	I10-4	9/9/2013	--	--	--	3.36	1.69	--
	I10-5	9/9/2013	--	--	--	--	--	--
	I10-7	9/9/2013	--	--	--	--	--	--
	I10-8	9/10/2013	--	--	--	--	--	--
	I10-8 FD	9/10/2013	--	--	--	--	--	--
Jackson Woods	I10-10	9/11/2013	--	--	--	--	--	--
	JW-5	9/10/2013	--	--	--	--	--	--
	JW-6	9/10/2013	--	--	--	--	--	--
	JW-6 FD	9/10/2013	--	--	--	--	--	--
	JW-7	9/10/2013	--	--	--	0.32F	--	--
	JW-8	9/11/2013	--	--	--	0.26F	--	--
	JW-9	9/13/2013	--	--	--	--	--	--
	JW-13	9/11/2013	--	--	--	--	--	--
	JW-15	9/11/2013	--	--	--	--	--	--
	JW-27	9/11/2013	--	--	--	--	--	--
	JW-28	9/11/2013	--	--	--	--	--	--
	JW-29	9/11/2013	--	--	--	--	--	--
Leon Springs Villas	JW-30	9/12/2013	--	--	--	--	--	--
	JW-31	9/12/2013	--	--	--	--	--	--
	LS-1	9/11/2013	--	--	--	0.72F	--	--
	LS-4	9/11/2013	--	--	--	--	--	--
	LS-5	9/17/2013	--	--	--	0.95F	2.67	--
	LS-5 FD	9/17/2013	--	--	--	1.01F	2.7	--
	LS-5-A2	9/17/2013	--	--	--	--	--	--
	LS-6	9/17/2013	--	--	--	0.68F	2.12	--
The Oaks Water Supply	LS-6-A2	9/17/2013	--	--	--	--	--	--
	LS-7	9/17/2013	--	--	--	1.87	0.19F	--
	LS-7-A2	9/17/2013	--	--	--	--	--	--
	OW-BARNOWL	9/10/2013	--	--	--	--	--	--
	OW-CE1	9/10/2013	--	--	--	--	--	--
	OW-CE2	9/10/2013	--	--	--	--	--	--
	OW-HH1	9/10/2013	--	--	--	--	--	--
	OW-HH2	9/10/2013	--	--	--	--	--	--
Old Fredericksburg Road	OW-HH2 FD	9/10/2013	--	--	--	--	--	--
	OW-HH3	9/10/2013	--	--	--	--	--	--
	OW-DAIRYWELL	9/10/2013	--	--	--	--	--	--
	OW-MT2	9/10/2013	--	--	--	--	--	--
	OFR-1	9/13/2013	--	--	--	--	--	--
Old Fredericksburg Road	OFR-1 FD	9/13/2013	--	--	--	--	--	--
	OFR-4	9/13/2013	--	--	--	--	--	--
Laboratory Detection Limits & Maximum Contaminant Level								
Method Detection Limit (MDL)			0.12	0.07	0.08	0.06	0.05	0.08
Reporting Limit (RL)			1.2	1.2	0.6	1.4	1	1.1
Max. Contaminant Level (MCL)			7	70	100	5	5	2

BOLD	≥ MDL
BOLD	≥ RL
BOLD	≥ MCL

All samples were analyzed by APPL, Inc.
VOC data reported in ug/L.
Abbreviations/Notes:
FD Field Duplicate
TCE Trichloroethene
PCE Tetrachloroethene
DCE Dichloroethene
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.

