FINAL

JUNE 2008

On-Post
Quarterly Groundwater Monitoring Report

Prepared For

Department of the Army
Camp Stanley Storage Activity
Boerne, Texas

November 2008

GEOSCIENTIST CERTIFICATION

June 2008 On-post Quarterly Groundwater Monitoring Report

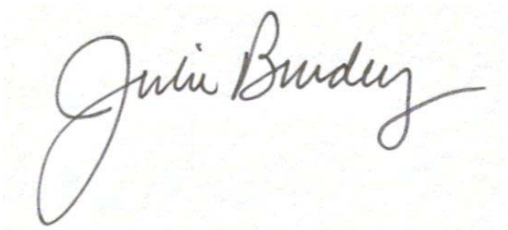
For

Department of the Army

Camp Stanley Storage Activity

Boerne, Texas

I, Julie Burdey, P.G., hereby certify that the June 2008 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 2008, and is true and accurate to the best of my knowledge and belief.



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

11/06/2008

Date

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EXECUTIVE SUMMARY

- The 6 new monitoring wells have now been sampled for 5 consecutive quarterly events, in accordance with the DQO's. However, these wells will remain on the quarterly sampling schedule due to metals detections and until the next LTMO update.

- Although only 6 monitoring wells were scheduled for sampling this quarter, 3 drinking water supply wells and 1 monitoring well were also sampled due to recent metals detections. Westbay wells were not sampled this quarter but will be sampled again in September 2008.

- Water levels have continued to decrease for the third consecutive quarter after record high rainfall last year. CSSA received roughly 2 inches of rain between March and June 2008, and water levels dropped about 55 feet.
- The action level (AL) was exceeded for lead in well CS-9, after the well was pumped for approximately 30 minutes. The initial sample reported a much lower concentration, below the reporting limit (RL).

- New monitoring wells CS-MW20-LGR, CS-MW21-LGR, CS-MW22-LGR, and CS-MW25-LGR reported no lead contamination for this first time since these wells were installed in June 2007.

- Drinking water supply well CS-1 reported no lead detections this quarter. This is the first quarter lead has not been detected in this well since 1995.

- No volatile organic compounds (VOCs) were above the maximum contaminant level (MCL) in any of the wells sampled in June 2008.

JUNE 2008
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 2008. Laboratory analytical results are presented along with potentiometric contour figures. The purpose of this report is to present a summary of the sampling results. A similar report will summarize the planned September 2008 sampling results. Results from all four 2008 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 at CSSA, scoped under the U.S. Army Corps of Engineers (USACE) Fort Worth District (CESWF), Contract W91278-06-D-0026, Task Order (TO) DY02, was performed June 9, 2008 through June 24, 2008. On-post groundwater monitoring conducted under this TO began with the September 2007 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 2005)** 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).

2.0 BASE-WIDE FLOW DIRECTION AND GRADIENT

Forty-seven water level measurements were recorded on June 9, 2008 from on-post monitoring wells completed in the Lower Glen Rose (LGR), Bexar Shale (BS), and Cow Creek (CC) formations. The groundwater potentiometric surface map illustrating groundwater elevations from the LGR, BS, and CC zones in June 2008 are shown in **Figures 2-1, 2-2, and 2-3**.

The June 2008 potentiometric surface map for LGR-screened wells exhibited a wide range of groundwater elevations, from a minimum of 855.96 feet above mean sea level (MSL) at CS-MW16-CC to a maximum 1064.19 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 2008 decreased 54.10 feet from the elevations measured in March 2008, reflecting the lack of significant rain in the area. From March 22, 2008 to June 24, 2008, weather station south (WS-S) recorded 15 rainfall events with 2.69 inches of rain. Weather station north (WS-N) also recorded 15 rainfall events with a total of 1.9 inches of rain from March 22, 2008 to June 24, 2008. For comparison, CSSA received 11.99 inches of rainfall during this timeframe in 2007, which was a wet year.

Well CS-MW4-LGR in the central portion of CSSA usually has one of the highest groundwater elevations of LGR-screened wells. The elevation is usually 20 to 40 feet higher than the nearest comparable wells (CS-MW2-LGR and CS-MW5-LGR). The lack of recent rainfall did not change this general historical trend; CS-MW4-LGR is still approximately 20 feet higher than nearby wells. The higher elevations measured in north pasture wells CS-MWG-LGR (1064.19' MSL), CS-MWH-LGR (1024.23' MSL), and CS-I (1031.72' MSL) reflect the general trend of north to south.

It should be noted that pumping of CSSA wells affects the potentiometric surface. Monitoring wells CS-MW16-LGR and CS-MW16-CC have been pumping continuously to the SWMU B-3 Bioreactor. Drinking water wells CS-1, CS-9, and CS-10 are cycled on and off periodically to maintain the drinking water system currently in place at CSSA. Influence from these pumping wells is depicted in **Figure 2-1**.

