June 2014

Off-Post
Quarterly Groundwater Monitoring Report

Prepared For

Department of the Army
Camp Stanley Storage Activity
Boerne, Texas

August 2014

EXECUTIVE SUMMARY

- A total of 55 off-post samples were scheduled to be collected during the June 2014 monitoring event; all samples were collected.
- Analyses indicated off-post well RFR-10 exceeded the maximum contaminant level (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 JW-20 was added to the sampling program in January 2014. Three consecutive quarterly samples have been collected. All sample results were below the laboratory detection limits.
- Well SLD-01 reported its first detection of PCE, below the RL, in September 2013. June 2014 was its third consecutive quarterly result below laboratory detection limits. This well is 2.9 miles west of CSSA.
- GAC-filtered samples were not collected in June 2014. The next GAC-filtered samples will be collected during the September 2014 event.
- Semi-annual GAC maintenance was performed August 5, 2014. 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 February 2015.

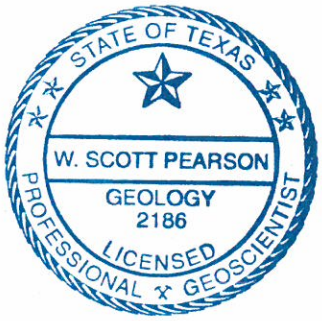
GEOSCIENTIST CERTIFICATION

June 2014 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 2014 June 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 June 2014, 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

8-26-2014

Date

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ABBREVIATIONS AND ACRONYMS

APPL	Agriculture & Priority Pollutant Laboratory
AOC	Area of Concern
BSR	Boerne Stage Road
CSSA	Camp Stanley Storage Activity
DCE	Dichloroethene
DQO	Data Quality Objective
FD	Field Duplicate
FO	Fair Oaks
GAC	Granular Activated Carbon
HS	Hidden Springs
HSP	Health and Safety Plan
I10	Interstate Highway 10
JW	Jackson Woods
LS	Leon Springs
MCL	Maximum Contaminant Level
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NA	Not Applicable
OFR	Old Fredericksburg Road
OW	Oaks Water Supply Corporation
Parsons	Parsons Government Services, Inc.
PCE	Tetrachloroethene
P.G.	Professional Geologist
QAPP	Quality Assurance Program Plan
QA/QC	Quality Assurance/Quality Control
RFR	Ralph Fair Road
RL	Reporting Limit
SAP	Sampling and Analysis Plan
SLD	Scenic Loop Drive
TCE	Trichloroethene
VOC	Volatile Organic Compound

JUNE 2014
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 June 2014 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 2014 quarterly monitoring events (March, June, September, and December) will be described in detail in an Annual Report to be submitted after December 2014. 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 June 2-23, 2014. 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 JUNE 2014 ANALYTICAL RESULTS

During the June 2014 event, groundwater samples were collected from 55 off-post wells shown in **Figure 2.1.** 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 not collected this event. **Table 2.1** includes the rationale for selection of the wells sampled in June 2014, 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 and FO-22).
- Three public wells in the Hidden Springs Estates subdivision (HS-1, HS-2 and HS-3).
- Four wells used by the general public in the Interstate I-10 area (I10-2, I10-5, I10-7 and I10-8).
- Fifteen privately-owned wells in the Jackson Woods subdivision (JW-5, JW-6, JW-7, JW-8, JW-9, JW-13, JW-14, JW-15, JW-20, JW-26, 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).
- Two privately-owned wells on Old Fredericksburg Road (OFR-1 and OFR-4).
- Ten privately-owned wells in the Ralph Fair Road area (RFR-3, RFR-4, RFR-5, RFR-8, RFR-9, 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, and OW-DAIRYWELL);
- Two public supply wells 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.

A total of 55 groundwater samples, five trip blanks, six field duplicates (FD), and three 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 quality assurance/quality control (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.

