DEPARTMENT OF THE ARMY
CAMP STANLEY STORAGE ACTIVITY, MCAPP
25800 RALPH FAIR ROAD, BOERNE, TX 78015-4800

January 10, 2008

U-069-08

Mr. Bryan Smith
Texas Commission on Environmental Quality
Industrial and Hazardous Waste Permits Section
P.O. Box 13087 (MC-130)
Austin, TX 78711-3087

Subject: Monthly Status Report (Month 7 - November 2007) of the Pilot Study Class V Aquifer Remediation Injection Wells at Camp Stanley Storage Activity, Boerne, Texas, TCEQ Authorization No. 5X2600431; WWC12002216; CN602728206/RN104431655

Dear Mr. Smith:

The Camp Stanley Storage Activity (CSSA), McAlester Army Ammunition Plant, U.S. Army Field Support Command, Army Materiel Command, U.S. Army, is submitting this monthly report summarizing the injection activities performed at the on-post Solid Waste Management Unit (SWMU) B-3 site. The activities performed are part of the planned SWMU B-3 Pilot Study being performed to evaluate the effectiveness of enhanced anaerobic biodegradation (EAB) for treatment of chlorinated compounds in groundwater. The pilot study activities include the injection of recovered groundwater into mulch/gravel filled bioreactor trenches.

This monthly report contains data as specified by the subject Texas Commission on Environmental Quality (TCEQ) Underground Injection Control (UIC) permit for the month of November 2007 (Month 7). The monthly reporting data includes twice monthly samples of the injected groundwater for volatile organic concentrations (VOCs) and total dissolved solids (TDS) and field collected parameters including injection volumes, injection pressures and the pH of recovered groundwater.

Between October 31 and November 30, 2007, approximately 295,300 gallons of groundwater from well CS-MW16-CC, were injected into SWMU B-3 bioreactor trench 1. A total of 1,341,213 gallons of recovered groundwater from CS-MW16-LGR and CS-MW16-CC have been injected into the bioreactor trench 1 since startup of the bioreactor. Samples of the injected groundwater were collected on November 8 and November 19, 2007. Results of analysis are summarized in Table 1 with the laboratory data packages attached. Field forms which contain operating pressures and pH readings for the reporting period are also attached.

If you have any questions regarding the information contained in this letter, please feel free to contact Ms. Glare Sanchez, CSSA Environmental Program Manager, at (210) 698-5208 or Ken Rice, Parsons, at (512) 719-6050.

Sincerely,

Jason D. Shirley
Installation Manager

Attachments

cc: Glare Sanchez, CSSA Environmental Program Manager
Kent Rohlof, AFCEE (ltr only)
Julie Burdey, Parsons
Ken Rice, Parsons
Brian Vanderglas, Parsons
File: 744223.11000

Table 1
B3 - UIC Analytical Results

			Sample ID	B3-UIC			B3-UIC			B3-UIC			B3-UIC			B3-UIC			B3-UIC		
			Sample Date	09/06/07			09/18/07			10/05/07			10/15/07			11/08/07			11/19/07		
			Sample Type	N1			N1			N1			N1			N1			N1		
			Sampling Method	Grab			Grab			Grab			Grab			Grab			Grab		
			Lab ID	AX67177			AX67481			AX68557			AX69191			AX70396			AX71128		
	Lab MDL	Lab PQL	B-3 UIC Criteria (RCRA Haz.)	Results	Flags	Dilution	Results	Flags	Dilution	Results	Flags	Dilution	Results	Flags	Dilution	Results	Flags	Dilution	Results	Flags	Dilution
SW8260B (µg/L)																					
Cis-DCE	0.16	1.2	–	65.0		1	79.0		1	78.0		1	54.0		1	60.0		1	89.0		1
Trans-DCE	0.19	0.6	–	2.2		1	2.5		1	3.7		1	2.0		1	1.6		1	4.5		1
TCE	0.16	1.0	500.	70.0		1	82.0		1	90.0		1	59.0		1	67.0		1	95.0		5
PCE	0.15	1.4	700.	21.0		1	25.0		1	27.0		1	14.0		1	19.0		1	28.0		1
Toluene	0.17	1.1	–	0.17	U	1	0.17	U	1	0.17	U	1	0.19	J	1	0.17	U	1	0.17	U	1
Vinyl Chloride	0.23	1.1	200.	0.23	U		0.23	U		0.23	U		0.23	U		0.23	U		0.23	U	
EPA 160.1 (mg/L)																					
TDS	4.4	10.	–	382		1	337		1	388		1	345		1	385		1	382		1
Field measured																					
pH				7.23			7.63			6.97			7.04			7.55			7.15		

