Camp Stanley Storage Activity
Groundwater Contamination – 2008 Sampling
FACT SHEET

No. 28 – Annual Fact Sheet for 2008

The purpose of this Fact Sheet is to provide an overview of the quarterly groundwater sampling conducted in 2008. 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 the on-post wells are determined by the long-term monitoring optimization (LTMO) study completed in May 2005, as approved by U.S. Environmental Protection Agency (USEPA) and Texas Commission on Environmental Quality (TCEQ). Based on the LTMO recommendations, on-post wells are sampled semi-annually, every nine months, or biennially. Currently, CSSA samples for metals (*e.g.* chromium, cadmium, mercury, and lead) and for volatile organic compounds (VOC). VOCs are 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. 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 2008.

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.

CSSA takes action if VOC contamination is detected in off-post wells at concentrations greater than 90 percent of the USEPA maximum contaminant level (MCL) (greater than 4.5 parts per billion (ppb) for tetrachloroethene (PCE) and trichloroethene (TCE)). If this occurs, CSSA's actions include supplying bottled water to the affected residents within 24 hours of the detection and resampling the well for confirmation. 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, six 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/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/LS-3 has been discontinued.

2008 Groundwater Sampling Results

The locations of all on- and off-post wells sampled in 2008 are shown on Figure 1 (Page 4). According to the USEPA, concentrations below 5.0 ppb for PCE and TCE meet safe drinking water standards. Table 1 (Page 3) presents groundwater data for PCE and TCE from all four 2008 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 are non-detect. Well I10-4 is not currently being used as a drinking water well and is not equipped with a GAC filtration system. In all other wells tested, VOC detections were below the applicable MCLs for drinking water 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. CSSA will continue to coordinate this 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.

Post-GAC Sampling Results

Because of the previously detected presence of VOCs, five off-post wells in the area are currently equipped with GAC filters. In March and September 2008 analyses of the post-GAC 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 and November 2008. The next carbon-canister replacement is scheduled for May 2009. Table 2 presents the results for PCE and TCE from post-GAC water treatment systems sampled. Post-GAC samples are collected every six months and will be collected again in March 2009.

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. 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 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 SVE system was recently upgraded by adding extraction wells to increase its effectiveness, and it will be in operation for the foreseeable future.

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.

A public meeting is planned for late 2009 to inform the public about the groundwater contamination issues in the area and answer any questions local citizens may have. Details on the meeting time and place are yet to be determined, and will be announced to the public when they are finalized.

CSSA will continue to inform the public about various aspects of its environmental program. 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 Reidinger, at (210) 221-1151 or (210) 336-0449 (mobile)

2008 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	3/3/08	ND	ND
FO-J1	3/3/08	ND	ND
Duplicate	3/3/08	ND	ND
	6/4/08	ND	ND
	9/4/08	0.27F	ND
	12/3/08	ND	ND
FO-22	3/3/08	ND	ND
JW-5	3/5/08	0.11F	ND
	6/4/08	ND	ND
	9/3/08	ND	ND
	12/4/08	ND	ND
	12/4/08	ND	ND
JW-6	6/4/08	ND	ND
JW-7	3/6/08	0.26F	ND
	6/6/08	0.38F	ND
	9/4/08	0.54F	ND
	12/4/08	0.58F	ND
JW-8	3/6/08	0.29F	ND
	6/5/08	0.30F	ND
	9/3/08	ND	ND
	12/3/08	ND	ND
Duplicate	12/3/08	ND	ND
JW-9	3/6/08	ND	ND
Duplicate	3/6/08	ND	ND
JW-12	6/6/08	0.21F	ND
JW-13	6/5/08	ND	ND
JW-14	3/6/08	ND	ND
	6/4/08	ND	ND
	9/4/08	0.11F	ND
	12/3/08	ND	ND
JW-15	3/4/08	ND	ND
JW-27	3/6/08	0.12F	ND
Duplicate	3/6/08	0.07F	ND
	6/4/08	ND	ND
	9/3/08	ND	ND
	12/3/08	ND	ND
JW-28	6/4/08	ND	ND
	9/3/08	ND	ND
	12/3/08	ND	ND
JW-29	3/4/08	0.1F	ND
	6/4/08	ND	ND
	9/4/08	0.13F	ND
	12/4/08	ND	ND
JW-30	3/4/08	0.16F	ND
	6/4/08	ND	ND
	9/3/08	ND	ND
Duplicate	9/3/08	ND	ND
	12/4/08	ND	ND
RFR-3	12/3/08	ND	ND
RFR-4	3/4/08	ND	ND
	3/4/08	ND	ND
	12/3/08	ND	ND
RFR-5	3/4/08	ND	ND
	12/3/08	ND	ND
RFR-8	6/5/08	ND	ND
RFR-9	9/9/08	ND	ND
RFR-12	3/4/08	ND	ND
RFR-13	6/4/08	ND	ND
RFR-14	3/6/08	0.18F	ND
	6/5/08	0.26F	ND
	9/4/08	0.27F	ND
Duplicate	9/4/08	0.23F	ND
	12/4/08	ND	ND

