AST
Environmental, Inc.

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February 21, 2013

Mr. R. William Johnston, P.G.
Linebach Funkhouser, Inc.
114 Fairfax Avenue
Louisville, Kentucky 40207

RE: Summary Report for BOS 200® Injection at the former Kenwood BP site at 6903 Southside Drive Louisville, Kentucky (KY-USTB- A.I. #60708)

Dear Mr. Johnston,

AST Environmental, Inc. (AST) appreciates the opportunity to have provided the injection services at the above referenced site. This letter report provides a summary of the BOS 200® injection activities conducted on February 12th 2013.

The scope was to perform BOS 200® injections in one (1) area. The original design is summarized below:

MW-3 Injection Area (~180 sf)

- 15 injection points (on 3.5' centers)
- 8 injection points injected at 4', 6', 8', 10' & 12' (refusal) feet bgs
- 7 inject points injected at 5, 7, 9, 11 &13 (refusal) feet bgs
- BOS 200® Loadings & Total Amount per Area: 0.71 lbs BOS 200®/ft^3 or 10 lbs of BOS 200® per Injection (5 gallons shot volume) = 750 lbs of BOS 200®
- Electron Acceptor (sulfate) Loading: 0.34 lbs of Sulfate/ft^3 – which include 3 lbs of excess gypsum per injection to support long term biologic degradation
- 5 gallons Trap & Treat® Bacteria Concentrate
- Approximately 400 gallons of city water (~8 gallons per injection)

The details of the injections are detailed in the attached Table 1.

Attachment A provides the photographic determination. In lieu of shipping such a small quantity of material in from RPI, A*ST brought 750 pounds of BOS 200® from its in-house stores in Midway, Kentucky. Therefore the shipping cost*

Summary of Field Activities:

The attached marked up figure provides the final injection locations. The attached Table 1 summarizes the details of the injection effort. Attachment A provides the photographic determination. Please note AST brought 750 pounds of BOS 200® from its in-house stores.

On the morning of the February 12, 2013, AST mobilized personnel and equipment to the site and setup for the injection effort to begin that day. The attached photographic documentation shows the mixing and injection system, power probe and generator needed for the injection effort.

Based on site conditions it was determined that the injection point layout needed to be adjusted.

This was due to limited overhead clearance from the existing canopy in the northern portion of the injection area and the location of a 24" to 30" storm sewer line that ran through the western portion of the injection area. The layout was changed from 15 points on 3.5' centers to seven (7) points on 5' centers to accommodate these appurtenances. The area was reconfigured as an L-shape. Figure 1 identifies the revised injection area.

The BOS 200® solids suspensions (slurry) were prepared using AST's trailer mounted mixing and injection system. The slurries were installed through 1.5" Geoprobe® rods using a top down technique to ensure effective distribution within the subsurface. Initially, the BOS 200® solid suspensions were prepared per the amended design at 2 lb of BOS/ gallon of prepared slurry water.

During the injection effort it was necessary to adjust the loadings to a 2.5 lb of BOS 200®/gallon of prepared slurry and reduce shot volumes to minimize excessive daylighting from within and around MW-3 well casing. As shown on Figure 1, seven (7) injections points were laid out, but BOS 200® was only installed in six of these. Injection point was not injected as all injection points significantly influenced MW-3 with the exception of IP-1. During injection at IP-1, BOS 200® daylighted in an existing asphalt crack.

During the injection at all other points (IP-3, IP-4, IP-5, IP-6 and IP-7) MW-3 was influenced with BOS 200® daylighting at many of the intervals injected. This can be seen in attached Table 1.

AST finished 7 points with a total of 432.5 lbs of BOS 200® and 2 gal of bacteria concentrate injected.

All injection points were plugged with hydrated bentonite and AST cleaned up the site. The entire injection effort took 1 day.