Tables present all laboratory results for analytes.
Data packages for laboratory analysis results are presented in Attachment 1.
All samples were analyzed by APPL Laboratory Services.
pH results reported were field measured
UIC criteria specified in 40 CFR 261.24 Table 1

Abbreviations and Notes:

PQL Practical Quantitation Limit
MDL Method Detection Limit
N1 Environmental Sample
SQL Sample Quantitation Limit
UIC Underoround Injection Control

Data Qualifiers:

J- The analyte was positively identified, the quantitation is an estimation.
U- The analyte was analyzed for, but not detected. The associated numerical value is the MDL.

SWMU B-3 Tree Mulch Bioreactor

Bioreactor Monitoring

Personnel: Tennyson / Elliott

Trench Sumps Water Levels ('BTOC)

Sump ID	Sump Depth (ft BTOC)	Sump Water Level (ft BTOC)	pH	Temp. (deg. C)	SpCond. (mS/cm)	ORP	DO (mg/L)	Trench Currently Being Used (√)	Notes
Date: 11/5/07		Time: 1405							
B3-T1-1	12.9	11.19	6.40	24.68	0.968	-138.0	0.68		
B3-T1-2	12.4	10.97	6.37	25.11	0.963	-196.9	0.45		
B3-T1-3	12.85	10.60	6.37	24.85	0.876	-205.6	0.41		
B3-T2-1	9.67	9.53							
B3-T2-2	10.01	9.69							
B3-T3-1	9.96	9.11	6.47	29.34	1.186	-184.8	0.48		
B3-T3-2	7.4	dry - no tone							
B3-T4-1	6.32	dry - no tone							
B3-T5-1	9.33	9.15							
B3-T5-2	7.98	7.72							
B3-T6-1	11.45	11.16							
B3-T6-2	12.34	12.09							
B3-UIC			7.55	29.86	0.610	-51.0	5.14		

B-3 Transfer System Monitoring

Flow Meters Readings

Meter	Monday		Tuesday		Wednesday		Thursday		Friday	
Date/Time:	11-5-07	0915	11-6-07	0842	11-7-07	0902	11-8-07	0852	11-9-07	0730
Rate (gpm) / Cumulative Total (gal)										
T-1	15.07/32.22	33039	15.45/32.11	48753	15.53/31.78	65027	15.29/30.89	79758	15.34	93265
T-2										
T-3										
T-4										
T-5										
T-6										
B-3 (Total)		33039		48753		65027		79758		93265

Bag Filter Pressure Reading (Pressure Drop (PB-1) - (PB-2)= *Note: If bag filter pressure drop is > or = 20 psi change fliter.

