



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

July 18, 2014

U-063-14

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: Annual Status Report (Month 73 – Month 84, May 1, 2013 - April 30, 2014) 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 annual 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 annual report contains data as specified by the Texas Commission on Environmental Quality (TCEQ) Underground Injection Control (UIC) permit for the months of May 2013 through April 2014 (Months 73-84). The annual reporting data includes monthly and quarterly samples of the injected groundwater for volatile organic concentrations (VOCs), total dissolved solids (TDS), and field collected parameters including injection volumes, injection pressures and the pH of recovered groundwater. Data indicates that concentrations of contaminants did not exceed limits specified in 40 CFR §261.24 Table 1 as referenced in CSSA's UIC permit authorization.

Between May 1, 2013 and April 30, 2014 approximately 19,150,000 gallons of groundwater from wells CS-MW16-CC (~4,912,000 gallons), CS-MW16-LGR (~2,060,000 gallons), B3-EXW-02 (~1,852,000 gallons), B3-EXW-03 (~7,693,000 gallons), B3-EXW-04 (~626,000 gallons), and B3-EXW-05 (~2,003,000 gallons) were injected into SWMU B-3 bioreactor trenches 1 and 6. Extraction well B3-EXW-01 operation was suspended during the reporting period to facilitate electrical and SCADA systems repairs and upgrades. A total of 92,968,400 gallons of recovered groundwater from CS-MW16-LGR, CS-MW16-CC, B3-EXW01, B3-EXW02, B3-EXW03, B3-EXW04, and B3-EXW05 have been injected into these trenches since normal bioreactor operations began. Samples of the injected groundwater, for this reporting period, were collected on July 23 and October 10, 2013, and January 22 and April 9, 2014. Results of analysis are summarized in the attached Table 1. Field forms which contain operating pressures and pH readings for the reporting period are attached and the laboratory data packages are included in the accompanying CD.

If you have any questions regarding the information contained in this letter, please feel free to contact Gabriel Moreno-Fergusson, CSSA Environmental Program Manager, at (210) 295-7453 or Ken Rice, Parsons, at (512) 719-6050.

Sincerely,



Jason D. Shirley
Installation Manager

Enclosures

cc: Gabriel Moreno-Fergusson, CSSA Environmental Program Manager
Julie Burdey, Parsons (ltr only)
Ken Rice, Parsons
File: 749138.02200

Table 1
Analytical Summary Table

Table 1

SWMU B3 UIC Analytical Summary Table
July 2013 - April 2014

	Sample ID		B3-UIC Criteria (RCRA Haz.)	B3-UIC 07/23/13		B3-UIC 10/10/13		B3-UIC 01/22/14		B3-UIC 04/09/14		
	Sample Date	Sample Type		Sample Date	Sample Type	Sample Date	Sample Type	Sample Date	Sample Type	Sample Date	Sample Type	
	Lab MDL	Lab PQL		Results	Flags	Dilution	Results	Flags	Dilution	Results	Flags	Dilution
SW8260B (µg/L)												
cis-DCE	0.07	1.2	--	104		1	108		1	114		2
trans-DCE	0.08	0.6	--	2.3		1	1.9		1	3.4		1
TCE	0.05	1.0	500	92		1	106		1	104		1
PCE	0.06	1.4	700	79		1	81		1	79		1
Toluene	0.06	1.1	--	0.06	U	1	0.06	U	1	0.06	U	1
Vinyl chloride	0.08	1.1	200	0.08	U	1	0.08	U	1	0.08	U	1
EPA 160.1 (mg/L)												
TDS	4.4	10	--	372		1	383		1	383		1

Tables present all laboratory results for analytes.

Data packages for laboratory 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.

