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.

Juin Buday

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

_8/16/2011 Date

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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 offpost 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 privatelyowned 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.

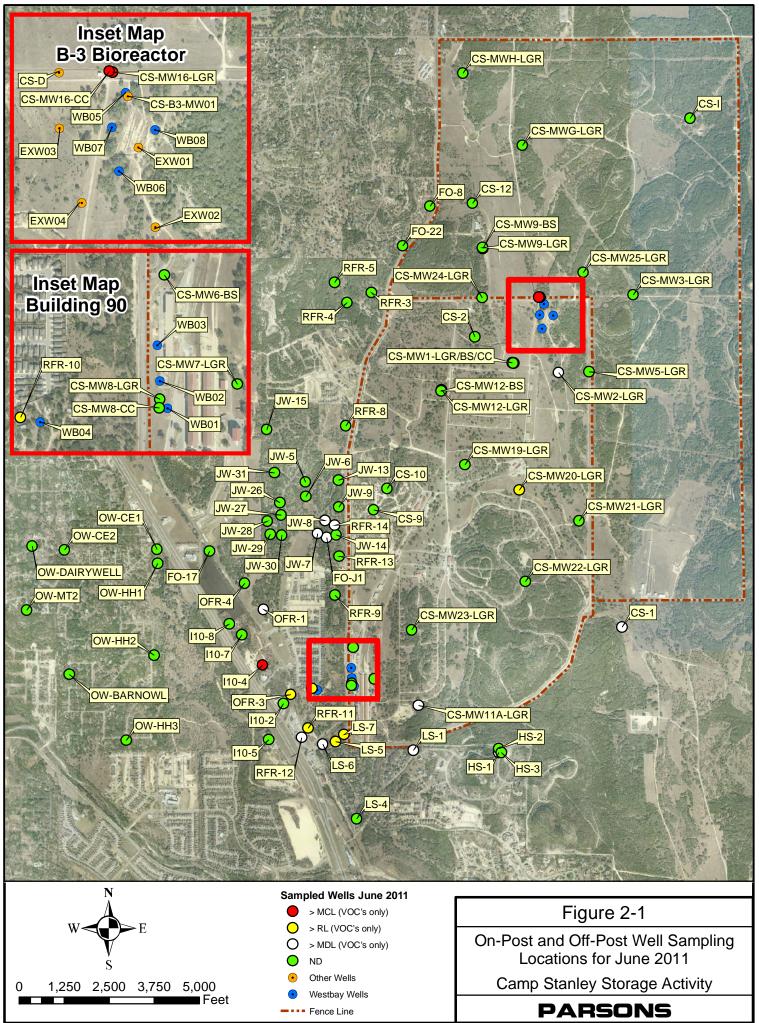
Concentrations of the VOCs detected in June 2011 are presented in **Table 2-2**. Full analytical results from the June 2011 sampling event are presented in **Appendix B**. As shown in **Table 2-1**, 52 samples were scheduled for collection in June 2011 and all samples were collected.

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).

Table 2-1	
Sampling Rationale for June 2011	
(The June 2011 sampling event will capture all wells in order to provide a snapshot of the plume.)	