An overall groundwater gradient averaged across CSSA is to the south at 0.00309 ft/ft. The groundwater gradient varies in direction and velocity in different areas of CSSA. Groundwater gradients calculated from different LGR wells ranged from -0.0026 ft/ft to 0.0088 ft/ft.

Groundwater elevations have been measured and recorded since 1992. Previous droughts resulted in water levels decreasing substantially in 1996, 1999, 2000, and 2006. However, there was unusually high rainfall, 53.17 inches, in 2007. The current drought has caused groundwater elevations to decrease since the December 2007 event. Although water levels are low they still remain about 30 to 40 feet above the all-time low measured during the December 2006 drought.

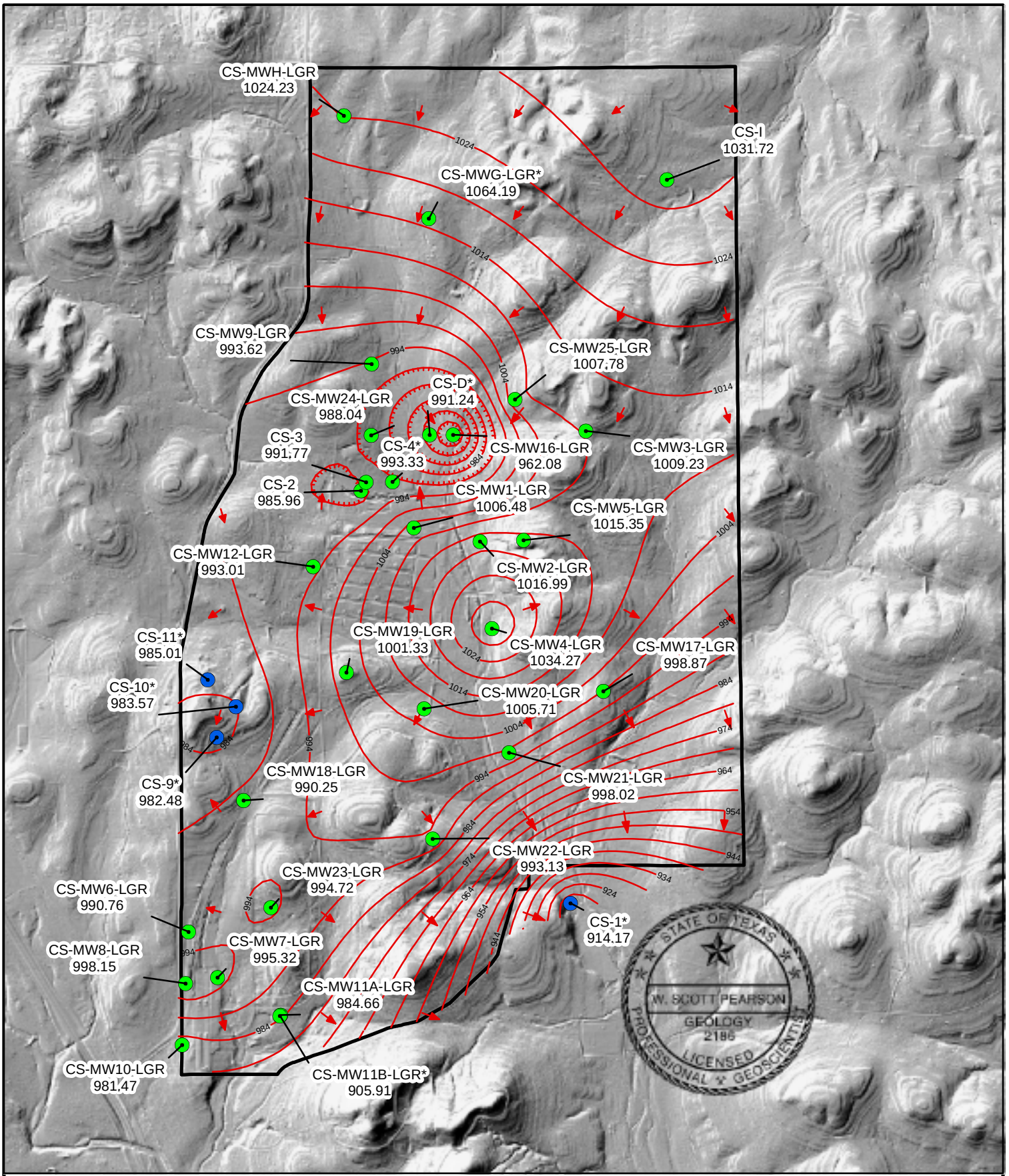

Figure 2-1

June 2008 Potentiometric Surface Map, LGR Wells

Camp Stanley Storage Activity

P a r s o n s

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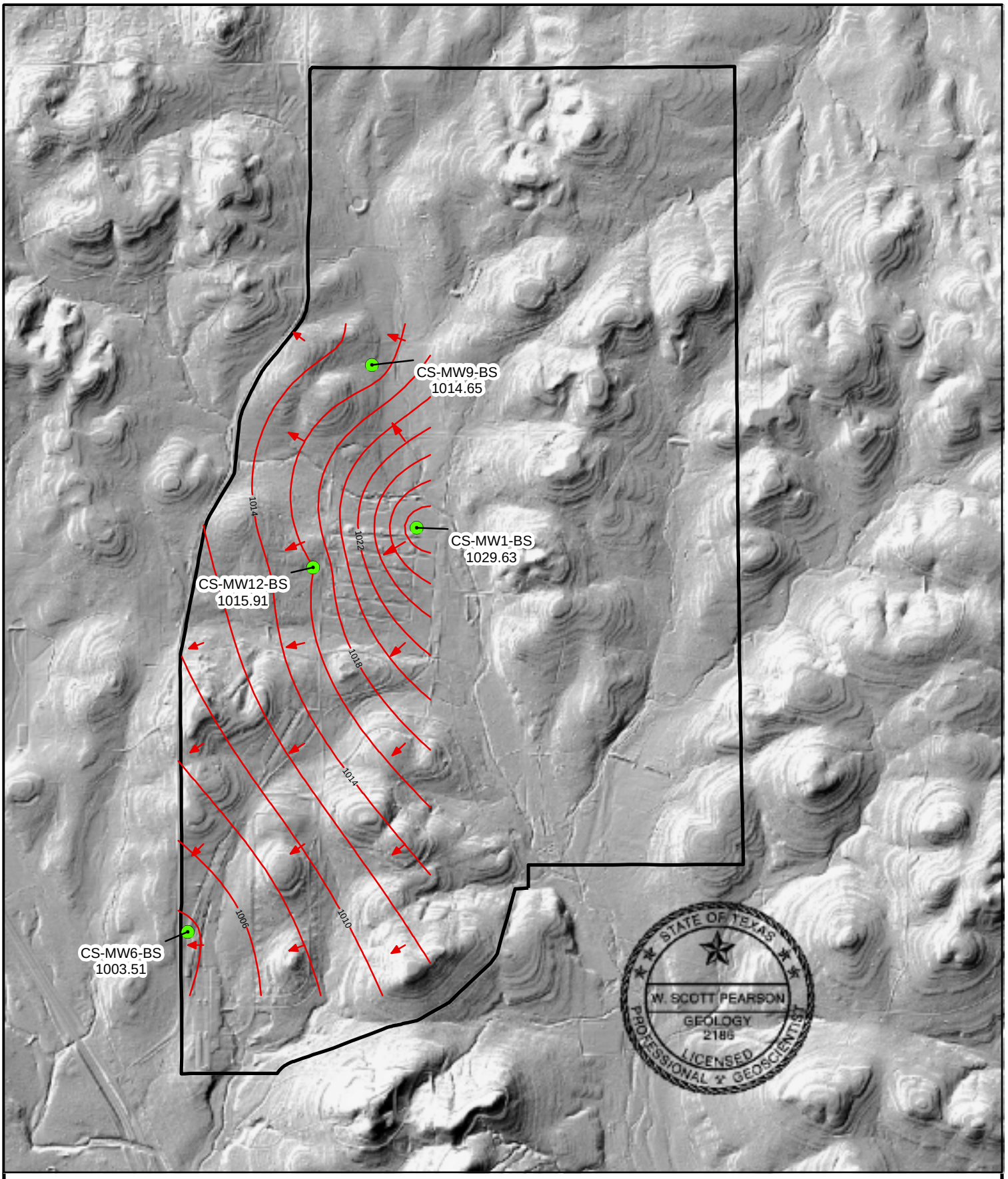