Table 2-2 September 2013 Off-Post Groundwater Results, Detected Analytes Only

Subdivision	Well ID	Sample Date	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	TCE	Vinyl Chloride
Ralph Fair Road	RFR-3	9/12/2013	--	--	--	--	--	--
	RFR-4	9/12/2013	--	--	--	--	--	--
	RFR-5	9/12/2013	--	--	--	--	--	--
	RFR-5 FD	9/12/2013	--	--	--	--	--	--
	RFR-8	9/12/2013	--	--	--	--	--	--
	RFR-10	9/17/2013	--	--	--	7.41	2.26	--
	RFR-10-A2	9/17/2013	--	--	--	--	--	--
	RFR-10-B2	9/17/2013	--	--	--	--	--	--
	RFR-11	9/17/2013	--	--	--	0.65F	2.12	--
	RFR-11-A2	9/17/2013	--	--	--	--	--	--
	RFR-12	9/9/2013	--	--	--	--	0.52F	--
	RFR-13	9/13/2013	--	--	--	--	--	--
	RFR-14	9/12/2013	--	--	--	--	--	--
	Scenic Loop Drive	SLD-01	9/11/2013	--	--	--	0.24F	--
SLD-02		9/11/2013	--	--	--	--	--	--
Laboratory Detection Limits & Maximum Contaminant Level								
Method Detection Limit (MDL)			0.12	0.07	0.08	0.06	0.05	0.08
Reporting Limit (RL)			1.2	1.2	0.6	1.4	1	1.1
Max. Contaminant Level (MCL)			7	70	100	5	5	2

BOLD	≥ MDL
BOLD	≥ RL
BOLD	≥ MCL

All samples were analyzed by APPL, Inc.
VOC data reported in ug/L.

Abbreviations/Notes:
FD Field Duplicate
TCE Trichloroethene
PCE Tetrachloroethene
DCE Dichloroethene

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.

In January 2013, routine semi-annual maintenance was performed on the GAC treatment systems at LS-5, LS-6, LS-7, OFR-3, RFR-10, and RFR-11. Carbon canisters were exchanged and other routine maintenance was performed. GAC filtered samples were collected this quarter and will be collected again during the September 2013 event.

Based on historical detections, the lateral extent of VOC detections extends beyond the south and west boundaries of CSSA. Past detections of VOCs have extended 0.37 miles south to well LS-4 and 1.5 miles west to OW-BARNOWL (**Figure 2.1**).

3.0 SUMMARY AND RECOMMENDATIONS

Results of the September 2013 sampling are summarized as follows:

- Fifty-six wells and 7 post-GAC locations were scheduled for sampling in September 2013. Four wells (OFR-3, JW-14, JW-26, and RFR-9) and 1 post-GAC sample (OFR-3-A2) were not collected due to the inability to schedule access with the property owners.
- Well RFR-10 exceeded the MCL in September 2013 for PCE. This well is equipped with a GAC filtration system.
- PCE and/or TCE were detected above the RLs in public and/or private drinking water wells I10-4, LS-5, LS-5 FD, LS-6, LS-7, and RFR-11. Wells LS-5, LS-6, LS-7, and RFR-11 have GAC treatment systems in place and well I10-4 is unused.
- 1,1-DCE, *cis*-1,2-DCE, *trans*-1,2-DCE, and vinyl chloride were not detected in any of the off-post wells in September 2013.
- Well SLD-01 reported its first detection of PCE, below the RL. This well is 2.9 miles west of CSSA.
- GAC-filtered samples were collected as part of the quarterly groundwater monitoring. All GAC-filtered samples were non-detect indicating the GAC units are functioning properly. The next GAC-filtered samples will be collected in March 2014.
- Semi-annual GAC maintenance, including carbon change-out, was performed July 29th, 2013; the next semi-annual GAC maintenance will be due in January 2014.
- Attempts were made to contact the new owner of OFR-3 by telephone in June 2013. On August 2, 2013 a letter, access agreement, and the most recent fact sheet were mailed to the new OFR-3 well owner. This letter was returned due to an incorrect zip code. In September, the address was corrected and mailed out to the well owner.
- In accordance with project DQOs, the rationale for the selection of 6 samples to be collected in December 2013 is provided in **Table 3.1**.

