FINAL

JUNE 2011

On-Post
Quarterly Groundwater Monitoring Report

Prepared For

Department of the Army
Camp Stanley Storage Activity
Boerne, Texas

September 2011

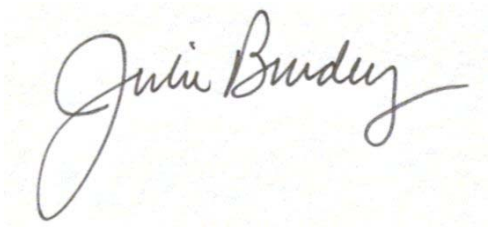
GEOSCIENTIST CERTIFICATION

June 2011 On-post Quarterly Groundwater Monitoring Report

For

Department of the Army
Camp Stanley Storage Activity
Boerne, Texas

I, Julie Burdey, P.G., hereby certify that the June 2011 On-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 Laboratories, and field data obtained during groundwater monitoring conducted at the site in June 2011, and is true and accurate to the best of my knowledge and belief.



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

9/26/2011

Date

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EXECUTIVE SUMMARY

- Thirty-two of 46 wells scheduled for sampling in June 2011 were sampled. Wells CS-MW2-CC, CS-MW4-LGR, CS-MW6-LGR, CS-MW6-CC, CS-MW7-CC, CS-MW9-CC, CS-MW10-LGR, CS-MW10-CC, CS-MW11B-LGR, CS-MW12-CC, CS-MW17-LGR, CS-MW18-LGR, CS-4, and CS-D were not sampled because the water level was below the pump.
- Samples were submitted for selected volatile organic compounds (VOC) (CSSA short list) and cadmium, chromium, lead, and mercury analyses. Active drinking water wells CS-1 and CS-10, and inactive drinking water wells CS-9 and CS-12, were also analyzed for arsenic, barium, copper, and zinc.
- Average groundwater elevations in June 2011 decreased 41.80 feet from the elevations measured in March 2011. Bexar County and surrounding areas are under an extreme to exceptional drought alert and the Trinity Glen Rose Groundwater Conservation District has declared stage 2 severe drought water restrictions, effective June 1, 2011. The average depth to water in the Lower Glen Rose (LGR) screened wells was 294.41 feet below top of casing (BTOC) or 959.67 feet above mean sea level (msl).
- The action level (AL) for lead (0.015 mg/L) was slightly exceeded in well CS-MW9-BS (0.0751 mg/L). Lead and mercury also exceeded the AL/maximum contaminant level (MCL) in former drinking water well CS-9; this well has been offline since 2006.
- The MCL was exceeded in monitoring wells CS-MW1-LGR, CS-MW16-LGR, and CS-MW16-CC for tetrachlorethene (PCE), trichloroethene (TCE), and/or *cis*-1,2-dichloroethene (*cis*-1,2-DCE) in June 2011.
- Eight LTMO-selected Westbay zones were sampled in June 2011 and 6 of the 8 zones had detections that exceeded the MCL for PCE and/or TCE. CS-WB03-LGR-09 had an unusually high concentrations of *cis*-1,2-DCE as compared to previous results with a concentration of 35.36 µg/L; this concentration is below the MCL of 70 µg/L.

JUNE 2011
GROUNDWATER MONITORING REPORT
CAMP STANLEY STORAGE ACTIVITY, TEXAS

1.0 INTRODUCTION

This report presents results from the on-post quarterly sampling performed at Camp Stanley Storage Activity (CSSA) in June 2011. Laboratory analytical results are presented along with potentiometric contour figures. The purpose of this report is to present a summary of the June 2011 sampling results. Results from all four 2011 quarterly monitoring events (March, June, September, and December) will be described in detail in an Annual Report. The Annual Report will also provide an interpretation of all analytical results and an evaluation of any temporal or spatial trends observed in the groundwater contaminant plume during investigations.

Groundwater monitoring was performed May 31 through June 16, 2011. On-post groundwater monitoring conducted under this contract began with the March 2011 sampling event.

Current objectives of the groundwater monitoring program are to determine groundwater flow direction and elevations, determine groundwater contaminant concentrations for characterization purposes, and identify meteorological and seasonal variations in physical and chemical properties. **Appendix A** identifies the data quality objectives (DQO) for CSSA's groundwater monitoring program, along with an evaluation of whether each DQO was attained. The objectives listed in Appendix A also reference appropriate sections of the **3008(h) Administrative Order on Consent** (Order).

The CSSA groundwater monitoring program follows the provisions of the groundwater monitoring program DQOs as well as the recommendations of the **Three-Tiered Long Term Monitoring Network Optimization Evaluation (Parsons 2010)** which provided recommendations for sampling based on a long-term monitoring optimization (LTMO) study performed for the CSSA groundwater monitoring program. LTMO study sampling frequencies were implemented on-post in December 2005, as approved by the Texas Commission on Environmental Quality (TCEQ) and the United States Environmental Protection Agency (USEPA). The LTMO evaluation was updated in 2010 using groundwater data from monitoring conducted between 2005 and 2009. It has been approved by the TCEQ and USEPA to be implemented on- and off-post in June 2011.

2.0 POST-WIDE FLOW DIRECTION AND GRADIENT

Forty-nine water level measurements were recorded on June 8, 2011 from on-post monitoring wells completed in the Lower Glen Rose (LGR), Bexar Shale (BS), and Cow Creek (CC) formations. The groundwater potentiometric surface maps illustrating groundwater elevations from the LGR, BS, and CC zones in June 2011 are shown in **Figures 2-1, 2-2, and 2-3**.

The June 2011 potentiometric surface map for LGR-screened wells exhibited a wide range of groundwater elevations, from a minimum of 894.85 feet above mean sea level (msl) at CS-MW11A-LGR to a maximum of 1058.89 feet above msl at CS-MWG-LGR. Groundwater elevations are generally higher in the northern and central portions of CSSA, and decrease to the

southwest and southeast. Average groundwater elevations in June 2011 decreased 41.80 feet from the elevations measured in March 2011. From March 17 to June 17, 2011, weather station north (WS-N) recorded 0.91 inches of rainfall during 4 rainfall events. Weather station south (WS-S) recorded 0.87 inches of rainfall during 3 rainfall events in this timeframe. A majority of the rain fell on May 12, with 0.83 and 0.79 inches recorded at each of the respective weather stations. The average measured water level has continued to decline since September 2010. Bexar County and surrounding areas are under an extreme to exceptional drought alert and the Trinity Glen Rose Groundwater Conservation District have declared stage 2 severe drought water restrictions, effective June 1, 2011.

Well CS-MW4-LGR in the central portion of CSSA typically has one of the highest groundwater elevations of LGR-screened wells. Under average and above-average aquifer elevations, the groundwater level is 20 to 30 feet higher than the nearest comparable wells (CS-MW2-LGR and CS-MW5-LGR), creating a pronounced groundwater mound in the central portion of the facility. However, this mounding effect is normally muted or no longer present during prolonged periods of drought conditions, including June 2011. Long-term monitoring has ascertained that when groundwater in the vicinity of CS-MW4-LGR rises above about 970 feet msl, the mounding effect is evident. As measured in June 2011, the water elevation at CS-MW4-LGR was 976.27 feet msl, and typical mounding effect is almost completely absent compared to the historical normal in this area. It is postulated that perched groundwater associated with the Salado Creek drainage is hydraulically connected to the main aquifer body in this location. However, that perched water tends to disappear during extreme drought conditions.

It should be noted that well pumping on and around CSSA affects the potentiometric surface. On-post wells CS-MW16-LGR, CS-MW16-CC, B3-EXW01, and B3-EXW02 were pumped periodically to the SWMU B-3 Bioreactor between March 2011 and June 2011. CSSA drinking water wells CS-1, CS-10, and CS-12 are cycled on and off to maintain the drinking water system currently in place at CSSA. Influence from these pumping wells is depicted in **Figure 2-1**. Drinking water wells CS-9 and CS-11 were not in use between March 2011 and June 2011. Off-post water supply wells along Ralph Fair Road may also exert a subtle influence to gradients along the western and southern boundaries of the post.

Historical groundwater monitoring at CSSA has demonstrated that the aquifer gradient typically slopes in a south-southeast direction. However, variable aquifer levels and well pumping scenarios all can affect the localized and regional gradients. In particular, pumping action at wells CS-1, CS-10, CS-MW16-LGR/CC, B3-EXW01, B3-EXW02, CS-I, and even off-post wells (Fair Oaks Ranch) can significantly alter the groundwater gradient. The regional gradient calculation, an overall groundwater gradient averaged across CSSA, is measured from CS-MWH-LGR to CS-MW21-LGR. For June 2011, the overall groundwater gradient is to the south-southeast at 0.00532 ft/ft.

Groundwater elevations have been measured and recorded since 1992. Previous droughts resulted in water levels decreasing substantially in 1996, 1999, 2000, 2006, 2008, and 2009. In late 2009 recovery from the effects of the 2008/2009 drought began. In September 2010, water levels began to drop at a significant rate and have continued to fall due to drought conditions. Water levels in June 2011 correspond closely to historical drought levels reported during 2006 and 2009. For the LGR, prior drought statistics show that the aquifer elevation generally does not decrease dramatically below the top of the main aquifer body, and tends to stabilize at an

average elevation of 950 feet msl. However, well yield and recovery from production wells suffer significantly during the depressed aquifer conditions.

