



Camp Stanley Storage Activity Groundwater Contamination – 2009 Sampling FACT SHEET

No. 30 – Annual Fact Sheet for 2009

The purpose of this Fact Sheet is to provide an overview of the quarterly groundwater sampling conducted in 2009. Results for all groundwater sampling events are available in the Camp Stanley Storage Activity Environmental Encyclopedia located at the downtown San Antonio Public Library, 600 Soledad Street, on the 2nd floor behind the Reference Desk in the Government Documentation Section, or on the internet at www.stanley.army.mil.

On-post Groundwater Monitoring Plan

On-post groundwater monitoring has been conducted since 1991 as part of the Camp Stanley Storage Activity (CSSA) environmental program. The wells sampled include drinking water, monitoring, and agriculture/livestock wells. Sampling frequencies for on-post wells are determined by the long-term monitoring optimization (LTMO) study completed in May 2005, as approved by the U.S. Environmental Protection Agency (USEPA) and Texas Commission on Environmental Quality (TCEQ). On-post wells are sampled either quarterly, semi-annually, every nine months, or biennially. Currently, ground water samples from monitoring wells are analyzed for chromium, cadmium, mercury, while the samples from the drinking water wells are analyzed for the additional analytes arsenic, barium, copper and zinc. All wells (monitoring and drinking water) are analyzed for select volatile organic compounds (VOCs). VOCs make up substances such as paint thinners, dry cleaning solvents, and some constituents of petroleum fuels (e.g. gasoline and natural gas). VOCs are sometimes accidentally released into the environment, where they can contaminate the soil and groundwater. CSSA monitors for VOCs and metals associated with its past industrial processes. The CSSA Groundwater Monitoring Program Data Quality Objectives (DQO) that provides a description of the ongoing groundwater monitoring program and sampling frequencies is available in the Environmental Encyclopedia.

Off-post Groundwater Monitoring Plan

CSSA describes its off-post groundwater monitoring plan in its *Off-Post Monitoring Program and Response Plan*, July 2001 (Plan). The goals of this Plan are to confirm that off-post drinking water meets USEPA and TCEQ safe drinking water standards, determine where VOC contamination has migrated and, respond according to the Plan if contaminant levels in those wells exceed standards. As part of the Plan, 43 off-post wells were sampled in 2009.

Off-post water wells are selected for sampling based on CSSA's Plan to ensure protection of drinking water and to provide information for the environmental program. Factors considered in deciding if a well is sampled include where the well is located, how close it is to areas where VOCs have been detected, whether the well owner grants access for sampling, and results of previous sampling at the well. A well is initially sampled for four consecutive quarters. Depending on the analytical results from the well, future sampling occurs as illustrated on Figure 1.

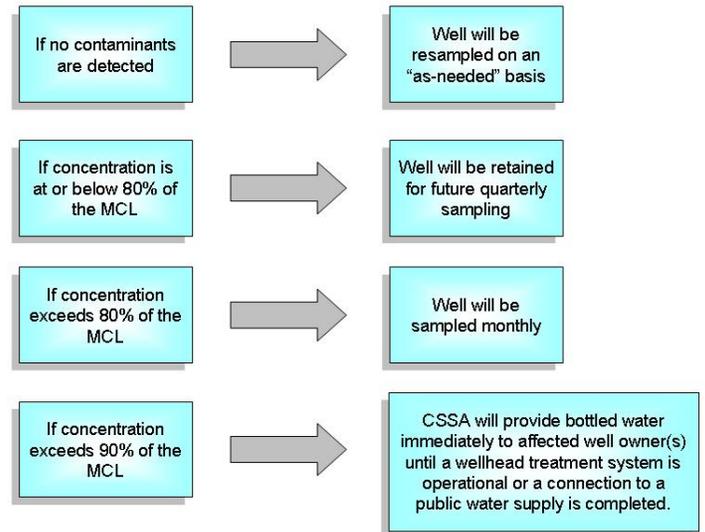


Figure 1. Off-Post Well Sampling Decision Chart

CSSA takes action if VOCs are detected in off-post wells at concentrations greater than 90 percent of the USEPA maximum contaminant level (MCL) of 5 parts per billion (ppb) for tetrachloroethene (PCE) and trichloroethene (TCE) (i.e., action is taken at concentrations greater than 4.5 ppb).

