### **June 2015**

### Off-Post Quarterly Groundwater Monitoring Report



Prepared For

Department of the Army Camp Stanley Storage Activity Boerne, Texas

September 2015

#### **EXECUTIVE SUMMARY**

- A total of 10 off-post wells were sampled during the June 2015 sampling event. This included the normally scheduled 7 wells for sampling, plus three additional wells to meet new programmatic needs. Well JW-12 was added due to the homeowners request and receipt of the access agreement. Wells OW-HH2 and OW-BARNOWL were added to support the treatability study being conducted at Area of Concern (AOC)-65.
- Analyses indicated off-post well RFR-10 exceeded the maximum contaminant level (MCL) for tetrachloroethene (PCE) and trichloroethene (TCE). This well is equipped with granular activated carbon (GAC) filtration system.
- GAC-filtered samples were last collected in March 2015. At that time all GAC-filtered sample results were non-detect indicating the GAC units are functioning properly. The next scheduled GAC-filtered samples will be collected in September 2015.
- Semi-annual GAC maintenance was performed February 26, 2015. 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 August 2015.
- The data quality objectives (DQOs) and the long term monitoring optimization (LTMO) are currently under review and will be submitted to the Texas Commission on Environmental Quality (TCEQ) and United States Environmental Protection Agency (USEPA) for approval.

#### **GEOSCIENTIST CERTIFICATION**

### June 2015 Off-Post Quarterly Groundwater Monitoring Report

For

Department of the Army
Camp Stanley Storage Activity
Boerne, Texas

I, W. Scott Pearson, Professional Geologist (P.G.), hereby certify that the 2015 June 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 Camp Stanley Storage Activity Environmental Office, laboratory data provided by APPL, and field data obtained during groundwater monitoring conducted at the site in June 2015, and is true and accurate to the best of my knowledge and belief.



W. Scott Pearson, P.G.

State of Texas

Geology License No. 2186

9-10-2015

)oto

#### TABLE OF CONTENTS

EXECUTIV	VE SUMMARY	ii
GEOSCIEN	NTIST CERTIFICATION	iii
TABLE OF	CONTENTS	iv
LIST OF T	ABLES	iv
LIST OF F	IGURES	iv
1.0 INT	RODUCTION	1-1
2.0 JUN	E 2015 ANALYTICAL RESULTS	2-1
3.0 SUM	IMARY AND RECOMMENDATIONS	3-1
	LIST OF TABLES	
Table 2.1	Sampling Rationale for June 2015	2-3
Table 2.2	June 2015 Off-Post Groundwater Results, Detected Analytes Only	2-5
Table 3.1	Sampling Rationale for September 2015	3-2
	LIST OF FIGURES	
Figure 2.1	On-Post and Off-Post Well Sampling Locations for June 2015	2-2
	LIST OF APPENDICES	
Appendix A	Evaluation of Data Quality Objectives Attainment	
Appendix B	June 2015 Quarterly Off-post Groundwater Analytical Results	
Appendix C	Data Validation Reports	

#### ABBREVIATIONS AND ACRONYMS

μg/L	microgram per liter
1,1-DCE	1,1-dichloroethene
AOC	Area of Concern
APPL	Agriculture and Priority Pollutants Laboratories, Inc.
cis-1,2-DCE	cis-1,2-Dichloroethene
CSSA	Camp Stanley Storage Activity
DQO	Data Quality Objective
FD	Field Duplicate
FO	Fair Oaks
GAC	Granular Activated Carbon
HSP	Health and Safety Plan
JW	Jackson Woods
LS	Leon Springs
LTMO	Long Term Monitoring Optimization
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NA	Not Applicable
OFR	Old Fredericksburg Road
OW	The Oaks Water Supply Corporation
Parsons	Parsons Government Services, Inc.
PCE	Tetrachloroethene
P.G.	Professional Geologist
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RFR	Ralph Fair Road
RL	Reporting Limit
SAP	Sampling and Analysis Plan
SLD	Scenic Loop Drive
TCE	Trichloroethene
TCEQ	Texas Commission on Environmental Quality
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

#### JUNE 2015 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 2015 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 2015 quarterly monitoring events (March, June, September, and December) will be described in detail in an Annual Report to be submitted after December 2015. The Annual Report will also provide an interpretation of all analytical results and an evaluation of any temporal or spatial trends observed in the groundwater contaminant plume during investigations.

Groundwater monitoring was performed June 1<sup>st</sup> through 15<sup>th</sup>, 2015. 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 described in the Plan.

The CSSA groundwater monitoring program also follows the provisions of the groundwater monitoring program data quality objectives (DQOs) as well as the recommendations of all applicable project-specific work plans. **Appendix A** provides an evaluation of the DQO attainment for this sampling event. Currently, the DQOs and the long term monitoring optimization (LTMO) are under revision and will be submitted to the Texas Commission on Environmental Quality (TCEQ) and United States Environmental Protection Agency (USEPA) for approval.

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 2015 ANALYTICAL RESULTS

During the June 2015 event, groundwater samples were collected from 10 off-post wells shown in **Figure 2.1.** Three wells (JW-12, OW-BARNOWL, and OW-HH2) were added to the sampling schedule. Seven granular activated carbon (GAC) filtered samples (LS-5-A2, LS-6-A2, LS-7-A2, OFR-3-A2, RFR-10-A2, RFR-10-B2, and RFR-11-A2) are collected semi-annually (March and September), and were not collected during this event.

**Table 2.1** includes the rationale for selection of the wells to be sampled in June 2015, and **Figure 2.1** provides well locations for the following sampled wells:

- One privately-owned well in the Jackson Woods (JW) subdivision (JW-12) was added to this event at the request of the owner;
- Three privately-owned wells in the Leon Springs (LS) Villa area: LS-5, LS-6, and LS-7;
- One privately-owned well on Old Fredericksburg Road (OFR) (OFR-3).
- Two privately-owned wells in the Ralph Fair Road (RFR) area (RFR-10 and RFR-11);
- Two public supply wells from The Oaks Water Supply Corporation (OW) (OW-HH2 and OW-BARNOWL) were added to this event;
- One public supply wells in the Scenic Loop Drive (SLD) area, SLD-01.