Figure 2-2

June 2008 Potentiometric Surface Map, BS Wells

Camp Stanley Storage Activity

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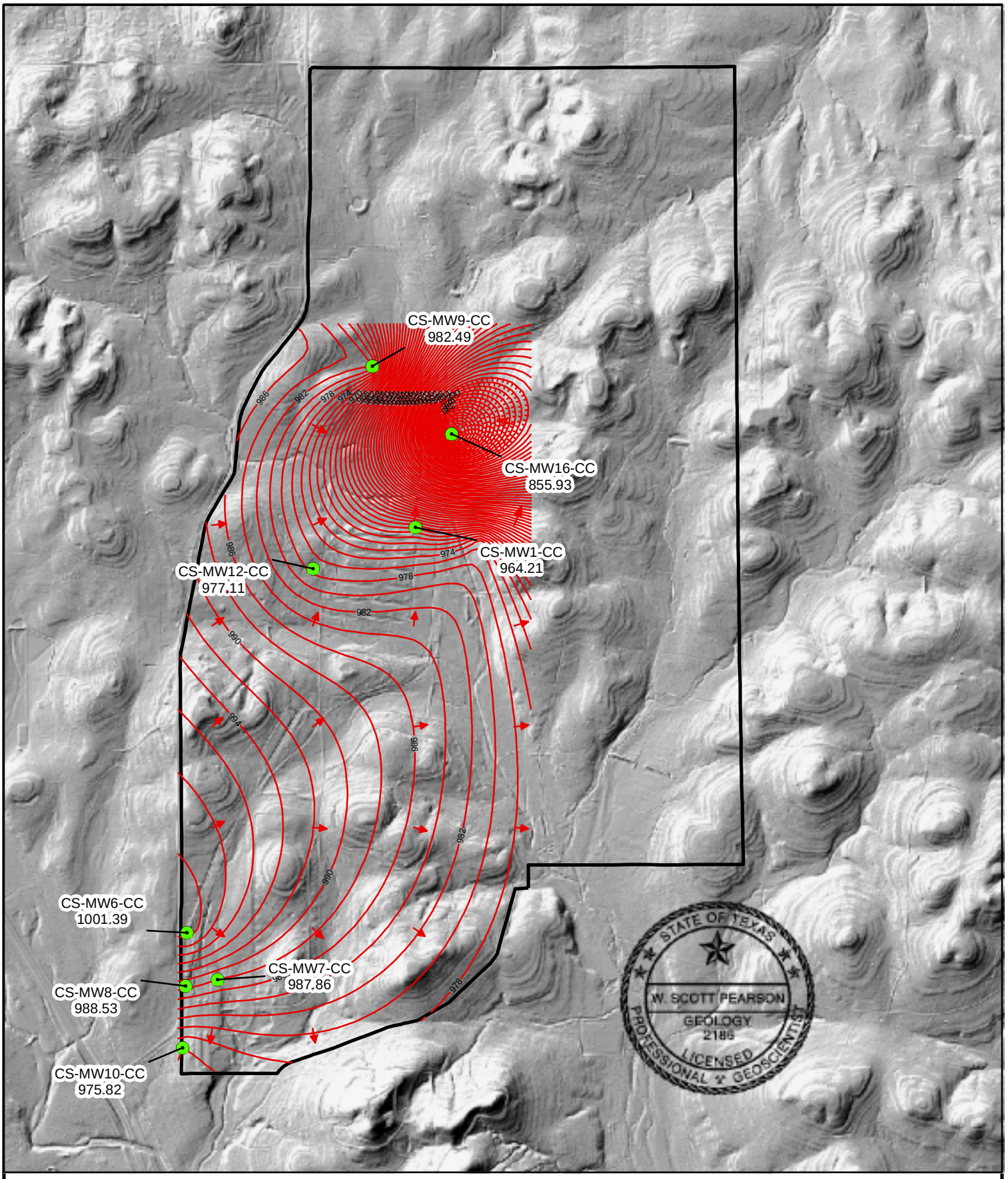

Figure 2-3

June 2008 Potentiometric Surface Map, CC Wells

Camp Stanley Storage Activity

P a r s o n s

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

Count	Well ID	*Analytes*	*Current Sample Date*	*Next Sample Date*	*Sampling Frequency*
1	CS-MW1-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
2	CS-MW1-BS	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-09	Sep-11	Biennial
3	CS-MW1-CC	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-09	Sep-11	Biennial
4	CS-MW2-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
5	CS-MW2-CC	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-09	Sep-11	Biennial
6	CS-MW3-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
7	CS-MW4-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
8	CS-MW5-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
9	CS-MW6-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
10	CS-MW6-BS	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-09	Sep-11	Biennial
11	CS-MW6-CC	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-09	Sep-11	Biennial
12	CS-MW7-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
13	CS-MW7-CC	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-09	Sep-11	Biennial
14	CS-MW8-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Jun-09	Every 9 months*
15	CS-MW8-CC	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-09	Sep-11	Biennial
16	CS-MW9-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
17	CS-MW9-BS	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-09	Sep-11	Biennial
18	CS-MW9-CC	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-09	Sep-11	Biennial
19	CS-MW10-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Jun-09	Every 9 months*
20	CS-MW10-CC	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-09	Sep-11	Biennial
21	CS-MW11A-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
22	CS-MW11B-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
23	CS-MW12-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Jun-09	Every 9 months*
24	CS-MW12-BS	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-09	Sep-11	Biennial
25	CS-MW12-CC	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-09	Sep-11	Biennial
26	CS-MW16-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
27	CS-MW16-CC	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
28	CW-MW17-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Jun-09	Every 9 months*
29	CS-MW18-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
30	CS-MW19-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
31	**CS-1**	**VOC on-post short list & metals (As, Ba, Cu, Zn, Cd, Pb, Cr, Ni, Hg)**	Sep-08	Jun-09	**Every 9 months***
32	CS-2	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Jun-09	Every 9 months*
33	CS-4	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
34	**CS-9**	**VOC on-post short list & metals (As, Ba, Cu, Zn, Cd, Pb, Cr, Ni, Hg)**	Sep-08	Jun-09	**Every 9 months***
35	**CS-10**	**VOC on-post short list & metals (As, Ba, Cu, Zn, Cd, Pb, Cr, Ni, Hg)**	Sep-08	Jun-09	**Every 9 months***
36	CS-11	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Jun-09	Every 9 months*
37	CS-D	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Mar-09	Semi-annual
38	CS-MWG-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Jun-09	Every 9 months*
39	CS-MWH-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-09	Sep-11	Biennial
40	CS-I	VOC on-post short list & metals (Pb, Cd, Ni)	Sep-08	Jun-09	Every 9 months*
41	CS-MW20-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	**Jun-08**	Sep-08	Quarterly**
42	CS-MW21-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	**Jun-08**	Sep-08	Quarterly**
43	CS-MW22-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	**Jun-08**	Sep-08	Quarterly**
44	CS-MW23-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	**Jun-08**	Sep-08	Quarterly**
45	CS-MW24-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	**Jun-08**	Sep-08	Quarterly**
46	CS-MW25-LGR	VOC on-post short list & metals (Pb, Cd, Ni)	**Jun-08**	Sep-08	Quarterly**
	Westbay Wells WB01-WB04 "LGR" zones	VOC on-post short list	Sep-08	Mar-09	Semi-annual
	Westbay Wells WB01-WB04 "BS & CC" zones	VOC on-post short list	Sep-09	Sep-11	Biennial

