March 2012

Off-Post
Quarterly Groundwater Monitoring Report

Prepared For

Department of the Army
Camp Stanley Storage Activity
Boerne, Texas

May 2012

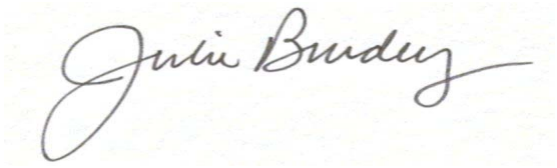
GEOSCIENTIST CERTIFICATION

March 2012 Off-post Quarterly Groundwater Monitoring Report

For

Department of the Army
Camp Stanley Storage Activity
Boerne, Texas

I, Julie Burdey, P.G., hereby certify that the March 2012 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 CSSA Environmental Office, laboratory data provided by APPL, and field data obtained during groundwater monitoring conducted at the site in March 2012, and is true and accurate to the best of my knowledge and belief.



Julie Burdey, P.G.
State of Texas
Geology License No. 1913

5/11/12
Date

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ABBREVIATIONS AND ACRONYMS

AOC	Area of Concern
APPL	Agriculture & Priority Pollutant Laboratory
BRAC	Base realignment and closure
CSSA	Camp Stanley Storage Activity
CESWF	Corps of Engineers Fort Worth District
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

ABBREVIATIONS AND ACRONYMS (*continued*)

TCE	Trichloroethene
THM	trihalomethanes
USACE	United States Army Corps of Engineers
VOC	volatile organic compound

EXECUTIVE SUMMARY

- A total of 55 off-post wells and 7 granular activated carbon (GAC) filtered samples were collected during the March 2012 monitoring event. One well, FO-J1, was not sampled due to a pump outage. All wells were scheduled for sampling to capture the 9-month snapshot event in March 2012.
- Well I10-9 was sampled for the third consecutive quarter; trichloroethene (TCE) was detected at a concentration above the RL but below the maximum contaminant level (MCL). This well will continue to be sampled on a quarterly basis.
- Analyses indicated off-post wells OFR-3 and RFR-10 exceeded the MCL for tetrachloroethene (PCE) and/or TCE. Both wells are equipped with GAC filtration systems.
- GAC-filtered samples were also collected in March 2012. No VOCs were detected in any of these samples, indicating the GAC systems are functioning properly. GAC-filtered samples will be collected again during the September 2012 event.
- Semi-annual GAC maintenance was performed in January 2012. 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 July 2012.
- Wells LS-5, LS-6, LS-7, OFR-3, RFR-10, RFR-11, and I10-4 were also sampled for additional analysis which will provide a baseline for the in-situ chemical oxidation (ISCO) injection. Results of this sampling will be discussed in conjunction with the AOC-65 Treatability Study.

MARCH 2012
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 March 2012 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 2012 quarterly monitoring events (March, June, September, and December) will be described in detail in an Annual Report to be submitted after December 2012. 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 March 5 through 23, 2012. 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 located in the Plan.

The CSSA groundwater monitoring program also follows the provisions of the groundwater monitoring program 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 MARCH 2012 ANALYTICAL RESULTS

During the March 2012 event, a groundwater sample was collected from each of 55 off-post wells shown in **Figure 2-1.** GAC (granular activated carbon) filtered samples (LS-5-A2, LS-6-A2, LS-7-A2, OFR-3-A2, RFR-10-A2, RFR-10-B2, and RFR-11-A2) are collected semi-annually and were also collected this event. **Table 2-1** includes the rationale for selection of the wells sampled in March 2012, and **Figure 2-1** provides well locations for the following sampled wells:

- Three public supply wells in the Fair Oaks area (FO-8, FO-17, and FO-22);
- Three public supply wells in the Hidden Springs Estates subdivision (HS-1, HS-2, and HS-3);
- Four public wells (I10-2, I10-5, I10-7, and I10-8) and two privately-owned wells (I10-4 [unused] and I10-9) in the Interstate-10 area;
- Fourteen 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-26, JW-27, JW-28, JW-29, JW-30, and JW-31);
- Five wells in the Leon Springs Villa area (one public well: LS-6; two privately-owned wells: LS-5 and LS-7; and two wells: LS-1 and LS-4 that were taken out of service but will remain in the sampling program for data collection purposes);
- Three privately-owned wells on Old Fredericksburg Road (OFR-1, OFR-3, and OFR-4);
- Ten privately-owned wells (RFR-3, RFR-4, RFR-5, RFR-8, RFR-9, RFR-10, RFR-11, RFR-12, RFR-13, and RFR-14) in the Ralph Fair Road area;
- Two public supply wells in the Scenic Loop Drive area, SLD-01 & SLD-02;
- Eight public supply wells from The Oaks Water Supply System (OW-BARNOWL, OW-CE1, OW-CE2, OW-DAIRYWELL, OW-HH1, OW-HH2, OW-HH3, and OW-MT2);
- One privately owned well in the Boerne Stage Road Area, BSR-03.