PB-1 - PB-2 = 25-23=2	PB-1 - PB-2 = 26-23 = 3	PB-1 - PB-2 = 26-23 = 3	PB-1 - PB-2 = 28-22 = 6	PB-1 - PB-2 = —

Pressure Readings

P-1					
P-2					
P-3					
P-4					

Notes: rate = gravity Q / pumping Q

Week 28

Personnel: Tennyson / Elliott 11-5-07

Weekly Water Level Monitoring

Well Interval	Sampling Port Depth (ft BTOC)	Sample Date	Sample Time	Pressure at TOC (psi)	Pressure in MP (psi)	Zone Pressure (psi)
CS-WB05-LGR-01	99	11/5/07	0933	14.11	14.19	26.24
CS-WB05-LGR-02	182		0932		14.24	43.34
CS-WB05-LGR-03A	216		0931		14.25	57.34
CS-WB05-LGR-03B	262		0930		26.03	77.26
CS-WB05-LGR-04A	277		0929		32.56	83.41
CS-WB05-LGR-04B	329		0928		55.18	105.91
CS-WB05-BS-01	362		0927		69.54	121.40
CS-WB05-CC-01	432		0926		99.94	141.46
CS-WB05-CC-02	460		0925		112.08	154.20
CS-WB06-UGR-01	20		1005	14.13	14.15	15.32
CS-WB06-LGR-01	93		1004		14.21	16.51
CS-WB06-LGR-02	174		1003		14.22	46.89
CS-WB06-LGR-03A	207		1002		14.25	62.11
CS-WB06-LGR-03B	260		1001		23.81	85.02
CS-WB06-LGR-04	320		1000		49.85	106.22
CS-WB07-UGR-01	14		1020	14.10	14.14	15.50
CS-WB07-LGR-01	90		1019		14.18	20.86
CS-WB07-LGR-02	175		1018		14.22	50.83
CS-WB07-LGR-03A	208		1017		14.24	59.18
CS-WB07-LGR-03B	257		1016		17.77	80.38
CS-WB07-LGR-04	318		1015		44.29	104.02
CS-WB08-UGR-01	38		0950	14.11	14.14	14.14
CS-WB08-LGR-01	115		0949		14.18	30.68
CS-WB08-LGR-02	193		0948		14.23	45.79
CS-WB08-LGR-03A	228		0947		14.24	58.16
CS-WB08-LGR-03B	273		0946		21.11	77.61
CS-WB08-LGR-04	341	✓	0945		50.65	107.53

SWMU B-3 Tree Mulch Bioreactor

Bioreactor Monitoring

Personnel: S. Elliott & E. Tennyson

Trench Sumps Water Levels ('BTOC)

Sump ID	Sump Depth (ft BTOC)	Sump Water Level (ft BTOC)	pH	Temp. (deg. C)	SpCond (mS/cm)	ORP	DO (mg/L)	Trench Currently Being Used (√)	Notes
Date: 11·12·07		Time: 1405							
B3-T1-1	12.9	11.31	6.18	24.37	0.993	-179.3	~~0.52~~ 0.49		
B3-T1-2	12.4	11.13	6.17	24.51	0.948	-166.8	0.58		
B3-T1-3	12.85	11.01	6.15	24.51	0.877	-189.4	0.34	√	
B3-T2-1	9.67	9.59							
B3-T2-2	10.01	9.68							
B3-T3-1	9.96	9.09	6.25	29.13	1.288	-209.5	0.29		
B3-T3-2	7.4	dry - no tone							
B3-T4-1	6.32	dry - no tone							
B3-T5-1	9.33	9.20							
B3-T5-2	7.98	7.74							
B3-T6-1	11.45	11.17							
B3-T6-2	12.34	12.09							
B3-UIC			7.04	23.49	0.602	-54.1	3.91		

B-3 Transfer System Monitoring

Flow Meters Readings

Meter	Monday		Tuesday		Wednesday		Thursday		Friday	
Date/Time:	11·12·07	0800	11-13-07	0912	11-14-07	0930	11·15·07	0820	11-16-07	0907
Rate (gpm) / Cumulative Total (gal)										
T-1	15.78/33.27	98,253	15.89/32.11	111,758	15.43/33.27	124,066	14.27/33.00	137,904	15.89/32.65	152,133
T-2										
T-3										
T-4										
T-5										
T-6										
B-3 (Total)		98,253		111,758		124,066		137,904		152,133

Bag Filter Pressure Reading (Pressure Drop (PB-1) - (PB-2)= *Note: If bag filter pressure drop is > or = 20 psi change fliter.

PB-1 - PB-2 = 26 - 24 = 2	PB-1 - PB-2 = 27 - 22 = 5	PB-1 - PB-2 =	PB-1 - PB-2 = 27 - 24 = 3	PB-1 - PB-2 = 36 - 18 = 18

Pressure Readings

P-1					
P-2					
P-3					
P-4					

Notes:

Personnel: S. Elliott & E. Tennyson

Weekly Water Level Monitoring

Well Interval	Sampling Port Depth (ft BTOC)	Sample Date	Sample Time	Pressure at TOC (psi)	Pressure in MP (psi)	Zone Pressure (psi)
CS-WB05-LGR-01	99	11/12/07	1139	14.12	14.20	26.07
CS-WB05-LGR-02	182		1138		14.23	41.39
CS-WB05-LGR-03A	216		1137		14.28	55.41
CS-WB05-LGR-03B	262		1136		26.00	75.34
CS-WB05-LGR-04A	277		1135		32.54	81.43
CS-WB05-LGR-04B	329		1134		55.16	103.92
CS-WB05-BS-01	362		1133		69.51	119.41
CS-WB05-CC-01	432		1132		99.90	127.93
CS-WB05-CC-02	460		1131		112.05	140.65
CS-WB06-UGR-01	20		1104	14.14	14.15	15.03
CS-WB06-LGR-01	93		1103		14.20	16.51
CS-WB06-LGR-02	174		1102		14.26	43.60
CS-WB06-LGR-03A	207		1101		14.27	59.66
CS-WB06-LGR-03B	260		1100		23.81	82.55
CS-WB06-LGR-04	320		1059		49.85	104.17
CS-WB07-UGR-01	14		1119	14.14	14.19	15.47
CS-WB07-LGR-01	90		1117		14.20	20.42
CS-WB07-LGR-02	175		1116		14.24	48.65
CS-WB07-LGR-03A	208		1115		14.26	57.05
CS-WB07-LGR-03B	257		1114		17.79	78.23
CS-WB07-LGR-04	318		1113		44.30	101.93
CS-WB08-UGR-01	38		1049	14.11	14.16	15.60
CS-WB08-LGR-01	115		1048		14.21	30.51
CS-WB08-LGR-02	193		1047		14.24	43.61
CS-WB08-LGR-03A	228		1046		14.25	56.22
CS-WB08-LGR-03B	273		1042		20.63	75.68
CS-WB08-LGR-04	341		1041		50.65	105.44

SWMU B-3 Tree Mulch Bioreactor

Bioreactor Monitoring

Personnel: S. Elliott, E. Tennyson

Trench Sumps Water Levels ('BTOC)

Sump ID	Sump Depth (ft BTOC)	Sump Water Level (ft BTOC)	pH	Temp. (deg. C)	SpCond. (mS/cm)	ORP	DO (mg/L)	Trench Currently Being Used (√)	Notes
Date: 11/19/07		Time: 0845							
B3-T1-1	12.9	12.05	6.26	24.48	0.957	-176.0	0.55		
B3-T1-2	12.4	11.55	6.34	24.70	0.939	-164.5	0.51		
B3-T1-3	12.85	11.20	6.42	24.56	0.897	-190.6	0.52	✓	
B3-T2-1	9.67	9.56							
B3-T2-2	10.01	9.69							
B3-T3-1	9.96	9.11	6.55	29.23	1.299	-195.7	0.45		
B3-T3-2	7.4	dry - no tone							
B3-T4-1	6.32	dry - no Tone							
B3-T5-1	9.33	~~7.77~~ 9.22							
B3-T5-2	7.98	7.77							
B3-T6-1	11.45	11.18							
B3-T6-2	12.34	12.10							
B3-UIC			7.15	22.77	0.567	-90.2	9.13		

smple time
0920
1000
1050
1430

B-3 Transfer System Monitoring

Flow Meters Readings

Meter	Monday	Tuesday	Wednesday	Thursday	Friday
Date/Time:	11.19.07 0718	11.20.07 0820	11.21.07 0730	11.22.07	11.23.07
	Rate (gpm) / Cumulative Total (gal)				
T-1	15.78/30.10 165,664	15.08/29.5 184,430	16.17/32.55 202,030		
T-2					
T-3					
T-4				Holiday	Holiday
T-5					
T-6					
B-3 (Total)	165,664	184,430	202,030		

Bag Filter Pressure Reading (Pressure Drop (PB-1) - (PB-2)= *Note: If bag filter pressure drop is > or = 20 psi change filter.