	20	01		200	,			200	3			2004	4			2005		1		2006				2007		1	20	08	1	200	10	-		2010		1	201	11	Sampling
Well ID			Mar .			Dec	Mar			Dec	Mar			Dec Ma			t Dec	Ma			t De	c Ma			t Dec	Mar		Sept Dec	Mar			ec M	ar Ju		pt D	ec 1			Frequency:
FO-8	NS	NS		NS	NS	NS		NS	NS	NS		NS 1	NS	NS	N	S NS	NS			NS	NS	5	NS	NS	NS		NS	NS NS		NS	NS N	IS	Ν	S N	S N	IS		Yes	9-month (snapshot)
FO-17	NS			NS				NS			NS			NS N	S	NS	NS			NS		S NS		NS				NS NS			NS N								9-month (snapshot)
FO-22		NS	NS	NS	NS		NS	NS	NS				NS	N	S N	S NS		NS		NS		NS	NS	NS	NS		NS	NS NS		NS	NS N	IS	N	S N	S N	IS			9-month (snapshot)
FO-J1 HS-1	NS	NC	NC	NC	NE	NC	NE	NC	NC	NE		NS NS	NE	NS N	C N	C NC		NS				_	_	_								N	S N	C N	c	_			9-month (snapshot) 9-month (snapshot)
HS-2	NS	NB	IND	IND .		IND .	IND	IND	IND .	IND .	IND		IND .		5 14	5 115	IND	IND	IND													IN	N N		3				9-month (snapshot)
HS-3	NS		NS		NS	NS	NS		NS	NS	NS]	NS	NS N	S	NS	NS	NS		NS	NS	S NS		NS	NS	NS		NS NS	NS		NS N	IS N			S N				9-month (snapshot)
I10-2																				NS			NS	NS			NS	NS NS			NS N								9-month (snapshot)
I10-4	NS									NS																	NA												Quarterly
I10-5 I10-7	NS NS	NS NS	NS	NS NS			NS	NS			NS NS	NS 1	NS NS	N	S N	S NS		NS	NS	NS	_	NS	NS	NS	NS	NS	NS	NS NS	_	NS	NS N	S		S N					9-month (snapshot) 9-month (snapshot)
I10-7 I10-8	NS		NS				NS							NS N	S N	S NS		NS	NS	NS		NS	NS	NS		NS	NS	NS	NS	NS	NS		IN	5 N	A N	A			9-month (snapshot) 9-month (snapshot)
JW-5	NS	NS		NS			NS			NS				NS N	_	5 112		115	NS				110	115		110	110	Tib	110		NS N	S	Ν	S N	S N	IS			9-month (snapshot)
JW-6		NS	NS		NS	NS			NS					NS N	S	NS	NS	NS		NS		5 NS		NS	NS	NS		NS NS	NS		NS N								9-month (snapshot)
JW-7			NS					NS																															9-month (snapshot)
JW-8	NS	NS	NS	NS	NS	NS	NS																																9-month (snapshot)
JW-9		NC	NC	NC	NG		NC		NC	NC	NC		MC	NG N		S NS				NS				NS				NS NS			NS N		N						9-month (snapshot)
JW-13 JW-14		NS	NS	NS	NS		NS		NS	NS	NS		NS	NS N	S	NS	NS	NS To		NS	N	S NS		NS	NS	NS		NS NS	NS		NS N	S N	5	N	S N	IS			9-month (snapshot) 9-month (snapshot)
JW-14 JW-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS 1	NS	NS N	s			10		NS	NS	5	NS	NS	NS		NS	NS NS		NS	NS N	S	N	S N	S N	IS			9-month (snapshot) 9-month (snapshot)
JW-26	NS	NS		NS				1.5			1.5	- 100				S NS		NS		NS				NS				NA NA			NA N		A N.				NS	Yes	9-month (snapshot)
JW-27	NS		NS						NS	NS	NS]	NS			NS									NS						NS N			S N				Yes	9-month (snapshot)
JW-28	NS	NS		NS				NS																NS	NS	NS													9-month (snapshot)
JW-29	NS			NS NS			NS																																9-month (snapshot)
JW-30	NS NA	NS					NIA	NA	NA	NIA	NA	NA 1	NIA	NA NA	A N	A NA	NA	NA	NA	NA	NL/	N NA	NA	NA	NIA	NA	NA	NA NA	NIA	NA	NA				N	IC I			9-month (snapshot) 9-month (snapshot)
JW-31 LS-1	NA	NA	NA	NA .	NA	NA	NA	INA	INA I	INA	NA			NS N								S NS		NA NA			NA	NA NA	NA	NA	NA				N	15			9-month (snapshot) 9-month (snapshot)
LS-4													145	115 11	5 1	5 115	IND	IND	IND	145	144		NS	NS NS	NS														9-month (snapshot)
LS-5																										- 1.6													Quarterly
LS-6																																						Yes	Quarterly
LS-6-A2				NS		NS		NS		NS		NS		NS	N	S	NS		NS		NS	5	NS		NS		NS	NS		NS	N	IS	N	S	N	IS			Biannually (Mar & Sept)
LS-7																~																		~					Quarterly