If a VOC exceedance occurs, CSSA will supply bottled water to affected residents within 24 hours of the detection and the well will be resampled for to confirm the results. If additional sampling confirms previous test results, CSSA will either install a granular activated carbon (GAC) filter to remove contaminants from the water, or provide the well owner with an alternate water supply for as long as contaminant levels in the well exceed standards. Over the history of off-post sampling, seven off-post water wells have been fitted with GAC filtration systems: LS-7 (August 2001), LS-6 (August 2001), RFR-10 (two units, October 2001), RFR-11 (October 2001), LS-2 and LS-3 (April 2002), and OFR-3 (April 2002).

In August 2007, San Antonio Water Systems (SAWS) began supplying water to residents of the Leon Springs Villas Subdivision and use of the former drinking water supply wells LS-1, LS-2, LS-3, LS-4 was discontinued. Based on these changes, GAC filtration service for LS-2 and LS-3 was discontinued.

2009 Groundwater Sampling Results

The locations of all on- and off-post wells sampled in 2009 are shown on Figure 3 (Page 4). Although not color-coded on the map, all four Westbay wells had detections above the MCL for PCE and TCE at one or more depth intervals. According to the USEPA,

concentrations below 5.0 ppb for PCE and TCE meet safe drinking water standards. Table 1 (Page 3) presents off-post groundwater data for PCE and TCE from all four 2009 sampling events (March, June, September, December). Three wells, OFR-3, RFR-10 and I10-4, exceeded the MCL for PCE. Three wells (LS-6, LS-7 and RFR-11) had PCE and/or TCE detections at concentrations above the MCL (5.0 ppb) in the past. Wells OFR-3, RFR-10, RFR-11, LS-6 and LS-7 have been equipped with GAC filtration systems, and samples of water collected after going through the filtration for these wells were non-detect. Well I10-4 is not currently being used and therefore is not equipped with a GAC filtration system. In all other wells tested, VOC levels, where detected, were below the applicable drinking water MCLs for PCE and TCE, specifically.

CSSA will continue to sample both on- and off-post groundwater wells at the frequencies recommended in the LTMO and DQOs. Off-post wells will continue to be monitored at the frequencies recommended in the Plan and DQOs. However, statistical evaluation of the 19 years on- and 10 years off-post monitoring data is currently being conducted. If, based on this evaluation, changes to the monitoring frequencies are warranted, a request to modify the sampling frequencies will be made to TCEQ, and implemented upon their approval. CSSA will continue to coordinate the groundwater monitoring program with the regulatory agencies and other potentially affected parties, including the USEPA, TCEQ, Fort Sam Houston, City of Fair Oaks, Fair Oaks Water Utilities, San Antonio Water Systems, Bexar County Commissioners' office, State Representatives' offices, local, state, and federal elected officials, private well owners, and others.

GAC-filtered Sampling Results

Because of the previously detected presence of VOCs, five off-post wells in the area are currently equipped with GAC filters to remove VOCs from the water. In March and September 2009 analyses of the GAC-filtered water samples confirmed that no VOCs were present above the applicable MCLs, and that the GAC units were working properly. Maintenance involving the replacement of carbon canisters for the LS-6, LS-7, OFR-3, RFR-10, and RFR-11 GAC filtration systems was performed in May 2009 and January 2010. The next carbon-canister replacement is scheduled for July 2010. Table 2 presents the results for PCE and TCE from GAC-filtered water treatment systems sampled. GAC-filtered samples are collected every six months and will be collected again in March 2010.

Source Area Cleanup

Groundwater contamination at CSSA is associated with three VOC source areas: Solid Waste Management Unit (SWMU) B-3, SWMU O-1, and Area of Concern (AOC)-65 as shown Figure 2.

SWMU B-3 and SWMU O-1 are in the central portion of CSSA. Cleanup activities at SWMU B-3 and SWMU O-1 included excavation and disposal of the VOC-contaminated soil and removing gases in the soil (soil vapor extraction [SVE]). Approximately 1,515 cubic yards of soil were removed from SWMU O-1, and the site was closed in 2002. Approximately 17,000 cubic yards of waste and contaminated soil has been removed from SWMU B-3 since 2003. A bioreactor, designed to eliminate VOCs through accelerating biological activity of microorganisms capable of degrading PCE and TCE, was installed in 2007. Wells installed around SWMU B-3 and the bioreactor are closely monitored to determine if the system is running efficiently and effectively.

AOC-65 located in the southwest corner of CSSA was identified as another potential source of VOCs found in groundwater around

CSSA. An SVE system has been installed and is being tested to evaluate its effectiveness and ability to remove VOCs from soil and rock in the area. Since initial operation of the SVE system began in 2002, a significant reduction in soil gas concentrations has been observed beneath AOC-65. This system was recently upgraded by adding extraction wells to increase its effectiveness, and it will be in operation for the foreseeable future.