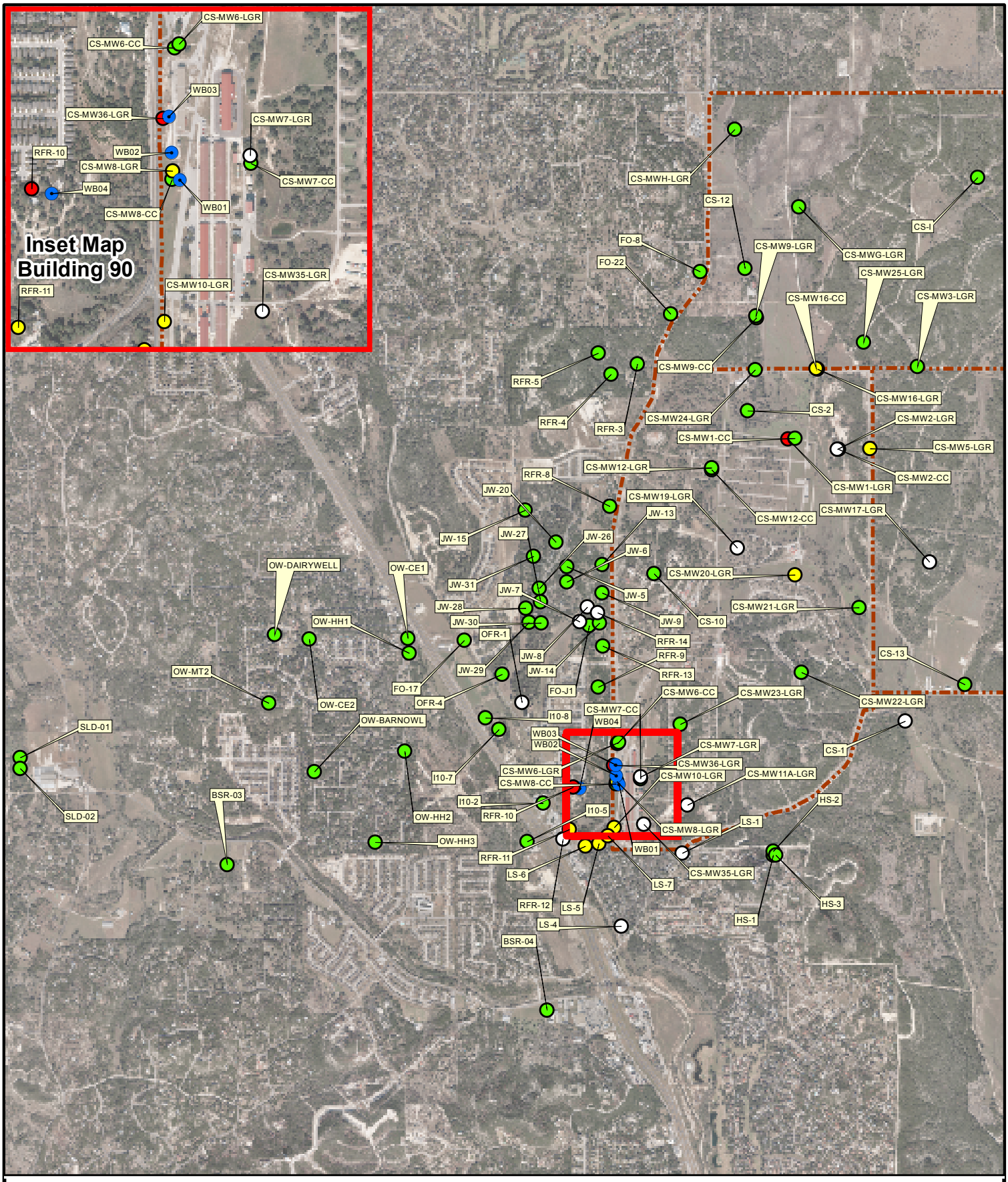

Figure 2.1

On-Post and Off-Post Well Sampling Locations for June 2014

Camp Stanley Storage Activity

PARSONS

Table 2.1
Sampling Rationale for June 2014

Well ID	2001		2002				2003				2004				2005				2006				2007				2008				2009				2010				2011				2012				2013				2014		Sampling Frequency
	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	
BSR-03																																										access agreement received		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
BSR-04																																													access agreement received		NS	NS		NS	NS	Yes	9-month (snapshot)
FO-8	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS			NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
FO-17	NS	NS		NS	NS	NS		NS	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
FO-22		NS	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS			NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
FO-J1												NS						NS	NS																						NS	NS	NA	NS	NS	NA	NS	NS		NS	NS	Yes	9-month (snapshot)
HS-1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS															NS	NS	NS				NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
HS-2	NS																																			NS			NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
HS-3	NS		NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
I10-2																				NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS				NA	NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
I10-4	NS									NS														NA	NA	NA	NA	NA	NA																						NA	NA	P&A
I10-5	NS	NS	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS		NS	NS	NS			NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
I10-7	NS	NS		NS	NS	NS			NS	NS	NS		NS																							NS	NA	NA	NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
I10-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS								NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
I10-10																																																access agreement received		NS	NS	NS	One time sample
JW-5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS					NS	NS	NS										NS	NS	NS		NS	NS	NS			NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
JW-6		NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
JW-7		NS	NS	NS	NS	NS	NS	NS																																	NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
JW-8	NS	NS	NS	NS	NS	NS	NS																																		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
JW-9																NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS	NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
JW-13		NS	NS	NS	NS		NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
JW-14																			Tol																						NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
JW-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS					NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS			NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
JW-20																																																	access agreement received			Yes	Quaraterly
JW-26	NS	NS		NS											NS	NS	NS		NS	NS	NS		NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NS	NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
JW-27	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS									NS						NS	NS	NS		NS	NS	NS			NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
JW-28	NS	NS	NS	NS	NS	NS	NS	NS																	NS	NS	NS														NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
JW-29	NS	NS	NS	NS	NS	NS	NS																																		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
JW-30	NS	NS	NS	NS	NS	NS																																			NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
JW-31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					NS	NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
LS-1													NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS														NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
LS-4																								NS	NS	NS	NS														NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
LS-5																																																				Yes	Quarterly
LS-5-A2																																									GAC installed 10/6/11	NS		NS		NS		NS		NS		NS	Biannually (Mar & Sept)
LS-6																																																				Yes	Quarterly
LS-6-A2				NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	Biannually (Mar & Sept)
LS-7																																																				Yes	Quarterly
LS-7-A2				NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	Biannually (Mar & Sept)
