FINAL

June 2010

Off-Post

Quarterly Groundwater Monitoring Report



Prepared For

Department of the Army Camp Stanley Storage Activity Boerne, Texas

September 2010

GEOSCIENTIST CERTIFICATION

June 2010 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 2010 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 2010, and is true and accurate to the best of my knowledge and belief.

Juin Budey

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

9/3/2010

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
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

- A total of 29 off-post wells were sampled during the June 2010 monitoring event. Two wells scheduled to be sampled were not sampled: well HS-2 was not sampled due to a power outage from the severe storms the night before, and well I10-7 was not sampled due to inability to obtain landowner permission to access the well.
- Analyses indicated off-post well RFR-10 exceeded the maximum contaminant level (MCL) for tetrachloroethene (PCE) and trichloroethene (TCE). Well RFR-10 is equipped with a granular activated carbon (GAC) treatment system.
- GAC-filtered samples were not collected in June 2010. GAC-filtered samples will be collected again during the September 2010 event.
- Semi-annual GAC maintenance was performed in July 2010. This involved replacing the lead 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 2011.

JUNE 2010 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 2010 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 2010 quarterly monitoring events (March, June, September, and December) will be described in detail in an Annual Report to be submitted after December 2010. 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 scoped under the U.S. Army Corps of Engineers (USACE) Fort Worth District (CESWF), Contract W9126G-07-D-0028, Task Order DO50, was performed June 1 through 23, 2010. 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 2010 ANALYTICAL RESULTS

In June 2010, a groundwater sample was collected from each of 29 off-post wells shown in **Figure 2-1.** GAC (granular activated carbon) filtered samples (LS-6-A2, LS-7-A2, RFR-10-A2, RFR-10-B2, RFR-11-A2, and OFR-3-A2) are collected semi-annually but were not collected this event. Post-GAC filtered samples will be collected again during the September 2010 monitoring event. **Table 2-1** includes the rationale for selection of the wells sampled in June 2010, and **Figure 2-1** provides well locations for the following sampled wells:

- Two public supply wells in the Fair Oaks area (FO-J1 and FO-17);
- One public supply well in the Hidden Springs Estates subdivision (HS-3);
- Two public wells (I10-2 and I10-8) and one privately-owned unused well (I10-4) in the Interstate-10 area;
- Nine privately-owned wells in the Jackson Woods subdivision (JW-6, JW-7, JW-8,

JW-13, JW-14, 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);
- Two privately-owned wells on Old Fredericksburg Road (OFR-1 and OFR-3); and
- Six privately-owned wells (RFR-8, RFR-9, RFR-10, RFR-11, RFR-13, and RFR-14) and one public well (RFR-12) in the Ralph Fair Road area.

All wells were sampled from a tap located as close to the wellhead as possible. Most taps were previously installed by CSSA to obtain a representative groundwater sample before pressurization or storage of groundwater in the water supply distribution system. Water was purged to engage the well pump prior to sample collection. Conductivity, pH, and temperature readings were recorded to confirm adequate purging while the well was pumping. Generally, this required an average of 20 gallons to be purged prior to sample collection.

A total of 29 groundwater samples, three field duplicate samples, two matrix spike/matrix spike duplicate (MS/MSD) pairs, and three trip blanks were submitted to Agriculture & Priority Pollutant Laboratory (APPL) in Fresno, 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 BRAC50-#30, #31, #33, #34, and #36) contain the analytical results for this sampling event. 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 25 through July 7, 2010.