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 (I10-4, LS-1, and LS-4) were sampled using a disposable bailer. The samples from these wells are not subject to purging/sample parameter requirements.

A total of 62 groundwater samples, six field duplicate samples, three matrix spike/matrix spike duplicate (MS/MSD) pairs, and four trip blanks were submitted to Agriculture & Priority Pollutant Laboratory (APPL) in Clovis, California for analysis. 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. Additional ISCO samples were collected for the AOC-65 Treatability Study.

The data packages (Parsons internal reference 748350-#38, -#39, -#41, -#45, -#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 March 29th through April 11th, 2012.

Concentrations of the VOCs detected in March 2012 are presented in **Table 2-2**. Full analytical results from the March 2012 sampling event are presented in **Appendix B**. As shown in **Table 2-1**, 63 samples were scheduled for collection in March 2012, one sample (FO-J1) was not collected due to a pump outage. Two new wells (SLD-02 and BSR-03) identified in the Scenic Loop Drive and Boerne Stage Road areas were sampled for the first time this quarter. Two wells (SLD-01 and SLD-02) were sampled with permission from the owner but with no access agreement. These wells are a significant distance west of CSSA, approximately 2.5 miles, and will be included in the 9 month snap shot sampling events in the future.

In January 2012, 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.

Based on historical detections, the lateral extent of VOC detections extends approximately 1.5 miles beyond the south and west boundaries of CSSA. Past detections of VOCs have extended south to well LS-4 and west to OW-BARNOWL **(Figure 2-1).**

Table 2-1
Sampling Rationale for March 2012

Well ID	2001		2002				2003				2004				2005				2006				2007				2008				2009				2010				2011				2012	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	
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	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	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	Yes	9-month (snapshot)
FO-J1												NS						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	Yes	9-month (snapshot)
HS-2	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	Yes	9-month (snapshot)
I10-2																				NS	NS	NS						NS	NS	NS		NS	NS	NS				NA	NS		NS	NS	Yes	9-month (snapshot)
I10-4	NS									NS														NA	NA	NA	NA	NA	NA														Yes	Quarterly
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	Yes	9-month (snapshot)
I10-7	NS	NS		NS	NS	NS			NS	NS	NS		NS																					NS	NA	NA	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	Yes	9-month (snapshot)
I10-9																																		access agreement received								Yes	Quarterly
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	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	Yes	9-month (snapshot)
JW-7		NS	NS	NS	NS	NS	NS	NS																																	NS	NS	Yes	9-month (snapshot)
JW-8	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	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	Yes	9-month (snapshot)
JW-14																			Tol																									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	Yes	9-month (snapshot)
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	Yes	9-month (snapshot)
JW-27	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	Yes	9-month (snapshot)
JW-29	NS	NS	NS	NS	NS	NS	NS																																			NS	NS	Yes	9-month (snapshot)
JW-30	NS	NS	NS	NS	NS	NS																																				NS	NS	Yes	9-month (snapshot)
JW-31																																										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	Yes	9-month (snapshot)
LS-4																								NS	NS	NS	NS															NS	NS	Yes	9-month (snapshot)
LS-5																																												Yes	Quarterly
LS-5-A2																																										GAC installed 10/6/11		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	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	Yes	Biannually (Mar & Sept)
OFR-1	NS																																									NS	NS	Yes	9-month (snapshot)
OFR-3																																									NA	NS				Yes	Quarterly
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	Yes	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	Yes	9-month (snapshot)
OW-HH1																																		access agreement received								Yes	9-month (snapshot)
OW-HH2																																		access agreement received								Yes	Quarterly
OW-CE1																																		access agreement received								Yes	9-month (snapshot)
OW-CE2																																		access agreement received								Yes	9-month (snapshot)
OW-MT2																																		access agreement received								Yes	9-month (snapshot)
OW-BARNOWL																																		access agreement received								Yes	Quarterly
OW-DAIRYBARN																																		access agreement received								Yes	9-month (snapshot)
OW-HH3																																		access agreement received								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	Yes	9-month (snapshot)
RFR-4	NS	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	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	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	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	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	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	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	Yes	Biannually (Mar & Sept)
RFR-12																				NS	NS	NS		NS	NS	NS		NS	NS	NS						NA	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	Yes	9-month (snapshot)
RFR-14																Well Installed																											NS	NS	Yes	9-month (snapshot)
SLD-01																																		permission to sample granted, no access agreement								NS	NS	Yes	9-month (snapshot)
SLD-02																																		permission to sample granted, no access agreement							NA	NS	Yes	9-month (snapshot)
BSR-03																																									access agreement received			Yes	

Wells Sampled: 56
Post GAC samples: 7
Total Samples: 63

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 March 2012.

NS — Not sampled for that event.

detected. Sample on an as needed basis.

