

FINAL

June 2011

Off-Post

Quarterly Groundwater Monitoring Report



Prepared For

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

August 2011

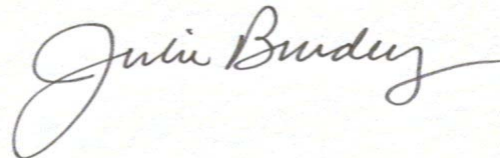
GEOSCIENTIST CERTIFICATION

June 2011 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 2011 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 2011, and is true and accurate to the best of my knowledge and belief.



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

8/16/2011

Date

TABLE OF CONTENTS

GEOSCIENTIST CERTIFICATION	i
ABBREVIATIONS AND ACRONYMS	iii
EXECUTIVE SUMMARY	iv
1.0 INTRODUCTION	1
2.0 JUNE 2011 ANALYTICAL RESULTS	1
3.0 SUMMARY AND RECOMMENDATIONS	7

LIST OF APPENDICES

Appendix A	Evaluation of Data Quality Objectives Attainment
Appendix B	June 2011 Quarterly Off-post Groundwater Analytical Results
Appendix C	Data Validation Report

LIST OF FIGURES

Figure 2-1	On-Post & Off-Post Well Sampling Locations for June 2011.....	4
------------	---	----------

LIST OF TABLES

Table 2-1	Sampling Rationale for June 2011	3
Table 2-2	June 2011 Off-Post Groundwater Results, Detected Analytes Only	5
Table 3-1	Sampling Rationale for September 2011	8

ABBREVIATIONS AND ACRONYMS

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
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 Infrastructure and Technology Group
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
TCE	trichloroethene
USACE	United States Army Corps of Engineers
VOC	volatile organic compound

EXECUTIVE SUMMARY

- June 2011 was the first sampling event to implement the long-term monitoring optimization (LTMO) evaluation recommendations off-post. A total of 52 off-post wells were sampled during the June 2011 monitoring event. All off-post wells were sampled during this 'snapshot' event.
- Eight wells on the west side of IH-10 were sampled for the second consecutive quarter in June 2011. No VOCs were detected in these wells. In March 2011, wells OW-BARNOWL and OW-HH2 had low levels (less than the reporting limit) of tetrachloroethene (PCE). These wells will be sampled quarterly for 4 consecutive quarters in accordance with project data quality objectives (DQOs) and the LTMO recommendations.
- Analyses indicated off-post well I10-4 exceeded the maximum contaminant level (MCL) for PCE. Well I10-4 is not in use.
- Granular activated carbon (GAC)-filtered samples were collected in March 2011. No volatile organic compounds were detected in any of these samples, indicating the GAC systems are functioning properly. GAC-filtered samples will be collected again during the September 2011 event.
- Semi-annual GAC maintenance was performed in July 2011. 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 2012.
- Additional maintenance was required at GAC unit OFR-3. The current land owner is adding an apartment to the existing building which will require some plumbing modifications. To prevent any future GAC bypasses the unit was moved to the wellhead.

JUNE 2011 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 2011 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 2011 quarterly monitoring events (March, June, September, and December) will be described in detail in an Annual Report to be submitted after December 2011. 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 May 31 through June 15, 2011. 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 2011 ANALYTICAL RESULTS

During the June 2011 event, a groundwater sample was collected from each of 52 off-post wells shown in **Figure 2-1**. GAC (granular activated carbon) filtered samples (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. Every well in the off-post monitoring program was sampled during the June 2011 event. **Table 2-1** includes the rationale for selection of the wells sampled in June 2011, and **Figure 2-1** provides well locations for the following sampled wells:

- Four public supply wells in the Fair Oaks area (FO-J1, 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 one privately-owned unused well (I10-4) 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; and
 - 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).

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

A total of 52 groundwater samples, five 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, tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride.

The data packages (Parsons internal reference 787780-#57, -#61, -#64 through -#66) 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 28 through July 11, 2011.

Concentrations of the VOCs detected in June 2011 are presented in **Table 2-2**. Full analytical results from the June 2011 sampling event are presented in **Appendix B**. As shown in **Table 2-1**, 52 samples were scheduled for collection in June 2011 and all samples were collected.

In July 2011, routine semi-annual maintenance was performed on the GAC treatment systems at 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 again in September 2011.