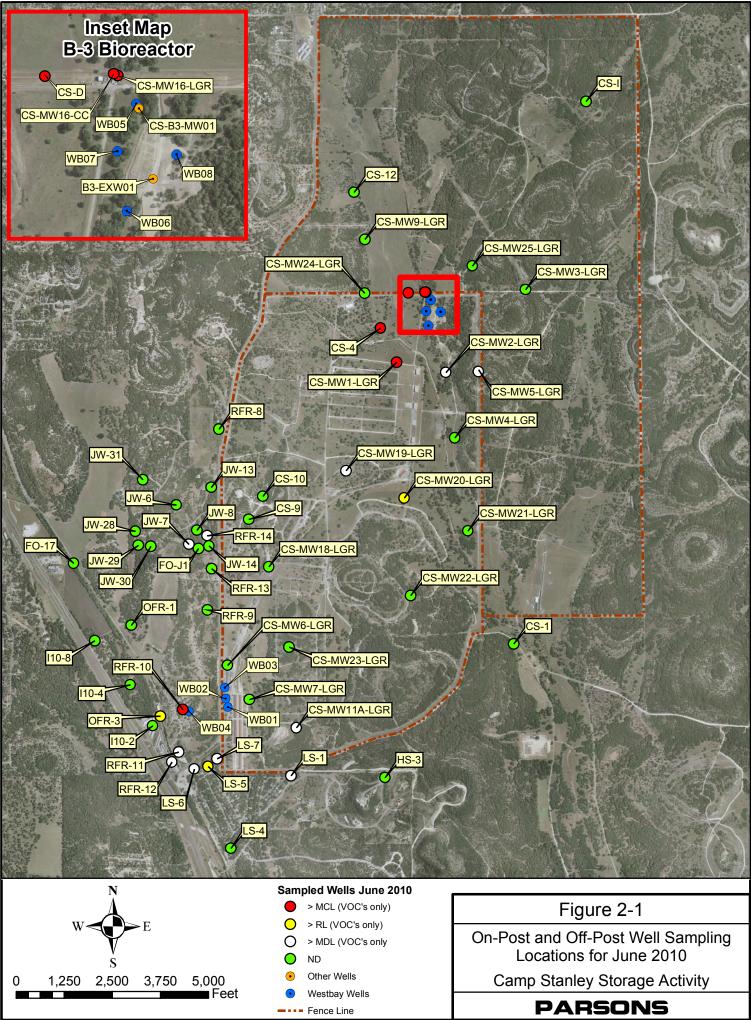
Concentrations of the VOCs detected in June 2010 are presented in **Table 2-2**. Full analytical results from the June 2010 sampling event are presented in **Appendix B**. As shown in **Table 2-1**, 31 samples were scheduled for collection in June 2010 and 29 of the 31 samples were collected. Well HS-2 was not sampled because it was knocked offline in a storm the previous night and well I10-7 was not sampled because the well owner has not returned the CSSA Right-of-Entry Agreement.

In July 2010 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 in September 2010.

Based on historical detections, the lateral extent of VOC detections extends approximately 0.5 mile beyond the south and west boundaries of CSSA. Detections of VOCs have extended south to well LS-4 and west to 110-7 (**Figure 2-1**).