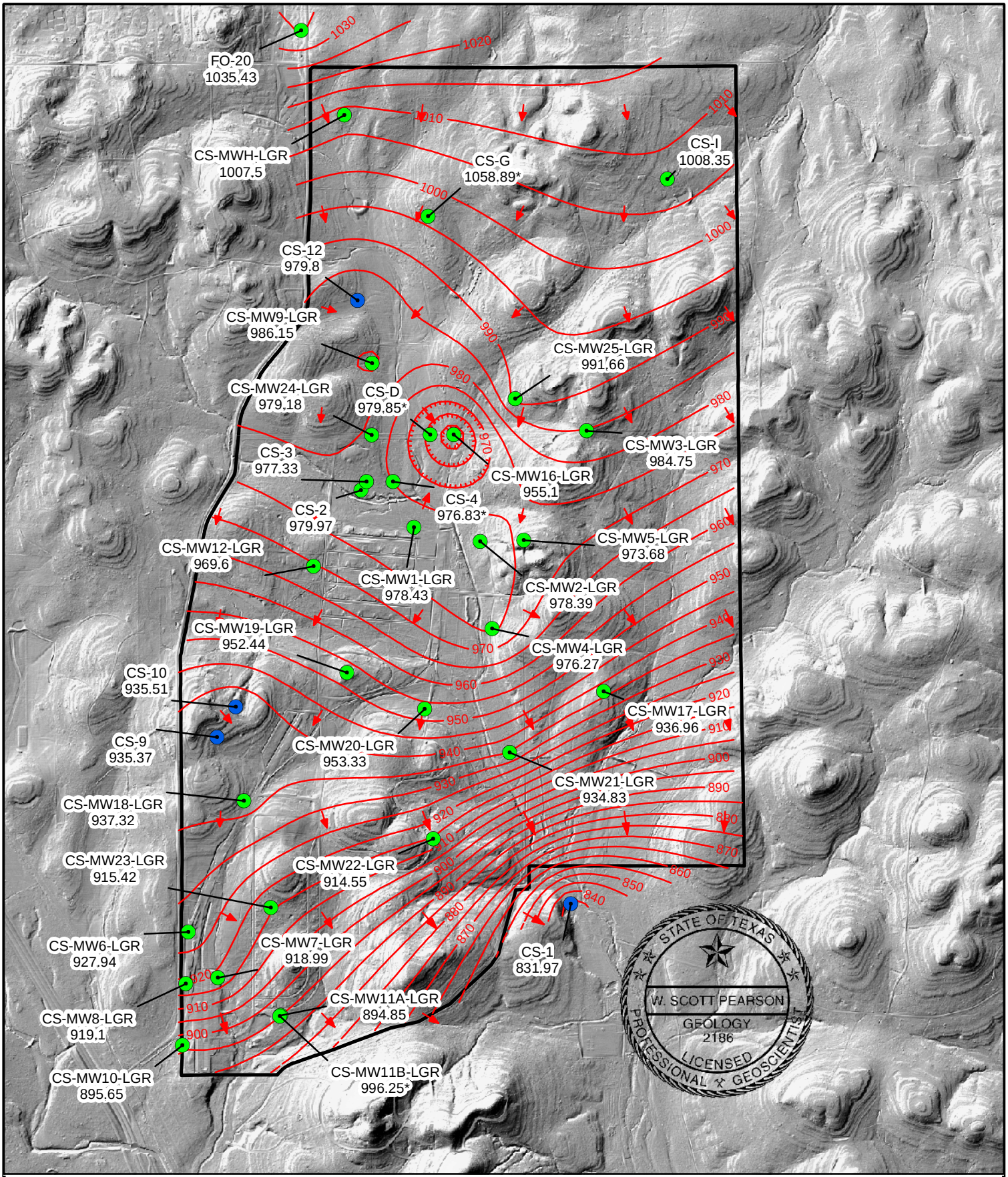

Figure 2-1

June 2011 Potentiometric Surface Map, LGR Wells

Camp Stanley Storage Activity

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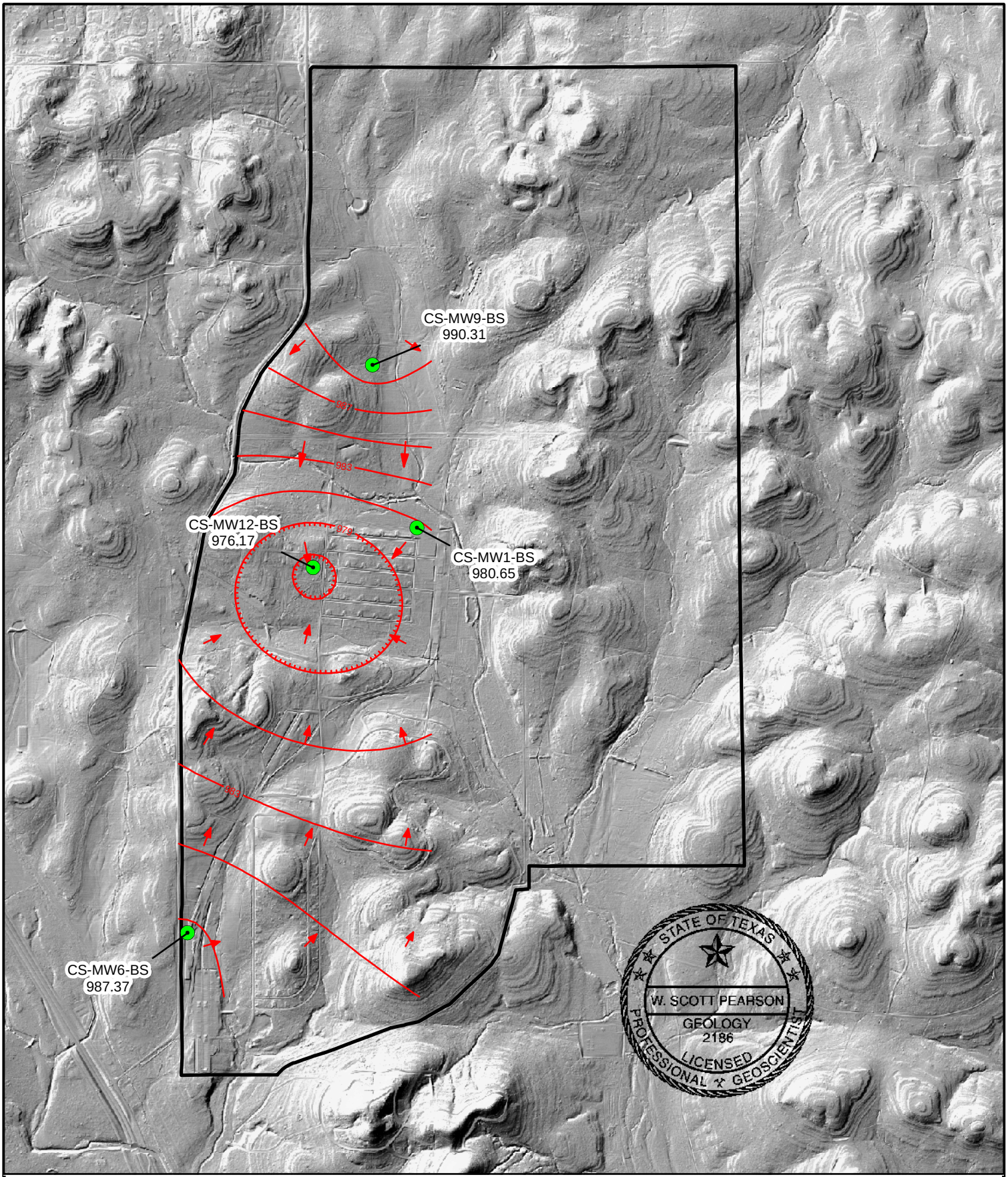

Figure 2-2

June 2011 Potentiometric Surface Map, BS Wells

Camp Stanley Storage Activity

PARSONS

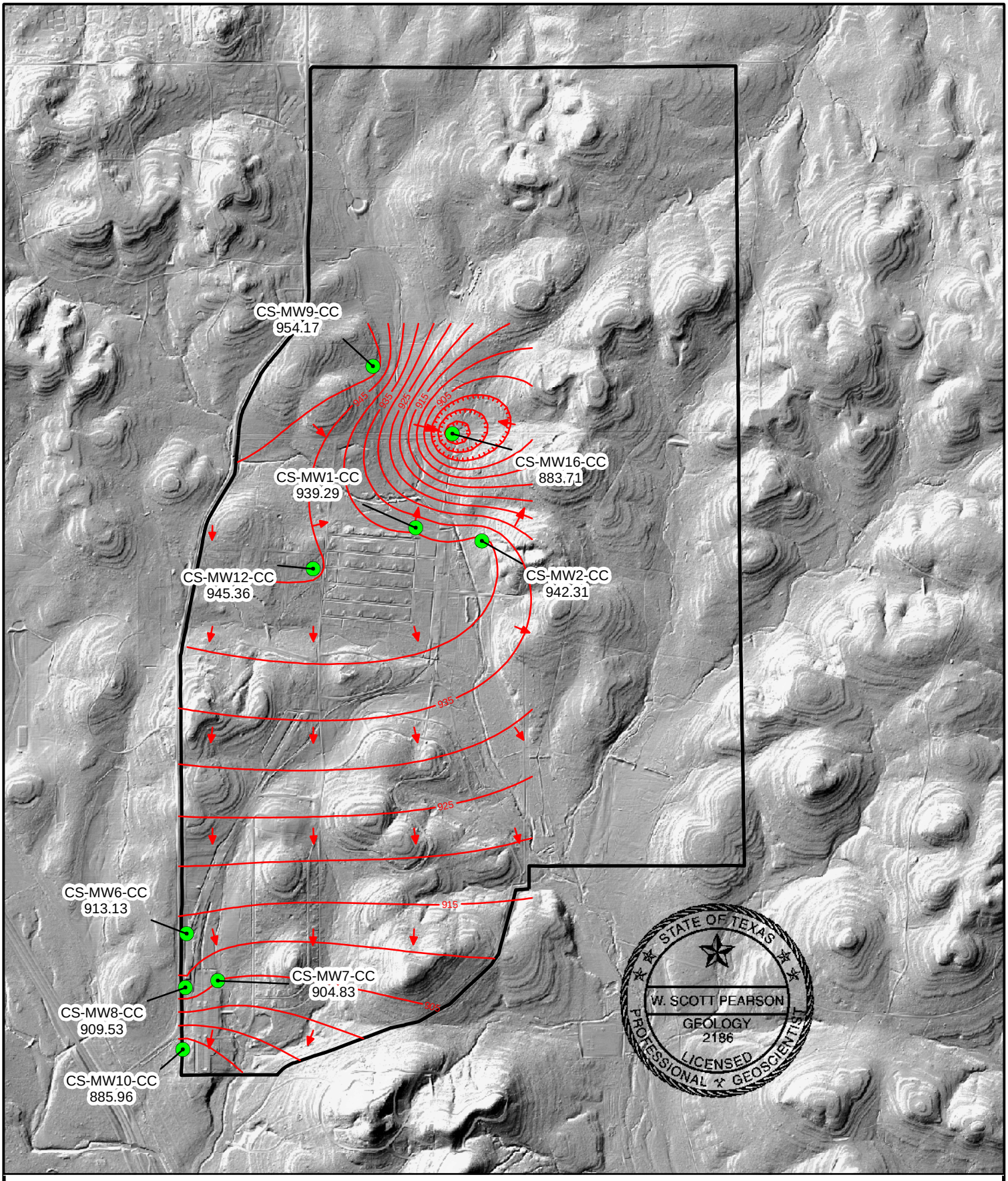

Figure 2-3

June 2011 Potentiometric Surface Map, CC Wells

Camp Stanley Storage Activity

PARSONS

Table 3-1
Overview of the On-Post Monitoring Program

Count	Well ID	*Analytes*	*Last Sample Date*	*Sep-10 (snapshot)*	*Dec-10*	*Mar-11*	*June-11 (snapshot)*	*Sampling Frequency **
1	CS-MW1-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	S	Semi-annual
2	CS-MW1-BS	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	S	Every 18 months
3	CS-MW1-CC	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	S	Every 18 months
4	CS-MW2-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	S	Semi-annual
5	CS-MW2-CC	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	NSWL	Every 18 months
6	CS-MW3-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	S	Every 9 months
7	CS-MW4-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	NSWL	Every 9 months
8	CS-MW5-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	S	Every 9 months
9	CS-MW6-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	NSWL	Every 9 months
10	CS-MW6-BS	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	S	Every 18 months
11	CS-MW6-CC	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	NSWL	Every 18 months
12	CS-MW7-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	S	Every 9 months
13	CS-MW7-CC	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	NSWL	Every 18 months
14	CS-MW8-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	S	Semi-annual
15	CS-MW8-CC	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	S	Every 18 months
16	CS-MW9-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	S	Every 18 months
17	CS-MW9-BS	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	S	Every 9 months
18	CS-MW9-CC	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	NSWL	Every 9 months
19	CS-MW10-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	NSWL	Semi-annual
20	CS-MW10-CC	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	NSWL	Every 18 months
21	CS-MW11A-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	S	Semi-annual
22	CS-MW11B-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NSWL	NSWL	Every 9 months
23	CS-MW12-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	S	Every 9 months
24	CS-MW12-BS	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	S	Every 18 months
25	CS-MW12-CC	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	NSWL	Every 18 months
26	CS-MW16-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	S	Every 9 months
27	CS-MW16-CC	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	S	Every 9 months
28	CW-MW17-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	NSWL	Every 9 months
29	CS-MW18-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	NSWL	Every 9 months
30	CS-MW19-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	S	Every 9 months
31	CS-1	VOCs & metals (As,Ba,Cr, Cu,Cd,Hg,Pb,Zn)	Mar-11	S	S	S	S	Quarterly
32	CS-2	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	S	Every 9 months
	CS-3	sampled as needed, no pump	Dec-99	NS	NS	NS	NS	NS
33	CS-4	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	NSWL	Semi-annual
34	CS-9	VOCs & metals (As,Ba,Cr, Cu,Cd,Hg,Pb,Zn)	Mar-11	S	S	S	S	Quarterly
35	CS-10	VOCs & metals (As,Ba,Cr, Cu,Cd,Hg,Pb,Zn)	Mar-11	S	S	S	S	Quarterly
	CS-11	VOCs & metals (Cr, Cd, Hg, Pb)	Jun-09	NS	NS	NS	NS	NS
36	CS-12	VOCs & metals (As,Ba,Cr, Cu,Cd,Hg,Pb,Zn)	Sep-10	S	S	NS	S	Quarterly
37	CS-D	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	NS	S	NSWL	Semi-annual
38	CS-MWG-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	S	Every 18 months
39	CS-MWH-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Dec-09	NS electricity out	NS	NS	S	Every 18 months
40	CS-I	VOCs & metals (Cr, Cd, Hg, Pb)	Sep-10	S	NS	NS	S	Every 18 months
41	CS-MW20-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	S	S	S	Every 9 months
42	CS-MW21-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	S	S	S	Every 9 months
43	CS-MW22-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	S	S	S	Every 9 months
44	CS-MW23-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	S	S	S	Every 9 months
45	CS-MW24-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	S	S	S	Semi-annual
46	CS-MW25-LGR	VOCs & metals (Cr, Cd, Hg, Pb)	Mar-11	S	S	S	S	Every 9 months
	CS-MW35-LGR	full suite for new wells					NS	awaiting pump
	CS-MW36-LGR	full suite for new wells					NS	awaiting pump