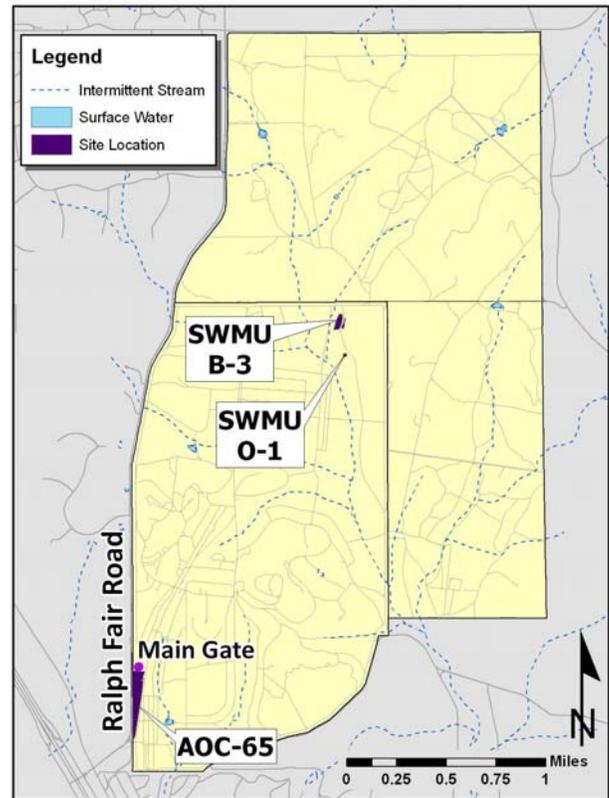


Figure 2. Locations of SWMU B-3, SWMU O-1, and AOC-65

Public Comment and Future Fact Sheets

CSSA has been issuing fact sheets similar to this Fact Sheet since 2000. Future fact sheets will be mailed annually to provide information on sampling results, ongoing investigations, and cleanup activities. Each well owner involved in the groundwater monitoring program will continue to receive a separate letter concerning laboratory results for their wells after sampling by CSSA.

CSSA will continue to inform the public about various aspects of its environmental program. Public meetings were held in November 2009, and all investigation reports are available on the CSSA website (www.stanley.army.mil). The public is welcome to comment on this Fact Sheet and the environmental activities at CSSA by writing to:

Installation Manager,
Camp Stanley Storage Activity
25800 Ralph Fair Road
Boerne, Texas 78015-4800

Interested parties may also comment by calling:

- CSSA Installation Manager, Mr. Jason D. Shirley, at (210) 295-7416;
- USEPA Regional Program Manager, Mr. Greg Lyssy, at (214) 665-8317; or
- Fort Sam Houston, Public Affairs Office, Mr. Phillip Reiding, at (210) 221-1151 or (210) 336-0449 (mobile)