Data Qualifiers:

U - The analyte was analyzed for, but not detected

Abbreviations:

MDL Method Detection Limit

PQL Practical Quantitation Limit

N1 Environmental Sample

UIC Underground Injection Control

Field Forms

Personnel: J. Bowdy

Trench Sumps Water Levels (BTOC)

Stump ID	Stump Depth (ft. BTOC)	Stump Water Level (ft. BTOC)	pH	Temp. (deg. C)	SpCond (mS/cm)	ORP	DO (mg/L)	Trench Currently Being Used (%)	Notes
B3-T1-1	12.9								
B3-T1-2	12.4								
B3-T1-3	12.85								
B3-T2-1	9.67								
B3-T2-2	10.01								
B3-T3-1	9.96								
B3-T3-2	7.4								
B3-T4-1	6.32								
B3-T5-1	9.33								
B3-T5-2	7.98								
B3-T6-1	11.45								
B3-T6-2	12.34								
B3-UIC			7.15	25.43	0.616	208.2	11.55		1420 on 7.23.13 - 2 Sample due to Sample

B-3 Transfer System Monitoring

Meter	Date/Time	Monday	Tuesday	Wednesday	Thursday	Friday
CS-MW16-LGR	7.21	154505	7.23.13 408	7.24.13 1300	7.25.13 430	7.26.13 1130
CS-MW16-CC	9.5	2383350	1160268	145719	170414	
B3-EXW01	OFF		7398408	241463	2424405	9.84
B3-EXW02	OFF		OFF	OFF	OFF	OFF
B3-EXW03	16.20	3074678	14573100039	16.13	314978	17.22
B3-EXW04	OFF		OFF	OFF	OFF	OFF
B3-EXW05	OFF		1570829	157773	1587088	1593350
T-1	OFF		OFF	OFF	OFF	OFF
T-6	OFF		OFF	OFF	OFF	OFF

Meter In:	Meter Out:	Tank Levels:	Bag Filter Pressure (In/Out):	Change BF:
35.98	3194365	5000	9	150 μ
5000	5000	5000	6	75 μ
11	65	65	5	75 μ
150 μ	75 μ	75 μ	5	75 μ
150 μ	75 μ	75 μ	5	75 μ

Notes: Cleaned B3 Building

arriving @ Lab w/ Incorez Temp. Plane on back in Memphis. Shipped sample Thursday 7.18.13 arrived 7.22.13

Personnel J Bowler, J Rice, S. Elliott

Trench Sumps Water Levels (BTOC)

Sump ID	Sump Depth (ft BTOK)	Sump Water Level (ft BTOC)	pH	Temp. (deg. C)	SpCond. (mS/cm)	ORP	DO (mg/L)	Trench Currently Being Used (Y)	Notes
Date 10.16.13 Time: 0940									
B3-T1-1	12.9	5.50	6.82	22.83	0.460	154.9	2.15	✓	1000
B3-T1-2	12.4	5.35	6.64	22.85	0.051	138.5	0.07		1015 H+ DNA
B3-T1-3	12.85	5.45	6.60	24.08	0.906	-104.6	0.03		1015
B3-T2-1	9.67	4.95	6.63	24.94	1.209	131.2	0.40		1015
B3-T2-2	10.01	7.17	6.62	25.05	0.904	14.9	0.10		1020
B3-T3-1	9.86	9.18	6.84	29.34	1.377	-47.5	1.10		1330
B3-T3-2	7.4	DRY							
B3-T4-1	6.32	DRY	6.34	22.75	0.752	94.5	0.11		
B3-T5-1	9.33	8.43	6.33	24.13	0.800	35.8	0.81		
B3-T5-2	7.98	7.88							
B3-T6-1	11.45	7.03	6.67	22.58	0.141	48.9	2.23	✓	1200
B3-T6-2	12.34	7.72	6.44	22.67	0.705	-135.5	0.02		1110 H+ + DNA
B3-UIC			6.96	22.40	0.634	188.0	5.42		0935