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.

A total of 10 groundwater samples, two trip blanks, one field duplicate (FD), and one matrix spike/matrix spike duplicate (MS/MSD) included with the on-post data groups 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 Government Services, Inc. (Parsons) internal reference 810000-#41 and #42) 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 18<sup>th</sup> through 22<sup>nd</sup>, 2015.

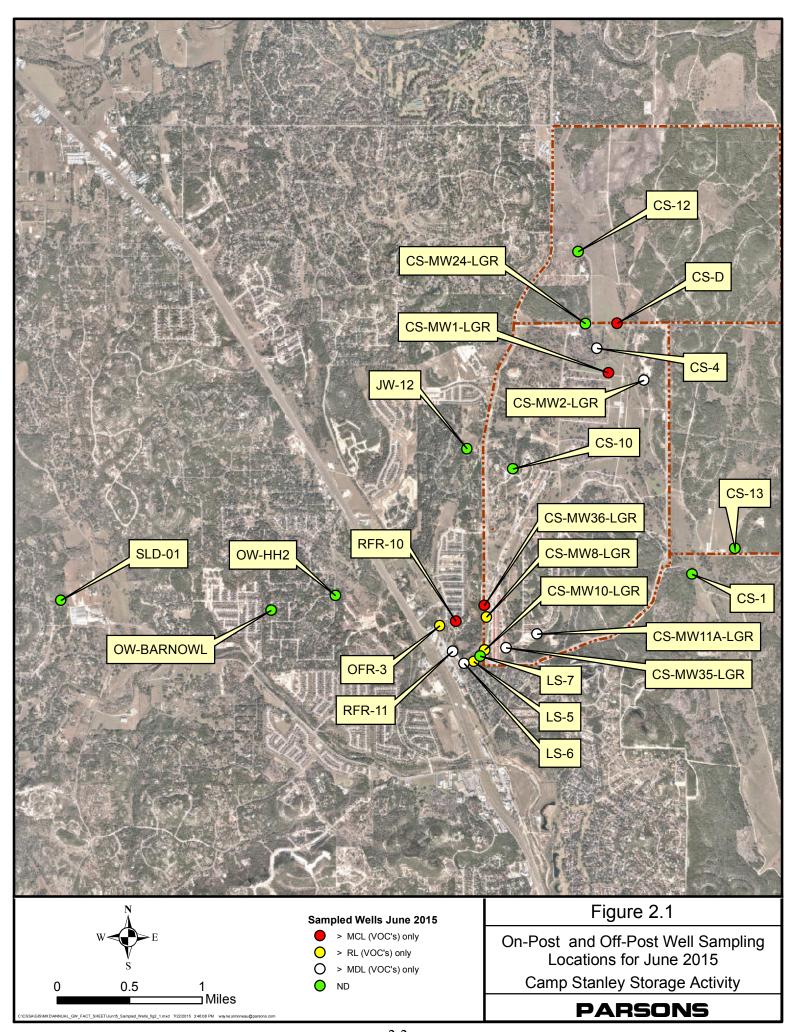


Table 2.1
Sampling Rationale for June 2015

2001	No.	2002	Dog Mar	2003	nt Da-	M	2004		. N	2005			2006			200		o Mar	2008	nt Dr	Mar	2009	nt Dar		2010	200 14-	2011	00 14	2012			013		2014	nt Do	2015 Sampling Frequenc
Sept De	ec Mar J	une Sept	Dec Mar	June Se	pt Dec	war	June Se	ept De	c war	June 5	ept Dec	iviar .	June 5	ept De	ec iviar	June	sept De	c war	June Se	pt Dec	iwar J	une Se	pt Dec	Mar Jui			June Sept D			•					-	
-						+ +		_		-		+	-		-	1				_	+		_			access agr	eement receiv		NS N		NS NS		IS NS	N:		
NS NS		NS NS	NC	NS N	C NC		NS N	IS NS	_	NS N	NS NS		NIC N	IC N	C	NS	NS NS		NS N	S NS		NC N	C NC	N:	C NC	NS	NS N	agreemen	NS N		NS NS		IS NS	N:	S NS	
NS NS		NS NS		NS N					S NS		NS NS	_	NS N		S NS			S NS		S NS		NS NS	S NS			NS NS			NS N		NS NS		IS NS		S NS	
	S NS			NS N			NS N		NS NS		NS NS		NS N	_		NS				_		_				NS NS	NS N		NS N		NS NS		IS NS	N:		
INC	S NS	NO NO	INO	INO IN	3	INO	NS N	13	INO	NO I		NS NS	INO I	13	INO	INO	INO INC	3	NS N	S NS	'	142	S NS	INA	3 113	INO	NS N			IS NA			IS NS			
NS NS	S NS	NS NS	NG NG	NS N	S NS	NC		IS NIS	S NIC	NIC N			NS		_	_								NS N	S NIS	_	NS N		NS N		NS NS		IS NS	N:		
NS NS	0 110	140	140 140	140 14	0 140	140	140 14	10 140	3 140	140 1	10 110	140	140			_				_		_		NS NS		NS			NS N		NS NS		IS NS	N:		
NS	NS	NS	NS NS	N:	S NS	NS	N	IS NS	s NS	N	NS NS	NS	N	NS N	S NS		NS NS	s NS	N	S NS	NS	N.	S NS			NS NS	NS N		NS N	_	NS NS		IS NS	N:		
140	Ne	110	110 110	.,	0 110	110		10 110	3 110		10 110	_	NS 1			NS				S NS			S NS	140		NA NS			NS N		NS NS		IS NS			
NS					NS								110	10 11	Ŭ		NA NA	_				140	0 110			I I I I I	140	U	110	10	110 110		NA NA			NA NA P&A
NS NS	S NS	NS NS	NS	NS N	S	NS	NS N	IS	NS	NS N	NS	NS	NS 1	NS	NS				NS N	S NS	1	NS NS	S NS	N:	S NS	NS	NS N	IS .	NS N	IS	NS NS	N	IS NS	N:		
NS NS	S	NS NS	NS	N:	S NS	NS	N	IS																NS	S NA	NA NS	NS N	IS	NS N	NS S	NS NS	N	IS NS	N:	S NS	NS 9-month (snapshot)
NS NS	S NS	NS NS	NS NS	NS N	S NS	NS	NS N	IS NS	S NS	NS N	NS	NS	NS 1	NS	NS	NS	NS	NS	NS N	S	NS I	NS NS	S				NS N	IS	NS N	NS S	NS NS	N	IS NS	N:	S NS	NS 9-month (snapshot)
																													access	agreeme	nt received	d N	IS NS	NS N	3 NS	NS NS One time sample
NS NS	S NS	NS NS	NS NS	NS N	S NS	NS	NS N	IS NS	S NS				NS N	NS N	S						1	NS NS	S NS	NS	S NS	NS	NS N	IS	NS N	NS S	NS NS	N	IS NS	N:	S NS	NS 9-month (snapshot)
NS	S NS	NS	NS NS	N:	S NS	NS	N	IS NS	S NS	N	NS NS	NS	١	NS N	S NS		NS NS	S NS	N	S NS	NS	N:	S NS	NS	NS	NS NS	NS N		NS N		NS NS		NS NS	N:		NS 9-month (snapshot)
NS	S NS	NS NS		NS																							NS N	IS	NS N	NS S	NS NS	N	IS NS	N:	S NS	NS 9-month (snapshot)
NS NS	S NS	NS NS	NS NS																								NS N	IS	NS N	NS	NS NS	N	NS NS	N:	S NS	NS 9-month (snapshot)
											NS NS	_	NS 1			NS				S NS		NS NS				NS NS	NS N		NS N		NS NS		IS NS	N:		
NS	S NS	NS NS	NS	N:	S NS	NS	N	IS NS	S NS	N	NS NS	NS	١	NS N	S NS		NS NS	S NS	N	S NS	NS NS	NS	S NS	NS	NS	NS NS			NS N		NS NS		NS NS		S NS	
												Tol															NS N		NS N		NS NS		IS NS		S NS	
NS NS	S NS	NS NS	NS NS	NS N	S NS	NS	NS N	IS NS	S NS				NS N	NS N	S	NS	NS NS	3	NS N	S NS		NS NS	S NS	NS	S NS	NS	NS N	IS	NS N		NS NS		IS NS	N:	S NS	
																															eement red				NS	
NS NS		NS NO	NO NO		0 110	NO		10 116	NS		NS .	NS	NS N	NS	NS	NS			NA N	A NA				NA N		NS NS	NS N		NS N		NS NS		IS NS		S NS	
	S NS				S NS	NS	N	IS NS	S NS	N	NS	_			_		NS NO NO		_	_		NS N	S NS	N:	S NS	NS	NS N		NS N		NS NS		IS NS		S NS	