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

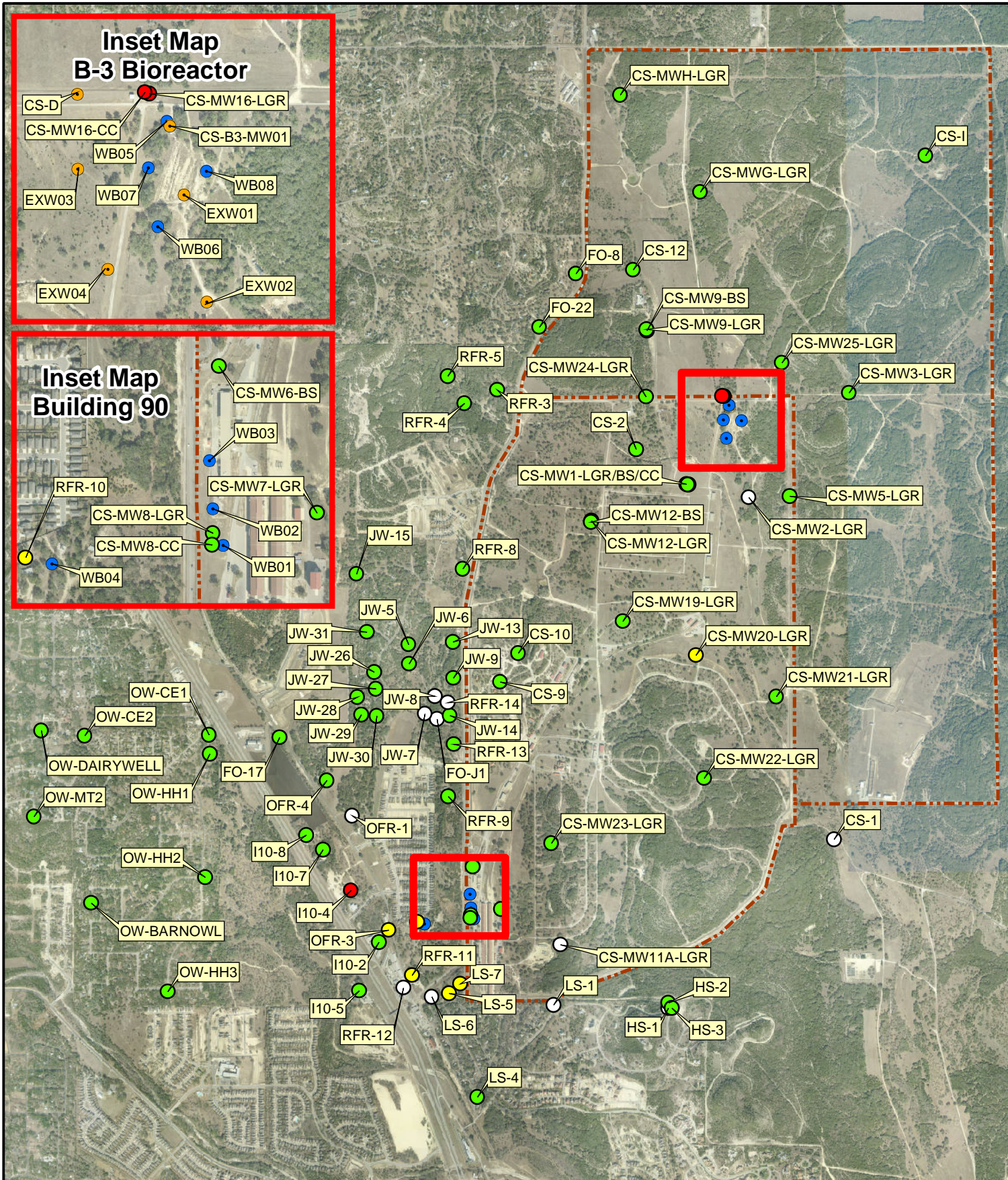


Figure 2-1
On-Post and Off-Post Well Sampling
Locations for June 2011
Camp Stanley Storage Activity

PARSONS

Sampled Wells June 2011

- > MCL (VOC's only)
- > RL (VOC's only)
- > MDL (VOC's only)
- ND
- Other Wells
- Westbay Wells
- Fence Line