ND = The VOC was not detected above the method detection limit.
F = The VOC was not detected above the RL.
Bold = Concentration > MCL

Table 1 - Groundwater Sampling Results
Off-post wells near Plume 2

Well Number	Sample Date	PCE (ppb)	TCE (ppb)
DOM-2	3/6/08	ND	ND
FO-17	6/4/08	ND	ND
HS-1	3/6/08	0.2F	ND
	6/3/08	ND	ND
	9/10/08	0.21F	ND
	12/4/08	ND	ND
HS-2	3/6/08	0.17F	ND
	6/3/08	ND	ND
	9/10/08	0.12F	ND
	12/4/08	ND	ND
HS-3	6/3/08	ND	ND
I10-2	3/4/08	ND	ND
I10-4	12/10/08	**5.92**	2.24
I10-7	3/4/08	ND	ND
	6/4/08	ND	ND
	9/3/08	ND	ND
Duplicate	9/3/08	ND	ND
	12/2/08	ND	ND
I10-8	12/2/08	ND	ND
	12/2/08	ND	ND
LS-1	6/5/08	ND	ND
	9/5/08	ND	ND
	12/4/08	0.62F	0.2F
LS-4	6/5/08	ND	ND
Duplicate	6/5/08	ND	ND
	9/5/08	ND	ND
	12/5/08	0.12F	ND
LS-5	3/3/08	ND	0.85F
	6/2/08	0.82F	1.4
	9/2/08	0.64F	1.84
	12/1/08	0.96F	2.12
LS-6	3/3/08	1.27F	ND
	6/2/08	1.68	ND
	9/2/08	0.99F	1.07
	12/1/08	1.11F	1.0
LS-7	3/3/08	2.05	0.43F
	6/2/08	2.78	ND
	9/2/08	2.27	0.39F
	12/1/08	2.14	0.38F
OFR-1	3/6/08	0.26F	ND
	6/4/08	ND	ND
Duplicate	6/4/08	ND	ND
	9/3/08	ND	ND
	12/2/08	ND	ND
OFR-3	3/3/08	4.41	3.38
	6/2/08	**6.56**	**5.5**
	9/2/08	**7.59**	4.61
	12/1/08	4.54	3.66
OFR-4	3/6/08	ND	ND
RFR-10	3/3/08	4.43	3.27
	6/2/08	**13.63**	**6.87**
Duplicate	6/2/08	**13.11**	**6.93**
	9/2/08	**5.94**	3.5
	12/1/08	**7.59**	2.97
RFR-11	3/3/08	ND	0.08F
	6/2/08	0.88F	1.28
	9/2/08	0.34F	1.61
	12/1/08	ND	2.15

ND = The VOC was not detected above the method detection limit.
F = The VOC was not detected above the RL.
Bold = Concentration > MCL

Table 2 - GAC System Sampling Results
Off-post wells

Well Number	Sample Date	PCE (ppb)	TCE (ppb)
LS-6-A2	3/3/08	ND	ND
	9/2/08	ND	ND
LS-7-A2	3/3/08	ND	ND
	9/2/08	ND	ND
OFR-3-A2	3/3/08	ND	ND
	9/2/08	ND	ND
RFR-10-A2	3/3/08	ND	ND
	9/2/08	ND	ND
RFR-10-B2	3/3/08	ND	ND
	9/2/08	ND	ND
RFR-11-A2	3/3/08	ND	ND
	9/2/08	ND	ND

The MCL for PCE and TCE is 5.0 ppb
ND = The VOC was not detected above the method detection limit.
F = The VOC was not detected above the RL.