Table 2-1Sampling Rationale for June 2010

		Sampling Frequency:	2010 Mar June	Dec		200 June	Mar	Dec	008 Sent		Mar	Dec		200 June	Mar	Dec	006 Sent		c Mar	t De	2005 une Sep	Mar J	Dec)04 Sent		c M	t Dec	2003 ne Sent		Mar	Dec		200 June - 9	Mar		2001 Sent D
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motuniturioni		Qtrly, 1 year thru Mar. 11																		N					NS											
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schedule until GAC ins		Qtrly, 1 year thru Mar. 11				NS				NS		NS	NS				NS			-			- 1.0				- 10				- 1.0			- 145		
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orro moundation		Qtrly, 1 year thru Dec. 10																						NS				NS			NS	NS			NS	NS N
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of the MCL (<4.0 ppb		As needed, once annually		NS			NS	NS	NS		NS	NS	NS		NS		NS	110	S NS	N	NS		NS					NS				NS		NS		
ppb for PCE & <4.0 pp		Qtrly, 1 year thru Mar. 11		110	115		115	110	110		110	110	110		110	110	110		, 110	. 11	146	110	145	110	, 	, 11	110			NS			NS			
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L	1	Access agreement expired, owner won't call back As needed, once annually			NA NS		NS	NS NS			NS	NC	NS				NS						NS NS				NS NS			NS NS			NS			
		Qtrly, due to location		INS	INS		IND	INS	INS		INS	INS	NS		INS .	IND	INS		Tol) IN	INS	IND	INS .	INS		S IN	IND	NS		IND		IND	INS	IND	NS P	N
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unit installed by CSSA		Wellowner declined access.		NA			NLA		NA	NS	NIA	NS				INS			NC		NS NS			INS	o NS	5 IN	INS	5 115	IND	INS	INS	NS.		IND		NS N
samples are collected e							NA	NA	NA	NA	INA		NS	INS.	NS		NS	NS	INS					NC		1 1	NC	NC		NC	NC	NC	NS	NC	NS NG N	
months.		As needed, once annually		NS	NS	NS						NS	NG							,	NS	NS I	NS	NS	,	5 N	NS			NS			NS			NS N
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*JW-9-A2 is the well of		Qtrly, due to location																														NS				
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		QED low flow pump installed									NS	NS	NS			NS	NS	NS			NS NS	NS	NS	NS												
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To be sampled in June	Yes	GAC unit removed			NA				NA			NA				NS		NS	5	N	NS]	NS		NS	5	NS	5	NS		NS		NS	NS	NS N	NS N
		Well is offline, to be plugged soon			NS			NS			NS	NS	NS	NS																						
		GAC unit removed	NA NA	NA	NA	NA	NA	NA	NA	NA						NS		NS	5	N	NS	1	NS		NS	5	NS	5	NS		NS		NS		NS	NS N
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CSSA.		Qtrly, 1 year thru Mar. 11	Yes																																	
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•		Qtrly, 1 year thru Mar. 11	Yes																																	
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an as needed basis.		Qtrly, 1 year thru Mar. 11																																		NS
		Well was P&A by Centex	NA NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA																	NS	NS N
Not applicable, sample	NA	Qtrly, 1 year thru Mar. 11																																		
longer be collected from		Biannually (Mar & Sept)	NS	NS		NS		NS		NS		NS		NS		NS		NS	5	N	NS	j	NS		NS	5	NS	5	NS		NS		NS		NS	NS N
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		Plugged & abandoned	NA NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS	NS		NS NS	NS			S NS			S NS	NS	NS					NS N	
		As needed, once annually						NS			NS					NS	NS		S NS				NS				NS			NS		NS			NS N	
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		Qtrly, 1 year thru Mar. 11				110	115	110		115	110	115		110	110	110		115	110	- 1			110		110	, 10	110			110	110	110		110		
		Biannually (Mar & Sept)		NS		NS		NS		NS		NS		NS		NS		NS		N	NS		NS		NS	2	NS	3	NS		NS		NS			
		Biannually (Mar & Sept)		NS		NS		NS		NS		NS		NS		NS		NS		N	NS		NS NS		NS	ź	NS	ž –	NS	NS	NS	NS	NS			
	1	Qtrly, 1 year thru Mar. 11		110		GUL		TND		GNT		110		C'FT		140		GPT	,	14			GPL		GPL	,		,	CN1	CN1	110	140	C I I			
		Biannually (Mar & Sept)		NC		NS		NE		NC		NC		NS		NE		NC		N	NS		NS		NIC	2	NC	2	NC		NC		NE			
				NS	NC	NS		NS	NC	NS		NS		NS		NS	NC	NS	,	N	NS		NS		NS	,	NS	,	NS		NS		NS			
		0 1 1 M 11				NS			NS			NS						NS							NV 11 7											
		Qtrly, 1 year thru Mar. 11					NS	NS	NS		NS	NS	NS		NS	NS	NS		1		XX 7 12			istailed	Well In	_				1	1		1			
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		As needed, once annually Qtrly, 1 year thru Mar. 11	Yes																20	instan	wen															
		As needed, once annually	Yes re GAC	otal Pre	Т															instan	wen															
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J:\745\745953 CSSA DY02\GIS\June10_Sampled_Wells.mxd - 7/28/2010 @ 5:15:29 PM