**Table 2-2
June 2011 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
Fair Oaks	FO-8	6/2/2011	--	--	--	--	--	--	No historic PCE or TCE detections in these wells.
	FO-17	6/1/2011	--	--	--	--	--	--	
	FO-17 FD	6/1/2011	--	--	--	--	--	--	
	FO-22	6/2/2011	--	--	--	--	--	--	
	FO-J1	6/2/2011	--	--	--	0.41F	--	--	
Hidden Springs	HS-1	6/3/2011	--	--	--	0.16F	--	--	Sporadic low concentrations of PCE.
	HS-2	6/3/2011	--	--	--	--	--	--	No historic PCE or TCE detections in this well.
	HS-3	6/3/2011	--	--	--	--	--	--	
IH-10	I10-2	6/13/2011	--	--	--	--	--	--	Only well that exceeded the PCE MCL this event.
	I10-4	5/31/2011	--	--	--	5.56J	1.97J	--	
	I10-5	6/2/2011	--	--	--	--	--	--	No historic PCE or TCE detections in this well.
	I10-5 FD	6/2/2011	--	--	--	--	--	--	
	I10-7	6/15/2011	--	--	--	--	--	--	One low level TCE detection in Dec. 2009.
I10-8	6/1/2011	--	--	--	--	--	--		
Jackson Woods Subdivision	JW-5	6/1/2011	--	--	--	--	--	--	No historic PCE or TCE detections in this well.
	JW-6	6/1/2011	--	--	--	--	--	--	
	JW-7	6/7/2011	--	--	--	0.43F	--	--	
	JW-8	6/1/2011	--	--	--	0.16F	--	--	
	JW-9	6/7/2011	--	--	--	--	--	--	This well has been sampled since 2001 and has had one low level PCE detection (March 2004).
	JW-13	6/2/2011	--	--	--	--	--	--	No historic PCE or TCE detections in this well.
	JW-14	6/2/2011	--	--	--	--	--	--	Last PCE detections in June 2009.
	JW-15	6/7/2011	--	--	--	--	--	--	
	JW-15 FD	6/7/2011	--	--	--	--	--	--	
	JW-26	6/7/2011	--	--	--	--	--	--	Last PCE detections in Dec. 2006.
	JW-27	6/2/2011	--	--	--	--	--	--	
	JW-28	6/2/2011	--	--	--	--	--	--	
	JW-29	6/2/2011	--	--	--	--	--	--	
	JW-30	6/3/2011	--	--	--	--	--	--	
JW-30 FD	6/3/2011	--	--	--	--	--	--	No detections since Dec. 2010.	
JW-31	6/3/2011	--	--	--	--	--	--	No VOC detections ever reported in this well.	
Leon Springs Villas	LS-1	5/31/2011	--	--	--	0.49F	--	--	Both wells are now sampled with a bailer, results are consistent with previous low flow pump samples.
	LS-4	5/31/2011	--	--	--	--	--	--	
	LS-5	5/31/2011	--	--	--	0.66F	2.36	--	
	LS-6	5/31/2011	--	--	--	0.68F	0.90F	--	
	LS-7	5/31/2011	--	--	--	2.05	--	--	
Laboratory Detection Limits & Maximum Contaminant Level									
Method Detection Limit (MDL)			0.12	0.07	0.08	0.06	0.05	0.08	
Reporting Limit (RL)			1.2	1.2	0.6	1.4	1	1.1	
Max. Contaminant Level (MCL)			7	70	100	5	5	2	

BOLD ≥ MDL
BOLD ≥ RL
BOLD ≥ MCL

All samples were analyzed by APPL, Inc.
VOC data reported in ug/L.
Abbreviations/Notes:
FD - Field Duplicate
TCE - Trichloroethene
PCE - Tetrachloroethene
DCE - Dichloroethene
Data Qualifiers:
--The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
F-The analyte was positively identified but the associated numerical value is below the RL.
J-The analyte was positively identified; the quantitation is an estimation.

**Table 2-2
June 2011 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 Fredericksburg Road	OFR-1	6/1/2011	--	--	--	0.17F	--	--	
	OFR-3	5/31/2011	--	--	--	3.33	1.91	--	PCE and TCE concentrations half of what they were last quarter.
	OFR-4	6/7/2011	--	--	--	--	--	--	No historic PCE or TCE detections in this well.
Ralph Fair Road	RFR-3	6/2/2011	--	--	--	--	--	--	Low levels of PCE were detected in this well in 2003, no detections since.
	RFR-4	6/2/2011	--	--	--	--	--	--	No historic PCE or TCE detections in these wells.
	RFR-5	6/2/2011	--	--	--	--	--	--	
	RFR-8	6/3/2011	--	--	--	--	--	--	
	RFR-9	6/13/2011	--	--	--	--	--	--	
	RFR-10	5/31/2011	--	--	--	4.4	--	--	Significant reduction in VOC concentrations this quarter. In March '11, PCE=31 & TCE=13 ppb
	RFR-11	5/31/2011	--	--	--	--	1.92	--	
	RFR-12	6/15/2011	--	--	--	0.20F	0.63F	--	Highest concentration of TCE in this well since sampling began in 2001.
	RFR-13	6/3/2011	--	--	--	--	--	--	
RFR-14	6/3/2011	--	--	--	0.20F	--	--		
The Oaks Water Supply	OW-BARNOWL	6/1/2011	--	--	--	--	--	--	Low levels of PCE were detected in this wells first sampling event, March 2011.
	OW-CE1	6/1/2011	--	--	--	--	--	--	
	OW-CE2	6/1/2011	--	--	--	--	--	--	
	OW-DAIRYWELL	6/1/2011	--	--	--	--	--	--	
	OW-HH1	6/1/2011	--	--	--	--	--	--	
	OW-HH1 FD	6/1/2011	--	--	--	--	--	--	
	OW-HH2	6/1/2011	--	--	--	--	--	--	Low levels of PCE were detected in this wells first sampling event, March 2011.
	OW-HH3	6/1/2011	--	--	--	--	--	--	
OW-MT2	6/1/2011	--	--	--	--	--	--		
Laboratory Detection Limits & Maximum Contaminant Level									
Method Detection Limit (MDL)			0.12	0.07	0.08	0.06	0.05	0.08	
Reporting Limit (RL)			1.2	1.2	0.6	1.4	1	1.1	
Max. Contaminant Level (MCL)			7	70	100	5	5	2	

BOLD	≥ MDL
BOLD	≥ RL
BOLD	≥ MCL

All samples were analyzed by APPL, Inc.
VOC data reported in ug/L.
Abbreviations/Notes:
FD - Field Duplicate
TCE - Trichloroethene
PCE - Tetrachloroethene
DCE - Dichloroethene
Data Qualifiers:
--The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
F-The analyte was positively identified but the associated numerical value is below the RL.
J-The analyte was positively identified; the quantitation is an estimation.

