

**June 2012**

**Off-Post**

**Quarterly Groundwater Monitoring Report**



*Prepared For*

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

**October 2012**

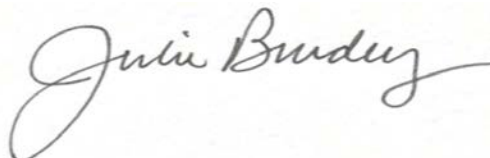
## GEOSCIENTIST CERTIFICATION

### June 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 June 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 June 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

October 4, 2012  
Date

## TABLE OF CONTENTS

<b>APPENDICES</b> .....	<b>ii</b>
<b>LIST OF TABLES</b> .....	<b>ii</b>
<b>LIST OF FIGURES</b> .....	<b>ii</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>ES-1</b>
<b>1.0 INTRODUCTION</b> .....	<b>1-1</b>
<b>2.0 JUNE 2012 ANALYTICAL RESULTS</b> .....	<b>2-1</b>
<b>3.0 SUMMARY AND RECOMMENDATIONS</b> .....	<b>3-1</b>

## LIST OF TABLES

Table 2-1	Sampling Rationale for June 2012.....	2-2
Table 2-2	June 2012 Off-Post Groundwater Results, Detected Analytes Only .....	2-4
Table 3-1	Sampling Rationale for September 2012 .....	3-2

## LIST OF FIGURES

Figure 2-1	On-Post & Off-Post Well Sampling Locations for June 2012.....	2-3
------------	---	-----

## LIST OF APPENDICES

Appendix A	Evaluation of Data Quality Objectives Attainment
Appendix B	June 2012 Quarterly Off-post Groundwater Analytical Results
Appendix C	Data Validation Reports

## ABBREVIATIONS AND ACRONYMS

AOC	Area of Concern
APPL	Agriculture & Priority Pollutant Laboratory
CSSA	Camp Stanley Storage Activity
DCE	dichloroethene
DQO	Data quality objective
FD	Field duplicate
FO	Fair Oaks
GAC	granular activated carbon
HS	Hidden Springs
I10	Interstate Highway 10
ISCO	in-situ chemical oxidation
JW	Jackson Woods
LS	Leon Springs
MCL	maximum contaminant level
MDL	method detection limit
MS/MSD	matrix spike/matrix spike duplicate
N/A	not applicable
OFR	Old Fredericksburg Road
OW	The Oaks Water Supply Corporation
Parsons	Parsons Government Services, Inc.
PCE	tetrachloroethene
P.G.	Professional Geologist
QAPP	Quality Assurance Program Plan
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RFR	Ralph Fair Road
RL	Reporting limit
SAP	Sampling and Analysis Plan
SDWA	Safe Drinking Water Act
SWMU	Solid Waste Management Unit
SLD	Scenic Loop Drive
TCE	trichloroethene
THM	trihalomethanes
VOC	volatile organic compound

## EXECUTIVE SUMMARY

- A total of 10 off-post wells were sampled during the June 2012 monitoring event. All wells scheduled for sampling were sampled in June 2012.
- Wells I10-9, LS-6, and RFR-10 reported the highest trichloroethene (TCE) concentrations since sampling began at these wells. Wells RFR-10 and LS-6 were first sampled in 2001 and I10-9 was first sampled in 2011.
- Well I10-9 was sampled for the fourth consecutive quarter; TCE was detected at a concentration above the reporting limit (RL) but below the maximum contaminant level (MCL). Tetrachloroethene (PCE) has never been detected in this well. I10-9 will continue to be sampled on a quarterly basis.
- Analyses indicated off-post wells I10-4, OFR-3, and RFR-10 exceeded the MCL for PCE and/or TCE. Wells OFR-3 and RFR-10 are equipped with GAC filtration systems and well I10-4 is unused.
- GAC-filtered samples were not collected in June 2012 but will be collected during the September 2012 event.
- Semi-annual GAC maintenance was performed in July 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 January 2013.