OFR-1	NS																																								NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
OFR-3																																						NA	NS									NA	NA	NA	NA	NA	Quarterly, electricity off
OFR-3-A2	NS	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	NS	NS		NS		NS		NS		NS	NA	NS	NA	NA	Biannually (Mar & Sept)
OFR-4	NS	NS	NS	NS	NS	NS	NS			NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS			NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
OW-HH1																																						access agreement received						NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
OW-HH2																																						access agreement received												NS	NS	Yes	9-month (snapshot)
OW-CE1																																						access agreement received						NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
OW-CE2																																						access agreement received						NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
OW-MT2																																						access agreement received						NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
OW-BARNOWL																																						access agreement received												NS	NS	Yes	9-month (snapshot)
OW-DAIRYWELL																																						access agreement received						NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
OW-HH3																																						access agreement received						NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
RFR-3	NS	NS	NS	NS	NS	NS	NS	NS	NS						NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
RFR-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS	Tol	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS		NS	NS	NS		NS	NS	NS		NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
RFR-5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS		NS	NS	NS		NS	NS	NS		NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
RFR-8		NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
RFR-9			NS		NS	NS	NS			NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS						NS	NS		NS	NS		NS	NS		NS	NS	NA	NS	NS	Yes	9-month (snapshot)
RFR-10																																																				Yes	Quarterly
RFR-10-A2				NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	Biannually (Mar & Sept)
RFR-10-B2				NS	NS	NS	NS	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	Biannually (Mar & Sept)
RFR-11																																																				Yes	Quarterly
RFR-11-A2				NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	Biannually (Mar & Sept)
RFR-12																				NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS				NA	NS			NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
RFR-13													Well Installed								NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
RFR-14																		Well Installed																							NS	NS		NS	NS		NS	NS		NS	NS	Yes	9-month (snapshot)
SLD-01																																								permission to sample granted, no access agreement		NS		NS	NS	NA	NS	NS				Yes	Quarterly
SLD-02																																								permission to sample granted, no access agreement	NA	NS		NS	NS	NA	NS	NS		NS	NS	Yes	9-month (snapshot)

Wells Sampled: 55
Post GAC samples: 0
Total Samples: 55

Legend	Description
(red)	VOCs detected are greater than 90% of the MCL. Sample monthly; quarterly after GAC installation.
(orange)	VOCs detected are greater than 80% of the MCL. The well will be placed on a monthly sampling schedule until GAC installation then quarterly sampling after GAC installation.
(yellow)	VOCs detected are less than 80% of the MCL (<4.0 ppb and >0.06 ppb for PCE & <4.0 ppb >0.05 ppb for TCE). After four quarters of stable results the well can be removed from quarterly sampling.
(lavender)	This well has a GAC filtration unit installed by CSSA. Post GAC samples are collected every six months. A1 - after GAC canister #1 A2 - after GAC canister #2
Yes	To be sampled in June 2014.
NS	Not sampled for that event.
(green)	No VOCs detected. Sample on an as needed basis.
NA	Not applicable, sample could not be collected due to pump outage or well access conflict.

The data packages (Parsons internal reference 749138-#41, #42, #43, and #46) 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 June 19th through July 18th, 2014.

Concentrations of the VOCs detected in June 2014 are presented in **Table 2.2**. Full analytical results from the June 2014 sampling event are presented in **Appendix B**. As shown in **Table 2.1**, all 55 samples that were scheduled for collection in June 2014 were obtained.