Table 2-2
June 2010 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-17	6/1/2010																
Fair Oaks	FO-J1	6/2/2010																
Hidden Springs	HS-3	6/4/2010																
	I10-2	6/2/2010																
IH-10	I10-4	6/1/2010							above the MCL in the past, sampled quarterly									
	I10-8	6/4/2010							delineation well to the south-west									
	JW-6	6/2/2010																
	JW-7	6/3/2010				0.36F			consistant detections below the RL									
	JW-8	6/2/2010																
	JW-13	6/9/2010																
Jackson Woods	JW-14	6/2/2010							no detections since June 2009									
Subdivision	JW-28	6/3/2010																
Suburvision	JW-29	6/3/2010							sporadic F-flagged detections									
	JW-30	6/3/2010																
	JW-30 FD	6/3/2010																
	JW-31	6/3/2010							newly added well, 3rd consecutative non-detect									
	LS-1	6/3/2010		0.19F														
	LS-4	6/3/2010																
Leon Springs	10.5	6/1/2010				A 005			consistant detections above the RL since June									
Villas	LS-5	6/1/2010				0.98F	2.22		2008									
	LS-6	6/1/2010				0.95F	0.23F		equipped with a GAC unit equipped with a GAC unit									
	LS-7	6/1/2010				0.47F	0.19F		equipped with a GAC unit									
Old	OFR-1	6/2/2010							equipped with a GAC unit									
Fredricksburg	OFR-3	6/1/2010				3.23	3.04		equipped with a GAC unit									
	RFR-8	6/4/2010																
	RFR-9	6/23/2010																
	RFR-10 RFR-11	6/2/2010 6/1/2010		0.21F		10.56	5.05		equipped with a GAC unit									
John Fain Dood						1.13F	0.38F		equipped with a GAC unit									
Ralph Fair Road	RFR-12 RFR-12 FD	6/2/2010 6/2/2010					0.35F											
	RFR-12 FD RFR-13	6/2/2010																
	RFR-15	6/2/2010				 0.16F												
	RFR-14 FD	6/4/2010				0.10F 0.17F												
	KFK-14 FD	Laboratory I			 imum Contor													
	Method Detectio		0.12	0.07	0.08	0.06	0.05	0.08										
		ting Limit (NIDL)	1.2	1.2	0.08	1.4	0.05	1.1										
	Max. Contaminar		7	70	100	5	5	2										
		_																
	BOLD	= Above the M																
	BOLD	= Above the R																
	BOLD	= Above the M																
		rad by A DDI Ir]														
∎]	All samples were analy	Zeu by AITL, II																
	All samples were analy VOC data reported in u Abbreviations/Notes:																	
	VOC data reported in u																	
	VOC data reported in u Abbreviations/Notes:	ıg/L.	e															
	VOC data reported in u Abbreviations/Notes: FD	ıg/L. Field Duplicate	e															

Data Qualifiers --The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL. F-The analyte was positively identified but the associated numerical value is below the RL.

3.0 SUMMARY AND RECOMMENDATIONS

Results of the June 2010 sampling are summarized as follows:

- PCE and TCE exceeded the MCL in well RFR-10 in June 2010. Well RFR-10 is equipped with a GAC treatment system.
- PCE and/or TCE were detected above the Reporting Limits (RLs) in drinking water wells LS-5 and OFR-3. Well OFR-3 has a GAC treatment system 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, which is 56% of the MCL. 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, TCE and/or *cis*-1,2-DCE were also detected in wells JW-7, LS-1, LS-6, LS-7, RFR-11, RFR-12, RFR-12 field duplicate, RFR-14, and RFR-14 field duplicate.
- 1,1-DCE, *trans*-1,2-DCE and vinyl chloride were not detected in any off-post wells in June 2010.
- No VOCs were detected in wells FO-17, FO-J1, HS-3, I10-2, I10-4, I10-8, JW-6, JW-8, JW-13, JW-14, JW-28, JW-29, JW-30, JW-30 field duplicate, JW-31, LS-4, OFR-1, RFR-8, RFR-9 and RFR-13.
- GAC filtered samples were collected in March 2010. All GAC filtered samples were non-detect indicating the GAC units were functioning properly. The next GAC filtered samples will be collected in September 2010.
- Semi-annual GAC maintenance including carbon change-out was performed in July 2010; the next semi-annual GAC maintenance will be due in January 2011.
- In the event additional wells are located to the west and southwest of CSSA, they may be added to future sampling events.
- In accordance with project DQOs, the rationale for the selection of 34 wells to be sampled in September 2010 is provided in **Table 3-1**.

