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

July 1, 2015

U-094-15

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 85 – Month 96, May 1, 2014 - April 30, 2015) 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 2014 through April 2015 (Months 85-96). The annual reporting data includes quarterly 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. 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, 2014 and April 30 2015 approximately 20,771,000 gallons of groundwater from wells CS-MW16-CC (~4,014,000 gallons), CS-MW16-LGR (~1,031,000 gallons), B3-EXW-01 (~3,392,000) B3-EXW-02 (~2,170,000 gallons), B3-EXW-03 (~6,373,000 gallons), B3-EXW-04 (~2,539,000 gallons), and B3-EXW-05 (~1,252,000 gallons) were injected into SWMU B-3 bioreactor trenches 1 and 6. A total of 115,057,600 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 17 and October 7, 2014, and January 15 and April 13, 2015. 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 me at (210) 295-7416 or Ken Rice, Parsons, at (512) 719-6050.

Sincerely,

Jason D. Shirley
Installation Manager

Enclosures

cc: CSSA Environmental Office
Julie Burdey, Parsons (ltr only)
Ken Rice, Parsons
File: 749138.03100

Table 1
Analytical Summary Table

Table 1

B3-UIC Analytical Results
April 2014 - April 2015

				Sample ID	B3-UIC			B3-UIC			B3-UIC			B3-UIC			B3-UIC		
				Sample Date	04/09/14			07/17/14			10/07/14			01/29/15			04/13/15		
				Sample Type	N1			N1			N1			N1			N1		
				Sampling Method	Grab			Grab			Grab			Grab			Grab		
				Lab ID	AY94852			AY99212			AZ04084			AZ10249			AZ14525		
	Lab MDL	Lab PQL	B3-UIC Criteria (RCRA Haz.)	Results	Flags	Dilution	Results	Flags	Dilution	Results	Flags	Dilution	Results	Flags	Dilution	Results	Flags	Dilution
SW8260B (µg/L)																		
cis-DCE	0.07	1.2	--	114		2	141		2	130		2	107		2	97		2
trans-DCE	0.08	0.6	--	3.4		1	0.84		1	0.96	F	2	1.1	F	2	1.2		1
TCE	0.05	1.0	500	104		1	125		2	95		2	104		2	123		1
PCE	0.06	1.4	700	79		1	108		1	100		2	87		2	88		1
Toluene	0.06	1.1	--	0.06	U	1	0.06	U	1	0.12	U	2	0.12	U	2	0.06	U	1
Vinyl chloride	0.08	1.1	200	0.08	U	1	0.08	U	1	0.16	U	2	0.16	U	2	0.08	U	1
EPA 160.1 (mg/L)																		
TDS	4.4	10	--	366		1	365		1	360		1	360		1	368		1
pH				7.1			6.9			7.0			7.1			7.0		

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:
F - The analyte was positively identified, but the quantitation is an estimation above the MDL and below the PQL.
U - The analyte was analyzed for, but not detected. The associated numerical value is the MDL.

Abbreviations:
MDL Method Detection Limit
PQL Practical Quantitation Limit
N1 Environmental Sample
UIC Underground Injection Control

Field Forms

Personnel: Bench; 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: 0925							
B3-T1-1	15.95	10.14	4.51	22.24	0.741	-85.9	0.27	√	ⓐ 0930
B3-T1-2	15.52	9.70	6.48	21.65	0.544	-74.8	0.23		ⓑ 0950 - Not accurate
B3-T1-3	14.97	9.12	6.63	23.37	0.706	-92.4	0.25		ⓒ 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	10.08	4.75	21.68	0.549	39.6	0.38	√	ⓐ ~~1040~~ 1120
B3-T6-2	15.56	10.49	6.54	22.09	0.596	-96.4	0.09		ⓑ 1040
B3-UIC			7.05	20.33	0.548	384.0	5.15		ⓒ 0910