		NS NS		NS											_		NS NS	5 NS							+		NS N		NS N		NS NS		IS NS		S NS	
		NS NS						_							_		_										NS N		NS N		NS NS		IS NS	N:		
	S NS			NIA NI	A N/A	NIA	NIA NI	10 01/	A NIA	NIA N	.10	NIA	NIA N	IA N	A NIA	NIA	NIA NIA	N N N	NA N	A NIA	NIA I	NIA NI				NO NO	NS N		NS N		NS NS		IS NS			
NA NA	A NA	NA NA	NA NA	NA N	A NA	NA	NA N				NA NA			NA N	S NS		NA NA	1 11/1	NA N	A NA	NA I	NA IN	A			NS NS	NS N		NS N		NS NS		IS NS	N:		
					_		N	IS NS	s NS	NS P	NS NS	NS	NS I	NS N	5 NS	.,,		S NS									NS N		NS N		NS NS		IS NS	N:		
				-	_			_	_			_				N5	NS NS	5 NS			_	_			_		NS N	5	NS N	15	NS NS	ľ	15 NS	IN:	S NS	Yes Quarterly
																									-	CAC inetal	led 10/6/11 N	IC.	NS	NS	NS		IS	NS	NS	
												+ +		_												JAC IIIStai	leu 10/6/11 N	3	INO	INS	INS	,	13	INO	INO	Yes Quarterly
		NS	NS	NS	NS		NS	NS	3	NS	NS		NS	N:	S	NS	NS		NS	NS		NS	NS	N:	9	NS	NS N	IS.	NS	NS	NS	N	IS S	NS	NS	
		10	140	140	110		140	140		110	110		140	14	_	140	140		110	110		10	140	133	<u> </u>	110	146		140	140	140		10	110	110	Yes Quarterly
		NS	NS	NS	NS		NS	NS	3	NS	NS		NS	N:	S	NS	NS	3	NS	NS	1	NS	NS	N:	S	NS	NS N	IS	NS	NS	NS	N	IS S	NS	NS	
NS				110	110		110			110	110		110	- 11	<u> </u>	110			110	110		10	110		_		NS N		NS N		NS NS		IS NS	N:		NA NA P&A
																										NA NS							IA NA			
NS NS	S	NS	NS	NS	NS		NS	NS	S	NS	NS		NS	N:	S	NS	NS	3	NS	NS	1	NS	NS	N:		NS NS	NS N	IS .	NS	NS			IS NA			
NS NS	S NS	NS NS	NS NS		NS		NS N	IS NS	3	NS N	NS NS		NS 1	NS N	S	NS	NS NS	3	NS N	S NS	1	NS NS	S NS	N:	S NS	NS	NS N		NS N	IS	NS NS		IS NS	N:	S NA	NA NA P&A
																							acces	ss agreen	nent rece	ived			NS N	IS	NS NS	N	IS NS	N:	S NS	NS 9-month (snapshot)
																							acces	ss agreen	nent rece	ived						N	IS NS	N:	S NS	NS 9-month (snapshot)
																							acces	ss agreen	nent rece	ived			NS N	NS S	NS NS	N	IS NS			NS 9-month (snapshot)
																							acces	ss agreen	nent rece	ived			NS N		NS NS		IS NS	N:		
		$\bot$				$oxed{\Box}$			$oldsymbol{\perp}$			$oldsymbol{\perp}$				$oldsymbol{ol}}}}}}}}}}}}}}}}}}$								ss agreen					NS N	IS S	NS NS		IS NS		S NS	
												$\bot$				$\downarrow \downarrow \downarrow$					$\bot$	ļ	_	ss agreen									IS NS	N:		
L L		-				+			+			1 1			-	<b>↓</b>				_	1		_	ss agreen					NS N		NS NS		IS NS	N:		
NC 11	0 10	NO NO	NO NO	NO 11	<u> </u>				NO	NC .	JC.	NO	NC .	IC.	NC	NO	NC	N10	NC N		NO .	NO 1		ss agreen			NO. 1		NS N		NS NS		IS NS		S NS	
	S NS			NS N	_		NIC N	IC NIC	NS Tol		VS NC		NS N			NS		NS		_		NS NS		NS NS		NS			NS N		NS NS		IS NS		S NS	
NS NS		NS NS NS NS NS		NS N	S NS		NS N		S Tol		NS NS		NS N		S	NS NS				S S		NS NS		NS NS	S NS	NS NS	NS N		NS N		NS NS		IS NS	N:	S NS	
	S NS		NS NS		S NS				S NS		NS NS			NS N	S NS			S NS		S NS			S NS			NS NS	NS N		NS N		NS NS		IS NS	N:		
INC	NS NS		NS NS	IV		NS			S NS			NS			S NS			S NS			I SN		O INO	140		NS NS	NS N		NS N		NS NS				S NS	
	.,.	110			.,5	.,.		110	.,.		1,0				_ 110		110	.,,		1,0							145 1			·	7.0 110	1	.5 110	144	1112	Yes Quarterly
		NS	NS	NS	NS		NS	NS	S	NS	NS		NS	N:	S	NS	NS	3	NS	NS	1	NS	NS	N:	S	NS	NS N	IS .	NS	NS	NS	N	IS	NS	NS	
		NS NS			NS		NS	NS		NS	NS		NS	N:		NS	NS NS		NS	NS		NS	NS	NS NS					NS	NS	NS		IS	NS	NS	7.
																																				Yes Quarterly
		NS	NS	NS	NS		NS	NS	3	NS	NS		NS	N:	S	NS	NS	3	NS	NS	1	NS	NS	N:				IS .	NS	NS	NS	N	IS S	NS	NS	
													NS 1	NS N	S		NS NS		NS N				S NS			NA NS				IS S	NS NS		IS NS	N:	S NS	
						We	ell Installe	ed					١	NS N	S NS		NS NS	S NS	N	S NS	NS	N:	S NS	NS	NS	NS NS	NS N	IS	NS N	IS S	NS NS	N	IS NS	N:	s NS	NS NS 9-month (snapshot)
										Well	Installed	1															NS N		NS N		NS NS		IS NS	N:	S NS	
																										ess agree					NS NS					Yes Quarterly
	$\neg$																				per	rmission	to sam	ple grante	ed, no aco	ess agree	ement NA N	IS	NS N	IS NA	NS NS	N	IS NS	N:	S NS	NS 9-month (snapshot)
																				_				F 3												