## JUNE 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 June 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 June 4 through 19, 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 JUNE 2012 ANALYTICAL RESULTS

During the June 2012 event, a groundwater sample was collected from 10 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 not collected this event. **Table 2-1** includes the rationale for selection of the wells sampled in June 2012, and **Figure 2-1** provides well locations for the following sampled wells:

- Two privately-owned wells (I10-4 [unused] and I10-9) in the Interstate-10 area;
- Three wells in the Leon Springs Villa area (one public well: LS-6; two privately-owned wells: LS-5 and LS-7);
- One privately-owned well on Old Fredericksburg Road (OFR-3);
- Two privately-owned wells (RFR-10 and RFR-11) in the Ralph Fair Road area;
- Two public supply wells from The Oaks Water Supply System (OW-BARNOWL and OW-HH2);

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. One well (I10-4) was sampled using a disposable bailer. The samples from these wells are not subject to purging/sample parameter requirements.

A total of 10 groundwater samples, one field duplicate sample, one matrix spike/matrix spike duplicate (MS/MSD) pair, and three 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.

The data packages (Parsons internal reference 748350-#59 and -#61) 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 26-27, 2012.

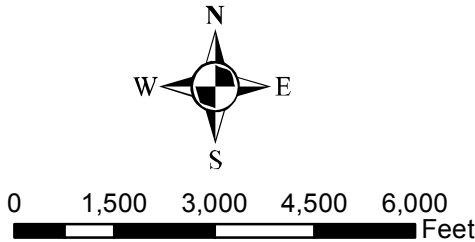
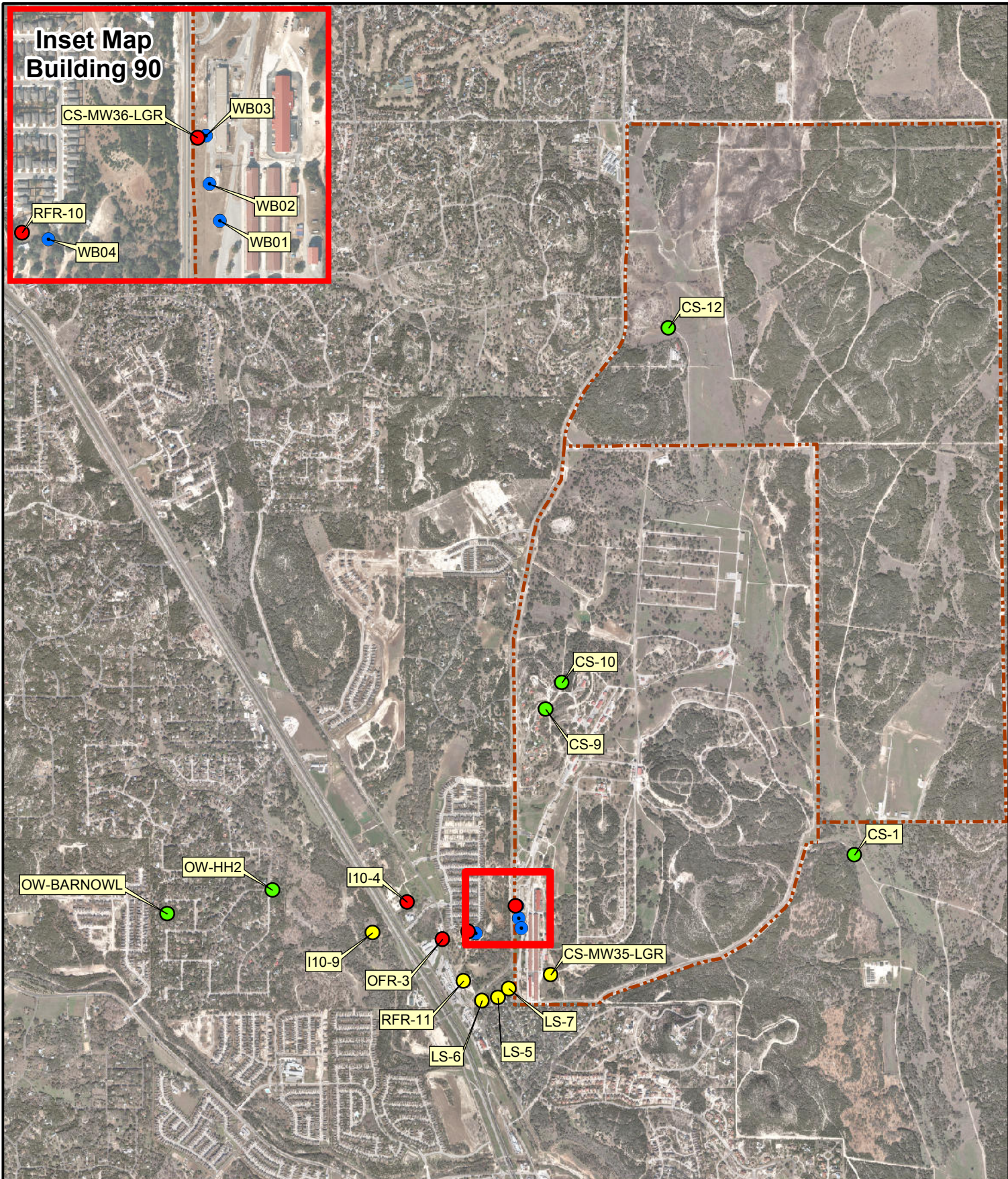
Concentrations of the VOCs detected in June 2012 are presented in **Table 2-2**. Full analytical results from the June 2012 sampling event are presented in **Appendix B**. As shown in **Table 2-1**, 10 samples were scheduled for collection in June 2012 and all samples were collected.

