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

June 21, 2017

U-041-10

SUBJECT: Annual Status Report (2017) of the Pilot Study Class V Aquifer Remediation Injection Wells at Camp Stanley Storage Activity, Boerne, Texas, TCEQ Authorization No. 5X2600408; CN600126262/RN100662840

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

Dear Mr. Hannah:

The Camp Stanley Storage Activity (CSSA), McAlester Army Ammunition Plant, U.S. Army Field Support Command, Army Material Command, U.S. Army, is submitting this annual report summarizing the injection activities performed at injection wells located at the on-post Solid Waste Management Unit (SWMU) B-3 site. The activities performed are part of the overall enhanced anaerobic bioremediation remedial efforts for treatment of chlorinated compounds in groundwater.

This annual report contains data as specified by the Texas Commission on Environmental Quality (TCEQ) Underground Injection Control (UIC) permit for activities associated with the installation of three new injection wells and the subsequent injection of substrates within the four authorized injection wells located at the site.

In February 2017, drilling activities commenced for the installation of two 300-foot deep injection wells at SWMU B-3. The wells B3-MW02 and B3-MW04 are 4 inches in diameter with screens from 260' to 300' below ground surface. These two new wells are located on the periphery of the bioreactor on the east and west sides of the site and are located to complement the existing injection well, B3-MW01, located on the north of the site. Additionally, a shallow monitoring well, 4 inches in diameter with screen from 17' to 37', was installed adjacent to the bioreactor. The installation of the three wells was completed on April 20, 2017.

During installation of B3-MW03, impacted perched groundwater was observed, making it a candidate for treatment. An amendment to the Class V Injection Well Authorization was submitted April 24, 2017 to include this well as an injection well and include a request to revise the reporting schedule from semi-annual to annual. The amendment request was revised on May 18, 2017 to include the application of vinegar or Dry Acid Special to treat high pH conditions observed in injection well B3-MW04. The revised amendment to the Authorization No. 5X2600408 was approved on May 23, 2017.

The newly installed injection wells were constructed in accordance with 30 Texas Administrative Code, Chapter 331, Subchapter H. Following well development, injection of two substrates commenced. Injection well B3-MW02 received 265 gallons of WilClear Plus with Accelerite (lactate) and 265 gallons of Lactoil (emulsified vegetable oil (EVO). Injection well B3-MW01 received 265 gallons of WilClear Plus. Injections at both wells were performed via gravity application. At B3-MW02, injections began with the application of the lactate followed by the injection of bioreactor-conditioned water to seed the injection interval with the VOC-reducing *dehaloccoides* bacterium. This was followed with the application of the EVO. Upon completion of the injection of substrates, 1,250 gallons of raw water from one of the drinking water wells on post (CS-10) was applied to flush the substrates from the filter pack into the formation. At B3-MW01, 265 gallons of WilClear Plus was applied followed by bioreactor-conditioned water, no additional substrate application or chase water was applied. Injections at B3-MW03 included the application of 265 gallons of Lactoil followed by 500 gallons of bioreactor water and 1,250 gallons of CS-10 water.

Injections at B3-MW04 were postponed due to high pH conditions associated with grout contamination that occurred during well construction. Neutralization of the high pH condition within this well commenced with the application of 3 gallons of vinegar and 360 gallons of bioreactor-conditioned water on May 25, 2017. A summary of injection activities is provided in **Table 1**.

Postponed injection activities at B3-MW04 began on June 6, 2017 and were completed June 14, 2017. Injection well B3-MW04 received 265 gallons of lactate and 265 gallons of EVO via gravity application. Injections were followed by 500 gallons of bioreactor-conditioned water, and 1,250 gallons of CS-10 water.

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

Enclosure

cc: Felicia Kraintz, CSSA Environmental Program Manager
Julie Burdey, Parsons (ltr only)
Ken Rice, Parsons
File: 745953.03100

Table 1
Injection Activities

Table 1

Injection Activities at B3
2017

Well ID	Date	Lactate (gal)	Lact-Oil (gal)	Sump Water (gal)	CS-10 Water (gal)	Vinegar (gal)
MW01	4/5/17 - 5/24/17	265		75	0	
MW02	3/27/17 - 4/5/17	265	265	530	1250	
MW03	5/24/17 - 6/1/17		265	265	750	
MW04	5/25/17 - 6/14/17	265	265	860	1250	3