LS-7-A2 OFR-1	NS			NS		NS		NS		NS		NS		NS	N	S	NS		NS		NS	Ś	NS		NS		NS	NS		NS	N	S	N	S	N	IS			Biannually (Mar & Sept) 9-month (snapshot)
OFR-3	INS																																		N	Δ			Quarterly
OFR-3-A2	NS	NS		NS		NS		NS		NS		NS		NS	N	S	NS		NS		NS	3	NS		NS		NS	NS		NS	N	IS	N	S					Biannually (Mar & Sept)
OFR-4	NS	NS	NS	NS	NS	NS	NS			NS		NS 1				S NS	NS			NS				NS	NS		NS	NS NS		NS	NS N	IS		S N				Yes	9-month (snapshot)
OW-HH1																																a	ccess ag	greemei	nt receiv	ved			4 consecutive events, then 9-month (snapshot)
OW-HH2																																	ccess ag	-					4 consecutive events, then Quarterly
OW-CE1																						_	_	_			-		_				ccess ag						4 consecutive events, then 9-month (snapshot)
OW-CE2 OW-MT2					_											_						-	-	-						+			ccess ag				_		4 consecutive events, then 9-month (snapshot) 4 consecutive events, then 9-month (snapshot)
OW-M12 OW-BARNOWL			-		_	-		-							_								-										ccess ag	-					4 consecutive events, then Quarterly
OW-DAIRYBARN																																	ccess ag	-					4 consecutive events, then 9-month (snapshot)
OW-HH3																																a	ccess ag	greemei	nt receiv	ved		Yes	4 consecutive events, then 9-month (snapshot)
RFR-3	NS	NS		NS					NS	NG		NG	NG		S N			NS				NS				NS		NS			NS		S N						9-month (snapshot)
RFR-4 RFR-5	NS NS	NS		NS NS			NS NS			NS NS		NS I		NS To NS	ol N				NS	NS NS	NS NS		NS NS	NS NS			NS NS	NS NS	NS		NS NS	N	S N S N	S N			NS	Yes	9-month (snapshot) 9-month (snapshot)
RFR-8	CAT		NS			NS				NS NS				NS N		S NS		NS		NS		S NS		NS		NS		NS NS	NS	GNI	NS N	IS N		J N	S N	IS			9-month (snapshot) 9-month (snapshot)
RFR-9			NS			NS					NS			NS N					NS			S NS			NS			NS		NS				.,					9-month (snapshot)
RFR-10																																						Yes	Quarterly
RFR-10-A2				NS		NS		NS		NS		NS		NS	N	S	NS		NS		NS	5	NS		NS		NS	NS		NS	N		N		N				Biannually (Mar & Sept)
RFR-10-B2 RFR-11				NS	NS	NS	NS	NS		NS		NS		NS	N	8	NS		NS		NS	5	NS		NS		NS	NS		NS	N	IS	N	S	N	IS			Biannually (Mar & Sept) Quarterly
RFR-11-A2				NS		NS		NS		NS		NS		NS	N	S	NS		NS		NS	3	NS		NS		NS	NS		NS	N	IS	N	S	N	IS			Biannually (Mar & Sept)
RFR-12						1.5		1.15		- 1.5		- 16		- 15		~	115			NS			NS	NS	NS			NS NS			NS N			~	N	A	NA	Yes	9-month (snapshot)
RFR-13											W	ell Insta	alled							NS	NS	S NS		NS	NS	NS		NS NS			NS N		S	N	S N	IS	NS	Yes	9-month (snapshot)
RFR-14																Well	Installe	d																				Yes	9-month (snapshot)
* New LTMO samp	oling fr	equen	cies imp	lement	ed in J	une 20	011, be	eginning	g with s	snapsh	not eve	nt.														_											otal Pre		
NOCELLE	1	110 2	1	1			0.04	Ļ	102	1.	1 .		0.04	6.5					10.21		• •	. 11	007	-	Yes		7	NS			1	N.		1.1	— <i>_</i>		al Post		-
VOCs detected are greater than 90% of			detecte MCL. 7									ess than >0.06 n		of the PCE &								talled by six mor			To be	ed in		Not sampled for that ever		No VO			t application to the tent of t		T	otal #	# of sar	mples:	5
the MCL. Sample			onthly											ter four			after C				every	51A 1110I	1015.		June 2			ioi tilat ever	ι.	detected			ger be c		1				
monthly; quarterly			nstallat									sults the					after C								o uno s					Sample as need			n this lo						
after GAC			ing after									erly sam									ystem,	not a CS	SSA							basis.			to reas						
installation	i 1	•	-					L			-		- 0			L					,			_	L		-					L							