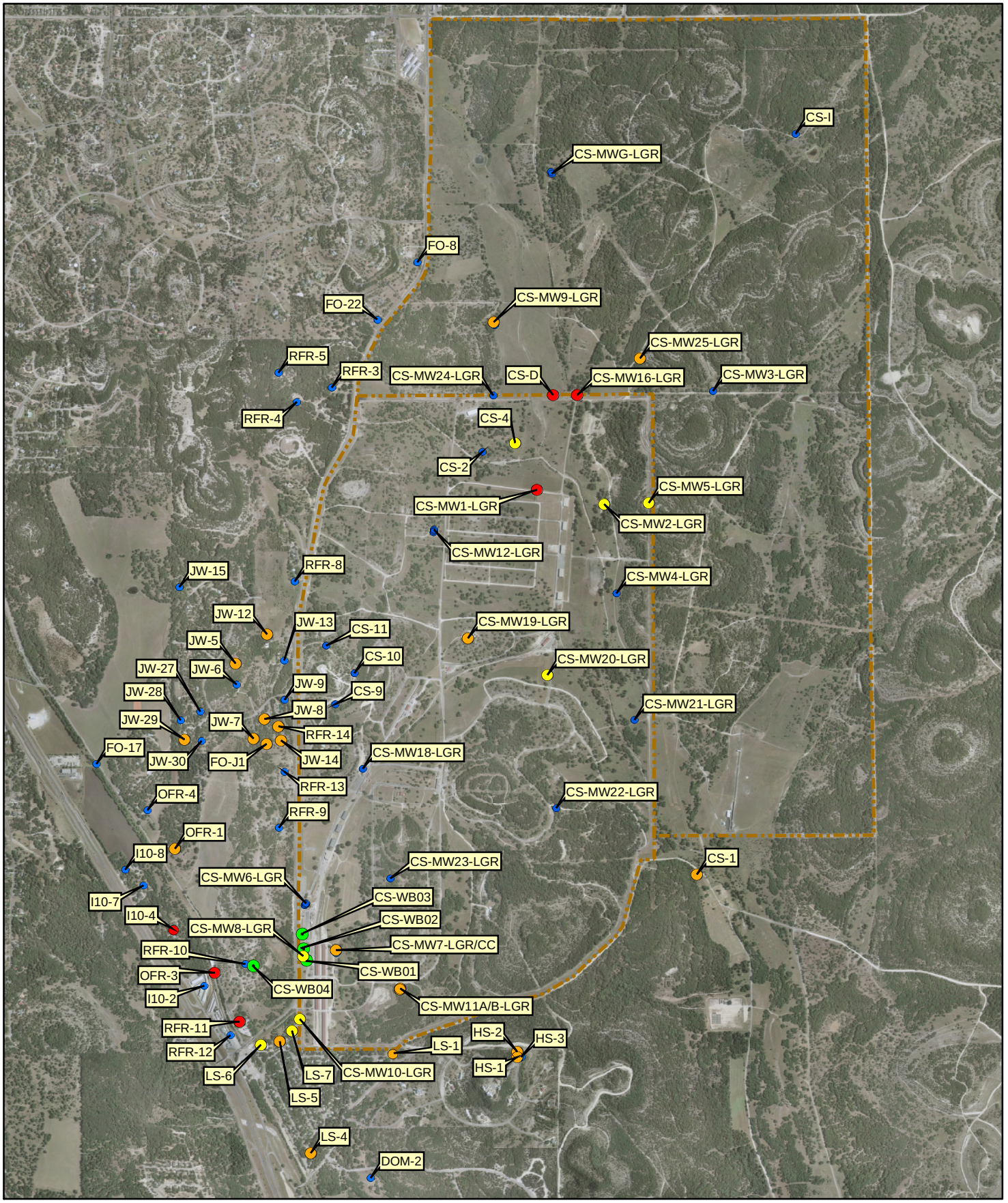

Figure 1

2008 Sampled On-Post and Off-Post Ground Water Wells Camp Stanley Storage Activity

Parsons

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