B-3 Transfer System Monitoring

Eye Wash ⓐ 0915 B3-EW-A2

Flow Meters Readings

Meter	Monday		Tuesday		Wednesday		Thursday		Friday	
Date/Time:	4.7.14	0845	4.8.14	1715	4.9.14	0900	4.10.14	0830	4.11.14	1100
Rate (gpm) / Cumulative Total (gal)/ Well Head Pressure										
CS-MW16-LGR	5.86	2435833 -	6.19	2442910 -	10.35	2585027 -	5.84	2543577 -	6.19	2461046 -
CS-MW16-CC	10.33	5,819939 -	10.55	5,837368 -	6.06	5,844894 -	10.22	5,864675 -	10.54	5,881365 -
B3-EXW01	OFF		OFF	-	OFF	-	OFF	-	OFF	-
B3-EXW02	6.80	85052141	7.33	8577280 40	7.56	8628870 46	7.56	8697169 48	4.93	8758550 38
B3-EXW03	14.01	8512460 25	15.18	8537165 20	14.51	8555439 23	14.34	8575843 24	14.43	8579334 22
B3-EXW04	OFF	-	OFF	-	OFF	-	OFF	-	OFF	-
B3-EXW05		-		-		-		-		-
Old Manifold T-1	OFF		OFF	1970245	OFF		OFF		OFF	
Old Manifold T-6				284082						
New Building Meter In:										
New Building Meter Out:	44.66	6957372	46.16	7013306	35.86	7055510	38.78	7101987	35.57	7160767
New Building Tank Levels:	4800	4800	5000	5000	4800	4800	4800	4800	4900	4900
New Building Bag Filter Pressure	11 / 6		6 / 4	5 / 5	5 / 5	5 / 5	10.5 / 5.5	7 / 5	6 / 4	5 / 5
New Building Change BF	150 µ	75 µ	150 µ	75 µ	150 µ	75 µ	150 µ	75 µ	150 µ	75 µ

Notes:

Personnel: Bouch

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:		Time:							
B3-T1-1	15.95								
B3-T1-2	15.52								
B3-T1-3	14.97								
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								
B3-T6-2	15.56								
B3-UIC			6.92	23.93	0.532	180.8	~~5.77~~ 5.23 (ND)		@ 1500 on 7.17.14

B-3 Transfer System Monitoring

Flow Meters Readings

Meter	Monday			Tuesday			Wednesday			Thursday			Friday		
Date/Time:	7.14.14			7.15.14 ~~7.8.14~~ @ 1515			7.16.14 ~~7.9.14~~ (am)			7.17.14	1500		7.18.14	0800	
Rate (gpm) / Cumulative Total (gal)/ Well Head Pressure															
CS-MW16-LGR	No Time			Ø	2589248	✓	No Time			Ø	2597122	✓	7.09	2599475	NA
CS-MW16-CC				9.88	6481635	Ø				9.82	6509793	Ø	9.169	6519623	NA
B3-EXW01				8.63	325952	40				8.68	353676	40	8.65	362,431	40
B3-EXW02				Ø	1322924	Ø	Dr Appt and			Ø	1336151	Ø	7.01	1,340520	40
B3-EXW03				13.84	211769	20				13.80	257677	20	14.91	265,638	20
B3-EXW04				Ø	732347	Ø	Hillbig Oversite			Ø	739114	Ø	9.16	741,264	40
B3-EXW05				Ø	3267581	Ø				Ø	3208406	Ø	Ø	3209529	Ø
Old Manifold T-1							←12.0	3085111		11.3	3119175		12.3	3131136	
Old Manifold T-6							←8.48	872959		7.79	876521		9.21	904,250	
New Building Meter In:				22.56	957237					14.57	1052736		29.74	1078100	
New Building Meter Out:				23.99	112388					23.53	1178912		25.31	203183	
New Building Tank Levels:				5500	5500					5000	5000		5400	5400	
New Building Bag Filter Pressure				6 / 4	5 / 5					5 / 4	5 / 5		5 / 5	5 / 5	
Change BF	150 µ	75 µ		150 µ	75 µ		150 µ	75 µ		150 µ	75 µ		150 µ	75 µ	

Notes: rained 1.6" last night

Personnel: Bouch, E. Rice

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: 10-07-14		Time: 1120							
B3-T1-1	15.95	10.40	6.62	23.67	0.665	-125.5	0.09		@ 1140
B3-T1-2	15.52	9.89	6.87	23.73	0.583	-49.7	0.19	✓	@ 1110
B3-T1-3	14.97	9.09	6.77	26.22	0.666	-113.1	0.13		@ 1050
B3-T2-1	11.78	10.61	4.83	29.42	0.969	-83.9	0.09		
B3-T2-2	11.12	9.79	6.76	27.68	0.884	-76.3	0.18		
B3-T3-1	11.05	10.98	6.89	27.48	0.006	3.5	1.25		
B3-T3-2	7.4	7.4							
B3-T4-1	8.42	8.42							
B3-T5-1	11.55	10.89	6.73	24.77	0.640	-85.6	0.31		
B3-T5-2	11.04	10.73							
B3-T6-1	14.63	11.60	6.90	23.34	0.537	11.5	0.42	✓	@ 0945
B3-T6-2	15.56	11.21	6.67	23.54	0.566	-173.3	0.30		@ 1010
B3-UIC			6.98	24.30	0.534	136.1	5.06		@ 1100