J:\CSSA\GIS\Groundwater\Maps\June11_Sampled_Wells.mxd - 8/15/2011 @ 11:44:33 AN

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
Suburvision	FO-8	6/2/2011	1,1-DCE						Comments
	FO-17	6/1/2011							
Fair Oaks	FO-17 FD	6/1/2011							No historic PCE or TCE detections in these wells.
Fair Oaks	FO-22	6/2/2011							•
	FO-J1	6/2/2011				0.41F			Sporadic PCE detections since 2002.
	HS-1	6/3/2011				0.41F 0.16F			Sporadic FCE detections since 2002.
III.1									Sporadic low concentrations of PCE.
Hidden Springs	HS-2 HS-3	6/3/2011 6/3/2011							No historic PCE or TCE detections in this well.
									No historic FCE of TCE detections in uns well.
	I10-2	6/13/2011							
	I10-4	5/31/2011				5.56J	1.97 J		Only well that exceeded the PCE MCL this event.
IH-10	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							
	JW-5	6/1/2011							
	JW-6	6/1/2011							No historic PCE or TCE detections in this well.
	JW-7	6/7/2011				0.43F			Consistent low levels of PCE since 2003.
	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-13 JW-14	6/2/2011							Last PCE detections in June 2009.
Jackson Woods	JW-14 JW-15	6/7/2011							Last FCE detections in Julie 2009.
Subdivision	JW-15 FD	6/7/2011							
	JW-15 FD JW-26	6/7/2011							Last PCE detections in Dec. 2006.
	JW-28 JW-27								Last PCE detections in Dec. 2006.
	JW-27 JW-28	6/2/2011 6/2/2011							
	JW-29	6/2/2011							
	JW-30	6/3/2011							No detections since Dec. 2010.
	JW-30 FD JW-31	6/3/2011							
		6/3/2011							No VOC detections ever reported in this well.
	LS-1	5/31/2011				0.49F			Both wells are now sampled with a bailer, results are consistent with previou
Leon Springs	LS-4	5/31/2011							low flow pump samples.
Villas	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 1	Detection Li	mits & Max	imum Contar	ninant Level	l		
		on Limit (MDL)	0.12	0.07	0.08	0.06	0.05	0.08	
	Repor	rting Limit (RL)	1.2	1.2	0.6	1.4	1	1.1	
	Max. Contamina	nt Level (MCL)	7	70	100	5	5	2	
	≥ MDL VOC da ≥ RL Abbrev	ples were analyze ta reported in ug, iations/Notes: Id Duplicate		าC.					
		richloroethene etrachloroethene							