In July 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 not collected this quarter but will be collected during the September 2012 event.

Based on historical detections, the lateral extent of VOC detections extends beyond the south and west boundaries of CSSA. Past detections of VOCs have extended 0.37 miles south to well LS-4 and 1.5 miles west to OW-BARNOWL (**Figure 2-1**).







**Sampled Wells June 2012**

- > MCL (VOCs only)
- > RL (VOCs only)
- > MDL (VOCs only)
- ND (VOCs only)
- Westbay Wells
- Fence Line

**Figure 2-1**  
**On-Post and Off-Post Well Sampling**  
**Locations for June 2012**  
**Camp Stanley Storage Activity**

**PARSONS**

**Table 2-2  
June 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
IH-10	I10-4	6/4/2012	--	--	--	<b>5.2</b>	<b>2.54</b>	--	PCE above or slightly below the MCL since 2008.
	I10-9	6/4/2012	--	--	--	--	<b>1.42</b>	--	Highest TCE detection since the well was first sampled in Sept. 2011.
Leon Springs Villas	LS-5	6/4/2012	--	--	--	<b>1.16F</b>	<b>3.33</b>	--	Consistent PCE and TCE detections since June 2008.
	LS-5 FD	6/4/2012	--	--	--	<b>1.14F</b>	<b>3.22</b>	--	
	LS-6	6/4/2012	--	--	--	<b>1.10F</b>	<b>3.37</b>	--	Highest TCE detection since the well was first sampled in 2001.
	LS-7	6/4/2012	--	--	--	<b>3.1</b>	<b>0.42F</b>	--	PCE consistently above the RL; above the MCL once in 2002.
Old Fredericksburg Road	OFR-3	6/4/2012	--	--	--	<b>6.51</b>	<b>6.61</b>	--	
Ralph Fair Road	RFR-10	6/4/2012	--	<b>0.49F</b>	--	<b>25.80M</b>	<b>14.24</b>	--	Highest TCE detection since the well was first sampled in 2001.
	RFR-11	6/4/2012	--	--	--	<b>1.23F</b>	<b>1.99</b>	--	PCE last above the MCL in June 2007.
The Oaks Water Supply	OW-BARNOWL	6/19/2012	--	--	--	--	--	--	No detections in these wells since the initial trace detections in February 2011.
	OW-HH2	6/19/2012	--	--	--	--	--	--	
<b>Laboratory Detection Limits &amp; Maximum Contaminant Level</b>									
<b>Method Detection Limit (MDL)</b>			<b>0.12</b>	<b>0.07</b>	<b>0.08</b>	<b>0.06</b>	<b>0.05</b>	<b>0.08</b>	
<b>Reporting Limit (RL)</b>			<b>1.2</b>	<b>1.2</b>	<b>0.6</b>	<b>1.4</b>	<b>1</b>	<b>1.1</b>	
<b>Max. Contaminant Level (MCL)</b>			<b>7</b>	<b>70</b>	<b>100</b>	<b>5</b>	<b>5</b>	<b>2</b>	

<b>BOLD</b>	≥ MDL
<b>BOLD</b>	≥ RL
<b>BOLD</b>	≥ 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:**  
-- 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.  
M = There was possible interference from the sample itself, the M flagged result is usable and defensible.