VOCs detected are greater than 90% of the MCL. Sample monthly; quarterly after GAC installation.

VOCs detected are greater than 80% of the MCL. The well will be placed on a monthly sampling schedule until GAC installation then quarterly sampling after VOCs detected are less than 80% of the MCL (<4.0 ppb and >0.06 ppb for PCE & <4.0 ppb >0.05 ppb for TCE). After four quarters of stable results the well can be removed from quarterly

This well has a GAC filtration unit installed by CSSA. Post GAC samples are collected every six months.
A1 - after GAC canister #1
A2 - after GAC canister #2

To be sampled in June 2015.

NS Not sampled for that event.

No VOCs detected. Sample on an as needed basis. NA Not applicable, sample could not be collected due to pump outage or well access conflict.

Concentrations of the VOCs detected in June 2015 are presented in **Table 2.2**. Full analytical results from the June 2015 sampling event are presented in **Appendix B**. As shown in **Table 2.1**, all 7 samples that were scheduled for collection in June 2015 were obtained. Well JW-12 was added due to the homeowners request and receipt of the access agreement. Wells OW-HH2 and OW-BARNOWL were added to support the treatability study being conducted at AOC-65.

In February 2015, routine semi-annual maintenance was performed on the GAC treatment systems at LS-5, LS-6, LS-7, 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 during the September 2015 event. Maintenance was not performed on the OFR-3 GAC system in February 2015 due to no electricity at the property. Post-GAC samples collected in April from well OFR-3 showed no detections of VOCs, indicating the GAC system is still functioning properly now that its use has been reinstated by the property owner. Well OFR-3 will be added back in to the semiannual GAC maintenance schedule in August 2015.

Based on historical detections, the lateral extent of VOC detections extends beyond the south and west boundaries of CSSA. Past detections of VOCs have extended 0.37 miles south to well LS-4 and 2.9 miles west to SLD-01 (**Figure 2.1**).