* New LTMO sampling frequency implemented June 2011
S = Sample
NS = No Sample
NSWL = No Sample due to low water level

Table 3-1
Westbay Sampling Frequency

Westbay Interval	Last Sample Date	Jun-11	LTMO Sampling Frequency (as of June '11)
CS-WB01-UGR-01	1-Dec-04	NS	Every 9 months
CS-WB01-LGR-01	1-Sep-10	NS	Every 9 months
CS-WB01-LGR-02	1-Mar-11	NS	Every 9 months
CS-WB01-LGR-03	1-Mar-11	NS	Every 9 months
CS-WB01-LGR-04	1-Mar-11	NS	Every 9 months
CS-WB01-LGR-05	1-Mar-11	NS	Every 9 months
CS-WB01-LGR-06	1-Mar-11	NS	Every 9 months
CS-WB01-LGR-07	1-Mar-11	NS	Every 9 months
CS-WB01-LGR-08	1-Mar-11	NS	Every 9 months
CS-WB01-LGR-09	1-Mar-11	S	Every 9 months + snapshot
CS-WB02-UGR-01	1-Dec-04	NS	Every 9 months
CS-WB02-LGR-01	1-Mar-11	NS	Every 9 months
CS-WB02-LGR-02	1-Mar-10	NS	Every 9 months
CS-WB02-LGR-03	1-Mar-11	NS	Every 9 months
CS-WB02-LGR-04	1-Mar-11	NS	Every 9 months
CS-WB02-LGR-05	1-Mar-11	NS	Every 9 months
CS-WB02-LGR-06	1-Mar-11	NS	Every 9 months
CS-WB02-LGR-07	1-Mar-11	NS	Every 9 months
CS-WB02-LGR-08	1-Mar-11	NS	Every 9 months
CS-WB02-LGR-09	1-Mar-11	S	Every 9 months + snapshot
CS-WB03-UGR-01	1-Mar-11	NS	Every 9 months
CS-WB03-LGR-01	1-Sep-10	NS	Every 9 months
CS-WB03-LGR-02	1-Oct-07	NS	Every 9 months
CS-WB03-LGR-03	1-Mar-11	NS	Every 9 months
CS-WB03-LGR-04	1-Mar-11	NS	Every 9 months
CS-WB03-LGR-05	1-Mar-11	NS	Every 9 months
CS-WB03-LGR-06	1-Mar-11	NS	Every 9 months
CS-WB03-LGR-07	1-Mar-11	NS	Every 9 months
CS-WB03-LGR-08	1-Mar-11	NS	Every 9 months
CS-WB03-LGR-09	1-Mar-11	S	Every 9 months + snapshot
CS-WB04-UGR-01	1-Mar-04	NS	Every 9 months
CS-WB04-LGR-01	1-Mar-11	NS	Every 18 months
CS-WB04-LGR-02	1-Mar-10	NS	Every 18 months
CS-WB04-LGR-03	1-Mar-11	NS	Every 18 months
CS-WB04-LGR-04	1-Mar-11	NS	Every 18 months
CS-WB04-LGR-06	1-Mar-11	S	Every 9 months + snapshot
CS-WB04-LGR-07	1-Mar-11	S	Every 9 months + snapshot
CS-WB04-LGR-08	1-Mar-11	NS	Every 9 months
CS-WB04-LGR-09	1-Mar-11	S	Every 9 months + snapshot
CS-WB04-LGR-10	1-Mar-11	S	Every 9 months + snapshot
CS-WB04-LGR-11	1-Mar-11	S	Every 9 months + snapshot
CS-WB04-BS-01	1-Mar-11	NS	Every 18 months
CS-WB04-BS-02	1-Mar-11	NS	Every 18 months
CS-WB04-CC-01	1-Mar-11	NS	Every 18 months
CS-WB04-CC-02	1-Mar-11	NS	Every 18 months
CS-WB04-CC-03	1-Mar-11	NS	Every 18 months

Profiling performed quarterly, in conjunction with post wide water levels.

3.0 JUNE ANALYTICAL RESULTS

3.1 Monitoring Wells

Under the provisions of the groundwater monitoring DQOs and the newly updated 2010 LTMO evaluation, the schedule for sampling on-post in June 2011 included all 42 monitoring wells, 4 drinking water wells, and 8 selected Westbay Well zones. This event is the 9-month 'snapshot' in accordance with the LTMO evaluation. Thirty-two of the 46 wells were sampled in June 2011. Fourteen wells were not sampled because drought conditions have caused water levels to fall below the dedicated low flow pumps; these wells include CS-MW2-CC, CS-MW4-LGR, CS-MW6-LGR, CS-MW6-CC, CS-MW7-CC, CS-MW9-CC, CS-MW10-LGR, CS-MW10-CC, CS-MW11B-LGR, CS-MW12-CC, CS-MW17-LGR, CS-MW18-LGR, CS-4, and CS-D. **Table 3-1** provides a sampling overview for June 2011 and the schedule under the LTMO recommendations. The monitoring wells (CS-MW1-LGR, CS-MW1-BS, CS-MW1-CC, CS-MW2-LGR, CS-MW3-LGR, CS-MW5-LGR, CS-MW6-BS, CS-MW7-LGR, CS-MW8-LGR, CS-MW8-CC, CS-MW9-LGR, CS-MW9-BS, CS-MW11A-LGR, CS-MW12-LGR, CS-MW12-BS, CS-MW19-LGR, CS-2, CS-MWG-LGR, CS-MWH-LGR, CS-MW20-LGR, CS-MW21-LGR, CS-MW22-LGR, CS-MW23-LGR, CS-MW24-LGR, and CS-MW25-LGR) were sampled using dedicated low-flow gas-operated bladder pumps. Wells CS-1, CS-9, CS-10, CS-12, CS-I, CS-MW16-LGR, and CS-MW16-CC were sampled using dedicated submersible pumps. **Figure 3-1** shows well sampling locations.

Wells sampled by low-flow pumps were purged until the field parameters of pH, temperature, and conductivity stabilized. The on-post monitoring wells were sampled in June 2011 for the short list of volatile organic compounds (VOC), and metals (cadmium, lead, chromium, and mercury). Drinking water system wells CS-1, CS-9, CS-10, and CS-12 were analyzed for additional metals (arsenic, barium, copper, and zinc). Well CS-9 has not been used for drinking water since June 2006 due to metals detections. Samples were analyzed by APPL Laboratories in Clovis, California. All detected concentrations of VOCs and metals are presented in **Table 3-2**. Full analytical results are presented in **Appendix B**.

PCE, TCE, and/or *cis*-1,2-DCE were detected above the MCL in 3 on-post wells sampled this quarter (CS-MW1-LGR, CS-MW16-LGR, and CS-MW16-CC). Well CS-MW9-BS had a lead concentration of 0.075 mg/L, above the AL of 0.015 mg/L. Well CS-9 had lead (0.018 mg/L) and mercury (0.0028 mg/L) concentrations slightly above their applicable AL and MCL.

Results from on-post monitoring wells are considered definitive data and are subject to data validation and verification under provisions of the CSSA Quality Assurance Project Plan (QAPP). Parsons data packages numbered 747780-#61, -#62, and -#65 through -#67, containing the analytical results from this sampling event were received by Parsons July 1-11, 2011. Data validation was conducted and the data validation reports are presented in **Appendix D**.

3.2 Westbay-equipped Wells

Under the provisions of the groundwater monitoring LTMO recommendations, the schedule for on-post sampling in June 2011 included 8 selected zones from Westbay wells CS-WB01, CS-WB02, CS-WB03, and CS-WB04. These wells, located in the vicinity of AOC-65, are sampled on a 9-month schedule as recommended in the LTMO evaluation and will be sampled again during the March 2012 event.

Six of the 8 zones sampled reported PCE and/or TCE above the MCL. All detected concentrations of VOCs are presented in **Table 3-3**. Full analytical results are presented in **Appendix C**.

Westbay wells CS-WB05, CS-WB06, CS-WB07, and CS-WB08 are not sampled as part of the groundwater monitoring program but are sampled as part of the SWMU B-3 bioreactor monitoring. Results for those wells are presented quarterly in the SWMU B-3 Performance Status Reports.

4.0 JUNE 2011 SUMMARY

- Of the 46 wells scheduled for sampling, 32 were sampled in June 2011. Wells CS-MW2-CC, CS-MW4-LGR, CS-MW6-LGR, CS-MW6-CC, CS-MW7-CC, CS-MW9-CC, CS-MW10-LGR, CS-MW10-CC, CS-MW11B-LGR, CS-MW12-CC, CS-MW17-LGR, CS-MW18-LGR, CS-4, and CS-D were not sampled because drought conditions caused water levels to fall below the pump depths.
- From March 17 to June 17, 2011, CSSA's south weather station recorded 0.83 inches of rain. The north weather station did not record a complete set of data due to power interruptions. This is the lowest quarterly rainfall total ever measured at CSSA since monitoring began in 1999.
- Water levels decreased an average of 41.80 feet per well since last quarter. Water levels have continued to decrease drastically since September 2010. The average water level in June 2011 (excluding pumping wells) was 290.46 feet below top of casing.
- VOCs were detected above the MCL in 3 of the 32 wells sampled in June 2011. Wells CS-MW1-LGR, CS-MW16-LGR, and CS-MW16-CC were above the MCL for PCE, TCE, and/or *cis*-1,2-DCE.
- PCE was above the reporting limit (RL) in CS-MW20-LGR. PCE, TCE and/or *cis*-1,2-DCE were above the MDL in CS-MW1-BS, CS-MW2-LGR, CS-MW11A-LGR, and CS-1.
- Lead was slightly above the AL in well CS-MW9-BS. Lead was first reported above the AL in this well in September 2007. Lead and mercury were above the AL/MCL in well CS-9 in June 2011. This well has been offline since 2006.
- Eight LTMO-selected Westbay well zones in the vicinity of AOC-65 were sampled in June 2011. Of the 8 Westbay well zones sampled, 6 had PCE and/or TCE above the MCL. CS-WB03-LGR-09 had an unusually high concentrations of *cis*-1,2-DCE at 35.36 µg/L; this concentration is below the MCL.
- Additional VOC analytes were run for CS-WB04-LGR09, -10, -11 and no detections were reported, see **Appendix C**.
- In June 2011 two B-3 Westbay zones (CS-WB05-LGR-03B & CS-WB06-LGR-03B) were sampled, zone CS-WB07-LGR-03B was not sampled due to damage to the Westbay and zone CS-WB08-LGR-03B was not sampled because it was dry. CS-WB06-LGR-03B reported *cis*-1,2-DCE, PCE, and TCE above the MCL. CS-WB05-LGR-03B reported *cis*-1,2-DCE above the MCL. B-3 Westbay results are discussed in more detail in the Quarterly Bioreactor Performance Reports.