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, and HSP.	All sampling was conducted in accordance with the procedures described in the project plans.	Yes	NA
Contamination Characterization (Groundwater Contamination)	Determine the potential extent of off-post contamination (§2.3.1 of the DQOs for the Groundwater Contamination Investigation, revised November 2010).	Samples for laboratory analysis were collected from selected off-post public and private wells, which are located within a 2.5 mile radius of CSSA.	Partially	Replace wells where no VOCs were detected with wells that may be identified in the future, located to the west and southwest of AOC-65 to provide better definition of plume 2. Continue sampling of wells to the west of plume 1 (Fair Oaks and Jackson Woods) to confirm any detections possibly related to plume 1.
	Meet CSSA QAPP quality assurance requirements.	Samples were analyzed in accordance with the CSSA QAPP, and approved variances. A chemist verified all data.	Yes	NA
		All data flagged with a “U” and “J” are usable for characterizing contamination.	Yes	NA

Activity	Objectives	Action	Objective Attained?	Recommendations
	Evaluate CSSA monitoring program and expand as necessary (§2.3.1 of the DQOs for the Groundwater Contamination Investigation, revised November 2010). Determine locations of future monitoring locations.	Evaluation of data collected is ongoing and is reported in this quarterly groundwater report and will be reported in future quarterly groundwater reports. Additional information covering the CSSA monitoring program is available in Volume 5, CSSA Environmental Encyclopedia.	Yes	Continue data evaluation and quarterly teleconferences for evaluation of the monitoring program. Each teleconference/planning session covers expansion of the quarterly monitoring program, if necessary.
Project schedule/ Reporting	The quarterly monitoring project schedule shall provide a schedule for sampling, analysis, validation, verification, and reports for monitoring events off-post.	A schedule for sampling, analysis, validation, verification and data review, and reports is provided in this quarterly groundwater report and will be reported in future quarterly groundwater reports. Additional information covering the CSSA monitoring program is available in Volume 5, CSSA Environmental Encyclopedia.	Yes	Continue quarterly reporting to include a schedule for sampling, analysis, validation, and verification and data review and data reports.

Activity	Objectives	Action	Objective Attained?	Recommendations
Remediation	Evaluate the effectiveness of GACs (§3.2.3) and install as needed (§3.2.5 both of the DQOs for the Groundwater Contamination Investigation, revised November 2010).	Perform maintenance as needed. Install new GACs as needed.	Yes	Maintenance to the off-post GAC systems to be continued by Parsons' personnel every 3 weeks. Twice yearly (or as needed) maintenance to the off-post GAC systems by additional subcontractors to continue. Evaluations of future sampling results for installation of new GAC systems will occur as needed.

APPENDIX B
SEPTEMBER 2013 QUARTERLY OFF-POST
GROUNDWATER ANALYTICAL RESULTS

Appendix B
September 2013 Quarterly Off-post Groundwater Analytical Results

Well ID	Sample Date	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	TCE	Vinyl Chloride
BSR-03	9/13/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
BSR-04	9/12/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
FO-8	9/9/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
FO-17	9/9/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
FO-22	9/9/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
FO-J1	9/13/2013	0.12U	0.07U	0.08U	0.24F	0.05U	0.08U
HS-1	9/11/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
HS-2	9/11/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
HS-3	9/11/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-2	9/9/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-4	9/9/2013	0.12U	0.07U	0.08U	3.36	1.7	0.08U
I10-5	9/9/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-7	9/9/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-8	9/10/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-8 FD	9/10/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-10	9/11/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-5	9/10/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-6	9/10/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-6 FD	9/10/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-7	9/10/2013	0.12U	0.07U	0.08U	0.32F	0.05U	0.08U
JW-8	9/11/2013	0.12U	0.07U	0.08U	0.26F	0.05U	0.08U
JW-9	9/13/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-13	9/11/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-15	9/11/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-27	9/11/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-28	9/11/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-29	9/11/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-30	9/12/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-31	9/12/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
LS-1	9/11/2013	0.12U	0.07U	0.08U	0.72F	0.05U	0.08U
LS-4	9/11/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
LS-5	9/17/2013	0.12U	0.07U	0.08U	0.95F	2.67	0.08U
LS-5 FD	9/17/2013	0.12U	0.07U	0.08U	1.01F	2.7	0.08U
LS-5-A2	9/17/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
LS-6	9/17/2013	0.12U	0.07U	0.08U	0.68F	2.12	0.08U
LS-6-A2	9/17/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
LS-7	9/17/2013	0.12U	0.07U	0.08U	1.87	0.19F	0.08U
LS-7-A2	9/17/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-BARNOWL	9/10/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-CE1	9/10/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-CE2	9/10/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-HH1	9/10/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-HH2	9/10/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-HH2 FD	9/10/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-HH3	9/10/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-DAIRYWELL	9/10/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-MT2	9/10/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U