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

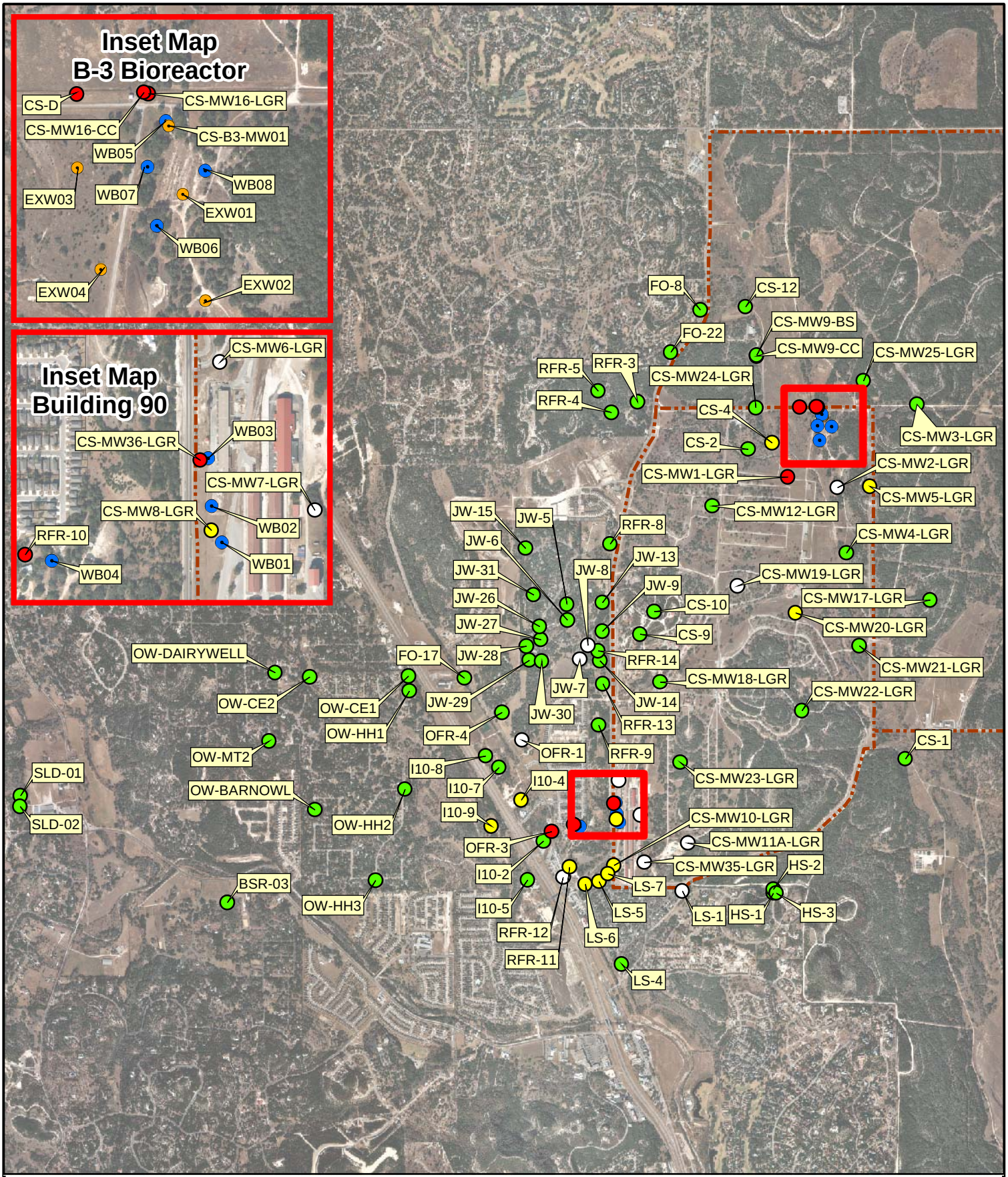

Figure 2-1

On-Post and Off-Post Well Sampling Locations for March 2012

Camp Stanley Storage Activity

PARSONS

J:\CSSA\GIS\Groundwater\Maps\March12_Sampled_Wells.mxd - 5/10/2012 @ 1:02:47 PM

Table 2-2
March 2012 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	Comments
Boerne Stage Road	BSR-03	3/9/2012	--	--	--	--	--	--	First time sample.
Fair Oaks	FO-8	3/5/2012	--	--	--	--	--	--	No PCE or TCE detections in these wells since sampling began in 2001.
	FO-17	3/5/2012	--	--	--	--	--	--	
	FO-22	3/5/2012	--	--	--	--	--	--	
Hidden Springs	HS-1	3/7/2012	--	--	--	--	--	--	Sporadic PCE detections below the RL.
	HS-2	3/7/2012	--	--	--	--	--	--	
	HS-3	3/7/2012	--	--	--	--	--	--	No PCE or TCE detections in this well since 2001.
IH-10	I10-2	3/5/2012	--	--	--	--	--	--	One PCE detection, below the RL, in the last 7 yrs.
	I10-4	3/7/2012	--	--	--	**4.47**	**1.9**	--	Unused well, no pump.
	I10-5	3/5/2012	--	--	--	--	--	--	No PCE/TCE detections in this well since sampling first began in 2002.
	I10-7	3/5/2012	--	--	--	--	--	--	One TCE detection, below the RL, in Dec. 2009.
	I10-8	3/6/2012	--	--	--	--	--	--	No historic PCE/TCE detections.
	I10-8 FD	3/6/2012	--	--	--	--	--	--	
	I10-9	3/20/2012	--	--	--	--	**1.04**	--	Third consecutive quarter with a TCE detection.
Jackson Woods Subdivision	JW-5	3/7/2012	--	--	--	--	--	--	Sporadic PCE detections below the RL.
	JW-5 FD	3/8/2012	--	--	--	--	--	--	