### 3.0 SUMMARY AND RECOMMENDATIONS

Results of the June 2012 sampling are summarized as follows:

- Ten wells were scheduled for sampling in June 2012 and all wells were sampled.
- Wells OFR-3, I10-4, and RFR-10 exceeded the MCL in June 2012 for PCE and/or TCE. Wells OFR-3 and RFR-10 are equipped with a GAC filtration system and well I10-4 is unused.
- PCE and/or TCE were detected above the RLs in public and/or private drinking water wells 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. Samples from wells I10-9, LS-6, and RFR-10 had the highest TCE detections since sampling began at these wells.
- *Cis*-1,2-DCE was detected in well RFR-10. This well has had consistent historic detections of *cis*-1,2-DCE below the RL.
- 1,1-DCE, *trans*-1,2-DCE, and vinyl chloride were not detected in any of the off-post wells in June 2012.
- GAC-filtered samples were not collected in June 2012. All GAC-filtered samples were non-detect in March 2012 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 July 2012; the next semi-annual GAC maintenance will be due in January 2013.
- 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 17 samples to be collected in September 2012 is provided in **Table 3-1**.



**APPENDIX A  
EVALUATION OF DATA QUALITY OBJECTIVES ATTAINMENT**

**Appendix A Evaluation of Data Quality Objectives Attainment**

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

Activity	Objectives	Action	Objective Attained?	Recommendations
	Evaluate CSSA monitoring program and expand as necessary (§2.3.1 of the DQOs for the Groundwater Contamination Investigation, revised November 2010). Determine locations of future monitoring locations.	Evaluation of data collected is ongoing and is reported in this quarterly groundwater report and will be reported in future quarterly groundwater reports. Additional information covering the CSSA monitoring program is available in Volume 5, CSSA Environmental Encyclopedia.	Yes	Continue data evaluation and quarterly teleconferences for evaluation of the monitoring program. Each teleconference/planning session covers expansion of the quarterly monitoring program, if necessary.
Project schedule/ Reporting	The quarterly monitoring project schedule shall provide a schedule for sampling, analysis, validation, verification, 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 2012 QUARTERLY OFF-POST**  
**GROUNDWATER ANALYTICAL RESULTS**

**Appendix B**  
**June 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
<b>IH-10</b>	I10-4	6/4/2012	0.12U	0.07U	0.08U	<b>5.2</b>	<b>2.54</b>	0.08U
	I10-9	6/4/2012	0.12U	0.07U	0.08U	0.06U	<b>1.42</b>	0.08U
<b>Leon Springs Villas</b>	LS-5	6/4/2012	0.12U	0.07U	0.08U	<b>1.16F</b>	<b>3.33</b>	0.08U
	LS-5 FD	6/4/2012	0.12U	0.07U	0.08U	<b>1.14F</b>	<b>3.22</b>	0.08U
	LS-6	6/4/2012	0.12U	0.07U	0.08U	<b>1.10F</b>	<b>3.37</b>	0.08U
	LS-7	6/4/2012	0.12U	0.07U	0.08U	<b>3.1</b>	<b>0.42F</b>	0.08U
<b>Old Fredericksburg Road</b>	OFR-3	6/4/2012	0.12U	0.07U	0.08U	<b>6.51</b>	<b>6.61</b>	0.08U
<b>Ralph Fair Road</b>	RFR-10	6/4/2012	0.12U	<b>0.49F</b>	0.08U	<b>25.80M</b>	<b>14.24</b>	0.08U
	RFR-11	6/4/2012	0.12U	0.07U	0.08U	<b>1.23F</b>	<b>1.99</b>	0.08U
<b>The Oaks Water Supply</b>	OW-BARNOWL	6/19/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	OW-HH2	6/19/2012	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
<b>Laboratory Detection Limits &amp; Maximum Contaminant Level</b>								
<b>Method Detection Limit (MDL)</b>			<b>0.12</b>	<b>0.07</b>	<b>0.08</b>	<b>0.06</b>	<b>0.05</b>	<b>0.08</b>
<b>Reporting Limit (RL)</b>			<b>1.2</b>	<b>1.2</b>	<b>0.6</b>	<b>1.4</b>	<b>1</b>	<b>1.1</b>
<b>Max. Contaminant Level (MCL)</b>			<b>7</b>	<b>70</b>	<b>100</b>	<b>5</b>	<b>5</b>	<b>2</b>