Table 2.2

June 2015 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
Jackson Woods Subdivision	JW-12	6/3/2015	-					
	LS-5	6/1/2015				1.22F	2.72	
Leon Springs Villas	LS-6	6/1/2015				0.29F		
	LS-7	6/1/2015	-			-		
Old Fredericksburg Road	OFR-3	6/1/2015				4.19	2.59	
The Oake Water Comple	OW-BARNOWL	6/3/2015						
The Oaks Water Supply	OW-HH2	6/3/2015						
Bolob Foir Bood	RFR-10	6/1/2015		0.13F		9.19	5.53	
Ralph Fair Road	RFR-11	6/1/2015				0.93F		
Saania Laan Driva	SLD-01	6/3/2015						
Scenic Loop Drive	SLD-01 FD	6/3/2015						
		Laboratory De	tection Lim	nits & Maxii	mum Contai	minant Lev	el	
	Method Detection	n Limit (MDL)	0.12	0.07	0.08	0.06	0.05	0.08
	Report	ting Limit (RL)	1.2	1.2	0.6	1.4	1	1.1
	Max. Contaminar	nt Level (MCL)	7	70	100	5	5	2

BOLD	≥ MDL
BOLD	≥ RL
BOLD	≥ MCL

All samples were analyzed by APPL, Inc.

VOC data reported in ug/L.

#### Abbreviations/Notes:

FD Field Duplicate
TCE Trichloroethene
PCE Tetrachloroethene
DCE Dichloroethene

#### Data Qualifiers:

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

#### 3.0 SUMMARY AND RECOMMENDATIONS

Results of the June 2015 sampling event are summarized as follows:

- All 7 wells scheduled for collection in June 2015 were obtained during the quarterly monitoring event. Well JW-12 was added due to the homeowners request and receipt of the access agreement. Wells OW-HH2 and OW-BARNOWL were added to support the treatability study being conducted at AOC-65.
- Well RFR-10 exceeded the MCL in June 2015 for PCE and TCE. This well is equipped with a GAC filtration system.
- Well LS-7 was non-detect for PCE and TCE in June 2015. This is the first sampling event since the well was first sampled in 1999 that PCE has not been detected. LS-7 is equipped with a GAC filtration system.
- PCE and/or TCE were detected above the Reporting Limits (RLs) in private drinking water wells LS-5 and OFR-3. These two wells have GAC filtration systems in place.
- 1,1-DCE, *trans*-1,2-DCE, and vinyl chloride were not detected in any of the off-post wells sampled in June 2015.
- GAC-filtered samples were not scheduled to be collected as part of the quarterly groundwater monitoring in June 2015. GAC-filtered samples were non-detect in March 2015 indicating the GAC units are functioning properly. The next GAC-filtered samples will be collected in September 2015.
- Semi-annual GAC maintenance, including carbon change-out, was performed February 26, 2015. The next semi-annual GAC maintenance will be due in August 2015.
- In accordance with project DQOs, the rationale for the selection of 7 wells and 7 post GAC samples to be collected in September 2015 is provided in **Table 3.1**.