	JW-6	3/6/2012	--	--	--	--	--	--	No historic PCE/TCE detections.
	JW-6 FD	3/6/2012	--	--	--	--	--	--	
	JW-7	3/7/2012	--	--	--	**0.33F**	--	--	Consistent PCE detections below the RL since 2003 in both of these wells.
	JW-8	3/7/2012	--	--	--	**0.32F**	--	--	
	JW-9	3/16/2012	--	--	--	--	--	--	One historic PCE detection, below the RL, in 2004.
	JW-13	3/8/2012	--	--	--	--	--	--	
	JW-14	3/8/2012	--	--	--	--	--	--	Sporadic PCE detections below the RL, last PCE detection was in 2009.
	JW-15	3/7/2012	--	--	--	--	--	--	No historic VOC detections.
	JW-26	3/6/2012	--	--	--	--	--	--	Last PCE detection, below the RL, in 2003.
	JW-27	3/6/2012	--	--	--	--	--	--	Last PCE detection, below the RL, in 2008.
	JW-28	3/12/2012	--	--	--	--	--	--	No historic VOC detections.
	JW-29	3/6/2012	--	--	--	--	--	--	Sporadic PCE detections between 2003-2009.
	JW-30	3/6/2012	--	--	--	--	--	--	Sporadic PCE, TCE, and *cis* -1,2-DCE detections below the RL.
	JW-31	3/7/2012	--	--	--	--	--	--	No historic VOC detections.
Leon Springs Villas	LS-1	3/5/2012	--	--	--	**0.70F**	--	--	
	LS-4	3/5/2012	--	--	--	--	--	--	Last PCE detection was in 2010, below the RL.
	LS-5	3/7/2012	--	--	--	**0.81F**	**2.46**	--	TCE consistently above the RL since June 2008.
	LS-5-A2	3/7/2012	--	--	--	--	--	--	Post-GAC sample.
	LS-6	3/7/2012	--	--	--	**0.81F**	**1.85**	--	PCE was last above the MCL in Dec. 2002.
	LS-6-A2	3/7/2012	--	--	--	--	--	--	Post-GAC sample.
	LS-7	3/7/2012	--	--	--	**2.45**	**0.36F**	--	PCE was last above the MCL in Dec. 2002.
	LS-7-A2	3/7/2012	--	--	--	--	--	--	Post-GAC sample.