3.0 SUMMARY AND RECOMMENDATIONS

Results of the June 2011 sampling are summarized as follows:

- June 2011 was the first sampling event to implement the LTMO recommendations off-post. This event included the sampling all off-post wells to capture the '9-month snapshot' of the plume. All 52 off-post wells were sampled during this event.
- Wells OW-BARNOWL, OW-CE1, OW-CE2, OW-DAIRYWELL, OW-HH1, OW-HH2, OW-HH3, and OW-MT2 were sampled for the second consecutive quarter in June 2011. No VOCs were detected in these wells this quarter. In March 2011, wells OW-BARNOWL and OW-HH2 had low levels (less than the RL) of PCE. These wells will be sampled quarterly for 4 consecutive quarters in accordance with project DQOs.
- The only MCL exceedance in off-post wells this quarter was for PCE at well I10-4. Well I10-4 is not in use and does not have a GAC filtration system. If the well is going to be used, CSSA will install a GAC filtration system.
- PCE and/or TCE were detected above the RLs in private drinking water wells LS-5, LS-7, OFR-3, RFR-10, and RFR-11. Wells LS-7, OFR-3, RFR-10, and RFR-11 have GAC treatment systems in place, and well LS-5 is monitored quarterly (and has never exceeded the MCL). Per the Plan, if VOC levels in LS-5 rise above 90% of the applicable MCL, a GAC treatment system will be installed at the well or an alternative water source provided to the well owner. The highest concentration at LS-5 is 2.82 µg/L TCE, which is 56% of the MCL. In June 2011 the PCE concentration was 2.36 µg/L, concentrations have been consistently above the RL since 2008. A quote for GAC installation at LS-5 has been received and will be acted on quickly, if concentrations exceed the 90% limit.
- Low levels (below the RL) of PCE and/or TCE were also detected in wells FO-J1, HS-1, JW-7, JW-8, LS-1, LS-6, OFR-1, RFR-12, and RFR-14.
- 1,1-DCE, *cis*-1,2-DCE, *trans*-1,2-DCE, and vinyl chloride were not detected in any off-post wells in June 2011.
- No VOCs were detected in wells FO-8, FO-17, FO-17 field duplicate, FO-22, HS-2, HS-3, I10-2, I10-5, I10-5 field duplicate, I10-7, I10-8, JW-5, JW-6, JW-9, JW-13, JW-14, JW-15, JW-15 field duplicate, JW-26, JW-27, JW-28, JW-29, JW-30, JW-30 field duplicate, JW-31, LS-4, OFR-4, RFR-3, RFR-4, RFR-5, RFR-8, RFR-9, RFR-13, OW-BARNOWL, OW-CE1, OW-CE2, OW-DAIRYWELL, OW-HH1, OW-HH1 field duplicate, OW-HH2, OW-HH3, and OW-MT2.
- GAC filtered samples were collected in March 2011. All GAC filtered samples were non-detect indicating the GAC units were functioning properly. The next GAC filtered samples will be collected in September 2011.
- Semi-annual GAC maintenance, including carbon change-out, was performed in July 2011; the next semi-annual GAC maintenance will be due in January 2012.
- Additional wells to the west and southwest of CSSA are currently being located. As access agreements are received these wells will be added to future sampling events.
- In accordance with project DQOs, the rationale for the selection of 22 samples to be collected in September 2011 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 ½ 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 2011 QUARTERLY OFF-POST
GROUNDWATER ANALYTICAL RESULTS

Appendix B
June 2011 Quarterly Off-post Groundwater Analytical Results

Well ID	Sample Date	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	TCE	Vinyl Chloride
FO-8	6/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
FO-17	6/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
FO-17 FD	6/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
FO-22	6/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
FO-J1	6/2/2011	0.12U	0.07U	0.08U	0.41F	0.05U	0.08U
HS-1	6/3/2011	0.12U	0.07U	0.08U	0.16F	0.05U	0.08U
HS-2	6/3/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
HS-3	6/3/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-2	6/13/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-4	5/31/2011	0.12U	0.07U	0.08U	5.56J	1.97J	0.08U
I10-5	6/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-5 FD	6/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-7	6/15/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-8	6/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-5	6/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-6	6/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-7	6/7/2011	0.12U	0.07U	0.08U	0.43F	0.05U	0.08U
JW-8	6/1/2011	0.12U	0.07U	0.08U	0.16F	0.05U	0.08U
JW-9	6/7/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-13	6/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-14	6/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-15	6/7/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-15 FD	6/7/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-26	6/7/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-27	6/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-28	6/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-29	6/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-30	6/3/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-30 FD	6/3/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-31	6/3/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
LS-1	5/31/2011	0.12U	0.07U	0.08U	0.49F	0.05U	0.08U
LS-4	5/31/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
LS-5	5/31/2011	0.12U	0.07U	0.08U	0.66F	2.36	0.08U
LS-6	5/31/2011	0.12U	0.07U	0.08U	0.68F	0.90F	0.08U
LS-7	5/31/2011	0.12U	0.07U	0.08U	2.05	0.05U	0.08U
OFR-1	6/1/2011	0.12U	0.07U	0.08U	0.17F	0.05U	0.08U
OFR-3	5/31/2011	0.12U	0.07U	0.08U	3.33	1.91	0.08U
OFR-4	6/7/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-3	6/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-4	6/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-5	6/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-8	6/3/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-9	6/13/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-10	5/31/2011	0.12U	0.07U	0.08U	4.4	0.05U	0.08U
RFR-11	5/31/2011	0.12U	0.07U	0.08U	0.06U	1.92	0.08U
RFR-12	6/15/2011	0.12U	0.07U	0.08U	0.20F	0.63F	0.08U
RFR-13	6/3/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-14	6/3/2011	0.12U	0.07U	0.08U	0.20F	0.05U	0.08U