Table 3-1 Sampling Rationale for September 2010

										-					2	sampin	0		or Sept	ember											
	2001		002			2003		2004		_	2005			006	-			07	-		200				2009			2010	~	Sampling	
Well ID	Sept Dec											_																		Frequency:	
DOM-2 FO-8	NS NS		NS NS	NS	N N		NS NS	NS NS NS		NS NS		NS NS	NS NS	NS NS	NS NS		NS NS		NS NS				NS NS			NA NA		NA NS	NA NS	main electricity has been disconnected As needed, once annually	VOCs detected are greater than
FO-17	NS NS			NS		IS NS	NS NS		S NS	NS NS			NS	NS	NS	NS	IND		NS	NS	IND		NS			NS NS				As needed, once annually	90% of the MCL. Sample monthly; quarterly after GAC
FO-22		NS NS		_		IS NS	NS NS			NS NS			NS NS	NS	145	NS	NS	NS		115	NS	NS			NS 1			NS		As needed, once annually	installation.
FO-J1								NS	~				NS	- 1.5				- 1.0	- 1.65		- 1.0									Qtrly, 1 year thru Mar. 11	instantation.
HS-1	NS NS	NS NS	NS	NS 🗄	NS N	IS NS	NS NS	NS N	S NS	NS NS	NS	NS	NS NS														NS	NS	NS	As needed, once annually	VOCs detected are greater than
HS-2	NS																												Yes	Qtrly, 1 year thru June 11	80% of the MCL. The well will
HS-3	NS	NS	NS	NS	NS	NS	NS NS	N	S NS	NS	NS	NS			NS	NS		NS		NS			NS			NS NS				As needed, once annually	be placed on a monthly sampling
I10-2	210						210						NS	NS	NS			NS				NS	NS		NS I	NS NS				Qtrly, 1 year thru Mar. 11	schedule until GAC installation
I10-4 I10-5	NS NS	NS NS	NS		NS N	IS NS	NS	NS NS	9	NS NS	NE		NS NS	NC				NA NS	NA	NA NS		NA NS	NE		NC P	NS NS		NS		Quarterly As needed, once annually	then quarterly sampling after
I10-3 I10-7	NS NS		_	NS		NS NS	NS NS			INS INS	NB		IND IND	IND		IN S	IND	INS.	IND	IND	IND	IND	IND	_	INS I					Otrly, 1 year thru June 11	GAC installation.
I10-7 I10-8	NS NS				NS N	IS NS	NS NS			NS NS	NS		NS NS	NS		NS	NS	NS		NS	NS	NS		NS	NS 1	NS	_	T\D		Qtrly, for delineation	
JW-5	NS NS					IS NS	NS NS			NS NS	110		NS	NS	NS	145	110	140		115	110	110			NS 1			NS		As needed, once annually	VOCs detected are less than 80%
JW-6	NS				NS	NS			S NS		NS	NS			NS	NS		NS	NS	NS		NS	NS				NS			As needed, once annually	of the MCL (<4.0 ppb and >0.06
JW-7	NS	NS NS	NS	NS	NS N	IS																								Qtrly, 1 year thru June 11	ppb for PCE & <4.0 ppb >0.05
JW-8	NS NS	NS NS	NS	NS	NS																									Qtrly, 1 year thru Mar. 11	ppb for TCE). After four quarters
JW-9												NS	NS	NS	NS		NS	NS				NS				NS NS		NS		As needed, once annually	of stable results the well can be
JW-9-A2*	NS NS				NS N								NS NS	NS	NS	NS	NS	NS	NS		NS			NS		NS NS			NS		removed from quarterly sampling.
JW-12	NS		NS	_	NS N		NS NG NG	NS NS		NS			NS NS	110	NS	NS	NS	NG	NG	NS			NS	NG			NA NA	NA		Access agreement expired, owner won't call back	
JW-13	NS	NS NS	NS		NS	NS	NS NS	N.	S NS	NS	NS		NS	NS	NS	NS		NS	NS	NS		NS	NS	NS	l	NS NS	NS			As needed, once annually Qtrly, due to location	
JW-14 JW-15	NS NS	NS NS	NS	NS	NS N	IS NO	NS NC	NS NS	S NC	NS			Tol NS	NS	NS		NS	NS	NS		NS	NS	NS		NS 1	NS NS		NS		Qtrly, due to location As needed, once annually	This well has a GAC filtration unit installed by CSSA. Post GAC
JW-26	NS NS		_	IND .	115 11			145 14	5 105	NS NS	NS		NS NS		IND	NS									NA NA		. NA			Wellowner declined access.	samples are collected every six
JW-27	NS NS			NS 🗌	NS	NS	NS NS	N	S NS		NS		110 110	Tig		110	115	110	NS		1.1.1		1 11 1		NS I			NS		As needed, once annually	months.
JW-28	NS NS	NS NS	NS	NS	NS N													NS		NS									Yes	Qtrly, due to location	A1 - after GAC canister #1
JW-29	NS NS	NS NS	NS	NS	NS																								Yes	Qtrly, due to location	A2 - after GAC canister #2