Table 3.1 Sampling Rationale for June 2015

	20	001		1002		ı	2003	,		,	1004			1005		1	007		20	07		,	2000		2	000		2010			201	1	2012		1 20	112	2	2014		I	2015		
Well ID		001 Dec M		2002 .e Sep	t Dec	Mar .	2003 June S		Dec M		2004 e Sept I	Dec M		005 e Sept	Dec		006 e Sept	Dec M	20 ar June		Dec 1		2008 1e Sept	Dec Ma		009 e Sept D	ec Ma	2010 r June Sej	pt Dec	ec Mar J	201 June S		2012 ar June Se	pt Dec		Sept Dec N		2014 e Sept	Dec		2015 June Sep	t Samplin	ing Frequency
BSR-03																														access ag	reeme	nt received	NS N		NS NS		NS	NS				9-month (sr	- I
BSR-04 FO-8	NS	NS	NS	NS	NS		NS :	NS N	NS	NS	NS 1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	2 NS	NS	NS	NS N	S	NS N	S NS	2		NS NS	NS N		NS NS				NS NS			9-month (sr 9-month (sr	1 /
FO-17	NS	NS	NS						NS N			NS N		NS				NS N		NS				NS NS			S NS			S NS		NS NS	NS N		NS NS				NS			9-month (sr	
FO-22		NS N	IS NS	NS		NS	NS :	NS	N	NS NS		N	IS NS	NS		NS NS	NS	N	S NS	NS	NS	NS	S NS	NS	NS	NS N	S	NS N	S NS	S		NS NS	NS N		NS NS	2.100			NS			9-month (sr	
FO-J1 HS-1	NS	NS N	IS NS	NS	NS	NS	NS	NS N	NS N	NS NS NS		NS N	IS NS	NS		NS NS		_	_		_				_		NS	S NS N	S	+		NS NS N	A NS N		NS NS				NS NS			9-month (sr 9-month (sr	
HS-2	NS	110	I THE	110	11,5	1115	110	1115	1	10 110	110 1	1.5	IB TIB	110	Tig	TID TID					_						116	NS NS		NS		NS NS	NS N		NS NS	NS			NS			9-month (sr	
HS-3	NS	N	IS	NS	NS	NS		NS N	NS N	NS	NS 1	NS N	IS	NS	NS		NS			NS		NS		NS NS	_		S NS	S N		S NS		NS NS	NS N		NS NS	NS			NS			9-month (sr	
I10-2 I10-4	NS			-			-	N	NS			_				NS	NS	NS	NS NA	- 120	NS NA	NA NA		NS	NS	NS N	S		NA	A NS		NS NS	NS N	S	NS NS	NS	NS NA NA	NS NA	NS NA	NA	NS NS	9-month (sr	napshot)
I10-5	NS		IS NS	NS		NS	NS :	NS		NS NS	NS	N	IS NS	NS		NS NS	NS	N	S NS			NS NS			NS	NS N	S	NS N	S NS	S		NS NS	NS N		NS NS	NS	NS	NS	NS		NS NS	9-month (sr	
I10-7 I10-8	NS NS	NS N	NS IS NS			NIC				VS NC	NS NC 2	VIC N	IS NS	NIC		NS NS	NC		C NC	NIC		NC NO	NIC.	NC	NIC	NC		NS NA	A NA	A NS		NS NS	NS N		NS NS	NS NS		NS				9-month (sr 9-month (sr	
I10-8 I10-10	NS	NS N	(2) N3	N <sub>2</sub>	INS	NS	NS .	NS N	NS P	NS NS	NS I	NS IN	(2) IV2	NS		NS NS	NS	N	S NS	NS		NS NS	S NS	INS	NS	NS						NS NS			ment received	NS NS		NS NS		NS		One time sa	1 /
JW-5	NS	NS N	IS NS	NS	NS	NS	NS	NS N	NS N	NS NS	NS 1	NS N	IS			NS	NS	NS							NS	NS N	S	NS N	S NS	S		NS NS	NS N		NS NS	NS		NS				9-month (sr	1
JW-6		NS N		NS		NS	_	NS N	NS N	NS	NS 1	NS N	IS	NS	NS	NS	NS	NS N	S	NS	NS	NS	NS	NS NS		NS N	S NS	S N	S NS	S NS		NS NS	NS N		NS NS	NS		NS				9-month (sr	· /
JW-7 JW-8	NS	NS N				NS NS	NS	$\dashv$	+			+									$\dashv$						+					NS NS	NS N	_	NS NS	NS NS	NS NS	NS NS				9-month (sr 9-month (sr	
JW-9	140	140 1	(۱۹۵ د.	140	140	110							NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	S NS	NS	NS	NS N	S	NS N	S NS	S NS		NS NS	NS N		NS NS	NS		NS				9-month (sr	
JW-12		NS N				NS			NS	NS		NS	NS	_		NS NS		NS N				NA		NA				t expired, no					A NA N			NA NA		_		NA	NS	9-month (sr	snapshot)
JW-13 JW-14		NS N	IS NS	NS		NS		NS N	NS N	NS S	NS 1	NS N	IS	NS	NS	NS Tol	NS	NS N	S	NS	NS	NS	NS	NS NS		NS N	S NS	S N	S NS	S NS		NS NS	NS N NS N	S	NS NS NS NS		NS NS	NS	NS NS			9-month (sr 9-month (sr	
JW-15	NS	NS N	IS NS	NS	NS	NS	NS :	NS N	NS N	NS NS	NS 1	NS N	IS			NS	NS	NS	NS	NS	NS	NS	S NS	NS	NS	NS N	S	NS N	S NS	S		NS NS	NS N		NS NS				NS			9-month (sr	1 /
JW-20																																		access	agreement re	ceived			NS		NS NS	9-month (sr	snapshot)
JW-26		NS NS	NS IC NO		NIC	NIC		NIC N	NIC N	TC.	NIC 2		IS NS			NS NS	NS	N	S NS			NA NA	A NA	NA NA				NA NA		S NS		NS NS	NS N		NS NS				NS			9-month (sr	1 /
JW-27 JW-28	NS NS	NS N	IS NS	NS NS		NS NS		NS N	NS P	N2	NS I	NS IN	12	NS						NS	NS NS	NS			NS	NS N	S	NS N	5 NS	5		NS NS	NS N NS N		NS NS NS NS				NS NS			9-month (sr 9-month (sr	
JW-29	NS	NS N		_																												NS NS	NS N		NS NS	NS			NS			9-month (sr	
JW-30	NS	NS N	IS NS	_																												NS NS	NS N	_	NS NS	NS		NS				9-month (sr	
JW-31 LS-1	NA	NA N	A NA	NA.	. NA	NA	NA I	NA N	NA N	NA NA			IA NA	NA NS		NA NA NS NS	NA NS	NA N		NA NS		NA NA	A NA	NA NA	NA NA	. NA			NS	S NS		NS NS	NS N NS N		NS NS NS NS	NS NS		NS NS	NS NS			9-month (sr 9-month (sr	
LS-1 LS-4				-	+		$\overline{}$	_	+		No 1	N3 IN	65 195	IND	INS	No No	No	No N	NS	NS		NS NS	+									NS NS	NS N		NS NS				NS			9-month (sr	1 /
LS-5																																										Quarterly	-1
LS-5-A2																													G/	AC install	led 10/	/6/11 NS	NS	NS	NS	NS	NS		NS				(Mar & Sept)
LS-6 LS-6-A2			NS		NS		NS	N	NS	NS	7	NS	NS		NS	NS		NS	NS		NS	NS	3	NS	NS	N	S	NS	NS	2	NS	NS	NS	NS	NS	NS	NS		NS			Quarterly	(Mar & Sept)
LS-7			No		No		No	1	IND	ING	1	GF	No		No	145		No	INS		No	INC	,	No	No	IN	3	NS	No	3	149	1/15	1/15	No	145	110	No		No			Quarterly	(Mai & Sept)
LS-7-A2			NS		NS		NS	N	NS	NS	1	NS	NS		NS	NS		NS	NS		NS	NS	S	NS	NS	N	S	NS	NS	S	NS	NS	NS	NS		NS	NS	_	NS				(Mar & Sept)
OFR-1	NS			_	_		_								$\blacksquare$						_						_		NY A	A NG		NS NS	NS N	S	NS NS				NA	NA	NA NA		
OFR-3 OFR-3-A2	NS	NS	NS		NS		NS	N	NS	NS	1	NS	NS		NS	NS		NS	NS		NS	NS	3	NS	NS	N	S	NS		A NS S NS	NS	NS	NS	NS		NA NA I			NA NA			Quarterly Biannually	(Mar & Sept)
OFR-4	NS	NS N	_			NS	TUB		NS	NS		NS	NS		NS		NS		NS			NS NS		NS	NS		S	NS N				NS NS	NS N		NS NS				NA	NA	NA NA		(**************************************
OW-HH1																												agreement i		_			NS N	S	NS NS				NS			9-month (sr	
OW-HH2 OW-CE1	-										+ +																	agreement					NS N	S	NS NS	NS NS			NS NS			9-month (sr 9-month (sr	*
OW-CE2				+	+		<del>-  </del>	-	-	-	++	-	_	+			+				-+		+		+	1 1		agreement					NS N		NS NS				NS			9-month (sr	
OW-MT2																												agreement i					NS N		NS NS	NS	NS	NS	NS		NS NS	9-month (sr	snapshot)
OW DAIRYWELL	.—		-	-							+		_				1							$\vdash$	-	+-+		agreement					NG N	c	NIC NIC	NS NC			NS			9-month (sr	
OW-DAIRYWELI OW-HH3	1	<del>     </del>	-	+	-	H		_			+ +	_		+			+							<del>                                     </del>	+	+ +		agreement		_			NS N		NS NS				NS NS			9-month (sr 9-month (sr	1 /
RFR-3	NS	NS N	IS NS	NS	NS	NS	NS	NS					IS NS			NS NS	NS	N	S NS	NS		NS NS	S NS	NS	NS	NS		NS NS		NS		NS NS	NS N		NS NS				NS			9-month (sr	
RFR-4		NS N									NS I						NS	NS	NS	NS	NS	NS	S NS	NS NS	NS	NS		NS NS		NS		NS NS	NS N	S	NS NS	NS NC						9-month (sr 9-month (sr	
RFR-5 RFR-8	NS	NS N				NS NS				NS NS	NS I							NS N						NS NS		NS N		S NS NS		S NS		NS NS	NS N NS N		NS NS				NS NS			9-month (sr 9-month (sr	
RFR-9			IS			NS				NS NS			IS NS			NS NS		NS N				NS NS		NS NS			. "	14.		S NS		NS NS	NS N			NA NS			NS		NS NS	9-month (sr	
RFR-10			NIC		NIC		NIC	Ţ	NIC	NTC		VIC.	NIC		Nic	NIC		NC	NIC		NC	XT/	3	NC	NIC		C	NE	NTO		NIC	NIC	NC	NIC	NO	MC	MG		Nic			Quarterly	(Mon & Ct)
RFR-10-A2 RFR-10-B2			NS NS			NS			NS NS	NS NS		NS NS	NS NS		NS NS	NS NS		NS NS	NS NS		NS NS	NS NS		NS NS	NS NS		S	NS NS	NS NS		NS NS	NS NS	NS NS	NS NS			NS NS	_	NS NS				(Mar & Sept) (Mar & Sept)
RFR-11																																									Ye	Quarterly	•
RFR-11-A2			NS		NS		NS	N	NS	NS	1	NS	NS		NS	NS NC		NS	NS		NS	NS NS		NS NC	NS		S	NS			NS	NS	NS NS N	NS			NS NC		NS				(Mar & Sept)
RFR-12 RFR-13								+		Well I	nstalled	+				NS	NS NS	NS N	NS S	NS NS				NS NS		NS N		N'		A NS S NS		NS NS	NS N		NS NS				NS NS			9-month (sr 9-month (sr	
RFR-14			1	1									,	Well Ins	talled		110	110 11	~	1.0		- 10	11,5	110 110		1.5	- 110	14,	110	. 110		NS NS	NS N		NS NS				NS			9-month (sr	
SLD-01																												ple granted,				NS			NS NS		NG.					Quarterly	
SLD-02	1			1																			l			permission	to sam	ple granted,	no acce	ess agreer	ment	NA NS	NS N	S NA	NS NS	NS	NS	NS	NS		NS NS mpled: 7	9-month (sr	napshot)
																																									mpiea: / mples: 7		