In February 2014, routine semi-annual maintenance was performed on the GAC treatment systems at LS-5, LS-6, LS-7, RFR-10, and RFR-11. Carbon canisters were exchanged and other routine maintenance was performed. GAC filtered samples were not collected this quarter but will be collected again during the September 2014 event. Maintenance was not performed on the OFR-3 GAC system, since it is not in use due to the electricity being shut off at the property, samples were also not collected.

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 2.9 miles west to SLD-01 **(Figure 2.1).**

Table 2.2 June 2014 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	6/6/2014	--	--	--	--	--	--
	BSR-04	6/10/2014	--	--	--	--	--	--
Fair Oaks Ranch	FO-8	6/5/2014	--	--	--	--	--	--
	FO-17	6/4/2014	--	--	--	--	--	--
	FO-22	6/5/2014	--	--	--	--	--	--
	FO-J1	6/4/2014	--	--	--	--	--	--
Hidden Springs	HS-1	6/5/2014	--	--	--	--	--	--
	HS-1 FD	6/5/2014	--	--	--	--	--	--
	HS-2	6/5/2014	--	--	--	--	--	--
	HS-3	6/5/2014	--	--	--	--	--	--
IH-10	I10-2	6/4/2014	--	--	--	--	--	--
	I10-5	6/4/2014	--	--	--	--	--	--
	I10-7	6/4/2014	--	--	--	--	--	--
	I10-8	6/4/2014	--	--	--	--	--	--
Jackson Woods	JW-5	6/3/2014	--	--	--	--	--	--
	JW-6	6/3/2014	--	--	--	--	--	--
	JW-7	6/3/2014	--	--	--	**0.34F**	--	--
	JW-8	6/6/2014	--	--	--	**0.20F**	--	--
	JW-9	6/20/2014	--	--	--	--	--	--
	JW-13	6/16/2014	--	--	--	--	--	--
	JW-14	6/4/2014	--	--	--	--	--	--
	JW-14 FD	6/4/2014	--	--	--	--	--	--
	JW-15	6/6/2014	--	--	--	--	--	--
	JW-20	6/6/2014	--	--	--	--	--	--
	JW-26	6/4/2014	--	--	--	--	--	--
	JW-27	6/10/2014	--	--	--	--	--	--
	JW-28	6/5/2014	--	--	--	--	--	--
	JW-28 FD	6/5/2014	--	--	--	--	--	--
	JW-29	6/6/2014	--	--	--	--	--	--
	JW-29 FD	6/6/2014	--	--	--	--	--	--
	JW-30	6/6/2014	--	--	--	--	--	--
	JW-31	6/5/2014	--	--	--	--	--	--
Leon Springs Villas	LS-1	6/5/2014	--	--	--	**0.39F**	--	--
	LS-4	6/5/2014	--	--	--	**0.08F**	--	--
	LS-5	6/2/2014	--	--	--	**0.85F**	**2.75**	--
	LS-5 FD	6/2/2014	--	--	--	**1.17F**	**3.29**	--
	LS-6	6/2/2014	--	--	--	**0.91F**	**3.16**	--
	LS-7	6/2/2014	--	--	--	**2.1**	**0.46F**	--
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 June 2014 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
The Oaks Water Supply	OW-BARNOWL	6/4/2014	--	--	--	--	--	--
	OW-CE1	6/4/2014	--	--	--	--	--	--
	OW-CE2	6/4/2014	--	--	--	--	--	--
	OW-HH1	6/4/2014	--	--	--	--	--	--
	OW-HH2	6/4/2014	--	--	--	--	--	--
	OW-HH3	6/4/2014	--	--	--	--	--	--
	OW-DAIRYWELL	6/4/2014	--	--	--	--	--	--
	OW-MT2	6/4/2014	--	--	--	--	--	--
Old Fredericksburg	OFR-1	6/6/2014	--	--	--	**0.22F**	--	--
	OFR-4	6/23/2014	--	--	--	--	--	--
Ralph Fair Road	RFR-3	6/5/2014	--	--	--	--	--	--
	RFR-4	6/5/2014	--	--	--	--	--	--
	RFR-5	6/5/2014	--	--	--	--	--	--
	RFR-8	6/6/2014	--	--	--	--	--	--
	RFR-9	6/6/2014	--	--	--	--	--	--
	RFR-10	6/2/2014	--	--	--	**9.39**	**4.88**	--
	RFR-11	6/2/2014	--	--	--	**0.69F**	**2.38**	--
	RFR-12	6/3/2014	--	--	--	--	**0.67F**	--
	RFR-13	6/10/2014	--	--	--	--	--	--
	RFR-13 FD	6/10/2014	--	--	--	--	--	--
	RFR-14	6/6/2014	--	--	--	**0.14F**	--	--
Scenic Loop Drive	SLD-01	6/10/2014	--	--	--	--	--	--
	SLD-02	6/10/2014	--	--	--	--	--	--
	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.