Appendix B
June 2011 Quarterly Off-post Groundwater Analytical Results

Well ID	Sample Date	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	TCE	Vinyl Chloride
OW-BARNOWL	6/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-CE1	6/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-CE2	6/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-DAIRYWELL	6/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-HH1	6/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-HH1 FD	6/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-HH2	6/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-HH3	6/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-MT2	6/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U

BOLD	≥ MDL
BOLD	≥ RL
BOLD	≥ MCL

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

Abbreviations/Notes:

FD Field Duplicate
TCE Trichloroethene
PCE Tetrachloroethene
DCE Dichloroethene

Data Qualifiers

U-The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
F-The analyte was positively identified but the associated numerical value is below the RL.
J-The analyte was positively identified; the quantitation is an estimation.

Appendix B

June 2011 Quarterly Off-Post Groundwater Analytical Results, Additional Analytes

SAMPLE ID:	I10-2		I10-4		LS-7		RFR-10		RFR-11	
DATE SAMPLED:	6/13/2011		5/31/2011		5/31/2011		5/31/2011		5/31/2011	
LAB SAMPLE ID:	AY39732		AY39128		AY39122		AY39126		AY39127	
Volatile Organics - SW8260B (µg/L)										
1,1,1,2-Tetrachloroethane	0.090	U	0.090	UJ	0.090	U	0.090	U	0.090	U
1,1,1-Trichloroethane	0.030	U	0.030	UJ	0.030	U	0.030	U	0.030	U
1,1,2,2-Tetrachloroethane	0.070	U	0.070	UJ	0.070	U	0.070	U	0.070	U
1,1,2-Trichloroethane	0.060	U	0.060	UJ	0.060	U	0.060	U	0.060	U
1,1-Dichloroethane	0.070	U	0.070	UJ	0.070	U	0.070	U	0.070	U
1,1-Dichloropropene	0.10	U	0.10	UJ	0.10	U	0.10	U	0.10	U
1,2,3-Trichlorobenzene	0.24	U	0.24	UJ	0.24	U	0.24	U	0.24	U
1,2,3-Trichloropropane	0.17	U	0.17	UJ	0.17	U	0.17	U	0.17	U
1,2,4-Trichlorobenzene	0.16	U	0.16	UJ	0.16	U	0.16	U	0.16	U
1,2,4-Trimethylbenzene	0.040	U	0.040	UJ	0.040	U	0.040	U	0.040	U
1,2-Dibromo-3-chloropropane	0.76	U	0.76	UJ	0.76	U	0.76	U	0.76	U
1,2-Dibromoethane (EDB)	0.060	U	0.060	UJ	0.060	U	0.060	U	0.060	U
1,2-Dichlorobenzene	0.020	U	0.020	UJ	0.020	U	0.020	U	0.020	U
1,2-Dichloroethane	0.050	U	0.050	UJ	0.050	U	0.050	U	0.050	U
1,2-Dichloropropane	0.060	U	0.060	UJ	0.060	U	0.060	U	0.060	U
1,3,5-Trimethylbenzene (Mesitylene)	0.040	U	0.040	UJ	0.040	U	0.040	U	0.040	U
1,3-Dichlorobenzene	0.030	U	0.030	UJ	0.030	U	0.030	U	0.030	U
1,3-Dichloropropane	0.050	U	0.050	UJ	0.050	U	0.050	U	0.050	U
1,4-Dichlorobenzene	0.070	U	0.070	UJ	0.070	U	0.070	U	0.070	U
1-Chlorohexane	0.040	U	0.040	UJ	0.040	U	0.040	U	0.040	U
2,2-Dichloropropane	0.10	U	0.10	UJ	0.10	U	0.10	U	0.10	U
2-Chlorotoluene	0.040	U	0.040	UJ	0.040	U	0.040	U	0.040	U
4-Chlorotoluene	0.040	U	0.040	UJ	0.040	U	0.040	U	0.040	U
Benzene	0.070	U	0.070	UJ	0.070	U	0.070	U	0.070	U
Bromobenzene	0.060	U	0.060	UJ	0.060	U	0.060	U	0.060	U
Bromochloromethane	0.11	U	0.11	UJ	0.11	U	0.11	U	0.11	U
Bromodichloromethane	0.060	U	0.060	UJ	0.060	U	0.060	U	0.060	U
Bromoform	0.13	U	0.13	UJ	0.13	U	0.13	U	0.13	U
Bromomethane	0.080	U	0.080	UJ	0.080	U	0.080	U	0.080	U
Carbon tetrachloride	0.060	U	0.060	UJ	0.060	U	0.060	U	0.060	U
Chlorobenzene	0.040	U	0.040	UJ	0.040	U	0.040	U	0.040	U
Chloroethane	0.070	U	0.070	UJ	0.070	U	0.070	U	0.070	U
Chloroform	0.060	U	0.060	UJ	0.060	U	0.060	U	0.060	U
Chloromethane	0.16	U	0.33	F	0.16	U	0.16	U	0.46	F
cis-1,3-Dichloropropene	0.030	U	0.030	UJ	0.030	U	0.030	U	0.030	U
Dibromochloromethane	0.060	U	0.060	UJ	0.060	U	0.060	U	0.060	U
Dibromomethane	0.060	U	0.060	UJ	0.060	U	0.060	U	0.060	U
Dichlorodifluoromethane	0.11	U	0.11	UJ	0.11	U	0.11	U	0.11	U
Ethylbenzene	0.050	U	0.050	UJ	0.050	U	0.050	U	0.050	U
Hexachlorobutadiene	0.17	U	0.17	UJ	0.17	U	0.17	U	0.17	U
Isopropylbenzene	0.040	U	0.040	UJ	0.040	U	0.040	U	0.040	U
m,p-Xylene	0.070	U	0.070	UJ	0.070	U	0.070	U	0.070	U
Methylene chloride	0.35	U	0.35	UJ	0.35	U	0.35	U	0.35	U
Naphthalene	0.070	U	0.070	UJ	0.070	U	0.070	U	0.070	U
n-Butylbenzene	0.17	U	0.17	UJ	0.17	U	0.17	U	0.17	U
n-Propylbenzene	0.030	U	0.030	UJ	0.030	U	0.030	U	0.030	U
o-Xylene	0.060	U	0.060	UJ	0.060	U	0.060	U	0.060	U