Appendix B
September 2013 Quarterly Off-post Groundwater Analytical Results

Well ID	Sample Date	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	TCE	Vinyl Chloride
OFR-1	9/13/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OFR-1 FD	9/13/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OFR-4	9/13/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-3	9/12/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-4	9/12/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-5	9/12/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-5 FD	9/12/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-8	9/12/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-10	9/17/2013	0.12U	0.07U	0.08U	7.41	2.26	0.08U
RFR-10-A2	9/17/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-10-B2	9/17/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-11	9/17/2013	0.12U	0.07U	0.08U	0.65F	2.12	0.08U
RFR-11-A2	9/17/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-12	9/9/2013	0.12U	0.07U	0.08U	0.06U	0.52F	0.08U
RFR-13	9/13/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-14	9/12/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
SLD-01	9/11/2013	0.12U	0.07U	0.08U	0.24F	0.05U	0.08U
SLD-02	9/11/2013	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U

BOLD	≥ MDL
BOLD	≥ RL
BOLD	≥ MCL

All samples were analyzed by APPL, Inc.
VOC data reported in ug/L.

Abbreviations/Notes:

FD Field Duplicate
TCE Trichloroethene
PCE Tetrachloroethene
DCE Dichloroethene

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.

**APPENDIX C
DATA VALIDATION REPORTS**

(Laboratory data packages are submitted to CSSA electronically.)

**SDG 71600
SDG 71642
SDG 71673
SDG 71697**

DATA VERIFICATION SUMMARY REPORT
for off-post samples collected from
CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers groundwater samples and the associated field quality control (QC) samples collected from off-post Camp Stanley Storage Activity (CSSA) on September 9 and 10, 2013. The samples were assigned to the following Sample Delivery Group (SDG) and were analyzed for volatile organic compounds (VOCs).

71600

The field QC samples associated with this SDG were three sets of parent/field duplicate (FD), one pair of matrix spike/matrix spike duplicate (MS/MSD), and a trip blank (TB). TB was analyzed for VOC only. 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 APPL, Inc. following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0. The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at a temperature of 3.0°C, which was within the 2-6°C range recommended by the CSSA QAPP.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. 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 CSSA QAPP, Version 1.0, were met.

VOLATILES

General

The volatiles portion of this data package consisted of twenty-six (26) samples, including twenty (20) off-site groundwater samples, one pair of MS/MSD, three (3) FDs, and one TB. All samples were collected on September 9 and 10, 2013 and analyzed for a reduced list of VOCs which included: 1,1-dichloroethene, *cis*-1,2-dichloroethene, tetrachloroethene, *trans*-1,2-dichloroethene, trichloroethene, and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in three batches (#181062, #181158, and #181156) under one set of initial calibration (ICAL). All samples were analyzed following the procedures outlined in the 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 three laboratory control spike (LCS) samples, MS/MSD, and the surrogate spikes. Sample FO-22 was designated as the parent sample for the MS/MSD analyses.

All three LCSs, MS/MSD, and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated based on the relative percent difference (%RPD) of the MS/MSD and three pairs of parent/FD samples. Samples OW-HH2, JW-6, I10-8 were collected in duplicate.