JW-30	NS NS	NS NS	NS	NS																										Qtrly, due to location	*JW-9-A2 is the well owner's
JW-31	NA NA	NA NA	NA	NA 1	NA N	IA NA	NA NA		A NA				NA NA	NA	NA	NA					NA	NA	NA	NA	NA N	NA				Qtrly 1 year thru Sept. 10	system, not a CSSA GAC.
LS-1								N:	S NS	NS NS			NS NS	NS	NS	NS	NS	NS	NS	NS										QED low flow pump installed	
LS-2				NG		10	NG	NG	NG			NS	NG	NS	NS	NS	NS	NS	NS				NS			NS NS				1 66	V T I I I G GOID
LS-2/LS-3-A1 LS-3	NS NS	NS NS		NS	N	IS	NS	NS	NS	NS		NS	NS		NS		NS NS	NA NS	NA NS				NA NS		NA NS NS	NA NA				GAC unit removed Well is offline, to be plugged soon	Yes To be sampled in Sept 2010.
LS-2/LS-3-A2	NS NS	NS		NS	N	IS	NS	NS	NS	NS		NS	NS		NS		NS								NA NA			NA		GAC unit removed	
LS-2/LS-3-A2 LS-4		IND I		ND	1	6	115	145	115	115		IND	NB		IND		NS	NS	NS	NS	INA	INA	INA	INA	INA I			nA.		QED low flow pump installed	FT First event for sampling by
LS-5																	115	110	110	1.6										Qtrly, 1 year thru June 11	CSSA.
LS-6																													Yes	Qtrly, 1 year thru June 11	
LS-6-A2		NS		NS	Ν	IS	NS	NS	NS	NS		NS	NS		NS		NS		NS		NS		NS		NS	NS		NS	Yes	Biannually (Mar & Sept)	NS Not sampled for that event.
LS-7																														Qtrly, 1 year thru June 11	
LS-7-A2		NS		NS	N	IS	NS	NS	NS	NS		NS	NS		NS		NS		NS		NS		NS		NS	NS		NS		Biannually (Mar & Sept)	No VOCs detected. Sample on
OFR-1	NS NG												NT A	NT A	NIA	NTA	NLA	NT A	NT A	NTA	NLA	NLA	NLA	NTA			NI A	NT A		Qtrly, 1 year thru March 11	an as needed basis.
OFR-2 OFR-3	NS NS												NA	NA	NA	ΝA	NA	INA	NA I	NA NA	. NA	NA		Well was P&A by Centex Qtrly, 1 year thru June 11	NA Not applicable, samples can no						
	NS NS	NS		NS	N	IS	NS	NS	NS	NS		NS	NS		NS		NS		NS		NS		NS		NS	NS		NS		Biannually (Mar & Sept)	INA Not applicable, samples can no longer be collected from this
OFR-3-A2 OFR-4		NS NS					NS	NS NS				NS		NS					NS				NS			NS NS				As needed, once annually	locaiton due to reason stated.
RFR-3	NS NS					IS NS				NS NS			NS NS	NS			NS			NS	NS	NS		NS	NS 1		NS			As needed, once annually	
RFR-4	NS NS	NS NS	NS	NS	NS N	IS NS	NS	NS NS		Tol NS	NS	NS	NS	NS			NS	NS	NS		NS	NS		NS	NS 1	NS	NS	NS	NS	As needed, once annually	
RFR-5	NS NS							NS NS			NS		NS	NS			NS	NS	NS		NS	NS		NS	NS 1	NS	NS			As needed, once annually	
RFR-6	NS	NS NS				IS NS		NS NS					NA NA												NA N					Plugged & abandoned	
RFR-7	NS					IS NS		NS NS		NS NS			NS NS																	Plugged & abandoned	
RFR-8	NS			NS I		NS			S NS				NS NS	NS		NS		NS		NS			NS			NS NS	NS			As needed, once annually	
RFR-9 RFR-10		NS	INS	NS	IND CIVIL		NS NS	INS	NS	NS NS		INS	NS NS		NS	NS	INS		INS	NS	INS		NS	IND	IND					Qtrly, 1 year thru Dec. 10 Qtrly, 1 year thru June 11	
RFR-10-A2		NS		NS	N	IS	NS	NS	NS	NS		NS	NS		NS		NS		NS		NS		NS		NS	NS		NS		Biannually (Mar & Sept)	
RFR-10-A2 RFR-10-B2			NS	NS	NS N	IS	NS NS	NS NS	NS	NS NS		NS NS	NS		NS		NS		NS NS		NS NS		NS NS		NS NS	NS				Biannually (Mar & Sept) Biannually (Mar & Sept)	
RFR-11		115	110	110			110	115	115	115		115	140		110		110		110		115		115		115	115				Qtrly, 1 year thru June 11	
RFR-11-A2		NS		NS	N	IS	NS	NS	NS	NS		NS	NS		NS		NS		NS		NS		NS		NS	NS				Biannually (Mar & Sept)	
RFR-12														NS	NS		NS	NS	NS		NS	NS	NS		NS 1	NS NS				Qtrly, 1 year thru June 11	
RFR-13								Well Install	ed						NS				NS				NS			NS NS			NS	As needed, once annually	
RFR-14											Well Inst	talled																	Yes	Qtrly, 1 year thru June 11	
																											Pre GAC			28	
																								-			ost GAC			6	
																								1		f first time				0	
																										Total # of	samples			34	