Appendix B
June 2011 Quarterly Off-Post Groundwater Analytical Results, Additional Analytes

SAMPLE ID:	I10-2		I10-4		LS-7		RFR-10		RFR-11	
DATE SAMPLED:	6/13/2011		5/31/2011		5/31/2011		5/31/2011		5/31/2011	
LAB SAMPLE ID:	AY39732		AY39128		AY39122		AY39126		AY39127	
Volatile Organics - SW8260B (µg/L)										
p-Cymene (p-Isopropyltoluene)	0.050	U	0.050	UJ	0.050	U	0.050	U	0.050	U
sec-Butylbenzene	0.050	U	0.050	UJ	0.050	U	0.050	U	0.050	U
Styrene	0.080	U	0.080	UJ	0.080	U	0.080	U	0.080	U
tert-Butylbenzene	0.040	U	0.040	UJ	0.040	U	0.040	U	0.040	U
Toluene	0.060	U	0.060	UJ	0.060	U	0.060	U	0.060	U
trans-1,3-Dichloropropene	0.040	U	0.040	UJ	0.040	U	0.040	U	0.040	U
Trichlorofluoromethane	0.070	U	0.070	UJ	0.070	U	0.070	U	0.070	U

QA NOTES AND DATA QUALIFIERS:

(NO CODE) - Confirmed identification.

U - Analyte was not detected above the indicated Method Detection Limit (MDL).

F - Analyte was positively identified, but the quantitation is an estimation above the MDL and below the Reporting Limit (RL).

J - Analyte was positively identified, but the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

UJ - Analyte was not detected above the indicated RL; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

**APPENDIX C
DATA VALIDATION REPORTS**

(Laboratory data packages are submitted to CSSA electronically.)

SDG 64827

SDG 64850

SDG 64879

SDG 64899

SDG 64820

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 quarterly groundwater samples and the associated field quality control (QC) samples collected from off-post Camp Stanley Storage Activity (CSSA) under Environmental Protection Support, Investigations, and Treatability Studies on June 3, 2011. The samples in the following Sample Delivery Group (SDG) were analyzed for a reduced list of volatile organic compounds (VOCs):

64827

The field QC samples associated with this SDG included one field duplicate (FD) sample 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 3.0°C, which was within the 2-6°C range recommended by the CSSA QAPP.

It should be noted that several samples listed on the chain-of-custody (COC) were collected from Westbay wells at CSSA. The Westbay samples were logged and reported in a different SDG.

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 ten (10) samples, including eight (8) off-post groundwater samples, one (1) FD, and one (1) TB. The samples were collected on June 3, 2011 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 (#156353) 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) sample and the surrogate spikes. No sample was designated for MS/MSD analyses on the COC.

All LCS and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated by comparing the parent and field duplicate analyte results. Sample JW-30 was collected in duplicate. The second set of vials from this well was submitted as a field duplicate.

All target VOCs were non-detect in sample JW-30 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 LCS sample 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 was one method blank and one TB associated with the VOC analyses in this SDG. Both 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%.