*Wells recommended for annual sampling frequency in the LTMO are scheduled every nine months (every third quarter) to gather seasonal data.
** Due to recent metals detections in some of CSSA's newest wells, these wells will be sampled quarterly until the next LTMO update.

3.0 JUNE ANALYTICAL RESULTS

3.1 Monitoring Wells

Under the provisions of the groundwater monitoring DQOs and the LTMO study, the schedule for sampling on-post in June 2008 included 6 on-post monitoring wells. In addition, 3 drinking water supply wells and 1 monitoring well were also sampled to gather data in the area of the future water supply well. **Table 3-1** provides a sampling overview for June 2008 and the schedule under the LTMO recommendations. The monitoring wells (CS-MW9-LGR, CS-MW20-LGR, CS-MW21-LGR, CS-MW22-LGR, CS-MW23-LGR, CS-MW24-LGR, CS-MW25-LGR) were sampled using dedicated low-flow gas operated bladder pumps. Wells CS-1, CS-9, and CS-10 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 stabilized. Field parameters including pH, temperature, and conductivity, were recorded to ensure stabilization during well purging. The on-post monitoring wells were sampled in June 2008 for the short list of volatile organic compounds (VOC), and metals (arsenic, barium, copper, zinc, nickel, cadmium, lead, chromium, and mercury). Samples were analyzed by APPL Laboratories in Fresno, California. All detected concentrations of VOCs and metals are presented in **Table 3-2**. Full analytical results are presented in **Appendix B**.

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 DY02- #66, #67, and #70 containing the analytical results from this sampling event were received by Parsons between June 27 and July 18, 2008. Data validation was conducted and the data validation summary was submitted to CSSA. Cumulative historical analytical results can be found in **Tables 6** and **7** of the **Introduction to the Quarterly Groundwater Monitoring Program** (Parsons 2001) (**Volume 5, Groundwater**). Plume maps from this quarter will be included in the 2008 Annual Groundwater Report.

3.2 Westbay-equipped Wells

Under the provisions of the groundwater monitoring DQOs and the LTMO study, the schedule for on-post sampling in June 2008 did not include the Westbay wells CS-WB01, CS-WB02, CS-WB03, and CS-WB04. These wells are sampled on a semi-annual frequency as recommended in the LTMO study and will be sampled again during the September 2008 event. Full analytical historical results are presented in **Appendix C**. The Westbay wells are sampled for VOCs: 1,1-dichloroethene, *cis*-1,2-DCE, *trans*-1,2-DCE, PCE, TCE, and vinyl chloride.

Westbay wells CS-WB05, CS-WB06, CS-WB07, and CS-WB08 are not sampled as part of the groundwater monitoring program but are sampled under the solid waste management unit B-3 bioreactor monitoring. Results for those wells are presented in a separate report.

4.0 JUNE 2008 SUMMARY

- All 6 of the monitoring wells, in addition to 3 drinking water wells and 1 monitoring well, scheduled to be sampled in June 2008 were sampled.
- Two samples were collected from drinking water well CS-9. The first sample was collected at the time the pump was engaged and the second sample was collected 30 minutes later after the well had drawn down to the low level cut-off. Lead was detected in both samples but it only exceeded the AL (0.015 µg/L) in the second sample at a concentration of 0.0541 µg/L. This sampling was done to replicate previous samples collected after the well rehabilitation. Mercury concentrations exceeded the MCL after the well was rehabilitated in June 2007. The mercury contamination was suspected to be coming from a piece of an abandoned pump found at the bottom of the well during rehabilitation. The debris was sealed off with pressure-grouted cement in August 2007. Groundwater testing in June 2008 found mercury levels to be below drinking water standards.
- From March 22, 2008 to June 24, 2008, weather stations north and south recorded 1.9 and 2.69 inches of rain, respectively.
- Water levels decreased an average of 56.54 feet per well since last quarter. The water levels have continued to decrease for the third consecutive quarter after record high rainfall last year.
- PCE was detected at a concentration of 1.95 µg/L in well CS-MW20-LGR, which is below the MCL of 5 µg/L. No other VOCs were detected in any of the wells sampled.
- Lead was not detected in well CS-MW22-LGR this quarter, although it exceeded the AL in June 2007, September 2007, and March 2008.