VOCs detected are greater than 90% of the MCL. Sample monthly; quarterly after GAC installation.

VOCs detected are greater than 80% of the MCL. The well will be placed on a monthly sampling schedule until GAC installation then quarterly sampling after GAC installation.

VOCs detected are less than 80% of the MCL (<4.0 ppb and >0.06 ppb for PCE & <4.0 ppb >0.05 ppb for TCE). After four quarters of stable results the well can be removed from quarterly sampling.

This well has a GAC filtration unit installed by CSSA. Post GAC samples are collected every six months.

A1 - after GAC canister #1
A2 - after GAC canister #2

Yes
To be sampled in Sept. 2015.

NS Not sampled for that event.

No VOCs detected. Sample on an as needed basis. NA Not applicable, sample could not be collected due to pump outage or well access conflict.

Wells Sampled: 7
Post GAC samples: 7
Total Samples: 14

# APPENDIX A EVALUATION OF DATA QUALITY OBJECTIVES ATTAINMENT

Appendix A Evaluation of Data Quality Objectives Attainment

Activity	Objectives	Action	<b>Objective Attained?</b>	Recommendations
Field Sampling	Conduct field sampling in accordance with procedures defined in the project work plan, SAP, QAPP, and HSP.	All sampling was conducted in accordance with the procedures described in the project plans.	Yes	NA
Contamination Characterization	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 3 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.
(Groundwater Contamination)	Meet CSSA QAPP quality assurance	Samples were analyzed in accordance with the CSSA QAPP, and approved variances. A chemist verified all data.	Yes	NA
	requirements.	All data flagged with a "U" and "J" are usable for characterizing contamination.	Yes	NA

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

Activity	Objectives	Action	Objective Attained?	Recommendations
Remediation	Evaluate the effectiveness of GACs (§3.2.3) and install as needed (§3.2.5 both of the DQOs for the Groundwater Contamination Investigation, revised November 2010).	Perform maintenance as needed. Install new GACs as needed.	Yes	Maintenance to the off-post GAC systems to be continued by Parsons' personnel every 3 weeks. Twice yearly (or as needed) maintenance to the off-post GAC systems by additional subcontractors to continue. Evaluations of future sampling results for installation of new GAC systems will occur as needed.