DATA VERIFICATION SUMMARY REPORT
for on-post and 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 quarterly groundwater and drinking water samples, and the associated field quality control (QC) samples, collected from on and off-post Camp Stanley Storage Activity (CSSA) under Environmental Protection Support, Investigations, and Treatability Studies on June 7 and 8, 2011. The samples in the following Sample Delivery Group (SDG) were analyzed for a reduced list of volatile organic compounds (VOCs) and metals:

64850

The field QC samples associated with this SDG included two field duplicate (FD) samples, 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 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 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 twenty (20) samples, including five (5) off-post groundwater samples, four (4) on-post groundwater samples, four (4) on-post drinking water samples, two (2) FD samples, two (2) MS/MSD pair, and one (1) TB. The samples were collected on June 7 and 8, 2011 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 (#156548, #156549, and #156550) under two different initial calibrations (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.

Sample CS-MW16-LGR required a 5x dilution for *cis*-1,2-dichloroethene, trichloroethene, and tetrachloroethene. All other 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 JW-9 and CS-12 were designated for MS/MSD analyses on the COC.

Two LCS samples were analyzed for the samples in this SDG. 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 parent and field duplicate analyte results. Samples JW-15 and CS-10 were collected in duplicate. The second set of vials from each location was submitted as a field duplicate.

All MS/MSD RPDs were within acceptance criteria.

All target VOCs were non-detect in sample JW-15 and the associated field duplicate.

All target VOCs were non-detect in sample CS-10 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 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.

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 eleven (11) samples, including four (4) on-post drinking water samples, four (4) on-post groundwater samples, one (1) FD, and one (1) MS/MSD pair. Samples were collected on June 7 and 8, 2011 and were analyzed for cadmium, chromium, and lead. Drinking water samples CS-1, CS-9, CS-10, CS-10 FD, and CS-12 were also analyzed for arsenic, barium, copper, and zinc.

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 (#156069). 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 sample and the MS/MSD samples. Sample CS-12 was designated for MS/MSD analysis on the COC for this SDG.

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

Precision

Precision was evaluated using the RPD obtained from the MS/MSD concentrations. Precision was further evaluated by comparing the field duplicate metal results. Sample CS-10 was collected in duplicate.

All MS/MSD RPDs were within acceptance criteria.

All target metals detected above the reporting limit (RL) in both the parent and field duplicate samples met RPD criteria with the exception of copper, as follows:

CS-10				
Metal	Parent (mg/L)	FD (mg/L)	RPD	Criteria
Barium	0.0420	0.0473	12	RPD \leq 20
Copper	0.011	0.016	37	
Zinc	0.155	0.180	15	

The copper results detected above the RL for all samples collected on June 7, 2011 were flagged "J" as estimated due to the high variability demonstrated.

Representativeness

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

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

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

Completeness

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

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

MERCURY

General

The mercury portion of this SDG consisted of eleven (11) samples, including four (4) on-post drinking water samples, four (4) on-post groundwater samples, one (1) FD, and one (1) MS/MSD pair. Samples were collected on June 7 and 8, 2011 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 digested in one batch (#156021). 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 sample and the MS/MSD samples. Sample CS-12 was designated for MS/MSD analysis on the COC for this SDG.

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

Precision

Precision was evaluated using the RPD obtained from the MS/MSD concentrations. Precision was further evaluated by comparing the field duplicate mercury results. Sample CS-10 was collected in duplicate.

The MS/MSD RPD was within acceptance criteria.

Mercury was non-detect in the parent and field duplicate samples.

Representativeness

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

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

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: Katherine LaPierre and Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers quarterly groundwater samples and the associated field quality control (QC) samples collected from on and off-post Camp Stanley Storage Activity (CSSA) under Environmental Protection Support, Investigations, and Treatability Studies on June 10 and 13, 2011. The samples in the following Sample Delivery Group (SDG) were analyzed for volatile organic compounds (VOCs) and metals:

64879

The field QC samples associated with this SDG included one field duplicate (FD) sample, 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 2.0°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 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 fifteen (15) samples, including two (2) off-post groundwater samples, nine (9) on-post groundwater samples, one (1) FD sample, one (1) MS/MSD pair, and one (1) TB. The samples were collected on June 10 and 13, 2011. Sample I10-2 was analyzed for the full list of VOCs specified in the CSSA QAPP. All other samples 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 (#156573, #156575, and #156571) 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 I10-2 was designated for MS/MSD analyses 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 parent and field duplicate analyte results. Sample CS-MW12-LGR was collected in duplicate. The second set of vials from this location was submitted as a field duplicate.

All MS/MSD RPDs were within acceptance criteria.

All target VOCs were non-detect in sample CS-MW12-LGR 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 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.

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 ten (10) samples, including nine (9) on-post groundwater samples and one (1) FD. Samples were collected on June 10 and 13, 2011 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 (#156123). 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 sample. No sample was designated for MS/MSD analysis on the COC for metals.

All LCS recoveries were within acceptance criteria.

Precision

Precision was evaluated by comparing the field duplicate metal results. Sample CS-MW12-LGR was collected in duplicate.

All target metals were below the reporting limit (RL) in both the parent and field duplicate samples.