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 2003).	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 2003). 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	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 2003).	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 2010 Quarterly Off-post Groundwater Analytical Results

			cis-1,2-	trans-1,2-			Vinyl
Well ID	Sample Date	1,1-DCE	DCE	DCE	PCE	TCE	Chloride
FO-17	6/1/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
FO-J1	6/2/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
HS-3	6/4/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-2	6/2/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-4	6/1/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-8	6/4/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-6	6/2/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-7	6/3/2010	0.12U	0.07U	0.08U	0.36F	0.05U	0.08U
JW-8	6/2/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-13	6/9/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-14	6/2/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-28	6/3/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-29	6/3/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-30	6/3/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-30 FD	6/3/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-31	6/3/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
LS-1	6/3/2010	0.12U	0.19F	0.08U	0.06U	0.05U	0.08U
LS-4	6/3/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
LS-5	6/1/2010	0.12U	0.07U	0.08U	0.98F	2.22	0.08U
LS-6	6/1/2010	0.12U	0.07U	0.08U	0.95F	0.23F	0.08U
LS-7	6/1/2010	0.12U	0.07U	0.08U	0.47F	0.19F	0.08U
OFR-1	6/2/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OFR-3	6/1/2010	0.12U	0.07U	0.08U	3.23	3.04	0.08U
RFR-8	6/4/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-9	6/23/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-10	6/2/2010	0.12U	0.21F	0.08U	10.56	5.05	0.08U
RFR-11	6/1/2010	0.12U	0.07U	0.08U	1.13F	0.05U	0.08U
RFR-12	6/2/2010	0.12U	0.07U	0.08U	0.06U	0.38F	0.08U
RFR-12 FD	6/2/2010	0.12U	0.07U	0.08U	0.06U	0.35F	0.08U
RFR-13	6/2/2010	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-14	6/4/2010	0.12U	0.07U	0.08U	0.16F	0.05U	0.08U
RFR-14 FD	6/4/2010	0.12U	0.07U	0.08U	0.17F	0.05U	0.08U

BOLD	= Above the MDL
BOLD	= Above the RL
BOLD	= Above the 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.