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

				cis-1,2-	trans-1,2-			Vinyl						
Subdivision	Well ID	Sample Date	1,1-DCE	DCE	DCE	PCE	TCE	Chloride	Comments					
Old	OFR-1	6/1/2011				0.17F								
Fredericksburg	OFR-3	5/31/2011				3.33	1.91		PCE and TCE concentrations half of what they were last quarter.					
Road	OFR-4	6/7/2011							No historic PCE or TCE detections in this well.					
	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												
Ralph Fair Road	RFR-9	6/13/2011												
	DED 10	5/31/2011				4.4			Significant reduction in VOC concentrations this quarter. In March '11, PCE=31 & TCE=13 ppb					
	RFR-10								PCE=31 & TCE=15 pp0					
	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								
	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												
The Oaks Water	OW-DAIRYWELL	6/1/2011												
Supply	OW-HH1	6/1/2011												
Suppry	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-HH2 OW-HH3	6/1/2011												
	OW-MT2	6/1/2011												
		Laboratory 1	Detection Li	nits & Maxi	imum Contan	ninant Level								
	Method Detection	n Limit (MDL)	0.12	0.07	0.08	0.06	0.05	0.08						
	Report	ing Limit (RL)	1.2	1.2	0.6	1.4	1	1.1						
	Max. Contaminan	t Level (MCL)	7	70	100	5	5	2						
BOLD	≥ MDL VOC data ≥ RL Abbrevia ≥ MCL FD - Field TCE - Tric DCE - Dic Data Qui	es were analyze a reported in ug, itions/Notes: I Duplicate chloroethene rachloroethene hloroethene alifiers: alyte was analyz.	/L.											

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 offpost. 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**.

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Table 3-1 Sampling Rationale for September 2011

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.	accordance with the procedures	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 ¹ / ₂ 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	Samples were analyzed in accordance with the CSSA QAPP, and approved variances. A chemist verified all data.	Yes	NA
	quality assurance requirements.	All data flagged with a "U" and "J" are usable for characterizing contamination.	Yes	NA

Appendix A Evaluation of Data Quality Objectives Attainment

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.	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	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	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

Weil ID Sample Date 1,1-DCE DCE DCE PCE TCE CI FO-8 $6/2/2011$ $0.12U$ $0.07U$ $0.08U$ $0.06U$ $0.05U$ () FO-17 $6/1/2011$ $0.12U$ $0.07U$ $0.08U$ $0.06U$ $0.05U$ () FO-17 $6/2/2011$ $0.12U$ $0.07U$ $0.08U$ $0.06U$ $0.05U$ () FO-11 $6/2/2011$ $0.12U$ $0.07U$ $0.08U$ $0.06U$ $0.05U$ () HS-1 $6/3/2011$ $0.12U$ $0.07U$ $0.08U$ $0.06U$ $0.05U$ () HS-2 $6/3/2011$ $0.12U$ $0.07U$ $0.08U$ $0.06U$ $0.05U$ () HI0-2 $6/1/3/2011$ $0.12U$ $0.07U$ $0.08U$ $0.06U$ $0.05U$ () HI0-5 $6/2/2011$ $0.12U$ $0.07U$ $0.08U$ $0.06U$ $0.05U$ () HI0-5 $6/1/2011$ $0.12U$ $0.07U$	Vinyl
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JW-31 6/3/2011 0.12U 0.07U 0.08U 0.06U 0.05U 0 LS-1 5/31/2011 0.12U 0.07U 0.08U 0.49F 0.05U 0 LS-4 5/31/2011 0.12U 0.07U 0.08U 0.49F 0.05U 0 LS-4 5/31/2011 0.12U 0.07U 0.08U 0.66F 2.36 0 LS-5 5/31/2011 0.12U 0.07U 0.08U 0.66F 2.36 0 LS-6 5/31/2011 0.12U 0.07U 0.08U 0.68F 0.90F 0 LS-7 5/31/2011 0.12U 0.07U 0.08U 2.05 0.05U 0 DFR-1 6/1/2011 0.12U 0.07U 0.08U 0.17F 0.05U 0 OFR-3 5/31/2011 0.12U 0.07U 0.08U 3.33 1.91 0 OFR-4 6/7/2011 0.12U 0.07U 0.08U 0.06U 0.05U 0 RFR-3 </td <td>).08U</td>).08U
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LS-5 5/31/2011 0.12U 0.07U 0.08U 0.66F 2.36 0 LS-6 5/31/2011 0.12U 0.07U 0.08U 0.68F 0.90F 0 LS-7 5/31/2011 0.12U 0.07U 0.08U 2.05 0.05U 0 OFR-1 6/1/2011 0.12U 0.07U 0.08U 2.05 0.05U 0 OFR-3 5/31/2011 0.12U 0.07U 0.08U 3.33 1.91 0 OFR-4 6/7/2011 0.12U 0.07U 0.08U 3.06U 0.05U 0 RFR-3 6/2/2011 0.12U 0.07U 0.08U 0.06U 0.05U 0).08U
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OFR-3 5/31/2011 0.12U 0.07U 0.08U 3.33 1.91 0 OFR-4 6/7/2011 0.12U 0.07U 0.08U 0.06U 0.05U 0 RFR-3 6/2/2011 0.12U 0.07U 0.08U 0.06U 0.05U 0).08U
OFR-4 6/7/2011 0.12U 0.07U 0.08U 0.06U 0.05U 0 RFR-3 6/2/2011 0.12U 0.07U 0.08U 0.06U 0.05U 0).08U
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RFR-4 6/2/2011 0.12U 0.07U 0.08U 0.06U 0.05U 0).08U
).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	РСЕ	ТСЕ	Vinyl Chloride
	Ĩ	I,I-DCE	-	-	ICE	ICE	Chiornae
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.