Representativeness

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

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating preservation and holding times; and
- Examining laboratory blanks 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 blanks and several calibration blanks were analyzed in association with the ICP-AES analyses in this SDG. All blanks were free of target metals at or above the RL.

Completeness

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

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

MERCURY

General

The mercury portion of this SDG consisted of ten (10) samples, including nine (9) on-post groundwater samples and one (1) FD. Samples were collected on June 10 and 13, 2011 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 digested in one batch (#156212). 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 sample. No sample was designated for MS/MSD analysis on the COC for mercury.

The LCS recovery was within acceptance criteria.

Precision

Precision was evaluated by comparing the field duplicate mercury results. Sample CS-MW12-LGR was collected in duplicate.

Mercury was non-detect in both the parent and field duplicate samples.

Representativeness

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

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

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: Katherine LaPierre and Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers quarterly groundwater samples and the associated field quality control (QC) samples collected from on and off-post Camp Stanley Storage Activity (CSSA) under Environmental Protection Support, Investigations, and Treatability Studies on June 14 and 15, 2011. The samples in the following Sample Delivery Group (SDG) were analyzed for a reduced list of volatile organic compounds (VOCs) and metals:

64899

The field QC samples associated with this SDG included one field duplicate (FD) sample 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 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 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 groundwater samples, one (1) FD sample, and one (1) TB. The samples were collected on June 14 and 15, 2011 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 (#156575 and #156801) under two different initial calibrations (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 spike (LCS) samples and the surrogate spikes. No sample was designated for MS/MSD analyses on the COC.

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

Precision

Precision was evaluated by comparing the parent and field duplicate analyte results. Sample CS-MW25-LGR was collected in duplicate. The second set of vials from this location was submitted as a field duplicate.

All target VOCs were non-detect in sample CS-MW25-LGR 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 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.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All VOC results for the samples in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

ICP-AES METALS

General

The ICP-AES portion of this SDG consisted of nine (9) samples, including eight (8) on-post groundwater samples and one (1) FD. Samples were collected on June 14 and 15, 2011 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 (#156330). 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 sample. No sample was designated for MS/MSD analysis on the COC for this SDG.

All LCS recoveries were within acceptance criteria.

Precision

Precision was evaluated by comparing the field duplicate metal results. Sample CS-MW25-LGR was collected in duplicate.

All target metals were below the reporting limit (RL) in both the parent and field duplicate samples.

Representativeness

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

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating preservation and holding times; and
- Examining laboratory blanks 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 blanks and several calibration blanks were analyzed in association with the ICP-AES analyses in this SDG. All blanks were free of target metals at or above the RL.

Completeness

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

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

MERCURY

General

The mercury portion of this SDG consisted of nine (9) samples, including eight (8) on-post groundwater samples, one (1) FD, and one (1) MS/MSD pair. Samples were collected on June 7 and 8, 2011 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 digested in one batch (#156021). 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 sample. No sample was designated for MS/MSD analysis on the COC for this SDG.

The LCS recovery was within acceptance criteria.

Precision

Precision was evaluated by comparing the field duplicate mercury results. Sample CS-MW25-LGR was collected in duplicate.

Mercury was non-detect in the parent and field duplicate samples.

Representativeness

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

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

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 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 quarterly groundwater samples and the associated field quality control (QC) samples collected from off-post Camp Stanley Storage Activity (CSSA) under Environmental Protection Support, Investigations, and Treatability Studies from May 31 through June 2, 2011. The samples in the following Sample Delivery Group (SDG) were analyzed for volatile organic compounds (VOCs):

64820

The field QC samples associated with this SDG included three 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 5.0°C, which was within the 2-6°C range recommended by the CSSA QAPP.

It should be noted that the vial used for analysis of sample I10-4 had a pH of 7, indicating the sample was not properly preserved. This sample was analyzed nine (9) days after collection, so the analysis exceeded the holding time for undiluted samples of seven (7) days. All target VOCs were flagged "J" if detected above the reporting limit (RL), "UJ" if non-detect, and "F" if detected below the RL for sample I10-4 due to the hold time exceedance.

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 forty one (41) samples, including thirty five (35) off-post groundwater samples, three (3) FD samples, one (1) MS/MSD pair, and one (1) TB. The samples were collected on June 10 and 13, 2011. Samples LS-7, RFR-10, RFR-11, and I10-4 were analyzed for the full list of VOCs specified in the CSSA QAPP. All other samples 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 five (5) batches (#156545, #156348, #156349, #156347, and #156564) under two different initial calibrations (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 spike (LCS) samples, the MS/MSD samples, and the surrogate spikes. Sample OW-BARNOWL was designated for MS/MSD analyses on the COC.

Five 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 parent and field duplicate analyte results. Samples OW-HH1, FO-17, and I10-5 were collected in duplicate. The second set of vials from each location was submitted as a field duplicate.

All MS/MSD RPDs were within acceptance criteria.

All target VOCs were non-detect in sample OW-HH1 and the associated field duplicate.

All target VOCs were non-detect in sample FO-17 and the associated field duplicate.

All target VOCs were non-detect in sample I10-5 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 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 five 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%.