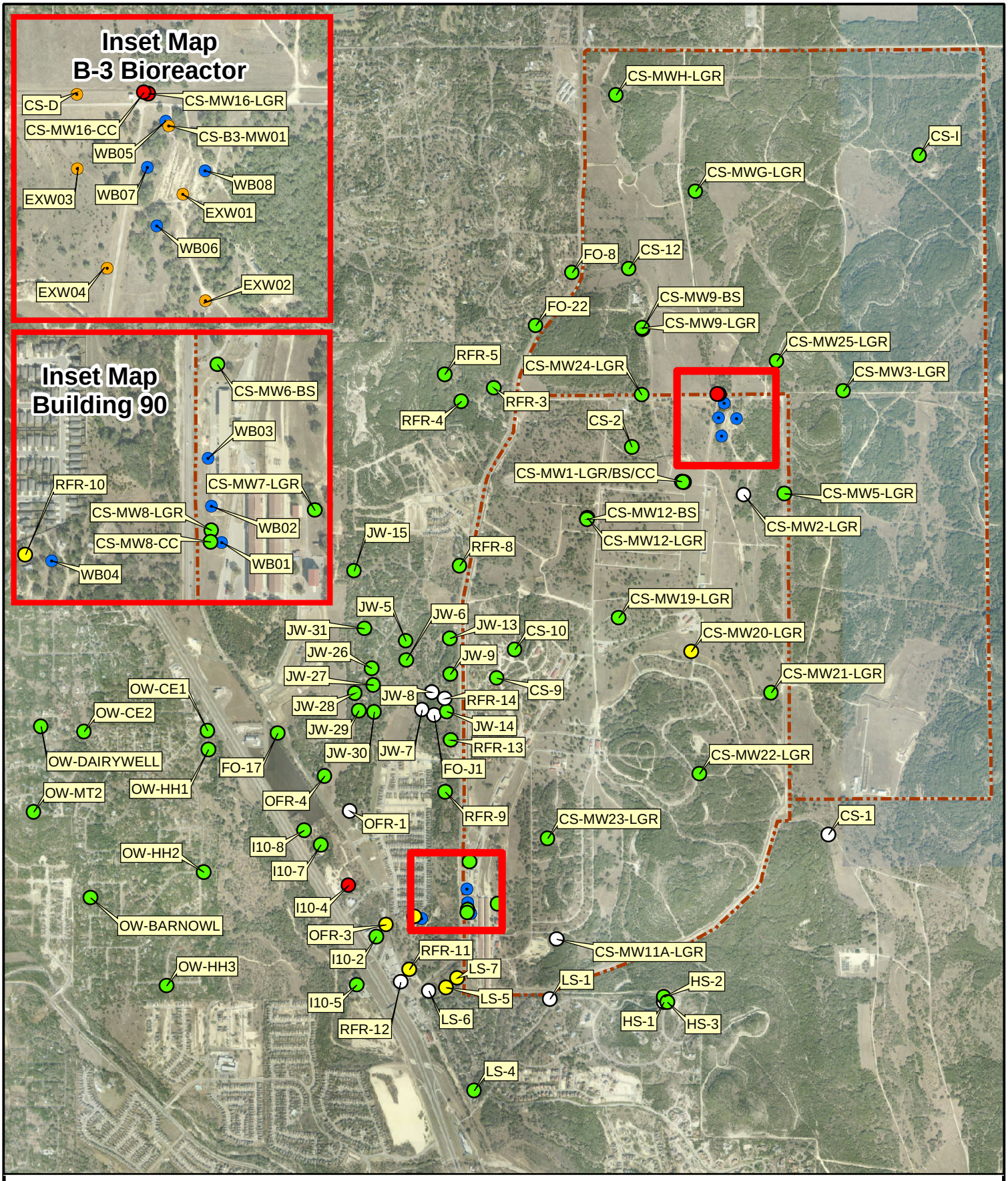

Figure 3-1

On-Post and Off-Post Well Sampling Locations for June 2011

Camp Stanley Storage Activity

PARSONS

J:\CSSA\GIS\Groundwater\Maps\June11_Sampled_Wells.mxd - 8/15/2011 @ 11:45:16 AM

Table 3-2
June 2011 On-post Quarterly Groundwater Results, Detected Analytes

Well ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Zinc	Mercury	Comments
CS-MW1-LGR	6/9/2011	NA	NA	--	--	NA	--	NA	--	
CS-MW1-CC	6/9/2011	NA	NA	--	--	NA	--	NA	--	
CS-MW1-BS	6/9/2011	NA	NA	--	--	NA	--	NA	--	
CS-MW2-LGR	6/10/2011	NA	NA	--	--	NA	--	NA	--	
CS-MW3-LGR	6/14/2011	NA	NA	--	**0.007F**	NA	--	NA	--	
CS-MW5-LGR	6/13/2011	NA	NA	--	--	NA	**0.0020F**	NA	--	Sporadic low levels of lead since 2001.
CS-MW6-BS	6/15/2011	NA	NA	--	**0.004F**	NA	--	NA	--	
CS-MW7-LGR	6/16/2011	NA	NA	--	**0.002F**	NA	--	NA	--	
CS-MW8-LGR	6/15/2011	NA	NA	--	**0.006F**	NA	--	NA	--	
CS-MW8-CC	6/15/2011	NA	NA	--	--	NA	--	NA	--	
CS-MW9-LGR	6/14/2011	NA	NA	--	**0.061**	NA	--	NA	--	Second consecutive chromium detection above the RL.
CS-MW9-BS	6/15/2011	NA	NA	--	**0.003F**	NA	**0.0751**	NA	--	Lead first detected above the MCL in Sept. 2007.
CS-MW11A-LGR	6/16/2011	NA	NA	--	**0.049**	NA	--	NA	--	First chromium detection above the RL.
CS-MW12-LGR	6/10/2011	NA	NA	--	**0.002F**	NA	**0.0021F**	NA	--	Highest lead detections in these wells since they were first sampled in 2002.
CS-MW12-LGR FD	6/10/2011	NA	NA	--	--	NA	**0.0027F**	NA	--	
CS-MW12-BS	6/10/2011	NA	NA	--	**0.003F**	NA	**0.0020F**	NA	--	
CS-MW16-LGR	6/7/2011	NA	NA	--	--	NA	**0.0042F**	NA	--	
CS-MW16-CC	6/7/2011	NA	NA	--	--	NA	--	NA	--	
CS-MW19-LGR	6/16/2011	NA	NA	--	--	NA	--	NA	--	
CS-MW20-LGR	6/13/2011	NA	NA	--	**0.003F**	NA	**0.0021F**	NA	--	
CS-MW21-LGR	6/13/2011	NA	NA	--	--	NA	**0.0026F**	NA	--	
CS-MW22-LGR	6/13/2011	NA	NA	--	--	NA	**0.0020F**	NA	--	Lead concentrations above the MCL in 2007 and 2008.
CS-MW23-LGR	6/13/2011	NA	NA	--	**0.002F**	NA	--	NA	**0.0002F**	Mercury concentrations above the MCL in 2007.
CS-MW24-LGR	6/9/2011	NA	NA	--	--	NA	--	NA	--	
CS-MW25-LGR	6/14/2011	NA	NA	--	**0.002F**	NA	--	NA	--	Lead concentrations above the MCL in 2007 and 2010.
CS-MW25-LGR FD	6/14/2011	NA	NA	--	**0.002F**	NA	--	NA	--	
CS-MWG-LGR	6/14/2011	NA	NA	--	--	NA	--	NA	--	
CS-MWH-LGR	6/8/2011	NA	NA	--	--	NA	**0.0047F**	NA	--	Lead concentrations above the MCL in 1996 and 2001.
CS-I	6/8/2011	NA	NA	--	--	NA	--	NA	--	
CS-2	6/10/2011	NA	NA	--	--	NA	**0.0024F**	NA	--	
CSSA Drinking Water Well System										
CS-1	6/7/2011	--	**0.0332**	--	--	**0.006F**	--	**0.236**	--	Consistent concentrations of barium and zinc since 1996.
CS-9	6/7/2011	--	**0.0435**	--	--	**0.014J**	**0.0183F**	**1.825**	**0.0028**	Well is offline.
CS-10	6/7/2011	--	**0.042**	--	--	**0.011J**	--	**0.155**	--	
CS-10 FD	6/7/2011	--	**0.0473**	--	--	**0.016J**	--	**0.18**	--	
CS-12	6/7/2011	--	**0.0304**	--	--	**0.011J**	--	**0.481**	--	Lead above the MCL in March and Dec. 2010.
Comparison Criteria										
Method Detection Limit (MDL)		**0.00022**	**0.0003**	**0.0005**	**0.001**	**0.003**	**0.0019**	**0.008**	**0.0001**	
Reporting Limit (RL)		**0.03**	**0.005**	**0.007**	**0.01**	**0.01**	**0.025**	**0.05**	**0.001**	
Max. Contaminant Level (MCL)		**0.01**	**2**	**0.005**	**0.1**	**AL=1.3**	**AL=0.015**	**SS=5.0**	**0.002**	

BOLD	≥ MDL
BOLD	≥ RL
BOLD	≥ MCL

All samples were analyzed by APPL, Inc. VOC data reported in ug/L & metals data reported in mg/L.

Abbreviations/Notes:

FD - Field Duplicate
TCE - Trichloroethene
PCE - Tetrachloroethene
DCE - Dichloroethene
AL - Action Level
SS - Secondary Standard
NA - Not Analyzed for this parameter

Data Qualifiers

--The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
F-The analyte was positively identified but the associated numerical value is below the RL.
J-The analyte was positively identified; the quantitation is an estimation.
* dilution of 5 run for this sample.