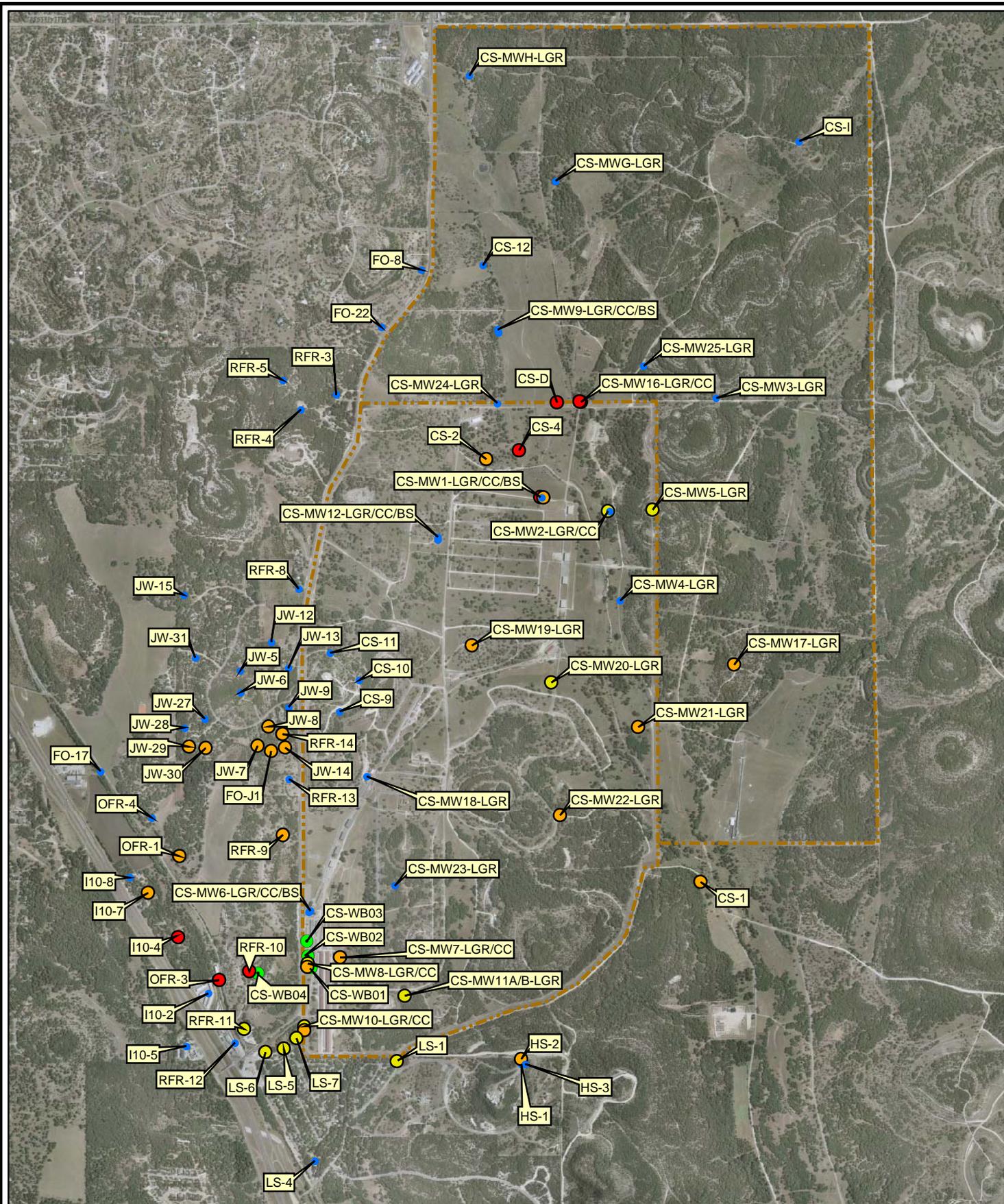
2009 Off-Post Groundwater Analytical Results

Table 1 - Groundwater Sampling Results Off-post wells near Plume 1			
Well Number	Sample Date	PCE (ppb)	TCE (ppb)
FO-8	3/4/09	ND	ND
FO-J1 <i>Duplicate</i>	3/5/09	0.39F	ND
	3/5/09	0.46F	ND
	6/3/09	0.57F	ND
	9/1/09	0.43F	ND
	12/1/09	0.24F	ND
FO-22	3/4/09	ND	ND
JW-5 <i>Duplicate</i>	3/5/09	ND	ND
	3/5/09	ND	ND
JW-6	6/2/09	ND	ND
JW-7	3/3/09	ND	ND
	6/2/09	0.48F	ND
	9/15/09	0.66F	ND
	12/14/09	0.46F	ND
JW-8	3/3/09	ND	ND
	6/3/09	0.37F	ND
	9/4/09	0.48F	ND
	12/1/09	0.36F	ND
JW-9	3/3/09	ND	ND
JW-12	3/9/09	ND	ND
	6/5/09	ND	ND
JW-13	6/5/09	ND	ND
JW-14	3/5/09	0.15F	ND
	6/3/09	0.19F	ND
	9/1/09	ND	ND
	12/1/09	ND	ND
JW-15	3/4/09	ND	ND
JW-27 <i>Duplicate</i>	3/4/09	0.12F	ND
	3/4/09	0.07F	ND
JW-28	3/4/09	ND	ND
	6/2/09	ND	ND
	9/2/09	ND	ND
JW-29 <i>Duplicate</i>	12/3/09	ND	ND
	3/4/09	0.12F	ND
	6/10/09	ND	ND
	6/10/09	ND	ND
JW-30	9/2/09	ND	ND
	9/2/09	ND	ND
	12/2/09	ND	ND
	3/4/09	ND	ND
	6/2/09	ND	ND
JW-31 <i>Duplicate</i>	9/1/09	0.21F	ND
	12/2/09	ND	ND
	12/1/09	ND	ND
	12/1/09	ND	ND
RFR-3	12/3/09	ND	ND
RFR-4 <i>Duplicate</i>	12/3/09	ND	ND
	12/3/09	ND	ND
RFR-5	12/3/09	ND	ND
RFR-8	6/3/09	ND	ND
RFR-9	9/4/09	0.20F	ND
	9/4/09	ND	ND
	12/21/09	ND	ND
RFR-12	3/3/09	ND	ND
RFR-13	6/3/09	ND	ND
RFR-14	3/5/09	0.25F	ND
	6/3/09	0.24F	ND
	9/2/09	0.28F	ND
	12/3/09	ND	ND