Table 2-2
March 2012 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	Comments
Old Fredricksburg Road	OFR-1	3/7/2012	--	--	--	**0.28F**	--	--	Consistent PCE detections below the RL but no historic detections of TCE.
	OFR-3	3/8/2012	--	**0.17F**	--	**5.19**	**3.32**	--	*cis* -1,2-DCE last detected in Sept. 2008.
	OFR-3-A2	3/8/2012	--	--	--	--	--	--	Post-GAC samples.
	OFR-3-A2 FD	3/8/2012	--	--	--	--	--	--	
	OFR-4	3/7/2012	--	--	--	--	--	--	No historic VOC detections.
Ralph Fair Road	RFR-3	3/12/2012	--	--	--	--	--	--	One PCE detection in Dec. 2003, below the RL.
	RFR-4	3/12/2012	--	--	--	--	--	--	No historic VOC detections.
	RFR-5	3/12/2012	--	--	--	--	--	--	No historic VOC detections.
	RFR-5 FD	3/12/2012	--	--	--	--	--	--	
	RFR-8	3/6/2012	--	--	--	--	--	--	
	RFR-9	3/20/2012	--	--	--	--	--	--	PCE detected in Sept. 2009, below the RL.
	RFR-10	3/8/2012	--	**0.40F**	--	**15.95**	**10.15**	--	Historic PCE range = 2.37-35.48 µg/L & historic TCE range = 0.05-13.03 µg/L.
	RFR-10 FD	3/8/2012	--	**0.34F**	--	**17.6**	**9.88**	--	
	RFR-10-A2	3/8/2012	--	--	--	--	--	--	Post-GAC samples.
	RFR-10-B2	3/8/2012	--	--	--	--	--	--	
	RFR-11	3/8/2012	--	--	--	**0.47F**	**1.74**	--	PCE last above the MCL in June 2007.
	RFR-11-A2	3/8/2012	--	--	--	--	--	--	Post-GAC sample.
	RFR-12	3/5/2012	--	--	--	--	**0.35F**	--	Sporadic PCE/TCE detections below the RL.
	RFR-13	3/7/2012	--	--	--	--	--	--	No historic VOC detections aside from THM detections when well was first installed.
	RFR-14	3/6/2012	--	--	--	--	--	--	Sporadic PCE detections below the RL.
The Oaks Water Supply	OW-BARNOWL	3/9/2012	--	--	--	--	--	--	No detections since initial PCE detection (below the RL) in March 2011.
	OW-CE1	3/9/2012	--	--	--	--	--	--	No historic VOC detections.
	OW-CE2	3/9/2012	--	--	--	--	--	--	
	OW-DAIRYWELL	3/9/2012	--	--	--	--	--	--	
	OW-HH1	3/9/2012	--	--	--	--	--	--	
	OW-HH2	3/9/2012	--	--	--	--	--	--	No detections since initial PCE detection (below the RL) in March 2011.
	OW-HH3	3/9/2012	--	--	--	--	--	--	No historic VOC detections.
	OW-MT2	3/9/2012	--	--	--	--	--	--	
Scenic Loop Drive	SLD-01	3/6/2012	--	--	--	--	--	--	Second sampling event, no VOC detections.
	SLD-02	3/6/2012	--	--	--	--	--	--	First time sample.
	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 µg/L.
Abbreviations/Notes:
FD Field Duplicate
TCE Trichloroethene
PCE Tetrachloroethene
DCE Dichloroethene
THM Trihalomethanes
Data Qualifiers:
-- The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.

3.0 SUMMARY AND RECOMMENDATIONS

Results of the March 2012 sampling are summarized as follows:

- Fifty-six wells and 7 GAC filtered samples were scheduled for sampling in March 2012. One well (FO-J1) was not sampled due to a pump outage. Fifty-five off-post wells and 7 GAC filtered samples were collected this event.
- Wells OFR-3 and RFR-10 exceeded the MCL in March 2012 for PCE and/or TCE. Both wells are equipped with a GAC filtration system. Post-GAC samples, which represent the water being delivered for consumption, were non-detect.
- PCE and/or TCE were detected above the RLs in public and/or private drinking water wells I10-4, I10-9, LS-5, LS-6, LS-7, and RFR-11. Wells LS-5, LS-6, LS-7, and RFR-11 have GAC treatment systems in place.
- Low levels (below the RL) of PCE and/or TCE were also detected in wells JW-7, JW-8, LS-1, OFR-1, and RFR-12. These wells have historically low detections below the RL and will remain on the 9-month sampling schedule.
- *Cis*-1,2-DCE was detected in wells OFR-3, RFR-10, and the RFR-10 field duplicate. Both of these wells have historic detections of *cis*-1,2-DCE, RFR-10 having more consistent detections than OFR-3.
- 1,1-DCE, *trans*-1,2-DCE, and vinyl chloride were not detected in any of the off-post wells in March 2012.
- Wells (SLD-01 & SLD-02) were sampled with permission from the owner but with no access agreement. Well SLD-02 is a back-up well and is only used when SLD-01 cannot meet demand. Both wells were non-detect in March 2012. These wells are a significant distance from Camp Stanley (~2.5 miles) and are on the 9-month sampling schedule.
- Well BSR-03 was sampled for the first time in March 2012. No VOCs related to CSSA's groundwater investigation were detected in this well. This well is approximately 1.8 miles from the CSSA boundary.
- GAC-filtered samples were collected in March 2012. All GAC-filtered samples were non-detect indicating the GAC units are functioning properly. The next GAC-filtered samples will be collected in September 2012.
- Semi-annual GAC maintenance, including carbon change-out, was performed in January 2012; the next semi-annual GAC maintenance will be due in July 2012.
- Several attempts have been made to contact additional well owners to the west and southwest of CSSA. As access agreements are received these wells may be added to future sampling events.
- In accordance with project DQOs, the rationale for the selection of 10 samples to be collected in June 2012 is provided in **Table 3-1**.