Table 3-2
June 2011 On-post Quarterly Groundwater Results, Detected Analytes

Well ID	Sample Date	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	TCE	Vinyl Chloride	Comments
CS-MW1-LGR	6/9/2011	--	**16.53**	**0.21F**	**13.21**	**31.37**	--	
CS-MW1-CC	6/9/2011	--	--	--	--	--	--	
CS-MW1-BS	6/9/2011	--	**1.01F**	--	--	--	--	*Cis* -1,2-DCE consistently detected since 2003.
CS-MW2-LGR	6/10/2011	--	**0.74F**	--	--	--	--	*Cis* -1,2-DCE consistently detected since 1998.
CS-MW3-LGR	6/14/2011	--	--	--	--	--	--	
CS-MW5-LGR	6/13/2011	--	--	--	--	--	--	
CS-MW6-BS	6/15/2011	--	--	--	--	--	--	
CS-MW7-LGR	6/16/2011	--	--	--	--	--	--	
CS-MW8-LGR	6/15/2011	--	--	--	--	--	--	
CS-MW8-CC	6/15/2011	--	--	--	--	--	--	
CS-MW9-LGR	6/14/2011	--	--	--	--	--	--	
CS-MW9-BS	6/15/2011	--	--	--	--	--	--	
CS-MW11A-LGR	6/16/2011	--	--	--	**0.90F**	--	--	PCE consistently detected since 2003.
CS-MW12-LGR	6/10/2011	--	--	--	--	--	--	
CS-MW12-LGR FD	6/10/2011	--	--	--	--	--	--	
CS-MW12-BS	6/10/2011	--	--	--	--	--	--	
CS-MW16-LGR	6/7/2011	--	**179.14***	**0.25F**	**156.62***	**173.11***	--	These wells are continuously cycled to feed the B-3 Bioreactor.
CS-MW16-CC	6/7/2011	**0.21F**	**24.22**	**6.7**	**1.54**	**24.59**	--	
CS-MW19-LGR	6/16/2011	--	--	--	--	--	--	First time no PCE was detected, well installed in 2002.
CS-MW20-LGR	6/13/2011	--	--	--	**1.62**	--	--	
CS-MW21-LGR	6/13/2011	--	--	--	--	--	--	Historically 1 detection of TCE in this well, Dec. 2009.
CS-MW22-LGR	6/13/2011	--	--	--	--	--	--	
CS-MW23-LGR	6/13/2011	--	--	--	--	--	--	
CS-MW24-LGR	6/9/2011	--	--	--	--	--	--	
CS-MW25-LGR	6/14/2011	--	--	--	--	--	--	
CS-MW25-LGR FD	6/14/2011	--	--	--	--	--	--	
CS-MWG-LGR	6/14/2011	--	--	--	--	--	--	
CS-MWH-LGR	6/8/2011	--	--	--	--	--	--	
CS-I	6/8/2011	--	--	--	--	--	--	Solar powered submersible pump.
CS-2	6/10/2011	--	--	--	--	--	--	
CSSA Drinking Water Well System								
CS-1	6/7/2011	--	--	--	--	**0.34F**	--	Active drinking water well.
CS-9	6/7/2011	--	--	--	--	--	--	Offline
CS-10	6/7/2011	--	--	--	--	--	--	Active drinking water well.
CS-10 FD	6/7/2011	--	--	--	--	--	--	
CS-12	6/7/2011	--	--	--	--	--	--	No VOCs ever detected in this well.
Comparison Criteria								
Method Detection Limit (MDL)		**0.12**	**0.07**	**0.08**	**0.06**	**0.05**	**0.08**	
Reporting Limit (RL)		**1.2**	**1.2**	**0.6**	**1.4**	**1**	**1.1**	
Max. Contaminant Level (MCL)		**7**	**70**	**100**	**5**	**5**	**2**	

BOLD	≥ MDL
BOLD	≥ RL
BOLD	≥ MCL

Precipitation per Quarter:	Mar-11	Jun-11
Weather Station South (WS-N):	NA*	0.91
Weather Station North (WS-S):	2.57	0.83

*incomplete data collected in March due to voltage problems.

All samples were analyzed by APPL, Inc. VOC data reported in ug/L & metals data reported in mg/L.

Abbreviations/Notes:

FD - Field Duplicate
TCE - Trichloroethene
PCE -Tetrachloroethene
DCE - Dichloroethene
AL - Action Level
SS - Secondary Standard
NA - Not Analyzed for this parameter

Data Qualifiers

--The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
F-The analyte was positively identified but the associated numerical value is below the RL.
J-The analyte was positively identified; the quantitation is an estimation.
* dilution of 5 run for this sample.

APPENDIX A

EVALUATION OF DATA QUALITY OBJECTIVES ATTAINMENT

Appendix A Evaluation of Data Quality Objectives Attainment

Activity	Objectives	Action	Objective Attained?	Recommendations
Field Sampling	Conduct field sampling in accordance with procedures defined in the project work plan, SAP, QAPP, HSP, and LTMO recommendations.	All sampling was conducted in accordance with the procedures described in the project plans.	Yes.	NA
Characterization of Environmental Setting (Hydrogeology)	Prepare water-level contour and/or potentiometric maps for each formation of the Middle Trinity Aquifer (3.5.3).	Potentiometric surface maps were prepared based on water levels measured in each of CSSA's wells screened in three formations on June 8, 2011.	To the extent possible with data available. Due to the limited data available and the fact that wells are completed across multiple water-bearing units, potentiometric maps should only be used for regional water flow direction, not local. Ongoing pumping in the CSSA area likely affects the natural groundwater flow direction.	As additional wells are installed screened in distinct formations, future evaluations will eliminate reliance on wells screened across multiple formations.
	Describe the flow system, including the vertical and horizontal components of flow (2.1.9).	Potentiometric maps were created using June 8, 2011 water level data, and horizontal flow direction was tentatively identified. Insufficient data are currently available to determine vertical component of flow.	As described above, due to the lack of aquifer-specific water level information, potentiometric surface maps should only be used as an estimate of regional flow direction.	Same as above.
	Define formation(s) in the Middle Trinity Aquifer are impacted by the VOC contaminants (2.1.3).	Quarterly groundwater monitoring provides information on Middle Trinity Aquifer impacts. Monitoring wells equipped with Westbay® - multi-port samplers are sampled every 9 or 18 months and 8 selected zones were sampled during the June 2011 'snapshot' event.	Yes.	Continue sampling.

Activity	Objectives	Action	Objective Attained?	Recommendations
	Identify any temporal changes in hydraulic gradients due to seasonal influences (2.1.5).	Downloaded data from continuous-reading transducers in wells: CS-MW4-LGR, CS-MW21-LGR, and CS-MW24-LGR. Additional continuous reading transducers were added to the program through the SCADA project. The following wells can be uploaded to see real time water level data: CS-MW16-LGR, CS-MW16-CC, CS-1, and CS-10. Data was also downloaded from the northern and southern continuous-reading weather stations WS-N and WS-S. Water levels will be graphed at these wells against precipitation data through December 2011 and included in the annual groundwater report.	Yes.	Continue collection of transducer data and possibly install transducers in other cluster wells.
Contamination Characterization (Ground Water Contamination)	Characterize the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the Facility (3.1.2).	Samples for laboratory analysis were collected from 32 of 46 CSSA wells. Of the 46 wells scheduled to be sampled in June 2011, 32 were sampled. Fourteen wells were not sampled due to the water level being below the pump.	The horizontal and vertical extent of groundwater contamination is continuously monitored.	Continue groundwater monitoring and construct additional wells as necessary.
	Determine the horizontal and vertical concentration profiles of all constituents of concern (COC) in the groundwater that are measured by USEPA-approved procedures (3.1.2). COCs are those chemicals that have been detected in groundwater in the past and their daughter (breakdown) products.	Groundwater samples were collected from wells: CS-MW1-LGR, CS-MW1-BS, CS-MW1-CC, CS-MW2-LGR, CS-MW3-LGR, CS-MW5-LGR, CS-MW6-BS, CS-MW7-LGR, CS-MW8-LGR, CS-MW8-CC, CS-MW9-LGR, CS-MW9-BS, CS-MW11A-LGR, CS-MW12-LGR, CS-MW12-BS, CS-MW16-LGR, CS-MW16-CC, CS-MW19-LGR, CS-2, CS-MW19-LGR, CS-MWG-LGR, CS-MWH-LGR, CS-I, CS-MW20-LGR, CS-MW21-LGR, CS-MW22-LGR, CS-MW23-LGR, CS-MW24-LGR, and CS-MW25-LGR. Samples were analyzed for the short list of VOCs using USEPA method SW8260B, and metals (cadmium, lead, mercury, and chromium). The drinking water wells (CS-1, CS-9, CS-10, and CS-12) were also sampled for 4 additional metals (arsenic, barium, copper and zinc). Analyses were conducted in accordance with the AFCEE QAPP and approved variances. All RLs were below MCLs, as listed below:	Yes.	Continue sampling.

Activity	Objectives	Action	Objective Attained?	Recommendations
		ANALYTE — **RL (µg /L)** — **MCL(µg/L)** 1,1-DCE — 1.2 — 7 *cis*-1,2-DCE — 1.2 — 70 *trans*-1,2-DCE — 0.6 — 100 PCE — 1.4 — 5 TCE — 1.0 — 5 Vinyl chloride — 1.1 — 2		
		ANALYTE — **RL (µg/L)** — **MCL/AL (µg /L)** Barium — 5 — 2,000 Chromium — 10 — 100 Copper — 10 — 1,300 Zinc — 50 — 5,000 Arsenic — 30 — 10 Cadmium — 7 — 5 Lead — 25 — 15 Mercury — 1 — 2		
Contamination Characterization (Ground Water Contamination) (Continued)	Meet AFCEE QAPP quality assurance requirements.	Samples were analyzed in accordance with the CSSA QAPP and approved variances. Parsons chemists verified all data.	Yes.	NA
		All data flagged with a "U," "J," and "F" are usable for characterizing contamination. All "R" flagged data are considered unusable.	Yes.	NA

Activity	Objectives	Action	Objective Attained?	Recommendations
		Previously, a method detection limit (MDL) study for arsenic, cadmium, and lead was not performed within a year of the analyses, as required by the AFCEE QAPP.	The laboratory performed new MDL studies in February 2001 for these metals and the new MDL values were found to be almost identical to the previous MDLs and all met the associated AFCEE QAPP requirements. MDLs for these three metals are well below MCLs. In addition, the laboratory performed daily calibrations and RL verifications for these metals, both of which demonstrate the laboratory's ability to detect and quantitate these metals at RL levels. These daily analyses also indicate that concentrations above the laboratory RL for these compounds were not affected by the expired MDL study.	Use results for groundwater characterization purposes.
Remediation	Determine goals and create cost-effective and technologically appropriate methods for remediation (2.2.1).	Continued data collection will provide analytical results for accomplishing this objective.	Ongoing.	Continue sampling and evaluation, including quarterly groundwater monitoring teleconferences to address remediation.
	Determine placement of new wells for monitoring (2.3.1, 3.6)	Sampling frequency and sample locations to be monitored (including any new wells) will be based on trend data from monitoring event(s) (3.1.5).	Ongoing.	Continue quarterly groundwater teleconferences to discuss sampling frequency and placement of new monitor wells.
Project schedule/ Reporting	Produce a quarterly monitoring project schedule as a road map for sampling, analysis, validation, verification, reviews, and reports.	Prepare schedules and sampling guidelines prior to each quarterly sampling event.	Yes.	Continue sampling schedule preparation each quarter.