All %RPDs of the MS/MSD were compliant.

Since none of the target compounds had concentrations greater than the reporting limits (RLs) in all three pairs of parent/FD, the %RPD calculations were not applicable.

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

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. 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 for both sets of curves.
- All three LCSs were prepared using a secondary source. All second source verification criteria were met.
- All initial calibration verification (ICV) criteria were met.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

There were three method blanks and one TB associated with the VOC analyses in this SDG. All blanks were non-detect for all target VOCs. No target VOC was detected at or above the associated MDL in all blanks.

Completeness

Completeness has been evaluated in accordance with the 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 SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

DATA VERIFICATION SUMMARY REPORT
for off-post samples collected from
CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers groundwater samples and the associated field quality control (QC) samples collected from off-post Camp Stanley Storage Activity (CSSA) on September 11 and 12, 2013. The samples were assigned to the following Sample Delivery Group (SDG) and were analyzed for volatile organic compounds (VOCs).

71642

The field QC samples associated with this SDG were one set of parent/field duplicate (FD), one pair of matrix spike/matrix spike duplicate (MS/MSD), and a trip blank (TB). TB was analyzed for VOC only. 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 APPL, Inc. following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0. The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at a temperature of 1.5°C, which was slightly below the 2-6°C range recommended by the CSSA QAPP. All water samples were received without any indication of frozen, therefore, no impact to data quality.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. 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 CSSA QAPP, Version 1.0, were met.

VOLATILES

General

The volatiles portion of this data package consisted of twenty-six (26) samples, including twenty-two (22) off-site groundwater samples, one pair of MS/MSD, one (1) FD, and one TB. All samples were collected on September 11 and 12, 2013 and analyzed for a reduced list of VOCs which included: 1,1-dichloroethene, *cis*-1,2-dichloroethene, tetrachloroethene, *trans*-1,2-dichloroethene, trichloroethene, and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in two batches (#181476 and #181511) under one set of initial calibration (ICAL). All samples were analyzed following the procedures outlined in the 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 two laboratory control spike (LCS) samples, MS/MSD, and the surrogate spikes. Sample JW-8 was designated as the parent sample for the MS/MSD analyses.

All two LCSs, MS/MSD, and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated based on the relative percent difference (%RPD) of the MS/MSD and parent/FD samples. Sample RFR-5 was collected in duplicate.

All %RPDs of the MS/MSD were compliant.

Since none of the target compounds had concentrations greater than the reporting limits (RLs) in the parent/FD, the %RPD calculations were not applicable.

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

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. 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 for both sets of curves.
- Both LCSs were prepared using a secondary source. All second source verification criteria were met.
- All initial calibration verification (ICV) criteria were met.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

There were two method blanks and one TB associated with the VOC analyses in this SDG. All blanks were non-detect for all target VOCs. No target VOC was detected at or above the associated MDL in all blanks.

Completeness

Completeness has been evaluated in accordance with the 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 SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

DATA VERIFICATION SUMMARY REPORT
for on- and off-post samples collected from
CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers groundwater samples and the associated field quality control (QC) samples collected from on and off-post Camp Stanley Storage Activity (CSSA) on September 13 and 16, 2013. The samples were assigned to the following Sample Delivery Group (SDG) and were analyzed for volatile organic compounds (VOCs) and metals including cadmium, chromium, lead, and mercury.

71673

The field QC samples associated with this SDG were two sets of parent/field duplicate (FD), one set of matrix spike/matrix spike duplicate (MS/MSD) and a trip blank (TB). TB was analyzed for VOC only. 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 APPL, Inc. following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0. The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at a temperature of 3.0°C, which was within the 2-6°C range recommended by the CSSA QAPP.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. 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 CSSA QAPP, Version 1.0, were met.