3.0 SUMMARY AND RECOMMENDATIONS

Results of the June 2014 sampling event are summarized as follows:

- All Fifty-five wells scheduled for sampling in June 2014 were obtained during the quarterly monitoring event.
- Well RFR-10 exceeded the MCL in June 2014 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 LS-5, LS-6, LS-7, and RFR-11. These four wells have GAC treatment systems in place.
- 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 June 2014.
- Well JW-20 was added to the sampling program in January 2014. Three consecutive quarterly samples have been collected. All sample results were below the laboratory detection limits.
- Well SLD-01 reported its first detection of PCE, below the RL, in September 2013. The June 2014 event was the third consecutive result below analytical detection limits since the initial detection in September. This well is 2.9 miles west of CSSA.
- GAC-filtered samples are collected semi-annually and will be collected again in September 2014.
- Semi-annual GAC maintenance, including carbon change-out, was performed August 5, 2014. The next semi-annual GAC maintenance will be due in February 2015.
- In accordance with project DQOs, the rationale for the selection of 13 samples to be collected in September 2014 is provided in **Table 3.1**.

Table 3.1
Sampling Rationale for September 2014

Well ID	2001		2002				2003				2004				2005				2006				2007				2008				2009				2010				2011				2012				2013				2014			Sampling Frequency
	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	Dec	Mar	June	Sept	
BSR-03																																																		9-month (snapshot)
BSR-04																																																			9-month (snapshot)
FO-8	NS	NS	NS	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS						NS	NS		NS	NS	NS		NS	NS	NS	9-month (snapshot)
FO-17	NS	NS		NS	NS	NS		NS	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS	NS	NS		NS	NS	NS		NS	NS	NS	NS						NS		NS	NS		NS	NS	NS	9-month (snapshot)
FO-22		NS	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS	NS		NS	NS	NS		NS	NS	NS							NS		NS	NS		NS	NS	NS	9-month (snapshot)
FO-J1												NS						NS	NS																						NS	NS	NA	NS	NS	NA	NS	NS		NS	NS	NS	9-month (snapshot)
HS-1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS													NS	NS	NS							NS		NS	NS		NS	NS	NS	9-month (snapshot)
HS-2	NS																																				NS		NS	NS						NS		NS	NS		NS	NS	NS	9-month (snapshot)
HS-3	NS		NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS		NS	NS	NS		NS	NS	NS		NS		NS	NS	NS		NS	NS			NS	NS		NS	NS	NS	9-month (snapshot)
I10-2																				NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS				NA	NS		NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
I10-4	NS									NS													NA	NA	NA	NA	NA	NA	NA																				NA	NA	NA	P&A
I10-5	NS	NS	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS	NS	NS	NS	NS			NS	NS	NS				NS	NS		NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
I10-7	NS	NS		NS	NS	NS			NS	NS	NS		NS																					NS	NA	NA	NS		NS	NS		NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
I10-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS							NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
I10-10																																																		access agreement received			NS	NS	NS	One time sample
JW-5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS					NS	NS	NS										NS	NS	NS						NS	NS		NS	NS	NS		NS	NS	NS	9-month (snapshot)
JW-6		NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS	NS	NS		NS	NS	NS		NS	NS	NS	NS					NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
JW-7		NS	NS	NS	NS	NS	NS	NS																																	NS	NS		NS	NS		NS	NS		NS	9-month (snapshot)
JW-8	NS	NS	NS	NS	NS	NS	NS																																		NS	NS		NS	NS		NS	NS		NS	9-month (snapshot)
JW-9																NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS	NS	NS		NS	NS		NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
JW-13		NS	NS	NS	NS		NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS	NS	NS		NS	NS	NS		NS	NS	NS	NS	NS		NS	NS		NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
JW-14																			Tol																																NS	9-month (snapshot)
JW-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS					NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS						NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
JW-20																																																		access agreement received				Yes	Quaraterly
JW-26	NS	NS		NS											NS	NS	NS		NS	NS	NS		NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS		NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
JW-27	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS									NS					NS	NS	NS		NS	NS	NS					NS	NS		NS	NS		NS	9-month (snapshot)
JW-28	NS	NS	NS	NS	NS	NS	NS	NS																	NS	NS	NS															NS	NS		NS	NS		NS	9-month (snapshot)
JW-29	NS	NS	NS	NS	NS	NS	NS																																			NS	NS		NS	NS		NS	9-month (snapshot)