B-3 Transfer System Monitoring

Meter	Monday	Tuesday	Wednesday	Thursday	Friday
Flow Meters Readings					
CS MW16-LGR	10.1.13 1222	10.8.13 1230	10.9.13 1000	10.10.13 0935	10.11.13 0945
CS MW16-CC	7.94	1353807	8.03	1358533	
B3-EXW01	971	4132688	928	3452567	1361944
B3-EXW02	DEF	DEF	DEF	3464239	3480584
B3-EXW03	8.18	9396255	8.022	9405803	9422346
B3-EXW04	17.90	480518	15.85	4905247	4957512
B3-EXW05	No Meter	No Meter	No Meter	No Meter	16.599
T-1	1976097	12.23	1982932	1987067	No Meter
T-6	DEF	DEF	DEF	1995378	15.083
Meter In:				DEF	2000, 628
Meter Out:	7.94	710731	78.17	7165304	
Tank Levels:	4000	600	2000	7224306	75.47
Bag Filter Pressure (In/Out):	8	6	6	500	4300
Change BF:	150 μ	75 μ	150 μ	75 μ	150 μ
Notes	Water is leaking as when took shift.				

Personnel: *Bowch*

Trench Sumps Water Levels (BTWC)

Date	Temp (deg C)	pH	SpCond (mS/cm)	ORP	DO (mg/L)	Trench Capacity Being Used (%)	Notes
B3 T1	12.9						
B3 T2	12.4						
B3 T3	12.85						
B3 T2.1	9.67						
B3 T2.2	10.01						
B3 T3.1	9.96						
B3 T3.2	7.4						
B3 T4.1	6.32						
B3 T5.1	9.33						
B3 T5.2	7.98						
B3 T6.1	11.45						
B3 T6.2	12.34						
B3 UIC							
	7.10	20.65	0.398	154.9	6.65		1345 1.22.14

B-3 Transfer System Monitoring

Meter	Monday	Tuesday	Wednesday	Thursday	Friday
CS MW16-LGR		1.23.14	1.22.14	1/23/14	1/24/14
CS MW16-CC		12.35	1075.648	11.81	1988.904
B3 EXW01		11.09	470.1101	10.92	473.805
B3 EXW02		* OFF - Working on well		0	1888.4988
B3 EXW03		11.22	314.5705	7.05	354.663
B3 EXW04		11.28	745.4080	OFF	OFF
B3 EXW05		* OFF - Working on well		OFF	OFF - Working on well
T-1		OFF		OFF	OFF
T-6		OFF		OFF	OFF
Meter In:					
Meter Out:					
Tank Levels:					
Bag Filter		21.34	347.1691	21.7	355.7221
Pressure (In/Out):		4300	4300	4800	4800
Change Bf:		4	5	5	5
Notes	150 μ	75 μ	150 μ	75 μ	150 μ
	* bin state is getting the wells hooked up to SCADA *	Turned off old Main-bld.		Quick-trends = ✓	
				MUD-CCR cycling every 30 minutes	

Personnel: Bowling, 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: 4.9.14 Time: 0915									
B3-T1-1	15.95	10.14	6.51	22.24	0.741	-85.9	0.27	✓	0930
B3-T1-2	15.52	4.70	6.68	21.65	0.544	-71.8	0.23		0950: Nit recorded
B3-T1-3	14.97	9.12	6.63	23.37	0.706	-72.4	0.23		1030
B3-T2-1	11.78								
B3-T2-2	11.12								
B3-T3-1	11.05								
B3-T3-2	7.4								
B3-T4-1	8.42								
B3-T5-1	11.55								
B3-T5-2	11.04								
B3-T6-1	14.63	10.48	6.75	21.68	0.549	39.6	0.38	✓	1120
B3-T6-2	15.56	10.48	6.54	22.09	0.596	-96.4	0.09		1040
B3-UIC			7.05	20.33	0.548	324.0	5.15		0910