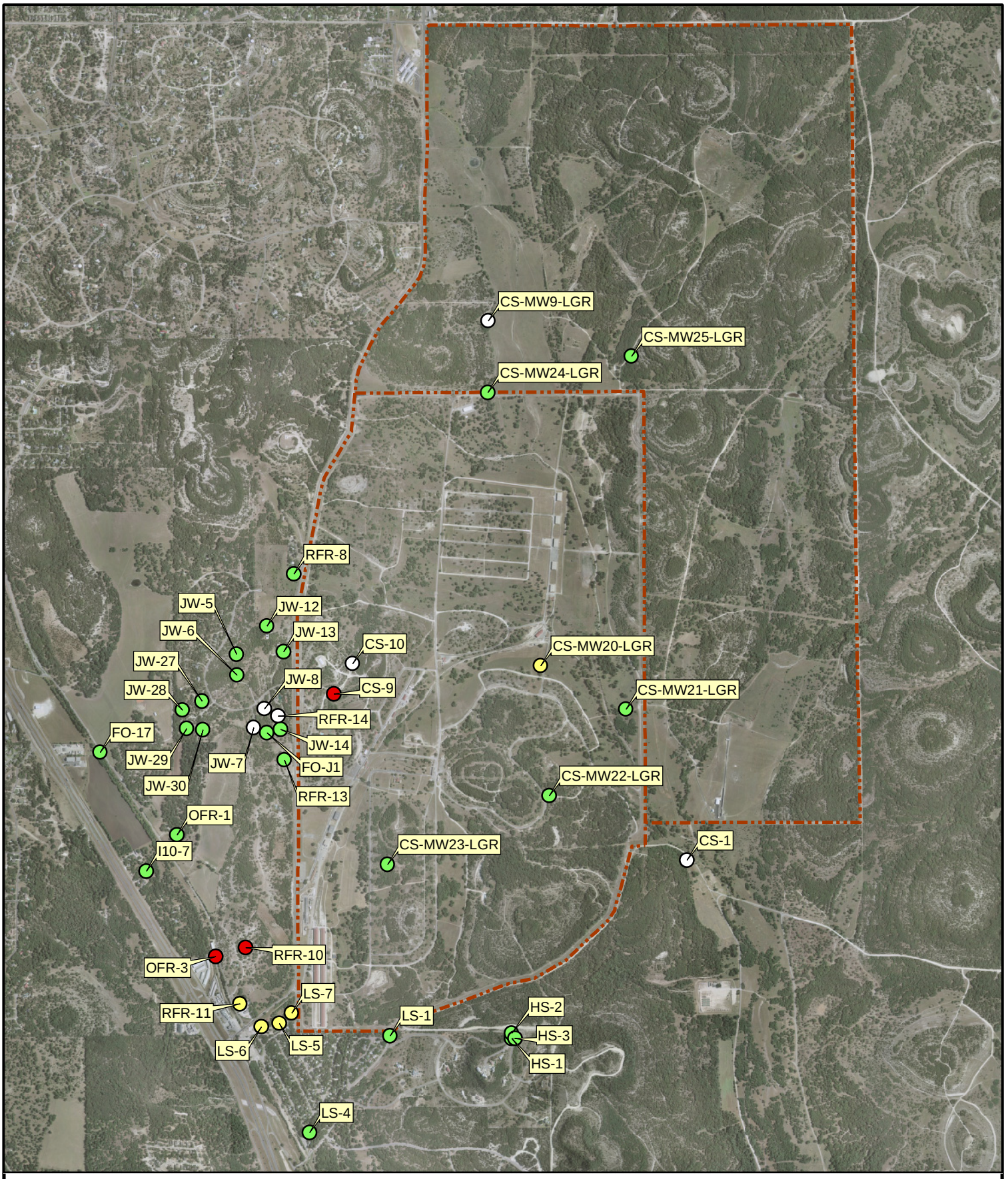
CS-MW9-LGR
CS-MW25-LGR
CS-MW24-LGR
RFR-8
JW-5
JW-12
JW-6
JW-13
CS-10
CS-MW20-LGR
JW-27
JW-8
CS-9
JW-28
CS-MW21-LGR
RFR-14
FO-17
JW-14
JW-29
JW-7
FO-J1
CS-MW22-LGR
JW-30
RFR-13
OFR-1
I10-7
CS-MW23-LGR
CS-1
RFR-10
OFR-3
LS-7
RFR-11
LS-1
HS-2
HS-3
LS-6
LS-5
HS-1
LS-4
N
W
E
S
0
1,250
2,500
3,750
5,000
Feet
Sampled Wells
>MCL (VOC's & Metals)
>RL (VOC's only)
>MDL (VOC's only)
ND
Fence Line
*Off-post wells not analyzed for metals.
Figure 3-1
On-Post and Off-Post Well Sampling Locations for June 2008
Camp Stanley Storage Activity
P a r s o n s
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Table 3-2
June 2008 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-MW9-LGR	6/10/2008	--	--	--	**0.26F**	--	--	First PCE detection since March 2006.
CS-MW20-LGR	6/24/2008	--	--	--	**1.95**	--	--	Consistant PCE detections since June 2007.
CS-MW21-LGR	6/24/2008	--	--	--	--	--	--	
CS-MW22-LGR	6/24/2008	--	--	--	--	--	--	
CS-MW22-LGR FD	6/24/2008	--	--	--	--	--	--	
CS-MW23-LGR	6/24/2008	--	--	--	--	--	--	
CS-MW24-LGR	6/24/2008	--	--	--	--	--	--	
CS-MW25-LGR	6/10/2008	--	--	--	--	--	--	
CS-1	6/27/2008	--	--	--	--	**0.17F**	--	No PCE detections since Sept. 2004.
CS-9 (1317)	6/27/2008	--	--	--	--	--	--	
CS-9 (1356)	6/27/2008	--	--	--	--	--	--	
CS-10	6/27/2008	--	--	--	--	--	--	No PCE detections since Sept. 2004 also.
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**	**1.0**	**1.1**	
Max. Contaminant Level (MCL)		**7**	**70**	**100**	**5**	**5**	**2**	