B-3 Transfer System Monitoring

Flow Meters Readings

Meter	Monday	Tuesday	Wednesday	Thursday	Friday
Date/Time:	10-6-14 1130	10/7 0915	10.8.14	10.9.14	10.10.14

Rate (gpm) / Cumulative Total (gal)/ Well Head Pressure

CS-MW16-LGR		off			off			~~off~~ 7.07	279293	-	off	2797427	-	off	2,797,427	Ø
CS-MW16-CC		9.4	7520767		Ø	7532272.0		off	7545340	Ø	9.409	7556641	-	9.468	7,566,457	-
B3-EXW01		9.58	1226192	46	Ø	1227201	Ø	9.41	1238912	41	Ø	1234829	Ø	Ø	1,240,781	Ø
B3-EXW02		Ø	1750335	Ø	7.41	1759112	40	7.15	1770500	38				Ø	1,779,159	Ø
B3-EXW03		13.06	1714490	20	13.35	1731811	20	12.795	1754112	20	13.174	1771308	20	13.157	1,788,537	20
B3-EXW04		Ø	1093456	Ø	Ø	1093900	Ø	Ø	1094523	Ø	Ø	1099479	Ø	Ø	1,103,454	Ø
B3-EXW05		Ø	3423063		Ø	3423241	Ø	6.795	3424140	19	11.06	3426597.24		Ø	3,429,114	0
Old Manifold	T-1	11.3	4242999		12.4	4257423		11.2	4276535		12.3	4,291,822		12.2	4307725	
	T-6	7.0	1800147		6.93	1808563		6.59	1819765		6.46	1828485		6.69	1837166	
New Building	Meter In:	23.30	3443091		1.126	2600402		22.92	1347 9280		~~0~~ 11.49	3503173		4.682	3524139	
	Meter Out:	19.41	2583657		0	3458207		18.23	2620739		17.68	2645383		17.950	2,667,004	
	Tank Levels:	4500	4500		3700	3700		4300	4300		4400	4400				
	Bag Filter Pressure	6 / 4	5 / 5		5 / 4	5 / 5		6 / 4	5 / 5		6 / 4	5 / 5		6 / 4	5 / 5	
	Change BF	150 µ	75 µ		150 µ	75 µ		150 µ	75 µ		150 µ	75 µ		150 µ	75 µ	

Notes:

Cleaned Paddle wheel T-1

Closed old side

Personnel: Bruch

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:		Time:							
B3-T1-1	15.95								
B3-T1-2	15.52								
B3-T1-3	14.97								
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								
B3-T6-2	15.56								
B3-UIC			7.08	20.9	616	N/A	N/A		(ω) 0945

B-3 Transfer System Monitoring

Flow Meters Readings

Rate (gpm) / Cumulative Total (gal)/ Well Head Pressure

Meter	Monday			Tuesday			Wednesday			Thursday			Friday		
Date/Time:	1.26.15	1022		1.27.15	0940		1.28.15	0924		1.29.15	0945		1.30.15	1215	
CS-MW16-LGR	OFF		/	7.97	2886088		7.59	2896841	/	7.64	2908035	/	7.41	2920405	/
CS-MW16-CC	9.20	8897986	/	9.08	8910899	/	9.07	8923655	/	8.97	8936892	/	8.94	8951497	/
B3-EXW01	8.98	2,252,128	60	14.96	2271905	40	14.30	2292942	40	13.78	2313376	40	14.52	2335770	37
B3-EXW02	8.28	2462736	60	11.47	2477969	48	11.14	2494149	44	10.77	2510046	48	11.16	2527723	44
B3-EXW03	15.87	3711480	60	11.54	3716760	60	15.47	3734107	62	13.23	3754829	64	11.91	3775720	16
B3-EXW04	8.63	1,900,657	68	13.56	1919104	39	12.90	1937530	36	12.40	1956137	40	11.43	1975650	41
B3-EXW05	OFF	1900197		9.30	3526903	34	8.87	3559929	36	9.54	3553358	32	11.44	3568153	34
Old Manifold T-1	14.1	6219683		12.0	6237421		13.2	6254659		14.0	6273990		15.0	6298457	
Old Manifold T-6	6.28	2833852		7.75	2843898		8.12	2852970		9.07	2865753		10.0	2881257	
New Building Meter In:	33.26	6623168		58.07	1,671,252		59.40	1,265,1793		54.04	6834706		36.01	1,691,8528	
New Building Meter Out:	—			45.881	2,510,0552		58.39	1,753,420					37.11	2,811,538	
New Building Tank Levels:	4900	4900		5500	5500		45.45	2728921		—			3500	3500	
New Building Bag Filter Pressure (In/Out):	6 / 6	5 / 5		6 / 5	5 / 5		7.5 / 6	6 / 5		10 / 9	9 / 6		15 / 11	11 / 5	
New Building Change BF	150 µ (circled)	75 µ		150 µ (circled)	75 µ (circled)		150 µ (circled)	75 µ (circled)		150 µ	75 µ		150 µ (circled)	75 µ (circled)	
Notes:	Turned on EXW05 + LGR16 due to high H_2O levels - Opened up EXW04, 02 and 01									3553587			EXW03 - Turned off well, Silt issues		