JW-30	NS	NS	NS	NS	NS	NS																																				NS	NS		NS	NS		NS	9-month (snapshot)
JW-31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					NS	NS		NS	NS		NS	NS		NS	9-month (snapshot)
LS-1												NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS														NS	NS		NS	NS		NS	NS		NS	9-month (snapshot)
LS-4																							NS	NS	NS	NS														NS	NS		NS	NS		NS	NS		NS	9-month (snapshot)
LS-5																																																		Yes	Quarterly
LS-5-A2																																									GAC installed 10/6/11		NS		NS		NS		NS		NS		NS	Yes	Biannually (Mar & Sept)
LS-6																																																		Yes	Quarterly
LS-6-A2				NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	Yes	Biannually (Mar & Sept)
LS-7																																																		Yes	Quarterly
LS-7-A2				NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	Yes	Biannually (Mar & Sept)
OFR-1	NS																																																	9-month (snapshot)
OFR-3																																									NA	NS							NA	NA	NA	NA	NA	NA	Quarterly, electricity off
OFR-3-A2	NS	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	NS	NS		NS		NS		NS	NS		NS	NA	NS	NA	NA	NA	Biannually (Mar & Sept)
OFR-4	NS	NS	NS	NS	NS	NS	NS			NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS				NS	NS		NS	NS		NS	NS		NS	9-month (snapshot)
OW-HH1																																							access agreement received					NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
OW-HH2																																							access agreement received											NS	NS	9-month (snapshot)
OW-CE1																																							access agreement received					NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
OW-CE2																																							access agreement received					NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
OW-MT2																																							access agreement received					NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
OW-BARNOWL																																							access agreement received											NS	NS	9-month (snapshot)
OW-DAIRYWELL																																							access agreement received					NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
OW-HH3																																							access agreement received					NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
RFR-3	NS	NS	NS	NS	NS	NS	NS	NS	NS						NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS		NS	NS		NS	NS	NS	NS	9-month (snapshot)
RFR-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS	Tol	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
RFR-5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS		NS	NS		NS	NS	NS	9-month (snapshot)
RFR-8		NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS	NS	NS		NS	NS	NS		NS	NS	NS	NS	NS		NS	NS		NS	NS		NS	NS		NS	9-month (snapshot)
RFR-9			NS		NS	NS	NS			NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS				NS	NS		NS	NS	NA	NS	NS		NS	9-month (snapshot)
RFR-10																																																		Yes	Quarterly
RFR-10-A2				NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	Yes	Biannually (Mar & Sept)
RFR-10-B2				NS	NS	NS	NS	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	Yes	Biannually (Mar & Sept)
RFR-11																																																		Yes	Quarterly
RFR-11-A2				NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	Yes	Biannually (Mar & Sept)
RFR-12																			NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS					NA	NS		NS	NS		NS	NS		NS	NS		NS	9-month (snapshot)
RFR-13											Well Installed																																									9-month (snapshot)
RFR-14																		Well Installed																																		9-month (snapshot)
SLD-01																																							permission to sample granted, no access agreement					NS	NS		NS	NS	NA	NS	NS				Yes	Quarterly
SLD-02																																							permission to sample granted, no access agreement		NA	NS		NS	NS	NA	NS	NS		NS	NS		NS	9-month (snapshot)

Wells Sampled: 7
Post GAC samples: 6
Total Samples: 13

VOCs detected are greater than 90% of the MCL. Sample monthly; quarterly after GAC installation.

VOCs detected are greater than 80% of the MCL. The well will be placed on a monthly sampling schedule until GAC installation then quarterly sampling after GAC installation.

VOCs detected are less than 80% of the MCL (<4.0 ppb and >0.06 ppb for PCE & <4.0 ppb >0.05 ppb for TCE). After four quarters of stable results the well can be removed from quarterly sampling.

This well has a GAC filtration unit installed by CSSA. Post GAC samples are collected every six months.
A1 - after GAC canister #1
A2 - after GAC canister #2

Yes — To be sampled in Sept. 2014.

NS — Not sampled for that event.

No VOCs detected. Sample on an as needed basis.

NA — Not applicable, sample could not be collected due to pump outage or well access conflict.