<b>BOLD</b>	≥ MDL
<b>BOLD</b>	≥ RL
<b>BOLD</b>	≥ 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:**  
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.  
F = The analyte was positively identified but the associated numerical value is below the RL.  
M = There was possible interference from the sample itself, the M flagged result is usable and defensible.

**APPENDIX C  
DATA VALIDATION REPORTS**

**(Laboratory data packages are submitted to CSSA electronically.)**

**SDG 67960  
SDG 68081**

## **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 June 4, 2012. The samples were assigned to the following Sample Delivery Group (SDG) and were analyzed for volatile organic compounds (VOCs):

67960

The field QC samples associated with this SDG included one field duplicate (FD) sample, one pair of matrix spike/matrix spike duplicate (MS/MSD), 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 QC samples were analyzed for VOCs.

All samples were collected by Parsons and analyzed by APPL, Inc. following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0. The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at a temperature of 1.5°C, which was slightly below the 2-6°C range recommended by the CSSA QAPP and this minor exceedance should not affect data quality.

### **EVALUATION CRITERIA**

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data package included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the CSSA QAPP, Version 1.0, were met.

## VOLATILES

### General

The volatiles portion of this data package consisted of twelve (12) samples, including eight (8) off-post groundwater samples, one (1) FD sample, one (1) set of MS/MSD, and one TB. The samples were collected on June 4, 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 (#167723 and #167734) 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 two laboratory control spike (LCS) samples, MS/MSD, and the surrogate spikes. Sample RFR-10 was designated for matrix spike/matrix spike duplicate (MS/MSD) analysis on the COC.

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

The only non-compliant MS/MSD %Rs are listed below:

Compounds	MS, %R	MSD, %R	Criteria, %R
TCE	70	(82)	71-125
PCE	24	57	71-125

( ) indicates the %R was compliant.

“M” flag were applied to the parent sample result of PCE. “M” flag was removed for the TCE due to minor (1%) exceedance.

### 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 LS-5. The extra set of vials was submitted as a FD.

Only TCE was detected above the reporting limit (RL) in parent sample LS-5 and the associated field duplicate and its RPD met the criteria, as follows:

Analyte	Parent (µg/L)	FD (µg/L)	RPD	Criteria
TCE	3.33	3.22	3.4	RPD ≤ 20

## **Representativeness**

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

- Comparing the COC procedures to those described in the 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: Tammy Chang

Parsons - Austin

### **INTRODUCTION**

The following data verification summary report covers two groundwater samples and one associated field quality control (QC) sample collected from off-post Camp Stanley Storage Activity (CSSA) on June 19, 2012. The samples were assigned to the following Sample Delivery Group (SDG) and were analyzed for volatile organic compounds (VOCs):

68081

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

All samples were collected by Parsons and analyzed by APPL, Inc. following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0. The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at a temperature of 3.0°C, which was within the 2-6°C range recommended by the CSSA QAPP.

### **EVALUATION CRITERIA**

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data package included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the CSSA QAPP, Version 1.0, were met.

## **VOLATILES**

### **General**

The volatiles portion of this data package consisted of three (3) samples, including two (2) off-post groundwater samples and one TB. The samples were collected on June 4, 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. Due to carry-over problems of PCE and TCE, samples were analyzed in two batches, #168414 and #168437 (for TCE and PCE only), 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 two laboratory control spike (LCS) samples and the surrogate spikes. The second LCS only covers PCE and TCE analysis.

All LCS and surrogate spike recoveries were within acceptance criteria.

### **Precision**

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

### **Representativeness**

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

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining 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%.