APPENDIX B

QUARTERLY ON-POST GROUNDWATER MONITORING ANALYTICAL RESULTS JUNE 2011

Appendix B
June 2011 Quarterly On-Post Groundwater Monitoring Analytical Results

Well ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Zinc	Mercury
CS-MW1-LGR	6/9/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW1-CC	6/9/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW1-BS	6/9/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW2-LGR	6/10/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW3-LGR	6/14/2011	NA	NA	0.0005U	**0.007F**	NA	0.0019U	NA	0.0001U
CS-MW5-LGR	6/13/2011	NA	NA	0.0005U	0.001U	NA	**0.0020F**	NA	0.0001U
CS-MW6-BS	6/15/2011	NA	NA	0.0005U	**0.004F**	NA	0.0019U	NA	0.0001U
CS-MW7-LGR	6/16/2011	NA	NA	0.0005U	**0.002F**	NA	0.0019U	NA	0.0001U
CS-MW8-LGR	6/15/2011	NA	NA	0.0005U	**0.006F**	NA	0.0019U	NA	0.0001U
CS-MW8-CC	6/15/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW9-LGR	6/14/2011	NA	NA	0.0005U	**0.061**	NA	0.0019U	NA	0.0001U
CS-MW9-BS	6/15/2011	NA	NA	0.0005U	**0.003F**	NA	**0.0751**	NA	0.0001U
CS-MW11A-LGR	6/16/2011	NA	NA	0.0005U	**0.049**	NA	0.0019U	NA	0.0001U
CS-MW12-LGR	6/10/2011	NA	NA	0.0005U	**0.002F**	NA	**0.0021F**	NA	0.0001U
CS-MW12-LGR FD	6/10/2011	NA	NA	0.0005U	0.001U	NA	**0.0027F**	NA	0.0001U
CS-MW12-BS	6/10/2011	NA	NA	0.0005U	**0.003F**	NA	**0.0020F**	NA	0.0001U
CS-MW16-LGR	6/7/2011	NA	NA	0.0005U	0.001U	NA	**0.0042F**	NA	0.0001U
CS-MW16-CC	6/7/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW19-LGR	6/16/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW20-LGR	6/13/2011	NA	NA	0.0005U	**0.003F**	NA	**0.0021F**	NA	0.0001U
CS-MW21-LGR	6/13/2011	NA	NA	0.0005U	0.001U	NA	**0.0026F**	NA	0.0001U
CS-MW22-LGR	6/13/2011	NA	NA	0.0005U	0.001U	NA	**0.0020F**	NA	0.0001U
CS-MW23-LGR	6/13/2011	NA	NA	0.0005U	**0.002F**	NA	0.0019U	NA	**0.0002F**
CS-MW24-LGR	6/9/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW25-LGR	6/14/2011	NA	NA	0.0005U	**0.002F**	NA	0.0019U	NA	0.0001U
CS-MW25-LGR FD	6/14/2011	NA	NA	0.0005U	**0.002F**	NA	0.0019U	NA	0.0001U
CS-MWG-LGR	6/14/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MWH-LGR	6/8/2011	NA	NA	0.0005U	0.001U	NA	**0.0047F**	NA	0.0001U
CS-I	6/8/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-2	6/10/2011	NA	NA	0.0005U	0.001U	NA	**0.0024F**	NA	0.0001U
CSSA Drinking Water Well System									
CS-1	6/7/2011	0.0002U	**0.0332**	0.0005U	0.001U	**0.006F**	0.0019U	**0.236**	0.0001U
CS-9	6/7/2011	0.0002U	**0.0435**	0.0005U	0.001U	**0.014J**	**0.0183F**	**1.825**	**0.0028**
CS-10	6/7/2011	0.0002U	**0.042**	0.0005U	0.001U	**0.011J**	0.0019U	**0.155**	0.0001U
CS-10 FD	6/7/2011	0.0002U	**0.0473**	0.0005U	0.001U	**0.016J**	0.0019U	**0.18**	0.0001U
CS-12	6/7/2011	0.0002U	**0.0304**	0.0005U	0.001U	**0.011J**	0.0019U	**0.481**	0.0001U

BOLD	≥ MDL
BOLD	≥ RL
BOLD	≥ MCL

All samples were analyzed by APPL, Inc. VOC data reported in ug/L & metals data reported in mg/L.

Abbreviations/Notes:

FD - Field Duplicate
TCE - Trichloroethene
PCE - Tetrachloroethene
DCE - Dichloroethene
AL - Action Level
SS - Secondary Standard
NA - Not Analyzed for this parameter

Data Qualifiers

U-The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
F-The analyte was positively identified but the associated numerical value is below the RL.
J-The analyte was positively identified; the quantitation is an estimation.
* The analyte was run at a dilution of 5.

Appendix B
June 2011 Quarterly On-Post Groundwater Monitoring Analytical Results

Well ID	Sample Date	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	TCE	Vinyl Chloride
CS-MW1-LGR	6/9/2011	0.12U	**16.53**	**0.21F**	**13.21**	**31.37**	0.08U
CS-MW1-CC	6/9/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW1-BS	6/9/2011	0.12U	**1.01F**	0.08U	0.06U	0.05U	0.08U
CS-MW2-LGR	6/10/2011	0.12U	**0.74F**	0.08U	0.06U	0.05U	0.08U
CS-MW3-LGR	6/14/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW5-LGR	6/13/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW6-BS	6/15/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW7-LGR	6/16/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW8-LGR	6/15/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW8-CC	6/15/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW9-LGR	6/14/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW9-BS	6/15/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW11A-LGR	6/16/2011	0.12U	0.07U	0.08U	**0.90F**	0.05U	0.08U
CS-MW12-LGR	6/10/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW12-LGR FD	6/10/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW12-BS	6/10/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW16-LGR	6/7/2011	0.12U	**179.14***	**0.25F**	**156.62***	**173.11***	0.08U
CS-MW16-CC	6/7/2011	**0.21F**	**24.22**	**6.7**	**1.54**	**24.59**	0.08U
CS-MW19-LGR	6/16/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW20-LGR	6/13/2011	0.12U	0.07U	0.08U	**1.62**	0.05U	0.08U
CS-MW21-LGR	6/13/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW22-LGR	6/13/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW23-LGR	6/13/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW24-LGR	6/9/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW25-LGR	6/14/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW25-LGR FD	6/14/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MWG-LGR	6/14/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MWH-LGR	6/8/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-I	6/8/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-2	6/10/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CSSA Drinking Water Well System							
CS-1	6/7/2011	0.12U	0.07U	0.08U	0.06U	**0.34F**	0.08U
CS-9	6/7/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-10	6/7/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-10 FD	6/7/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-12	6/7/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U

BOLD	≥ MDL
BOLD	≥ RL
BOLD	≥ MCL

All samples were analyzed by APPL, Inc. VOC data reported in ug/L & metals data reported in mg/L.

Abbreviations/Notes:

FD Field Duplicate
TCE Trichloroethene
PCE Tetrachloroethene
DCE Dichloroethene
AL Action Level
SS Secondary Standard
NA Not Analyzed for this parameter

Data Qualifiers

U-The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
F-The analyte was positively identified but the associated numerical value is below the RL.
J-The analyte was positively identified; the quantitation is an estimation.
* The analyte was run at a dilution of 5.

APPENDIX C

WESTBAY ANALYTICAL RESULTS
JUNE 2011

Appendix C
June 2011 Westbay Analytical Results

Well ID	Date Sampled	1,1-DCE (1,1-dichloroethene)	cis-1,2-DCE (cis-1,2-dichloroethene)	TCE (trichloroethene)	PCE (tetrachloroethene)	trans-1,2-DCE (trans-1,2-dichloroethene)	Vinyl Chloride
CS-WB01-LGR-09	6/6/2011	<0.12	**0.34**	**19.56**	**16.32**	<0.08	<0.08
CS-WB02-LGR-09	6/6/2011	<0.12	**0.32**	**13.22**	**18.2**	<0.08	<0.08
CS-WB03-LGR-09	6/6/2011	<0.12	**35.36**	**3.84**	**6.83**	<0.08	<0.08
CS-WB04-LGR-06	6/6/2011	<0.12	**3.02**	**13.68**	**28.74**	**0.32**	<0.08
CS-WB04-LGR-07	6/6/2011	<0.12	**2.24**	**11.15**	**17.91**	**0.23**	<0.08
CS-WB04-LGR-09	6/6/2011	<0.12	<0.07	**7.29**	**9.75**	<0.08	<0.08
CS-WB04-LGR-10	6/6/2011	<0.12	<0.07	**0.5**	**1.01**	<0.08	<0.08
CS-WB04-LGR-11	6/6/2011	<0.12	<0.07	<0.05	**0.24**	<0.08	<0.08

All samples were analyzed by APPL as screening data.
All values are reported in µg/L.

BOLD ≥ MDL
BOLD ≥ RL
BOLD ≥ MCL

Appendix C
Additional VOC Analysis Westbay Wells, June 2011

SAMPLE ID:	CS-WB04-LGR-09		CS-WB04-LGR-10		CS-WB04-LGR-11	
DATE SAMPLED:	6/6/2011		6/6/2011		6/6/2011	
SAMPLE INTERVAL (ft bgs):	207 to 320		325 to 345		350 to 377	
Volatile Organics - SW8260B (µg/L)						
1,1,1,2-Tetrachloroethane	0.090	U	0.090	U	0.090	U
1,1,1-Trichloroethane	0.030	U	0.030	U	0.030	U
1,1,2,2-Tetrachloroethane	0.070	U	0.070	U	0.070	U
1,1,2-Trichloroethane	0.060	U	0.060	U	0.060	U
1,1-Dichloroethane	0.070	U	0.070	U	0.070	U
1,1-Dichloropropene	0.10	U	0.10	U	0.10	U
1,2,3-Trichlorobenzene	0.24	U	0.24	U	0.24	U
1,2,3-Trichloropropane	0.17	U	0.17	U	0.17	U
1,2,4-Trichlorobenzene	0.16	U	0.16	U	0.16	U
1,2,4-Trimethylbenzene	0.040	U	0.040	U	0.040	U
1,2-Dibromo-3-chloropropane	0.76	U	0.76	U	0.76	U
1,2-Dibromoethane (EDB)	0.060	U	0.060	U	0.060	U
1,2-Dichlorobenzene	0.020	U	0.020	U	0.020	U
1,2-Dichloroethane	0.050	U	0.050	U	0.050	U
1,2-Dichloropropane	0.060	U	0.060	U	0.060	U
1,3,5-Trimethylbenzene (Mesitylene)	0.040	U	0.040	U	0.040	U
1,3-Dichlorobenzene	0.030	U	0.030	U	0.030	U
1,3-Dichloropropane	0.050	U	0.050	U	0.050	U
1,4-Dichlorobenzene	0.070	U	0.070	U	0.070	U
1-Chlorohexane	0.040	U	0.040	U	0.040	U
2,2-Dichloropropane	0.10	U	0.10	U	0.10	U
2-Chlorotoluene	0.040	U	0.040	U	0.040	U
4-Chlorotoluene	0.040	U	0.040	U	0.040	U
Benzene	0.070	U	0.070	U	0.070	U
Bromobenzene	0.060	U	0.060	U	0.060	U
Bromochloromethane	0.11	U	0.11	U	0.11	U
Bromodichloromethane	0.060	U	0.060	U	0.060	U
Bromoform	0.13	U	0.13	U	0.13	U
Bromomethane	0.080	U	0.080	U	0.080	U
Carbon tetrachloride	0.060	U	0.060	U	0.060	U
Chlorobenzene	0.040	U	0.040	U	0.040	U
Chloroethane	0.070	U	0.070	U	0.070	U
Chloroform	0.060	U	0.060	U	0.060	U
Chloromethane	0.16	U	0.16	U	0.16	U
cis-1,3-Dichloropropene	0.030	U	0.030	U	0.030	U
Dibromochloromethane	0.060	U	0.060	U	0.060	U
Dibromomethane	0.060	U	0.060	U	0.060	U
Dichlorodifluoromethane	0.11	U	0.11	U	0.11	U
Ethylbenzene	0.050	U	0.050	U	0.050	U
Hexachlorobutadiene	0.17	U	0.17	U	0.17	U
Isopropylbenzene	0.040	U	0.040	U	0.040	U
m,p-Xylene	0.070	U	0.070	U	0.070	U
Methylene chloride	0.35	U	0.35	U	0.35	U
Naphthalene	0.070	U	0.070	U	0.070	U
n-Butylbenzene	0.17	U	0.17	U	0.17	U
n-Propylbenzene	0.030	U	0.030	U	0.030	U
o-Xylene	0.060	U	0.060	U	0.060	U
p-Cymene (p-Isopropyltoluene)	0.050	U	0.050	U	0.050	U
sec-Butylbenzene	0.050	U	0.050	U	0.050	U
Styrene	0.080	U	0.080	U	0.080	U
tert-Butylbenzene	0.040	U	0.040	U	0.040	U
Toluene	0.060	U	0.060	U	0.060	U
trans-1,3-Dichloropropene	0.040	U	0.040	U	0.040	U
Trichlorofluoromethane	0.070	U	0.070	U	0.070	U

(NO CODE) - Confirmed identification.
U - Analyte was not detected above the indicated Method Detection Limit (MDL).
F - Analyte was positively identified, but the quantitation is an estimation above the MDL and below the Reporting Limit (RL).
J - Analyte was positively identified, but the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
UJ - Analyte was not detected above the indicated RL; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
Detections are bolded.