Well ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	Comments
CS-MW9-LGR	6/10/2008	**0.00582F**	**0.0372**	--	**0.007F**	--	--	**0.006F**	--	**0.0004F**	
CS-MW20-LGR	6/24/2008	--	**0.1448**	--	--	--	--	--	**0.057**	--	First quarter with no lead detection.
CS-MW21-LGR	6/24/2008	--	**0.091**	--	--	--	--	**0.002F**	**0.142**	--	First quarter with no lead detection.
CS-MW22-LGR	6/24/2008	--	**0.0651**	--	--	--	--	**0.006F**	**1.701**	--	
CS-MW22-LGR FD	6/24/2008	--	**0.0658**	--	--	--	--	**0.006F**	**1.732**	--	Lead was above the AL last quarter.
CS-MW23-LGR	6/24/2008	--	**0.0528**	--	--	--	--	**0.035**	**0.133**	--	
CS-MW24-LGR	6/24/2008	--	**0.0334**	--	--	--	--	--	**0.132**	0.0001M	
CS-MW25-LGR	6/10/2008	**0.00274F**	**0.0333**	--	**0.012**	**0.004F**	--	**0.009F**	**0.297**	**0.0005F**	
CS-1	6/27/2008	--	**0.0371**	--	--	**0.005F**	--	--	**0.159**	**0.0004F**	First quarter with no lead detection since 1995.
CS-9 (1317)	6/27/2008	**0.00058F**	**0.0383**	--	--	**0.012**	**0.0067F**	**0.002F**	**0.983**	**0.0012**	
CS-9 (1356)	6/27/2008	--	**0.038**	--	--	**0.047**	**0.0541**	--	**0.519**	**0.0015**	
CS-10	6/27/2008	**0.00085F**	**0.0418**	--	--	**0.006F**	--	**0.002F**	**0.261**	**0.0003F**	
Comparison Criteria											
Method Detection Limit (MDL)		0.00022	0.0003	0.0005	0.001	0.003	0.0019	0.001	0.008	0.0001	
Reporting Limit (RL)		**0.03**	**0.005**	**0.007**	**0.01**	**0.01**	**0.025**	**0.01**	**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 = Above the MDL (F flagged)
BOLD = Above the RL
BOLD = Above the MCL

Precipitation per Quarter:	Mar-08	Jun-08
Weather Station South (WS-S)	2.31	2.69
Weather Station North (WS-N)	2.17	1.9

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

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.

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, and HSP.	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 9, 2008.	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 9, 2008 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 semiannually and will be sampled again during the September 2008 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-MW18-LGR, CS-MW19-LGR, CS-MW21-LGR, CS-MW22-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-MW9-LGR, CS-MW9-BS, CS-MW9-CC, CS-MW16-LGR, CS-MW16-CC, CS-MW1-LGR, CS-MW1-BS, CS-MW1-CC, CS-MW12-LGR, CS-MW12-BS, CS-MW12-CC, CS-MW10-LGR, CS-MW10-CC, CS-MW6-LGR, CS-MW6-BS, CS-MW6-CC, CS-9, 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 2008 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 10 of 46 CSSA wells. All 10 of the wells scheduled to be sampled in June 2008 were sampled.	The horizontal and vertical extent of groundwater contamination is continuously monitored.	Continue groundwater monitoring and construct additional wells as necessary.