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 3 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, reviews, 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
JUNE 2014 QUARTERLY OFF-POST GROUNDWATER ANALYTICAL RESULTS

Appendix B
June 2014 Off-Post Groundwater Results

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	6/6/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	BSR-04	6/10/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
Fair Oaks Ranch	FO-8	6/5/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	FO-17	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	FO-22	6/5/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	FO-J1	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
Hidden Springs	HS-1	6/5/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	HS-1 FD	6/5/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	HS-2	6/5/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	HS-3	6/5/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
IH-10	I10-2	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	I10-5	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	I10-7	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	I10-8	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
Jackson Woods	JW-5	6/3/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-6	6/3/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-7	6/3/2014	0.12U	0.07U	0.08U	**0.34F**	0.05U	0.08U
	JW-8	6/6/2014	0.12U	0.07U	0.08U	**0.20F**	0.05U	0.08U
	JW-9	6/20/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-13	6/16/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-14	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-14 FD	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-15	6/6/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-20	6/6/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-26	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-27	6/10/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-28	6/5/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-28 FD	6/5/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-29	6/6/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-29 FD	6/6/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-30	6/6/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-31	6/5/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
Leon Springs Villas	LS-1	6/5/2014	0.12U	0.07U	0.08U	**0.39F**	0.05U	0.08U
	LS-4	6/5/2014	0.12U	0.07U	0.08U	**0.08F**	0.05U	0.08U
	LS-5	6/2/2014	0.12U	0.07U	0.08U	**0.85F**	**2.75**	0.08U
	LS-5 FD	6/2/2014	0.12U	0.07U	0.08U	**1.17F**	**3.29**	0.08U
	LS-6	6/2/2014	0.12U	0.07U	0.08U	**0.91F**	**3.16**	0.08U
	LS-7	6/2/2014	0.12U	0.07U	0.08U	**2.1**	**0.46F**	0.08U
The Oaks Water Supply	OW-BARNOWL	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-CE1	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-CE2	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-HH1	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-HH2	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-HH3	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-DAIRYWELL	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-MT2	6/4/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
Old Fredericksburg	OFR-1	6/6/2014	0.12U	0.07U	0.08U	**0.22F**	0.05U	0.08U
	OFR-4	6/23/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
Ralph Fair Road	RFR-3	6/5/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-4	6/5/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-5	6/5/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-8	6/6/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-9	6/6/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-10	6/2/2014	0.12U	0.07U	0.08U	**9.39**	**4.88**	0.08U
	RFR-11	6/2/2014	0.12U	0.07U	0.08U	**0.69F**	**2.38**	0.08U
	RFR-12	6/3/2014	0.12U	0.07U	0.08U	0.06U	**0.67F**	0.08U
	RFR-13	6/10/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-13 FD	6/10/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-14	6/6/2014	0.12U	0.07U	0.08U	**0.14F**	0.05U	0.08U

Appendix B
June 2014 Off-Post Groundwater Results

Subdivision	Well ID	Sample Date	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	TCE	Vinyl Chloride
Scenic Loop Drive	SLD-01	6/10/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	SLD-02	6/10/2014	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	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.

APPENDIX C
DATA VALIDATION REPORTS

SDG 73484
SDG 73525
SDG 73541
SDG 73601
SDG 73647

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 June 2nd, 2014. The samples were assigned to the following Sample Delivery Group (SDG) and were analyzed for volatile organic compounds (VOCs).

73484

The field QC sample associated with this SDG was a trip blank (TB) and one set of parent/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 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 2.5ºC, which was within the 2-6ºC 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 seven (7) samples, including five (5) off-site groundwater samples, one (1) TB, and one (1) FD. All samples were collected on June 2nd, 2014 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 analytical batch (#187198) 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 and the surrogate spikes.

All LCS and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was measured by the relative percent difference (%RPD) of the parent and FD sample results. Sample LS-5 was collected in duplicate.

TCE was detected above the reporting limits in both parent and FD samples. The %RPD was 18%, within the 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 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.

- 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. 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 June 3rd to 5th, 2014. The samples were assigned to the following Sample Delivery Group (SDG) and were analyzed for volatile organic compounds (VOCs).

73525

The field QC sample associated with this SDG was a trip blank (TB), two pairs of matrix spike/matrix spike duplicate (MS/MSD), and three sets of parent/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 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 3.0ºC, which was within the 2-6ºC 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 forty (40) samples, including thirty-two (32) off-site groundwater samples, one (1) TB, two sets of MS/MSD, and three (3) FDs. All samples were collected on June 3 - 5, 2014 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 analytical batches (#187359, #187398, and #187399) 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, two sets of MS/MSD, and the surrogate spikes.

All LCSs and surrogate spike recoveries were within acceptance criteria.

Samples JW-26 and HS-2 were designated as the parent sample for MS/MSD. All %Rs were compliant.