APPENDIX D

DATA VALIDATION REPORT

(Laboratory data packages are submitted to CSSA electronically.)

SDG 64850
SDG 64879
SDG 64863
SDG 64899
SDG 64922

DATA VERIFICATION SUMMARY REPORT

for on-post and off-post samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Katherine LaPierre and Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers quarterly groundwater and drinking water samples, and the associated field quality control (QC) samples, collected from on and off-post Camp Stanley Storage Activity (CSSA) under Environmental Protection Support, Investigations, and Treatability Studies on June 7 and 8, 2011. The samples in the following Sample Delivery Group (SDG) were analyzed for a reduced list of volatile organic compounds (VOCs) and metals:

64850

The field QC samples associated with this SDG included two field duplicate (FD) samples, two matrix spike/matrix spike duplicate (MS/MSD) pair, and one trip blank (TB). No ambient blanks were collected. During the initiation of this project, it was determined that ambient blanks were not necessary due to the absence of a source at these sites.

All samples were collected by Parsons and analyzed by APPL, Inc. following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0. The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at a temperature of 3.0ºC, which was within the 2-6ºC range recommended by the CSSA QAPP.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data packages included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the CSSA QAPP, Version 1.0, were met.

VOLATILES

General

The volatiles portion of this data package consisted of twenty (20) samples, including five (5) off-post groundwater samples, four (4) on-post groundwater samples, four (4) on-post drinking water samples, two (2) FD samples, two (2) MS/MSD pair, and one (1) TB. The samples were collected on June 7 and 8, 2011 and were analyzed for a reduced list of VOCs which included: 1,1-dichloroethene, *cis*-1,2-dichloroethene, tetrachloroethene, *trans*-1,2-dichloroethene, trichloroethene, and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in three (3) batches (#156548, #156549, and #156550) under two different initial calibrations (ICALs). All samples were analyzed following the procedures outlined in the CSSA QAPP and were prepared and analyzed within the holding time required by the method.

Sample CS-MW16-LGR required a 5x dilution for cis-1,2-dichloroethene, trichloroethene, and tetrachloroethene. All other analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control spike (LCS) samples, the MS/MSD samples, and the surrogate spikes. Samples JW-9 and CS-12 were designated for MS/MSD analyses on the COC.

Two LCS samples were analyzed for the samples in this SDG. All LCS, MS/MSD, and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the MS/MSD concentrations. Precision was further evaluated by comparing the parent and field duplicate analyte results. Samples JW-15 and CS-10 were collected in duplicate. The second set of vials from each location was submitted as a field duplicate.

All MS/MSD RPDs were within acceptance criteria.

All target VOCs were non-detect in sample JW-15 and the associated field duplicate.

All target VOCs were non-detect in sample CS-10 and the associated field duplicate.

Representativeness

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

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and

- Examining trip and laboratory blanks for cross contamination of samples during transit or analysis.

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

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

There were two method blanks and one TB associated with the VOC analyses in this SDG. All blanks were non-detect for all target VOCs.

Completeness

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

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

ICP-AES METALS

General

The ICP-AES portion of this SDG consisted of eleven (11) samples, including four (4) on-post drinking water samples, four (4) on-post groundwater samples, one (1) FD, and one (1) MS/MSD pair. Samples were collected on June 7 and 8, 2011 and were analyzed for cadmium, chromium, and lead. Drinking water samples CS-1, CS-9, CS-10, CS-10 FD, and CS-12 were also analyzed for arsenic, barium, copper, and zinc.

The ICP-AES metals analyses were performed using USEPA SW846 Method 6010B. All samples were analyzed following the procedures outlined in the CSSA QAPP and were prepared and analyzed within the holding time required by the method.

The samples for ICP-AES metals were digested in one batch (#156069). The samples were analyzed in one batch under a single ICAL. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample and the MS/MSD samples. Sample CS-12 was designated for MS/MSD analysis on the COC for this SDG.

All LCS and MS/MSD recoveries were within acceptance criteria.

Precision

Precision was evaluated using the RPD obtained from the MS/MSD concentrations. Precision was further evaluated by comparing the field duplicate metal results. Sample CS-10 was collected in duplicate.

All MS/MSD RPDs were within acceptance criteria.

All target metals detected above the reporting limit (RL) in both the parent and field duplicate samples met RPD criteria with the exception of copper, as follows:

CS-10

Metal	Parent (mg/L)	FD (mg/L)	RPD	Criteria
Barium	0.0420	0.0473	12	RPD ≤ 20
Copper	0.011	0.016	37	
Zinc	0.155	0.180	15	

The copper results detected above the RL for all samples collected on June 7, 2011 were flagged "J" as estimated due to the high variability demonstrated.

Representativeness

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

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

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

- All initial calibration criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All CCV criteria were met.
- All interference check (ICSA/ICSAB) criteria were met.

- No dilution test was required, as per the CSSA QAPP.

One method blanks and several calibration blanks were analyzed in association with the ICP-AES analyses in this SDG. All blanks were free of target metals at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

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

MERCURY

General

The mercury portion of this SDG consisted of eleven (11) samples, including four (4) on-post drinking water samples, four (4) on-post groundwater samples, one (1) FD, and one (1) MS/MSD pair. Samples were collected on June 7 and 8, 2011 and were analyzed for mercury.

The mercury analyses were performed using USEPA SW846 Method 7470A. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The mercury samples were digested in one batch (#156021). The samples were analyzed in a one batch under a single ICAL. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample and the MS/MSD samples. Sample CS-12 was designated for MS/MSD analysis on the COC for this SDG.

The LCS and MS/MSD recoveries were within acceptance criteria.

Precision

Precision was evaluated using the RPD obtained from the MS/MSD concentrations. Precision was further evaluated by comparing the field duplicate mercury results. Sample CS-10 was collected in duplicate.

The MS/MSD RPD was within acceptance criteria.

Mercury was non-detect in the parent and field duplicate samples.

Representativeness

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

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

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- All initial calibration criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All calibration verification criteria were met.

There was one method blank and several calibration blanks associated with the mercury analyses in this SDG. All blanks were free of mercury at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All mercury results for the samples in this SDG were considered usable. The completeness for the mercury portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

DATA VERIFICATION SUMMARY REPORT

for on-post samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Katherine LaPierre and Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers quarterly groundwater samples and the associated field quality control (QC) sample collected from on-post Camp Stanley Storage Activity (CSSA) under Environmental Protection Support, Investigations, and Treatability Studies on June 9, 2011. The samples in the following Sample Delivery Group (SDG) were analyzed for a reduced list of volatile organic compounds (VOCs) and metals:

64863

The only field QC samples associated with this SDG was one trip blank (TB). No ambient blanks were collected. During the initiation of this project, it was determined that ambient blanks were not necessary due to the absence of a source at these sites.

All samples were collected by Parsons and analyzed by APPL, Inc. following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0. The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at a temperature of 2.0ºC, which was within the 2-6ºC range recommended by the CSSA QAPP.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data packages included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the CSSA QAPP, Version 1.0, were met.

VOLATILES

General

The volatiles portion of this data package consisted of five (5) samples, including four (4) on-post groundwater samples and one (1) TB. The samples were collected on June 9, 2011 and were analyzed for a reduced list of VOCs which included: 1,1-dichloroethene, *cis*-1,2-dichloroethene, tetrachloroethene, *trans*-1,2-dichloroethene, trichloroethene, and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in two batches (#156633 and #156620) under two different initial calibrations (ICALs). All samples were analyzed following the procedures outlined in the CSSA QAPP and were prepared and analyzed within the holding time required by the method. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control spike (LCS) samples and the surrogate spikes. No sample was designated for MS/MSD analyses on the COC for this SDG.

Two LCS samples were analyzed, one for each batch. All LCS and surrogate spike recoveries were within acceptance criteria.

Precision

Precision could not be evaluated for the volatiles portion of this SDG because no duplicate analyses were performed.

Representativeness

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

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

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

- All instrument performance check criteria were met.
- All initial calibration criteria were met.

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

There were two method blanks and one TB associated with the VOC analyses in this SDG. All blanks were non-detect for all target VOCs.

Completeness

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

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

ICP-AES METALS

General

The ICP-AES portion of this SDG consisted of four (4) on-post groundwater samples. Samples were collected on June 9, 2011 and were analyzed for cadmium, chromium, and lead.

The ICP-AES metals analyses were performed using USEPA SW846 Method 6010B. All samples were analyzed following the procedures outlined in the CSSA QAPP and were prepared and analyzed within the holding time required by the method.

The samples for ICP-AES metals were digested in one batch (#156068). The samples were analyzed in one batch under a single ICAL. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample. No sample was designated for MS/MSD analysis on the COC for this SDG.

All LCS recoveries were within acceptance criteria.

Precision

Precision could not be evaluated for the ICP-AES metals portion of this SDG because no duplicate analyses were performed.

Representativeness

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

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

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

- All initial calibration criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All CCV criteria were met.
- All interference check (ICSA/ICSAB) criteria were met.
- No dilution test was required, as per the CSSA QAPP.

One method blank and several calibration blanks were analyzed in association with the ICP-AES analyses in this SDG. All blanks were free of target metals at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

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

MERCURY

General

The mercury portion of this SDG consisted of four (4) on-post groundwater samples. Samples were collected on June 9, 2011 and were analyzed for mercury.

The mercury analyses were performed using USEPA SW846 Method 7470A. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The mercury samples were digested in one batch (#156099). The samples were analyzed in a one batch under a single ICAL. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample. No sample was designated for MS/MSD analysis on the COC for this SDG.

The LCS recovery was within acceptance criteria.

Precision

Precision could not be evaluated for the mercury portion of this SDG because no duplicate analyses were performed.

Representativeness

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

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

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- All initial calibration criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All calibration verification criteria were met.

There was one method blank and several calibration blanks associated with the mercury analyses in this SDG. All blanks were free of mercury at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All mercury results for the samples in this SDG were considered usable. The completeness for the mercury portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

DATA VERIFICATION SUMMARY REPORT

for on-post and off-post samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Katherine LaPierre and Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers quarterly groundwater samples and the associated field quality control (QC) samples collected from on and off-post Camp Stanley Storage Activity (CSSA) under Environmental Protection Support, Investigations, and Treatability Studies on June 10 and 13, 2011. The samples in the following Sample Delivery Group (SDG) were analyzed for volatile organic compounds (VOCs) and metals:

64879

The field QC samples associated with this SDG included one field duplicate (FD) sample, one matrix spike/matrix spike duplicate (MS/MSD) pair, and one trip blank (TB). No ambient blanks were collected. During the initiation of this project, it was determined that ambient blanks were not necessary due to the absence of a source at these sites.

All samples were collected by Parsons and analyzed by APPL, Inc. following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0. The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at a temperature of 2.0ºC, which was within the 2-6ºC range recommended by the CSSA QAPP.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data packages included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the CSSA QAPP, Version 1.0, were met.

VOLATILES

General

The volatiles portion of this data package consisted of fifteen (15) samples, including two (2) off-post groundwater samples, nine (9) on-post groundwater samples, one (1) FD sample, one (1) MS/MSD pair, and one (1) TB. The samples were collected on June 10 and 13, 2011. Sample I10-2 was analyzed for the full list of VOCs specified in the CSSA QAPP. All other samples were analyzed for a reduced list of VOCs which included: 1,1-dichloroethene, *cis*-1,2-dichloroethene, tetrachloroethene, *trans*-1,2-dichloroethene, trichloroethene, and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in three (3) batches (#156573, #156575, and #156571) under a single initial calibration (ICAL). All samples were analyzed following the procedures outlined in the CSSA QAPP and were prepared and analyzed within the holding time required by the method. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control spike (LCS) samples, the MS/MSD samples, and the surrogate spikes. Sample I10-2 was designated for MS/MSD analyses on the COC.