Personnel: Bonch, 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: 4.13.15		Time: 0900							
B3-T1-1	15.95	7.47	6.67	22.21	1.368	-1.9	0.56		@ 0900
B3-T1-2	15.52	7.11	4.84	22.73	1.159	51.9	0.44		@ 0920
B3-T1-3	14.97	6.84 (6.21)	20.65	22.30	1.554	-219.3	0.04		@ 0950
B3-T2-1	11.78	7.91	6.75	20.63	2.259	-135.3	0.12		
B3-T2-2	11.12	7.21	6.78	22.99	1.361	-101.4	0.11		
B3-T3-1	11.05	8.59	6.55	18.86	1.922	-47.9	0.13		
B3-T3-2	7.4	Dry							
B3-T4-1	8.42	Dry							
B3-T5-1	11.55	9.29	6.53	22.14	1.464	-190.6	0.15		
B3-T5-2	11.04	10.01	6.65	23.48	3.963	-171.5	0.07		
B3-T6-1	14.63	10.20	6.98	21.88	1.277	-216.5	0.11		@ 1025
B3-T6-2	15.56	9.87	6.52	22.33	1.202	-176.5	0.16		@ 1010
B3-UIC			7.0	21.39	1.173	543.1	5.37		@ 0845

B-3 Transfer System Monitoring

Flow Meters Readings

Meter	Monday		Tuesday		Wednesday		Thursday		Friday	
Date/Time:	4.13.15	0833	4.14.15	1300	4.15.15	1100	4.16.15	1412	4.17.15	1130
Rate (gpm) / Cumulative Total (gal)/ Well Head Pressure										
CS-MW16-LGR	6.21	3440602	6.17	3451163	6.08	3459354	6.14	3469388	8.20	3477227
CS-MW16-CC	9.89	9928519	9.758	9945255	9.67	9958205	9.84	9974129	9.76	9984608
B3-EXW01	7.88	3184951 41	7.79	3198184 40	7.78	3208580 40	7.85	3221403 40	8.32	3231445 44
B3-EXW02	8.78	3102565 40		3164495 0	OFF	3176495	OFF		OFF	
B3-EXW03	15.06	5107068 19	15.02	5132623 19	14.85	5152478 19	15.24	5177734 19	OFF	
B3-EXW04	0	2655471 0	0	2655330 8	9.23	2673028 50	7.63	2691740	8.03	2697695 48
B3-EXW05	0	3895140 0	10.19	3901533 20	10.65	3904574 22	0	3913159 0	0	3919136 0
Old Manifold T-1	14.0	7692148	14.3	7715603	14.9	7734209	14.3	7757554		
Old Manifold T-6	6.73	3648797	7.12	3659903	7.13	3668695	6.84	3679775		
New Building Meter In:	29.52	335343	31.17	390395	39.166	3310363	21.18	1380537	13.62	420771
New Building Meter Out:	31.79	6179065	29.22	6191825	28.29	6211666	30.63	6261186	27.45	6301357
New Building Tank Levels:	6000	6000	6000	6000	5500	5500	5700	5700	5520	5500
New Building Bag Filter Pressure (In/Out):	6.5 / 5	5 / 5	6.5 / 5	5 / 5	7.5 / 5	5 / 5	7.5 / 4	5 / 5	8 / 6	6 / 5
Change BF	150 µ	75 µ	150 µ	75 µ	150 µ	75 µ	150 µ	75 µ	150 µ	75 µ

Notes:

Screen in meter on Exw02 is off again - also high flow alarm keeps alarming - Turning well off! Told Richard

~~Turn~~

Turned off Exw03 for weekend