Table 3-1
Sampling Rationale for June 2012

Well ID	2001		2002				2003				2004				2005				2006				2007				2008				2009				2010				2011				2012		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	
BSR-03																																							access agreement received					Yes	Quarterly for 1 year
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	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	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	9-month (snapshot)
FO-J1												NS						NS	NS																						NS	NS	NA	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	9-month (snapshot)
HS-2	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	9-month (snapshot)
I10-2																				NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS				NA	NS		NS	NS			NS	9-month (snapshot)
I10-4	NS								NS															NA	NA	NA	NA	NA	NA																Yes	Quarterly
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	9-month (snapshot)
I10-7	NS	NS		NS	NS	NS			NS	NS	NS		NS																					NS	NA	NA	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	9-month (snapshot)
I10-9																																					access agreement received							Yes	Quarterly
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	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	9-month (snapshot)
JW-7		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	9-month (snapshot)
JW-9																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	9-month (snapshot)
JW-14																			Tol																						NS	NS			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	9-month (snapshot)
JW-26	NS	NS		NS											NS	NS	NS		NS	NS	NS		NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		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	9-month (snapshot)
JW-28	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	9-month (snapshot)
JW-30	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						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	9-month (snapshot)
LS-4																								NS	NS	NS	NS														NS	NS			NS	9-month (snapshot)
LS-5																																													Yes	Quarterly
LS-5-A2																																										GAC installed 10/6/11		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	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	Biannually (Mar & Sept)
OFR-1	NS																																								NS	NS			NS	9-month (snapshot)
OFR-3																																									NA	NS				Yes	Quarterly
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	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	9-month (snapshot)
OW-HH1																																	access agreement received										NS	9-month (snapshot)
OW-HH2																																	access agreement received										Yes	Quarterly
OW-CE1																																	access agreement received										NS	9-month (snapshot)
OW-CE2																																	access agreement received										NS	9-month (snapshot)
OW-MT2																																	access agreement received										NS	9-month (snapshot)
OW-BARNOWL																																	access agreement received										Yes	Quarterly
OW-DAIRYBARN																																	access agreement received										NS	9-month (snapshot)
OW-HH3																																	access agreement received										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	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	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	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	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	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	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	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	Biannually (Mar & Sept)
RFR-12																				NS	NS	NS		NS	NS	NS		NS	NS	NS		NS	NS	NS				NA	NS			NS	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	9-month (snapshot)
RFR-14															Well Installed																										NS	NS			NS	9-month (snapshot)
SLD-01																															permission to sample granted, no access agreement												NS		NS	9-month (snapshot)
SLD-02																															permission to sample granted, no access agreement										NA	NS		NS	9-month (snapshot)

Wells Sampled: 11
Post GAC samples: 0
Total Samples: 11

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 March 2012.

NS — Not sampled for that event.

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 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, 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
MARCH 2012 QUARTERLY OFF-POST GROUNDWATER ANALYTICAL RESULTS

Appendix B
March 2012 Quarterly Off-post Groundwater Analytical 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	3/9/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
Fair Oaks	FO-8	3/5/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	FO-17	3/5/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	FO-22	3/5/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
Hidden Springs	HS-1	3/7/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	HS-2	3/7/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	HS-3	3/7/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
IH-10	I10-2	3/5/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	I10-4	3/7/2012	0.12U	0.07U	0.08U	**4.47**	**1.9**	0.08U
	I10-5	3/5/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	I10-7	3/5/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	I10-8	3/6/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	I10-8 FD	3/6/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	I10-9	3/20/2012	0.12U	0.07U	0.08U	0.06U	**1.04**	0.08U
Jackson Woods Subdivision	JW-5	3/7/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-5 FD	3/8/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-6	3/6/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-6 FD	3/6/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-7	3/7/2012	0.12U	0.07U	0.08U	**0.33F**	0.05U	0.08U
	JW-8	3/7/2012	0.12U	0.07U	0.08U	**0.32F**	0.05U	0.08U
	JW-9	3/16/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-13	3/8/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-14	3/8/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-15	3/7/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-26	3/6/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-27	3/6/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-28	3/12/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-29	3/6/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-30	3/6/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	JW-31	3/7/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
Leon Springs Villas	LS-1	3/5/2012	0.12U	0.07U	0.08U	**0.70F**	0.05U	0.08U
	LS-4	3/5/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	LS-5	3/7/2012	0.12U	0.07U	0.08U	**0.81F**	**2.46**	0.08U
	LS-5-A2	3/7/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	LS-6	3/7/2012	0.12U	0.07U	0.08U	**0.81F**	**1.85**	0.08U
	LS-6-A2	3/7/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	LS-7	3/7/2012	0.12U	0.07U	0.08U	**2.45**	**0.36F**	0.08U
	LS-7-A2	3/7/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
Old Fredricksburg Road	OFR-1	3/7/2012	0.12U	0.07U	0.08U	**0.28F**	0.05U	0.08U
	OFR-3	3/8/2012	0.12U	**0.17F**	0.08U	**5.19**	**3.32**	0.08U
	OFR-3-A2	3/8/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OFR-3-A2 FD	3/8/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OFR-4	3/7/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U