Precision

Precision was measured by the relative percent difference (%RPD) of the three sets of parent and FD sample results and two pairs of MS/MSD. Samples JW-14, JW-28, and HS-1 were collected in duplicate. All three pairs of parent/FD had no target VOCs detected above reporting limits, therefore, the %RPD calculations were not applicable. All %RPDs of the two sets 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.
- The 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 June 6 and 10, 2014. The samples were assigned to the following Sample Delivery Group (SDG) and were analyzed for volatile organic compounds (VOCs).

73541

The field QC sample associated with this SDG was a trip blank (TB), one pair of matrix spike/matrix spike duplicate (MS/MSD), and two sets of parent/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 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 1.0ºC, which was one degree below the 2-6ºC range recommended by the CSSA QAPP. Sample receiving staff in the lab did not notice any freeze of samples, therefore, flagging is not needed.

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 (20) samples, including fifteen (15) off-site groundwater samples, one pair of MS/MSD, one (1) TB, and two (2) FDs. All samples were collected on June 6 and 10, 2014 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 analytical batches (#187399 and #187539) 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-27 was designated as the parent sample for the MS/MSD analyses.

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

Precision

Precision was measured by the relative percent difference (%RPD) of the parent and FD sample results and MS/MSD results. Samples JW-29 and RFR-13 were collected in duplicate.

All %RPDs of MS/MSD were compliant.

None of the target VOCs was detected above the reporting limits in both sets of 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 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.
- 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) sample collected from on-post and off-post Camp Stanley Storage Activity (CSSA) on June 16 and 17, 2014. 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. Off-post sample only analyzed for VOCs.

73601

The field QC sample associated with this SDG was 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 0.5ºC, which was below the 2-6ºC range recommended by the CSSA QAPP. Lab sample receiving staff did not notice any freeze in any of the sample containers.

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 eleven (11) samples, including nine (9) on-site groundwater samples, one (1) off-site groundwater sample, and one (1) TB. All samples were collected on June 16 and 17, 2014 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 (#187536) 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 and the surrogate spikes.

All LCS and surrogate spike recoveries were within acceptance criteria.

Precision

Precision could not be evaluated due to the lack of duplicate analyses.

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 nine (9) on-post groundwater samples which were collected on June 16 and 17, 2014 and 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 #187948. 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 due to lack of duplicate analyses.

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 ICP-AES portion of this SDG consisted of nine (9) on-post groundwater samples collected on June 16 and 17, 2014 and 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 #188019. 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 lack of duplicate analyses.

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-post and off-post Camp Stanley Storage Activity (CSSA) on June 20 and 23, 2014. The samples were assigned to the following Sample Delivery Group (SDG) and were analyzed for volatile organic compounds (VOCs) and metals including arsenic, barium, cadmium, chromium, copper, lead, and mercury. Not all samples were analyzed for the complete list of metals. Off-post sample only analyzed for VOCs.

73647

The field QC samples associated with this SDG were a field duplicate (FD) a 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 3.0ºC, which was within the 2-6ºC 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 nine (9) samples, including six (6) on-site groundwater samples, two (2) off-site groundwater samples, and one (1) TB. All samples were collected on June 20 and 23, 2014 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 (#184854) 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 and the surrogate spikes. Samples CS-MW7-LGR and CS-1 were designated as the parent samples for the matrix spike/matrix spike duplicate (MS/MSD) analyses.

All LCS, 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 results and parent/FD sample results. Sample CS-12 was collected in duplicate.

All %RPDs of the MS/MSD were compliant.

None of the target VOCs were detected at or above the reporting limit (RL) in the 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 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 six (6) on-post groundwater samples which were collected on June 20 and 23, 2014. Five samples were analyzed for cadmium, chromium, and lead. The remaining samples were analyzed for arsenic, barium, cadmium, chromium, copper, 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 batches #188015 and #188073. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the two LCSs, MS, and MSD.

All LCSs, MS, and MSD recoveries were within acceptance criteria.

Precision

Precision was evaluated based on the %RPD of MS/MSD results and parent/FD results.

All %RPD of the two sets of MS/MSD were compliant.

Only barium and zinc were detected above the RL. %RPD of both metals 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 preservation and 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, 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 two ICVs were 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.

Two method blanks 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 ICP-AES portion of this SDG consisted of six (6) on-post groundwater samples collected on June 20 and 23, 2014 and 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 two batches #188088 and #188089. The analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the two LCSs and two sets of MS/MSD.

The LCS, MS, and MSD recoveries were within acceptance criteria.

Precision

Precision was evaluated based on the %RPD of the two sets of MS/MSD and one pair of parent/FD sample results.

The %RPD of both sets of MS/MSD were compliant.

Mercury was not detected in the parent and FD samples at or above the RL.

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 were two method blanks 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%.