	PB-1 - PB-2 = 34-20=14	PB-1 - PB-2 = 40-17=23	PB-1 - PB-2 = 24-24 = Ø	PB-1 - PB-2 =	PB-1 - PB-2 =

Pressure Readings

P-1		changed bag filter			
P-2		24-24=Ø			
P-3					
P-4					

Notes: 11/20 - changed bag filter

Week 30

Month 7

* Not able to profile, equipment malfunction

Personnel: S. Elliott & E. Tennyson

Weekly Water Level Monitoring

Well Interval	Sampling Port Depth (ft BTOC)	Sample Date	Sample Time	Pressure at TOC (psi)	Pressure in MP (psi)	Zone Pressure (psi)
CS-WB05-LGR-01	99					
CS-WB05-LGR-02	182					
CS-WB05-LGR-03A	216					
CS-WB05-LGR-03B	262					
CS-WB05-LGR-04A	277					
CS-WB05-LGR-04B	329					
CS-WB05-BS-01	362					
CS-WB05-CC-01	432					
CS-WB05-CC-02	460					
CS-WB06-UGR-01	20					
CS-WB06-LGR-01	93					
CS-WB06-LGR-02	174					
CS-WB06-LGR-03A	207					
CS-WB06-LGR-03B	260					
CS-WB06-LGR-04	320					
CS-WB07-UGR-01	14					
CS-WB07-LGR-01	90					
CS-WB07-LGR-02	175					
CS-WB07-LGR-03A	208					
CS-WB07-LGR-03B	257					
CS-WB07-LGR-04	318					
CS-WB08-UGR-01	38					
CS-WB08-LGR-01	115					
CS-WB08-LGR-02	193					
CS-WB08-LGR-03A	228					
CS-WB08-LGR-03B	273					
CS-WB08-LGR-04	341					

SWMU B-3 Tree Mulch Bioreactor

Bioreactor Monitoring

Personnel: S. Elliott + E. Tennyson

Trench Sumps Water Levels ('BTOC)

Sump ID	Sump Depth (ft BTOC)	Sump Water Level (ft BTOC)	pH	Temp. (deg. C)	SpCond. (mS/cm)	ORP	DO (mg/L)	Trench Currently Being Used (√)	Notes
Date: 11/26/07		Time: 1300							
B3-T1-1	12.9	11.78	6.37	24.32	1.008	-151.5	0.77		
B3-T1-2	12.4	11.61	6.42	24.51	0.993	-184.3	0.50	✓	
B3-T1-3	12.85	11.41	6.42	24.29	0.917	-168.1	0.42		
B3-T2-1	9.67	9.62							
B3-T2-2	10.01	9.68							
B3-T3-1	9.96	9.10	6.60	28.14	1.316	-166.1	0.40		
B3-T3-2	7.4	dry - no tone							
B3-T4-1	6.32	dry - no tone							
B3-T5-1	9.33	9.26							
B3-T5-2	7.98	7.98							
B3-T6-1	11.45	11.19							
B3-T6-2	12.34	12.04	7.27	22.65	0.593	-62.7	5.85		
B3-UIC									

B-3 Transfer System Monitoring

Flow Meters Readings

Meter	Monday	Tuesday	Wednesday	Thursday	Friday
Date/Time:	11.26.07 0900	11.27.07 0735	11.28.07 0745	11-29-07 0855	0855
	Rate (gpm) / Cumulative Total (gal)				
T-1	15.83/30.45 222,945	14.0/26.32 238,503	17.47/33.39 254,673	16.05/33.33 271,896	286,599
T-2					
T-3					
T-4					
T-5					
T-6					
B-3 (Total)	222,945	238,503	254,673	271,896	286,599

Bag Filter Pressure Reading (Pressure Drop (PB-1) - (PB-2)= *Note: If bag filter pressure drop is > or = 20 psi change fliter.