SAMPLE ID: 110-2 110-4 LS-7 RFR-10 RFR-1								1		
SAMPLE ID:			110-4				RFR-10		RFR-1	
DATE SAMPLED:	6/13/2012		5/31/20		5/31/20		5/31/20		5/31/20	
LAB SAMPLE ID:	AY39732		AY3912	28	AY3912	2	AY3912	6	AY3912	./
Volatile Organics - SW8260B (µg/L) 1,1,1,2-Tetrachloroethane	0.000	U	0.090	UJ	0.090	U	0.000	U	0.090	U
1,1,1-Trichloroethane	0.090	U	0.090	UJ	0.090	U	0.090	U	0.090	U
1,1,2,2-Tetrachloroethane	0.030	U	0.030	UJ	0.030	U	0.030	U	0.030	U
1,1,2-Trichloroethane	0.070	U	0.070	UJ	0.070	U	0.070	U	0.070	U
1,1-Dichloroethane	0.000	U	0.000	UJ	0.000	U	0.000	U	0.000	U
1,1-Dichloropropene	0.070	U	0.10	UJ	0.10	U	0.10	U	0.070	U
1,2,3-Trichlorobenzene	0.10	U	0.10	UJ	0.10	U	0.10	U	0.10	U
1,2,3-Trichloropropane	0.24	U	0.24	UJ	0.24	U	0.24	U	0.24	U
1,2,4-Trichlorobenzene	0.17	U	0.17	UJ	0.17	U	0.17	U	0.16	U
1,2,4-Trimethylbenzene	0.040	U	0.040	UJ	0.040	U	0.10	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	0.000	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

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

SAMPLE ID:	I10-2		110-4		LS-7		RFR-10		RFR-1	1
DATE SAMPLED:	6/13/2012	L	5/31/20)11	5/31/20	11	5/31/201	1	5/31/20)11
LAB SAMPLE ID:	AY39732		AY3912	28	AY3912	2	AY3912	6	AY3912	27
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.

PAGE 1 OF 3

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.

PAGE 2 OF 3

- 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.

PAGE 1 OF 6

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

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• 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.

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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:

<u>CS-10</u>									
Metal	Parent (mg/L)	FD (mg/L)	RPD	Criteria					
Barium	0.0420	0.0473	12						
Copper	0.011	0.016	37	$RPD \le 20$					
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.

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• 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: PAGE 5 OF 6

- 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 110-2 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.

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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.

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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%.

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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.

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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%.

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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.

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- 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.

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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.

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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.

PAGE 5 OF 5

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%.

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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.

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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;

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- 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%.