Table 1 - Groundwater Sampling Results Off-post wells near Plume 2			
Well Number	Sample Date	PCE (ppb)	TCE (ppb)
FO-17	6/2/09	ND	ND
HS-1	3/3/09	ND	ND
	6/3/09	ND	ND
	9/2/09	ND	ND
	12/2/09	ND	ND
HS-2	3/3/09	ND	ND
	6/3/09	0.23F	ND
	9/2/09	ND	ND
	12/2/09	ND	ND
HS-3	6/3/09	ND	ND
I10-2	3/3/09	ND	ND
I10-4	3/3/09	6.71	2.17
	6/1/09	6.48	2.70
	9/1/09	6.90	2.47
	12/2/09	7.36	2.72
I10-5	3/4/09	ND	ND
I10-7 <i>Duplicate</i>	3/3/09	ND	ND
	3/3/09	ND	ND
	6/2/09	ND	ND
	6/2/09	ND	ND
<i>Duplicate</i>	9/1/09	ND	ND
	9/1/09	ND	ND
	12/3/09	ND	0.17F
<i>Duplicate</i>	12/3/09	ND	ND
	12/3/09	ND	ND
I10-8	12/2/09	ND	ND
LS-1	3/5/09	0.86F	0.32F
	6/4/09	0.85F	ND
	6/4/09	0.76F	0.20F
	9/1/09	0.64F	0.18F
	12/2/09	1.30F	0.63F
LS-4 <i>Duplicate</i>	3/5/09	ND	ND
	6/4/09	ND	ND
	9/1/09	ND	ND
	12/2/09	ND	ND
LS-5	3/3/09	ND	2.04
	6/1/09	0.80F	2.64
	8/31/09	0.96F	2.72
	11/30/09	0.88F	2.82
LS-6	3/2/09	1.09F	0.53F
	6/1/09	0.93F	1.33
	8/31/09	0.99F	1.46
	11/30/09	1.19F	1.43
LS-7	3/2/09	1.99	0.10F
	6/1/09	1.87	0.72F
	8/31/09	2.31	0.87F
	11/30/09	2.07	0.66F
OFR-1	3/5/09	0.32F	ND
	6/3/09	0.33F	ND
	9/1/09	0.25F	ND
	12/1/09	0.35F	ND
OFR-3	3/2/09	5.86	3.52
	6/1/09	5.98	3.21
	8/31/09	0.84F	0.91F
	11/30/09	4.77	2.51
OFR-4	3/5/09	ND	ND
RFR-10	3/2/09	8.16	2.34
	6/1/09	8.78	2.65
	8/31/09	5.24	1.21
	11/30/09	19.5	8.84
RFR-11	3/2/09	0.50F	1.39
	6/1/09	0.49F	1.45
	8/31/09	0.39F	1.97
	11/30/09	1.08F	1.61

Table 2 - GAC System Sampling Results Off-post wells			
Well Number	Sample Date	PCE (ppb)	TCE (ppb)
LS-6-A2	3/2/09	ND	ND
	8/31/09	ND	ND
LS-7-A2	3/2/09	ND	ND
	8/31/09	ND	ND
OFR-3-A2	3/2/09	ND	ND
RFR-10-A2	8/31/09	ND	ND
	3/2/09	ND	ND
RFR-10-B2	8/31/09	ND	ND
	3/2/09	ND	ND
RFR-11-A2	8/31/09	ND	ND
	3/2/09	ND	ND

Notes:
 ppb = parts per billion.
 MCL = Maximum Contaminant Level.
 PCE = tetrachloroethene.
 TCE = trichloroethene.
 ND = The analyte was not detected above the method detection limit.
 F = The analyte was detected, but the concentration is below the reporting limit.
 BOLD = Concentration is greater than the MCL of 5 ppb for PCE or TCE.



0 2,000 4,000 Feet

- 2009 Sampled Wells**
- Wells with VOC concentration > MCL
 - Wells with VOC concentration between RL and MCL
 - Wells with VOC concentration below RL
 - Other Non-detect Wells
 - Multi-Port Westbay Wells
 - CSSA Fenceline

Figure 1
 2009 Sampled On-Post and Off-Post
 Ground Water Wells
 Camp Stanley Storage Activity
PARSONS