Three LCS samples were analyzed, one for each batch. All LCS, MS/MSD, and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the MS/MSD concentrations. Precision was further evaluated by comparing the parent and field duplicate analyte results. Sample CS-MW12-LGR was collected in duplicate. The second set of vials from this location was submitted as a field duplicate.

All MS/MSD RPDs were within acceptance criteria.

All target VOCs were non-detect in sample CS-MW12-LGR and the associated field duplicate.

Representativeness

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

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

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

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

There were three method blanks and one TB associated with the VOC analyses in this SDG. All blanks were non-detect for all target VOCs.

Completeness

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

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

ICP-AES METALS

General

The ICP-AES portion of this SDG consisted of ten (10) samples, including nine (9) on-post groundwater samples and one (1) FD. Samples were collected on June 10 and 13, 2011 and were analyzed for cadmium, chromium, and lead.

The ICP-AES metals analyses were performed using USEPA SW846 Method 6010B. All samples were analyzed following the procedures outlined in the CSSA QAPP and were prepared and analyzed within the holding time required by the method.

The samples for ICP-AES metals were digested in one batch (#156123). The samples were analyzed in one batch under a single ICAL. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample. No sample was designated for MS/MSD analysis on the COC for metals.

All LCS recoveries were within acceptance criteria.

Precision

Precision was evaluated by comparing the field duplicate metal results. Sample CS-MW12-LGR was collected in duplicate.

All target metals were below the reporting limit (RL) in both the parent and field duplicate samples.

Representativeness

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

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

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

- All initial calibration criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All CCV criteria were met.
- All interference check (ICSA/ICSAB) criteria were met.
- No dilution test was required, as per the CSSA QAPP.

One method blanks and several calibration blanks were analyzed in association with the ICP-AES analyses in this SDG. All blanks were free of target metals at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

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

MERCURY

General

The mercury portion of this SDG consisted of ten (10) samples, including nine (9) on-post groundwater samples and one (1) FD. Samples were collected on June 10 and 13, 2011 and were analyzed for mercury.

The mercury analyses were performed using USEPA SW846 Method 7470A. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The mercury samples were digested in one batch (#156212). The samples were analyzed in a one batch under a single ICAL. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample. No sample was designated for MS/MSD analysis on the COC for mercury.

The LCS recovery was within acceptance criteria.

Precision

Precision was evaluated by comparing the field duplicate mercury results. Sample CS-MW12-LGR was collected in duplicate.

Mercury was non-detect in both the parent and field duplicate samples.

Representativeness

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

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

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- All initial calibration criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All calibration verification criteria were met.

There was one method blank and several calibration blanks associated with the mercury analyses in this SDG. All blanks were free of mercury at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All mercury results for the samples in this SDG were considered usable. The completeness for the mercury portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

DATA VERIFICATION SUMMARY REPORT

for on-post and off-post samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Katherine LaPierre and Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers quarterly groundwater samples and the associated field quality control (QC) samples collected from on and off-post Camp Stanley Storage Activity (CSSA) under Environmental Protection Support, Investigations, and Treatability Studies on June 14 and 15, 2011. The samples in the following Sample Delivery Group (SDG) were analyzed for a reduced list of volatile organic compounds (VOCs) and metals:

64899

The field QC samples associated with this SDG included one field duplicate (FD) sample and one trip blank (TB). No ambient blanks were collected. During the initiation of this project, it was determined that ambient blanks were not necessary due to the absence of a source at these sites.

All samples were collected by Parsons and analyzed by APPL, Inc. following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0. The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at a temperature of 3.0ºC, which was within the 2-6ºC range recommended by the CSSA QAPP.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data packages included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the CSSA QAPP, Version 1.0, were met.

VOLATILES

General

The volatiles portion of this data package consisted of twelve (12) samples, including eight (8) on-post groundwater samples, two (2) off-post groundwater samples, one (1) FD sample, and one (1) TB. The samples were collected on June 14 and 15, 2011 and were analyzed for a reduced list of VOCs which included: 1,1-dichloroethene, *cis*-1,2-dichloroethene, tetrachloroethene, *trans*-1,2-dichloroethene, trichloroethene, and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in two (2) batches (#156575 and #156801) under two different initial calibrations (ICALs). All samples were analyzed following the procedures outlined in the CSSA QAPP and were prepared and analyzed within the holding time required by the method. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control spike (LCS) samples and the surrogate spikes. No sample was designated for MS/MSD analyses on the COC.

Two LCS samples were analyzed for the samples in this SDG, one for each batch. All LCS and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated by comparing the parent and field duplicate analyte results. Sample CS-MW25-LGR was collected in duplicate. The second set of vials from this location was submitted as a field duplicate.

All target VOCs were non-detect in sample CS-MW25-LGR and the associated field duplicate.

Representativeness

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

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

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

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

There were two method blanks and one TB associated with the VOC analyses in this SDG. All blanks were non-detect for all target VOCs.

Completeness

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

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

ICP-AES METALS

General

The ICP-AES portion of this SDG consisted of nine (9) samples, including eight (8) on-post groundwater samples and one (1) FD. Samples were collected on June 14 and 15, 2011 and were analyzed for cadmium, chromium, and lead.

The ICP-AES metals analyses were performed using USEPA SW846 Method 6010B. All samples were analyzed following the procedures outlined in the CSSA QAPP and were prepared and analyzed within the holding time required by the method.

The samples for ICP-AES metals were digested in one batch (#156330). The samples were analyzed in one batch under a single ICAL. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample. No sample was designated for MS/MSD analysis on the COC for this SDG.

All LCS recoveries were within acceptance criteria.

Precision

Precision was evaluated by comparing the field duplicate metal results. Sample CS-MW25-LGR was collected in duplicate.

All target metals were below the reporting limit (RL) in both the parent and field duplicate samples.

Representativeness

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

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

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

- All initial calibration criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All CCV criteria were met.
- All interference check (ICSA/ICSAB) criteria were met.
- No dilution test was required, as per the CSSA QAPP.

One method blanks and several calibration blanks were analyzed in association with the ICP-AES analyses in this SDG. All blanks were free of target metals at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

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

MERCURY

General

The mercury portion of this SDG consisted of nine (9) samples, including eight (8) on-post groundwater samples, one (1) FD, and one (1) MS/MSD pair. Samples were collected on June 7 and 8, 2011 and were analyzed for mercury.

The mercury analyses were performed using USEPA SW846 Method 7470A. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The mercury samples were digested in one batch (#156021). The samples were analyzed in a one batch under a single ICAL. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample. No sample was designated for MS/MSD analysis on the COC for this SDG.

The LCS recovery was within acceptance criteria.

Precision

Precision was evaluated by comparing the field duplicate mercury results. Sample CS-MW25-LGR was collected in duplicate.

Mercury was non-detect in the parent and field duplicate samples.

Representativeness

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

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

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- All initial calibration criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All calibration verification criteria were met.

There was one method blank and several calibration blanks associated with the mercury analyses in this SDG. All blanks were free of mercury at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All mercury results for the samples in this SDG were considered usable. The completeness for the mercury portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

DATA VERIFICATION SUMMARY REPORT

for on-post samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Katherine LaPierre and Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers quarterly groundwater samples and the associated field quality control (QC) samples collected from on-post Camp Stanley Storage Activity (CSSA) under Environmental Protection Support, Investigations, and Treatability Studies on June 16, 2011. The samples in the following Sample Delivery Group (SDG) were analyzed for a reduced list of volatile organic compounds (VOCs) and metals:

64922

The field QC samples collected in association with this SDG included one matrix spike/matrix spike duplicate (MS/MSD) pair and one trip blank (TB). No ambient blanks were collected. During the initiation of this project, it was determined that ambient blanks were not necessary due to the absence of a source at these sites.

All samples were collected by Parsons and analyzed by APPL, Inc. following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0. The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at a temperature of 3.0ºC, which was within the 2-6ºC range recommended by the CSSA QAPP.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data packages included sample results; field and laboratory quality control samples; calibrations; case narratives; raw data; chain-of-custody (COC) forms and the sample receipt checklist. The findings presented in this report are based on the reviewed information, and whether the guidelines in the CSSA QAPP, Version 1.0, were met.

VOLATILES

General

The volatiles portion of this data package consisted of six (6) samples, including three (3) on-post groundwater samples, one (1) MS/MSD pair, and one (1) TB. The samples were collected on June 16, 2011 and were analyzed for a reduced list of VOCs which included: 1,1-dichloroethene, *cis*-1,2-dichloroethene, tetrachloroethene, *trans*-1,2-dichloroethene, trichloroethene, and vinyl chloride.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in one (1) batch (#156815) under a single initial calibration (ICAL). All samples were analyzed following the procedures outlined in the CSSA QAPP and were prepared and analyzed within the holding time required by the method. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control spike (LCS) sample, MS/MSD samples, and the surrogate spikes. Sample CS-MW7-LGR was designated for MS/MSD analyses on the COC.

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

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the MS/MSD concentrations.

All MS/MSD RPDs were within acceptance criteria.

Representativeness

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

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

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

- All instrument performance check criteria were met.
- All initial calibration criteria were met.

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

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

Completeness

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

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

ICP-AES METALS

General

The ICP-AES portion of this SDG consisted of five (5) samples, including three (3) on-post groundwater samples and one (1) MS/MSD pair. Samples were collected on June 16, 2011 and were analyzed for cadmium, chromium, and lead.

The ICP-AES metals analyses were performed using USEPA SW846 Method 6010B. All samples were analyzed following the procedures outlined in the CSSA QAPP and were prepared and analyzed within the holding time required by the method.

The samples for ICP-AES metals were digested in one batch (#156388). The samples were analyzed in one batch under a single ICAL. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample and the MS/MSD samples. Sample CS-MW7-LGR was designated for MS/MSD analysis on the COC for this SDG.

All LCS and MS/MSD recoveries were within acceptance criteria.

Precision

Precision was evaluated using the RPD obtained from the MS/MSD concentrations.

All MS/MSD RPDs were within acceptance criteria.

Representativeness

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

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

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

- All initial calibration criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All CCV criteria were met.
- All interference check (ICSA/ICSAB) criteria were met.
- No dilution test was required, as per the CSSA QAPP.

One method blanks and several calibration blanks were analyzed in association with the ICP-AES analyses in this SDG. All blanks were free of target metals at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

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

MERCURY

General

The mercury portion of this SDG consisted of five (5) samples, including three (3) on-post groundwater samples and one (1) MS/MSD pair. Samples were collected on June 16, 2011 and were analyzed for mercury.

The mercury analyses were performed using USEPA SW846 Method 7470A. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The mercury samples were digested in one batch (#156496). The samples were analyzed in a one batch under a single ICAL. All analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample and MS/MSD samples. Sample CS-MW7-LGR was designated for MS/MSD analysis on the COC for this SDG.

The LCS and MS/MSD recoveries were within acceptance criteria.

Precision

Precision was evaluated using the RPD obtained from the MS/MSD concentrations.

The MS/MSD RPD was within acceptance criteria.

Representativeness

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

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

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- All initial calibration criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All calibration verification criteria were met.

There was one method blank and several calibration blanks associated with the mercury analyses in this SDG. All blanks were free of mercury at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All mercury results for the samples in this SDG were considered usable. The completeness for the mercury portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.