VOLATILES

General

The volatiles portion of this data package consisted of fifteen (15) samples, including six (6) on-site groundwater samples, four (4) on-site groundwater samples, two (2) FDs, one pair of MS/MSD and one TB. All samples were collected on September 13 and 16, 2013 and analyzed for a reduced list of VOCs which included: 1,1-dichloroethene, *cis*-1,2-dichloroethene, tetrachloroethene, *trans*-1,2-dichloroethene, trichloroethene, and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in one batch (#181516) under one set of initial calibration (ICAL). All samples were analyzed following the procedures outlined in the 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 spike (LCS) sample, one set of MS/MSD, and the surrogate spikes. Sample BSR-03 was designated as the parent sample for the MS/MSD analyses on the chain of custody.

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

Precision

Precision was evaluated based on the relative percent difference (%RPD) of MS/MSD and the two pairs of parent/FD samples. Samples OFR-1 and CS-MW21-LGR were collected in duplicate.

Since none of the target compounds had concentrations greater than the reporting limits (RLs) in the two pairs of parent/FD samples, the %RPD calculations were not applicable.

All %RPDs of MS/MSD were compliant.

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

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. 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 for both sets of curves.
- The LCS was prepared using a secondary source. All second source verification criteria were met.
- All initial calibration verification (ICV) criteria were met.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

There were one method blank and one TB associated with the VOC analyses in this SDG. Both blanks were non-detect for all target VOCs. No target VOC was detected at or above the associated MDL in the blanks.

Completeness

Completeness has been evaluated in accordance with the 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 SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

ICP-AES METALS

General

The ICP-AES portion of this SDG consisted of five (5) on-post groundwater samples including one FD which were collected on September 16, 2013 and were analyzed for cadmium, chromium, and lead.

The ICP-AES metals analyses were performed using USEPA SW846 Method 6010B. These on-post well samples were analyzed following the procedures outlined in the CSSA QAPP and were prepared and analyzed within the holding time required by the method.

The samples for ICP-AES metals were digested in batch #181779. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS.

All LCS recoveries were within acceptance criteria.

Precision

Precision was evaluated based on the %RPDs of the parent/FD set of sample CS-MW21-LGR.

Since none of the target metals were detected at or above the reporting limit in the parent/FD samples, therefore, the %RPD calculation was not applicable.

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 CSSA QAPP;
- Comparing actual analytical procedures to those described in the 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 CSSA QAPP, Version 1.0, 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 interference check (ICSA/ICSAB) criteria were met.
- No dilution test was required, as per the CSSA QAPP.

One method blank and several calibration blanks were analyzed in association with the ICP-AES analyses in this SDG. All blanks were free of target metals at or above the RL.

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-AES metals results for the samples in this SDG were considered usable. The completeness for the ICP metals portion of this SDG is 100%, which meets the minimum acceptance criteria of 95%.

MERCURY

General

The mercury portion of this SDG consisted of five (5) on-post groundwater samples including one FD collected on September 16, 2013 and were analyzed for mercury.

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

The mercury samples were prepared in batch #181797. The analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS.

The LCS recovery was within acceptance criteria.

Precision

Precision was evaluated based on the %RPDs of the parent/FD samples. Sample CS-MW21-LGR was collected in duplicate.

Mercury was not detected above the RL in both parent and 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 CSSA QAPP;
- Comparing actual analytical procedures to those described in the 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 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 calibration verification criteria were met.

There was one method blank and several calibration blanks associated with the mercury analyses in this SDG. All blanks were free of mercury at or above the RL.

Completeness

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

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

DATA VERIFICATION SUMMARY REPORT
for on- and off-post samples collected from
CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers groundwater samples and the associated field quality control (QC) samples collected from on and off-post Camp Stanley Storage Activity (CSSA) on September 17, 2013. The samples were assigned to the following Sample Delivery Group (SDG) and were analyzed for volatile organic compounds (VOCs) and metals including cadmium, chromium, lead, and mercury. Not all samples were analyzed for metals

71697

The field QC samples associated with this SDG were one set of parent/field duplicate (FD), one set of matrix spike/matrix spike duplicate (MS/MSD) and two trip blanks (TBs). TB was analyzed for VOC only. 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 APPL, Inc. following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0. The samples in this SDG were shipped to the laboratory in two coolers. The coolers were received by the laboratory at a temperature of 1.5°C and 2.0°C, one was within the 2-6°C range recommended by the CSSA QAPP and one was slightly below the range. Since lab did not notice any water sample arrive with indication of freeze, no data quality were affected.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. 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 CSSA QAPP, Version 1.0, were met.