Appendix B
March 2012 Quarterly Off-post Groundwater Analytical Results

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	3/12/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-4	3/12/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-5	3/12/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-5 FD	3/12/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-8	3/6/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-9	3/20/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-10	3/8/2012	0.12U	**0.40F**	0.08U	**15.95**	**10.15**	0.08U
	RFR-10 FD	3/8/2012	0.12U	**0.34F**	0.08U	**17.6**	**9.88**	0.08U
	RFR-10-A2	3/8/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-10-B2	3/8/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-11	3/8/2012	0.12U	0.07U	0.08U	**0.47F**	**1.74**	0.08U
	RFR-11-A2	3/8/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-12	3/5/2012	0.12U	0.07U	0.08U	0.06U	**0.35F**	0.08U
	RFR-13	3/7/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	RFR-14	3/6/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
The Oaks Water Supply	OW-BARNOWL	3/9/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-CE1	3/9/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-CE2	3/9/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-DAIRYWELL	3/9/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-HH1	3/9/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-HH2	3/9/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-HH3	3/9/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-MT2	3/9/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
Scenic Loop Drive	SLD-01	3/6/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	SLD-02	3/6/2012	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 µg/L.
Abbreviations/Notes:
FD Field Duplicate
TCE Trichloroethene
PCE Tetrachloroethene
DCE Dichloroethene
Data Qualifiers:
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 67144
SDG 67176
SDG 67196
SDG 67265
SDG 67291

DATA VERIFICATION SUMMARY REPORT

for off-post samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Katherine LaPierre and 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 March 5 and 6, 2012. The samples were assigned to the following Sample Delivery Group (SDG) and were analyzed for volatile organic compounds (VOCs):

67144

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

All samples were collected by Parsons and analyzed by 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 1.5ºC, which was slightly below the 2-6ºC range recommended by the CSSA QAPP. However, all samples were received intact and not frozen, so no corrective action was necessary.

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-four (24) samples, including nineteen (19) off-post groundwater samples, two FD samples, one MS/MSD pair, and one TB. The samples were collected on March 5 and 6, 2012 and were 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 (2) batches (#164777 and #164779) under a single 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) samples, the MS/MSD samples, and the surrogate spikes. Sample SLD-01 was designated for MS/MSD analysis on the COC.

Two LCS samples were analyzed, one for each batch. All LCS, MS/MSD, and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the MS/MSD concentrations. Precision was further evaluated by comparing the field duplicate analyte results. An extra set of vials was collected from wells JW-6 and I10-8. The extra set of vials from these wells was submitted as a FD.

All MS/MSD RPDs were within acceptance criteria.

All target VOCs were non-detect in the sample from JW-6 and the associated field duplicate. All target VOCs were non-detect in the sample from well I10-8 and the associated field duplicate.

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 two LCS samples 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 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%.

DATA VERIFICATION SUMMARY REPORT

for off-post samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Katherine LaPierre
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 March 7 and 8, 2012. The samples were assigned to the following Sample Delivery Group (SDG) and were analyzed for volatile organic compounds (VOCs):

67176

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

All samples were collected by Parsons and analyzed by 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 2.0ºC, 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 thirty-one (31) samples, including twenty-seven (27) off-post groundwater samples, three (3) FD samples, and one TB. The samples were collected on March 7 and 8, 2012 and were 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 (3) batches (#164939, #164940, and #164941) under a single 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) samples and the surrogate spikes. No sample was designated for matrix spike/matrix spike duplicate (MS/MSD) analysis on the COC.

Three LCS samples were analyzed, one for each batch. All LCS and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the field duplicate analyte results. An extra set of vials was collected from wells JW-5, OFR-3-A2, and RFR-10. The extra set of vials from these wells was submitted as a FD.

All target VOCs were non-detect in the sample from JW-5 and the associated field duplicate. All target VOCs were non-detect in the sample from OFR-3-A2 and the associated field duplicate.

All target VOCs detected above the reporting limit (RL) in parent sample RFR-10 and the associated field duplicate met RPD criteria, as follows:

Analyte	Parent (µg/L)	FD (µg/L)	RPD	Criteria
TCE	10.19	9.88	3.1	RPD ≤ 20
Tetrachloroethene	15.95	17.60	9.8	

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 LCS samples 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 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%.

DATA VERIFICATION SUMMARY REPORT

for off-post samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Katherine LaPierre
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 March 9 and 12, 2012. The samples were assigned to the following Sample Delivery Group (SDG) and were analyzed for volatile organic compounds (VOCs):

67196

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

All samples were collected by Parsons and analyzed by 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 nineteen (19) samples, including thirteen (13) off-post groundwater samples, one FD sample, two MS/MSD pair, and one TB. The samples were collected on March 9 and 12, 2012 and were 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 (3) batches (#164941, #165327, and #165328) under a single 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) samples, the MS/MSD samples, and the surrogate spikes. Samples OW-CE1 and JW-28 were designated for MS/MSD analysis on the COC.

Three LCS samples were analyzed, one for each batch. All LCS, MS/MSD, and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the MS/MSD concentrations. Precision was further evaluated by comparing the field duplicate analyte results. An extra set of vials was collected from well RFR-5. The extra set of vials from this well was submitted as a FD.

All MS/MSD RPDs were within acceptance criteria for both MS/MSD pair.

All target VOCs were non-detect in the sample from RFR-5 and the associated field duplicate.