PB-1 - PB-2 = 36-18=18	PB-1 - PB-2 = 47-14=33	PB-1 - PB-2 = 23-22=1	PB-1 - PB-2 = 24-23=1	PB-1 - PB-2 =

Pressure Readings

P-1					
P-2					
P-3					
P-4					

Notes: * changed bag filter 100 micron 11/28/07

Week 31

Personnel	S. Elliott + E. Tennyson

Weekly Water Level Monitoring

Well Interval	Sampling Port Depth (ft BTOC)	Sample Date	Sample Time	Pressure at TOC (psi)	Pressure in MP (psi)	Zone Pressure (psi)
CS-WB05-LGR-01	99	11/26/07	1037	14.14	14.21	25.84
CS-WB05-LGR-02	182		1036		14.28	37.17
CS-WB05-LGR-03A	216		1035		14.29	50.93
CS-WB05-LGR-03B	262		1034		25.94	70.87
CS-WB05-LGR-04A	277		1033		32.46	76.95
CS-WB05-LGR-04B	329		1032		55.10	99.43
CS-WB05-BS-01	362		1031		69.43	114.83
CS-WB05-CC-01	432		1030		99.84	129.83
CS-WB05-CC-02	460		1029		(34) ~~112.68~~ 111.98	142.62
CS-WB06-UGR-01	20	11/26/07	0917	14.13	14.18	14.53
CS-WB06-LGR-01	93		0916		14.23	16.53
CS-WB06-LGR-02	174		0915		14.26	37.98
CS-WB06-LGR-03A	207		0914		14.28	55.01
CS-WB06-LGR-03B	260		0913		23.82	77.89
CS-WB06-LGR-04	320		0911		49.85	99.56
CS-WB07-UGR-01	14	11/26/07	1052	14.16	14.19	15.46
CS-WB07-LGR-01	90		1051		14.23	20.10
CS-WB07-LGR-02	175		1050		14.27	44.84
CS-WB07-LGR-03A	208		1049		14.29	52.63
CS-WB07-LGR-03B	257		1048		17.77	73.83
CS-WB07-LGR-04	318		1047		44.26	97.26
CS-WB08-UGR-01	38	11/26/07	1000	14.14	14.25	14.23
CS-WB08-LGR-01	115		0959		14.27	30.36
CS-WB08-LGR-02	193		0958		14.31	39.56
CS-WB08-LGR-03A	228		0957		14.33	51.93
CS-WB08-LGR-03B	273		0956		21.14	71.38
CS-WB08-LGR-04	341		0955		50.66	100.97

Personnel S. Elliott & E. Tennyson

Monthly Monitoring

MPMWs	Sample Date	Sample Time	pH	Temp	SpCond	ORP	DO	Regulatory (√)	Performance (√)
CS-WB05-LGR-01									
CS-WB05-LGR-02									
CS-WB05-LGR03A									
CS-WB05-LGR03B	11/20/07	0915	6.93	21.53	0.579	2.8	5.52		
CS-WB05-LGR04A									
CS-WB05-LGR04B									
CS-WB05-BS-01									
CS-WB05-CC-01									
CS-WB05-CC-02									
CS-WB06-UGR-01									
CS-WB06-LGR-01									
CS-WB06-LGR-02									
CS-WB06-LGR03A									
CS-WB06-LGR03B	11/20/07	0945	7.18	15.47	0.472	4.9	8.18		
CS-WB06-LGR-04									
CS-WB07-UGR-01									
CS-WB07-LGR-01									
CS-WB07-LGR-02									
CS-WB07-LGR03A									
CS-WB07-LGR03B	11/20/07	1030	7.04	21.64	0.509	-0.7	6.26		
CS-WB07-LGR-04									
CS-WB08-UGR-01									
CS-WB08-LGR-01									
CS-WB08-LGR-02									
CS-WB08-LGR03A									
CS-WB08-LGR03B	11/20/07	1030	7.03	19.00	0.510	19.2	8.23		
CS-WB08-LGR-04									

Notes As part of monthly monitoring, Sumps 1-1, 1-2, 1-3, and uppermost saturated intervals of WB05 and WB-07 will be sampled for Performance list of analyses. Sumps in any trench that has beeen used during the previous 30 days will be sampled for Regulatory list of analyses. TDS has to be added to the list of analyses for Sumps 1-1, 1-2, and 1-3 if Trench 1 has been used in the previous 30 days.

Performance list of analyses Volume Required: 1.5 L	Regulatory list of analyses Volume Required: 0.5 L
VOCs (Volatile Organic Compounds)	VOCs (Volatile Organic Compounds)
DOC (Dissolved Organic Carbon)	TDS (Total Dissolved Solids)
TOC (Total Organic Carbon)	Notes
Methane, Ethane, Ethene	
Carbon Dioxide	
Hydrogen Sulfide	
Alkalinity	
Nitrogen, Nitrate + Nitrite	
Sulfate, Chloride, Ferrous Iron, Manganese	
Hydrogen (after bioreactor operational for 1 year)	

Month 7
week 30 + 31