B-3 Transfer System Monitoring

Meter	Monday	Tuesday	Wednesday	Thursday	Friday
4.9.14 1715					
Rate (gpm) / Cumulative Total (gal) / Well Head Pressure					
CS-MW16-LGR	5.86	242.833	4.94	4.10	4.11
CS-MW16-CC	10.33	5.81999	10.55	10.22	10.54
B3-EXW01	OFF	OFF	OFF	OFF	OFF
B3-EXW02	6.80	85.728	7.50	8.97	4.93
B3-EXW03	14.01	85.7105	14.51	14.34	14.43
B3-EXW04	OFF	OFF	OFF	OFF	OFF
B3-EXW05	OFF	OFF	OFF	OFF	OFF

Meter	Monday	Tuesday	Wednesday	Thursday	Friday
T-1	OFF	1970.245	OFF	OFF	OFF
T-6	OFF	2840.82	OFF	OFF	OFF
Meter In:					
Meter Out:	46.16	695.332	35.80	710.983	35.57
Tank Levels:	4800	5000	4800	4800	4900
Bag Filter Pressure	11	6	5	5	6
Change BF	150 μ	75 μ	150 μ	75 μ	150 μ

Notes:

Personnel: B. A. C. A. J. E. | 0111

Weekly Piezometer Water Levels ('BTOC) and Monthly Field Parameters

Piezometer ID	TD (ft. BTOC)	Date Sampled	Weekly/Monthly Wtr/Lvs		Monthly Field Parameters						
			Sample Time	Water Level (ft. BTOC)	pH	Temp (deg. C)	SpCond (mS/cm)	ORP (mv)	DO (mg/L)	Notes	
B3-MW26-UGR	20.32	4.10.14	0900	13.43	6.18	19.33	0.597	245.8	0.86		
B3-MW27-UGR	17.00	4.10.14	0915	8.86	6.18	18.32	0.532	-18.8	1.08	-23.1 ORP	
B3-MW28-UGR	18.33	4.10.14		18.30	Not enough		Water for samples				
B3-MW29-UGR	20.40	4.10.14		19.92	Not enough		Water for samples				
B3-MW30-UGR	23.90	4.10.14		23.54	Not enough		Water for samples				
B3-MW31-UGR	39.06	4.10.14	1000	35.20	6.31	21.22	0.622	-59.1	0.66	Changed out pump - the	
B3-MW32-UGR	58.45	4.10.14	1100	51.98	6.51	20.98	0.432	170.8	4.80	come up the tubing	
B3-MW33-UGR	29.55	4.10.14	1120	23.68	6.31	21.05	0.548	233.5	1.69		
B3-MW34-UGR	25.40	4.10.14	1145	18.72	6.38	21.80	0.525	-25.8	0.58		

Quarterly Monitoring Well Field Parameters

Monitoring Well ID	Date Sampled	Sample Time	Water Level (ft. BTOC)	pH	Temp (deg. C)	SpCond (mS/cm)	ORP (mv)	DO (mg/L)	Notes
B3-MW01	4.11.14	0940	267.84	6.90	20.80	1.045	46.0	2.7	+ DNA perkinElmer
CS-D	4.11.14		261.05						
CS-MW16-LGR	4.7.14	0915	289.16	7.17	20.78	0.470	104.8	3.28	Running
CS-MW16-CC	0900	4.7.14	372.80	7.31	20.94	0.587	8.9	1.44	Start off as started sampling
CS-B3-EXW01	4.7.14	1100	ori	7.12	21.03	0.510	-36.8	3.08	Running
CS-B3-EXW02	4.7.14	1045	312.60	6.98	21.20	0.508	184.6	2.78	DEF / let minimum for 15 min
CS-B3-EXW03	4.7.14	1015	No data	6.84	19.95	0.561	153.9	2.82	Running
CS-B3-EXW04	4.7.14	1030	DEF	6.98	19.86	0.521	12.7	1.55	Running
CS-B3-EXW05	4.7.14	1115	DEF	7.15	20.90	0.471	32.6	1.96	DEF / Ran well for 15 min
CS-MW1-LGR	4.11.14	0840	246.88	6.90	20.72	0.532	498.4	1.62	DNA HT

4.24.14
 @ 0900
 DNA HT

Week _____