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 LCS samples 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 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%.

DATA VERIFICATION SUMMARY REPORT

for on-post 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 nine on-post and one off-post quarterly groundwater samples and the associated field quality control (QC) samples collected from Camp Stanley Storage Activity (CSSA) on March 16 and 19, 2012. The samples in the following Sample Delivery Group (SDG) were analyzed for a reduced list of volatile organic compounds (VOCs) and metals:

67265

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

All samples were collected by Parsons and analyzed by 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 2.0ºC, 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 packages 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 fourteen (14) samples, including ten (9) on-post groundwater samples, one (1) on-post groundwater sample, one (1) FD, one pair of MS/MSD, and one (1) TB. The samples were collected on March 16 and 19, 2012 and were 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 (#165692, #165693, and #165694) under two sets of initial calibration (ICALs). 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 samples (LCSs), MS/MSD, and the surrogate spikes. Sample CS-2 was marked as the parent sample for MS/MSD analyses.

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

Precision

Precision was evaluated based on the relative percent difference (RPD) of parent/FD and MS/MSD results. Sample CS-MW19-LGR was collected in duplicate.

All RPDs of MS/MSD were compliant.

None of the target VOCs were detected in the parent and FD samples at or above the reporting limit, therefore, 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.
- 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.

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 twelve (12) groundwater samples including one FD and one pair of MS/MSD which were collected on March 16 & 19, 2012 and analyzed for cadmium, chromium, and lead.

The ICP-AES metals analyses were performed using USEPA SW846 Method 6010B. 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.

The samples for ICP-AES metals were digested in one batch (#165251). The samples were analyzed in one batch under a single ICAL. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS, MS, and MSD. Sample CS-2 was marked as the parent sample for MS/MSD analyses.

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

Precision

Precision was evaluated based on the RPD of MS/MSD and parent/FD sample results. Sample CS-MRS19-LGR was collected in duplicate.

All RPDs of MS/MSD were compliant.

None of the target metals were detected at or above the reporting limit, therefore, 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 preservation and holding times; and
- Examining laboratory blank for cross contamination of samples during analysis.

All samples in this SDG 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 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 twelve (12) groundwater samples including one FD and one pair of MS/MSD which were collected on March 16 & 19, 2012 and analyzed for mercury.

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

The mercury samples were prepared in one batch (#165206). The samples were analyzed in a one batch under a single ICAL. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS, MS, and MSD samples.

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

Precision

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

The RPD of MS/MSD results were compliant.

Mercury was not detected at or above the reporting limit in the parent and 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 holding times; and
- Examining laboratory blanks for cross contamination of samples during analysis.

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were 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 results for the samples in this SDG were 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-post 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 eight on-post, two off-post quarterly groundwater samples and the associated field quality control (QC) samples collected from on-post Camp Stanley Storage Activity (CSSA) on March 20, 2012. The samples in the following Sample Delivery Group (SDG) were analyzed for a reduced list of volatile organic compounds (VOCs) and metals (for on-post wells only):

67291

The field QC sample associated with this SDG was one trip blank (TB) and one field duplicate (FD) for on-post well. 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 packages 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 twelve (12) samples, including eight (8) on-post groundwater samples, two (2) off-post well groundwater samples, one (1) FD of CS-MW16-CC, and one (1) TB. The samples were collected on March 30, 2012 and were 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 (#165336) under one set of initial calibration (ICALs). 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 sample (LCS) and the surrogate spikes.

All LCS and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated based on the relative percent difference (RPD) of the parent and FD sample results.

CS-MW16-CC

Analyte	Parent, µg/L	FD, µg/L	RPD	Criteria, RPD
cis-1,2-DCE	18.55	19.89	7.0	
TCE	15.42	17.04	10	≤20
trans-1,2-DCE	6.08	6.64	8.8	

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.

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 eight (8) on-post groundwater samples and one FD which were collected on March 20, 2012 and were analyzed for cadmium, chromium, and lead.

The ICP-AES metals analyses were performed using USEPA SW846 Method 6010B. 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.

The samples for ICP-AES metals were digested in one batch (#165252). The samples were analyzed in one batch under a single ICAL. 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 RPD of the parent and FD sample results.

None of the target metals were detected at or above the reporting limits for sample CS-MW16-CC and its FD, therefore, 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 preservation and holding times; and
- Examining laboratory blank for cross contamination of samples during analysis.

All samples in this SDG 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 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 eight (8) on-post groundwater samples and one FD which were collected on March 20, 2012 and were analyzed for mercury.

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

The mercury samples were prepared in one batch (#165207). The samples were analyzed in a one batch under a single ICAL. All 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 RPD of the parent and FD sample results.

Mercury was not detected at or above the reporting limit for sample CS-MW16-CC and its FD, 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 holding times; and
- Examining laboratory blanks for cross contamination of samples during analysis.

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were 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 results for the samples in this SDG were considered usable. The completeness for the mercury portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.