<table>
<tr><th>Activity</th><th>Objectives</th><th>Action</th><th>Objective Attained?</th><th>Recommendations</th></tr>
<tr><td rowspan="2"></td><td>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.</td><td>Groundwater samples were collected from wells: CS-MW9-LGR, CS-1, CS-9, CS-10, 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 (arsenic, cadmium, lead, mercury, barium, chromium, copper, nickel, and zinc). Analyses were conducted in accordance with the AFCEE QAPP and approved variances. All RLs were below MCLs, as listed below:</td><td>Yes.</td><td>Continue sampling.</td></tr>
<tr><td></td><td><table><tr><th>ANALYTE</th><th>RL (µg /L)</th><th>MCL(µg/L)</th></tr><tr><td>Chloroform</td><td>0.4</td><td>100</td></tr><tr><td>Chloromethane</td><td>1.3</td><td>--</td></tr><tr><td>Dibromochloromethane</td><td>0.5</td><td>100</td></tr><tr><td>1,1-DCE</td><td>1.2</td><td>7</td></tr><tr><td>cis-1,2-DCE</td><td>1.2</td><td>70</td></tr><tr><td>trans-1,2-DCE</td><td>0.6</td><td>100</td></tr><tr><td>Methylene Chloride</td><td>2</td><td>5</td></tr><tr><td>PCE</td><td>1.4</td><td>5</td></tr><tr><td>TCE</td><td>1.0</td><td>5</td></tr></table></td><td></td><td></td></tr>
<tr><td></td><td></td><td><table><tr><th>ANALYTE</th><th>RL (µg/L)</th><th>MCL (µg /L)</th></tr><tr><td>Barium</td><td>5</td><td>2,000</td></tr><tr><td>Chromium</td><td>10</td><td>100</td></tr><tr><td>Copper</td><td>10</td><td>1,300</td></tr><tr><td>Nickel</td><td>10</td><td>--</td></tr><tr><td>Zinc</td><td>50</td><td>5,000</td></tr><tr><td>Arsenic</td><td>20</td><td>10</td></tr><tr><td>Cadmium</td><td>2</td><td>5</td></tr><tr><td>Lead</td><td>2</td><td>15</td></tr><tr><td>Mercury</td><td>1</td><td>2</td></tr></table></td><td></td><td></td></tr>
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Activity	Objectives	Action	Objective Attained?	Recommendations
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, and AFCEE approval was obtained.	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
		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.

Activity	Objectives	Action	Objective Attained?	Recommendations
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 2008

Appendix B
June 2008 Quarterly Groundwater Monitroing Analytical Results

Well ID	Sample Date	1,1-DCE	*cis* -1,2-DCE	*trans* -1,2-DCE	PCE	TCE	Vinyl Chloride	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury
CS-MW9-LGR	6/10/2008	0.12U	0.07U	0.08U	**0.26F**	0.05U	0.08U	**0.00582F**	**0.0372**	0.0005U	**0.007F**	0.003U	0.0019U	**0.006F**	0.008U	**0.0004F**
CS-MW20-LGR	6/24/2008	0.12U	0.07U	0.08U	**1.95**	0.05U	0.08U	0.00022U	**0.1448**	0.0005U	0.001U	0.003U	0.0019U	0.001U	**0.057**	0.0001U
CS-MW21-LGR	6/24/2008	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U	0.00022U	**0.091**	0.0005U	0.001U	0.003U	0.0019U	**0.002F**	**0.142**	0.0001U
CS-MW22-LGR	6/24/2008	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U	0.00022U	**0.0651**	0.0005U	0.001U	0.003U	0.0019U	**0.006F**	**1.701**	0.0001U
CS-MW22-LGR FD	6/24/2008	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U	0.00022U	**0.0658**	0.0005U	0.001U	0.003U	0.0019U	**0.006F**	**1.732**	0.0001U
CS-MW23-LGR	6/24/2008	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U	0.00022U	**0.0528**	0.0005U	0.001U	0.003U	0.0019U	**0.035**	**0.133**	0.0001U
CS-MW24-LGR	6/24/2008	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U	0.00022U	**0.0334**	0.0005U	0.001U	0.003U	0.0019U	0.001U	**0.132**	0.0001M
CS-MW25-LGR	6/10/2008	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U	**0.00274F**	**0.0333**	0.0005U	**0.012**	**0.004F**	0.0019U	**0.009F**	**0.297**	**0.0005F**
CS-1	6/27/2008	0.12U	0.07U	0.08U	0.06U	**0.17F**	0.08U	0.00022U	**0.0371**	0.0005U	0.001U	**0.005F**	0.0019U	0.001U	**0.159**	**0.0004F**
CS-9 (1317)	6/27/2008	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U	**0.00058F**	**0.0383**	0.0005U	0.001U	**0.012**	**0.0067F**	**0.002F**	**0.983**	**0.0012**
CS-9 (1356)	6/27/2008	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U	0.00022U	**0.038**	0.0005U	0.001U	**0.047**	**0.0541**	0.001U	**0.519**	**0.0015**
CS-10	6/27/2008	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U	**0.00085F**	**0.0418**	0.0005U	0.001U	**0.006F**	0.0019U	**0.002F**	**0.261**	**0.0003F**

BOLD = Above the MDL (F flagged)
BOLD = Above the RL
BOLD = Above the 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

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.