# APPENDIX B JUNE 2015 QUARTERLY OFF-POST GROUNDWATER ANALYTICAL RESULTS

Appendix B

June 2015 Off-Post Groundwater Results

Well ID	Sample Date	1,1-DCE	cis-1,2- DCE	trans-1,2- DCE	PCE	TCE	Vinyl Chloride
JW-12	6/3/2015	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
LS-5	6/1/2015	0.12U	0.07U	0.08U	1.22F	2.72	0.08U
LS-6	6/1/2015	0.12U	0.07U	0.08U	0.29F	0.05U	0.08U
LS-7	6/1/2015	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OFR-3	6/1/2015	0.12U	0.07U	0.08U	4.19	2.59	0.08U
OW-BARNOWL	6/3/2015	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-HH2	6/3/2015	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-10	6/1/2015	0.12U	0.13F	0.08U	9.19	5.53	0.08U
RFR-11	6/1/2015	0.12U	0.07U	0.08U	0.93F	0.05U	0.08U
SLD-01	6/3/2015	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
SLD-01 FD	6/3/2015	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
	Laboratory De	tection Lim	its & Maxir	mum Contai	minant Lev	el	
Method Detection	n Limit (MDL)	0.12	0.07	80.0	0.06	0.05	0.08
· · · · · · · · · · · · · · · · · · ·	ing Limit (RL)	1.2	1.2	0.6	1.4	1	1.1
Max. Contaminar	t Level (MCL)	7	70	100	5	5	2

BOLD	≥ MDL
BOLD	≥ RL
BOLD	≥ MCL

All samples were analyzed by APPL, Inc.

VOC data reported in ug/L.

#### Abbreviations/Notes:

FD Field Duplicate
TCE Trichloroethene
PCE Tetrachloroethene
DCE Dichloroethene

#### Data Qualifiers:

--The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.

F-The analyte was positively identified but the associated numerical value is below the RL.

## APPENDIX C DATA VALIDATION REPORTS

SDG 76549 SDG 76580

#### DATA VERIFICATION SUMMARY REPORT

# for off-post samples collected from CAMP STANLEY STORAGE ACTIVITY

### BOERNE, TEXAS

Data Verification by: Tammy Chang Parsons - Austin

#### INTRODUCTION

The following data verification summary report covers groundwater samples and the associated field quality control (QC) sample collected from off-post Camp Stanley Storage Activity (CSSA) on 1<sup>st</sup> of June 2015. The samples were assigned to the following Sample Delivery Group (SDG). All off-post groundwater samples were analyzed for VOCs only.

76549

The field QC sample associated with this SDG was a 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 package included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the CSSA QAPP, Version 1.0, were met.

#### **VOLATILES**

#### General

The volatiles portion of this data package consisted of seven (7) water samples, including six (6) off-post groundwater samples and one (1) TB. All samples were collected on 1<sup>st</sup> of June 2015 and 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.

PAGE 1 OF 3

 $\hbox{C:} \verb|VUSERS| P0087112| DOCUMENTS| CSSA| GROUNDWATER| OFF-POST| 2015| JUNE| DVRS| DVR 76549 (OFF-POST) JUNE 1ST 2015. DOC$ 

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in one analytical batch (#197660) under one set of 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.

All LCS and surrogate spike recoveries were within acceptance criteria.

#### **Precision**

Precision could not be measured due to the lack of duplicate analyses involved in this SDG.

#### Representativeness

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

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

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- The LCS was prepared using a secondary source. All second source verification criteria were met.
- All initial calibration verification (ICV) criteria were met.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

There were one method blank and one TB associated with the VOC analyses in this SDG. Both blanks were non-detect for all target VOCs at method detection limits.

#### PAGE 2 OF 3

### Completeness

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

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

#### DATA VERIFICATION SUMMARY REPORT

# for off-post samples collected from CAMP STANLEY STORAGE ACTIVITY

#### **BOERNE, TEXAS**

Data Verification by: Tammy Chang Parsons - Austin

#### **INTRODUCTION**

The following data verification summary report covers groundwater samples and the associated field quality control (QC) samples collected from off-post Camp Stanley Storage Activity (CSSA) on 3rd of June 2015. The samples were assigned to the following Sample Delivery Group (SDG). All off-post groundwater samples were analyzed for VOCs only.

76580

The field QC samples associated with this SDG were a set of parent/field duplicate (FD), a pair of matrix spike/matrix spike duplicate (MS/MSD), and a 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 package included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the CSSA QAPP, Version 1.0, were met.

#### **VOLATILES**

#### General

The volatiles portion of this data package consisted of eight (8) water samples, including four (4) off-post groundwater samples, one (1) FD, one pair of MS/MSD, and one (1) TB. All samples were collected on 3rd of June 2015 and 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.

PAGE 1 OF 3

 $C: \label{localization} C: \label{localization} C:$ 

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in one analytical batch (#197789) under one set of 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, MS/MSD, and the surrogate spikes. Sample OW-HH2 was designated as the parent sample for the MS/MSD analyses.

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

#### **Precision**

Precision was evaluated using the relative percent difference (%RPD) of the MS/MSD and parent/FD sample results. Sample SLD-01 was collected in duplicate.

All %RPDs of the MS/MSD results were compliant.

None of the target VOCs were detected at or above the reporting limits (RLs); therefore, the %RPD calculation was not applicable.

#### Representativeness

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

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

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- The LCS was prepared using a secondary source. All second source verification criteria were met.
- All initial calibration verification (ICV) criteria were met.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

#### PAGE 2 OF 3

There were one method blank and one TB associated with the VOC analyses in this SDG. Both blanks were non-detect for all target VOCs at method detection limits.

#### **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%.