VOLATILES

General

The volatiles portion of this data package consisted of nineteen (19) samples, including three (3) on-site groundwater samples, eleven (11) on-site groundwater samples, one (1) FD, one pair of MS/MSD, and two TBs. All samples were collected on September 17, 2013 and analyzed for a reduced list of VOCs which included: 1,1-dichloroethene, *cis*-1,2-dichloroethene, tetrachloroethene, *trans*-1,2-dichloroethene, trichloroethene, and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in two batches (#181519 and #181557) under one set of initial calibration (ICAL). All samples were analyzed following the procedures outlined in the 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 two laboratory control spike (LCS) samples, one set of MS/MSD, and the surrogate spikes. Sample RFR-11 was designated as the parent sample for the MS/MSD analyses on the chain of custody.

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

Precision

Precision was evaluated based on the relative percent difference (%RPD) of MS/MSD and parent/FD samples. Sample LS-5 was collected in duplicate.

Since only TCE had concentrations greater than the reporting limits (RLs) in the parent/FD samples, the %RPD calculations were only applicable for TCE. %RPD = 1.1% which met the acceptance criteria.

All %RPDs of MS/MSD were compliant.

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 CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining two trip blanks and two method blanks for cross contamination of samples during transit or analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. 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 for both sets of curves.
- Both LCSs were prepared using a secondary source. All second source verification criteria were met.
- All initial calibration verification (ICV) criteria were met.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

There were two method blanks and two TBs associated with the VOC analyses in this SDG. All blanks were non-detect for all target VOCs. No target VOC was detected at or above the associated MDL in the method blanks.

Completeness

Completeness has been evaluated in accordance with the 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 SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

ICP-AES METALS

General

The ICP-AES portion of this SDG consisted of three (3) on-post groundwater samples which were collected on September 17, 2013 and were analyzed for cadmium, chromium, and lead.

The ICP-AES metals analyses were performed using USEPA SW846 Method 6010B. These on-post well samples were analyzed following the procedures outlined in the CSSA QAPP and were prepared and analyzed within the holding time required by the method.

The samples for ICP-AES metals were digested in batch #181961. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS.

All LCS recoveries were within acceptance criteria.

Precision

Precision could not be evaluated since there were no duplicate analyses involved in this SDG.

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 CSSA QAPP;
- Comparing actual analytical procedures to those described in the 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 CSSA QAPP, Version 1.0, 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 interference check (ICSA/ICSAB) criteria were met.
- No dilution test was required, as per the CSSA QAPP.

One method blank and several calibration blanks were analyzed in association with the ICP-AES analyses in this SDG. All blanks were free of target metals at or above the RL.

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-AES metals results for the samples in this SDG were considered usable. The completeness for the ICP metals portion of this SDG is 100%, which meets the minimum acceptance criteria of 95%.

MERCURY

General

The mercury portion of this SDG consisted of three (3) on-post groundwater samples collected on September 17, 2013 and were analyzed for mercury.

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

The mercury samples were prepared in batch #181798. The analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS.

The LCS recovery was within acceptance criteria.

Precision

Precision could not be evaluated due to the lack of duplicate analyses involved in this SDG.

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 CSSA QAPP;
- Comparing actual analytical procedures to those described in the 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 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 calibration verification criteria were met.

There was one method blank and several calibration blanks associated with the mercury analyses in this SDG. All blanks were free of mercury at or above the RL.

Completeness

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

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