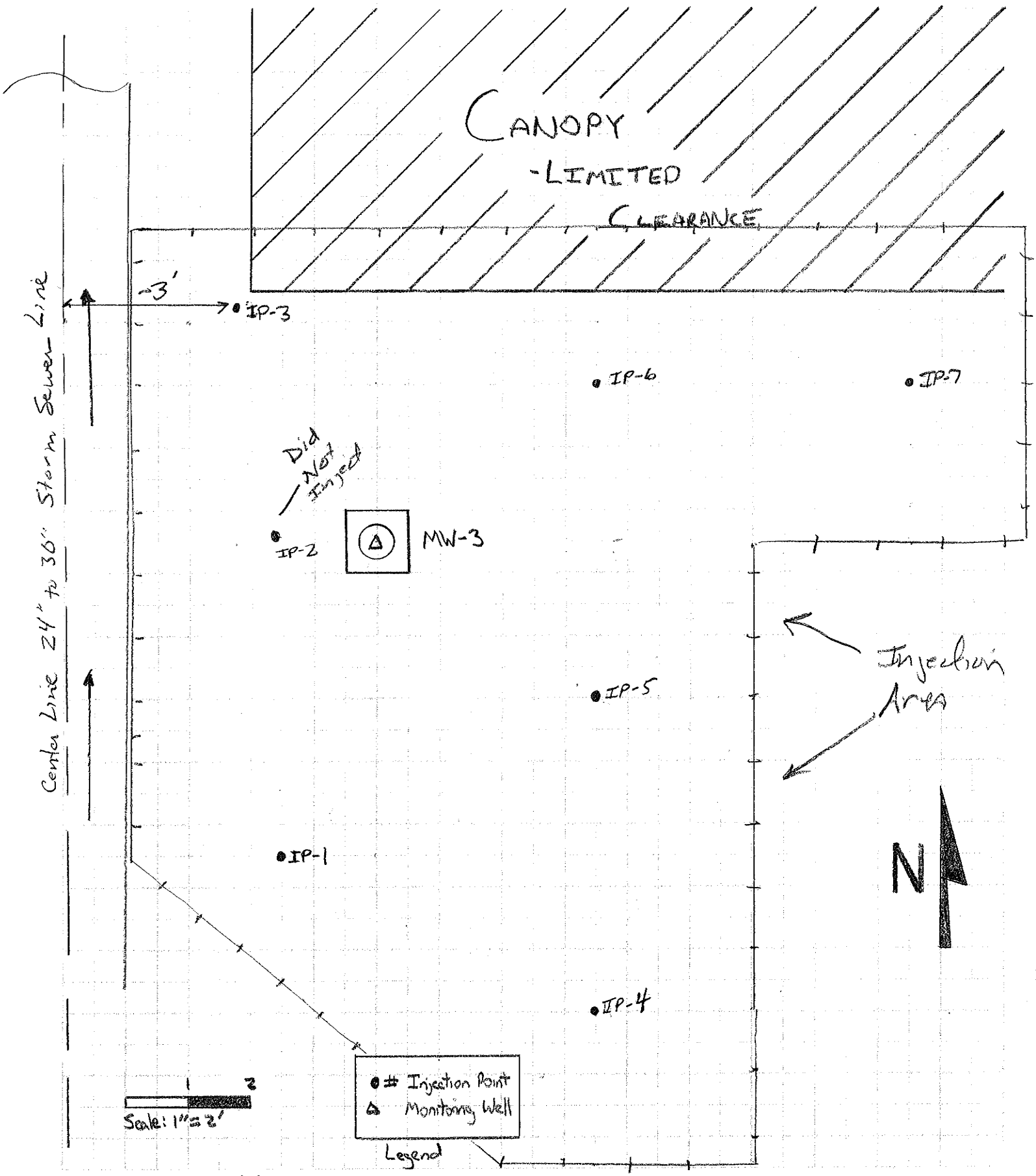
If you have any questions or wish to discuss the information provided herein, please call me at 859-846-4900.

Sincerely,

AST Environmental, Inc.

Gary Simpson
Sr. Manager

Figure 1



AST Environmental, Inc.

Table 1 - BOS 200 Injection Details –LFI Kenwood BP Louisville, KY

Date	Injection Point ID	Time	PSIG	lbs of BOS 200 Injected	Depth Interval (ft bgs)	Notes
02/12/13	IP-1	11:52	200	20.0	5	Detectable LNAPL in well prior to injecting
		11:55	200	20.0	7	Daylighting up crack in asphalt 1' east of point 1. Skip 9' interval due to heavy daylighting
		12:04	200	20.0	11	Daylighting in asphalt crack 1' east of IP-1.
		12:10	400	10.0	12	Refusal, complete. Still daylighting in asphalt crack
02/12/13	IP-3	12:21	200	10.0	5	Daylighting in asphalt crack 1' east of IP-1.
		12:25	250	10.0	7	Daylighting in asphalt crack 1' east of IP-1.
		12:27	200	10.0	9	Daylighting in asphalt crack 1' east of IP-1.
		12:31	300	10.0	11	Daylighting in asphalt crack 1' east of IP-1.
		12:42	600	10.0	12.5	Refusal, complete. BOS 200® daylighting out of MW-3
02/12/13	IP-5	13:45	300	12.5	5	Water level rising 1.5' in MW-3
		13:48	250	12.5	7	
		13:50	300	25.0	9	Daylighting around MW-3 well casing
		13:53	400/300	12.5	11	Daylighting around MW-3 well casing
		13:58	400	12.5	12	Refusal, complete
02/12/13	IP-7	14:04	300	12.5	5	Daylighting around MW-3 well casing - visible sheen in MW-3
		14:06	300	12.5	7	Daylighting around MW-3 well casing - visible sheen in MW-3
		14:08	250	12.5	9	Daylighting around MW-3 well casing - visible sheen in MW-3
		14:10	300	12.5	11	Daylighting around MW-3 well casing - visible sheen in MW-3
		14:13	Inoperable	12.5	12	Refusal, complete. Daylighting around MW-3 well casing
02/12/13	IP-4	14:33	300	25.0	4	Daylighting around MW-3 well casing
		14:35	300	12.5	6	Daylighting around MW-3 well casing
		14:38	300	12.5	8	Daylighting around MW-3 well casing
		14:39	300	12.5	10	Daylighting around MW-3 well casing

Table 1 - BOS 200 Injection Details –LFI Kenwood BP Louisville, KY

Date	Injection Point ID	Time	PSIG	lbs of BOS 200 Injected	Depth Interval (ft bgs)	Notes
		14:43	400	12.5	12	Refusal, complete. Daylighting around MW-3 well casing
02/12/13	IP-6	14:47	300	12.5	4	Water level rising in MW-3
		14:50	300	12.5	6	Water level rising in MW-3
		14:54	400/300	12.5	8	Water level rising in MW-3
		14:55	450/300	12.5	10	Water level rising in MW-3
		15:00	600/400	50.0	12	Refusal, complete. Water level rising in MW-3
				432.5	**Total BOS 200 used 02/12/13 (lbs)**	

Attachment A – Photographic Documentation

Photo 1 – Driving to inject, Geoprobe® in foreground and injection trailer in background. 02/12/13

Photo 2 – Injecting Point 3. 02/12/13

Attachment A – Photographic Documentation

Photo 3 – Spill kit and clean-up supplies. 02/12/13

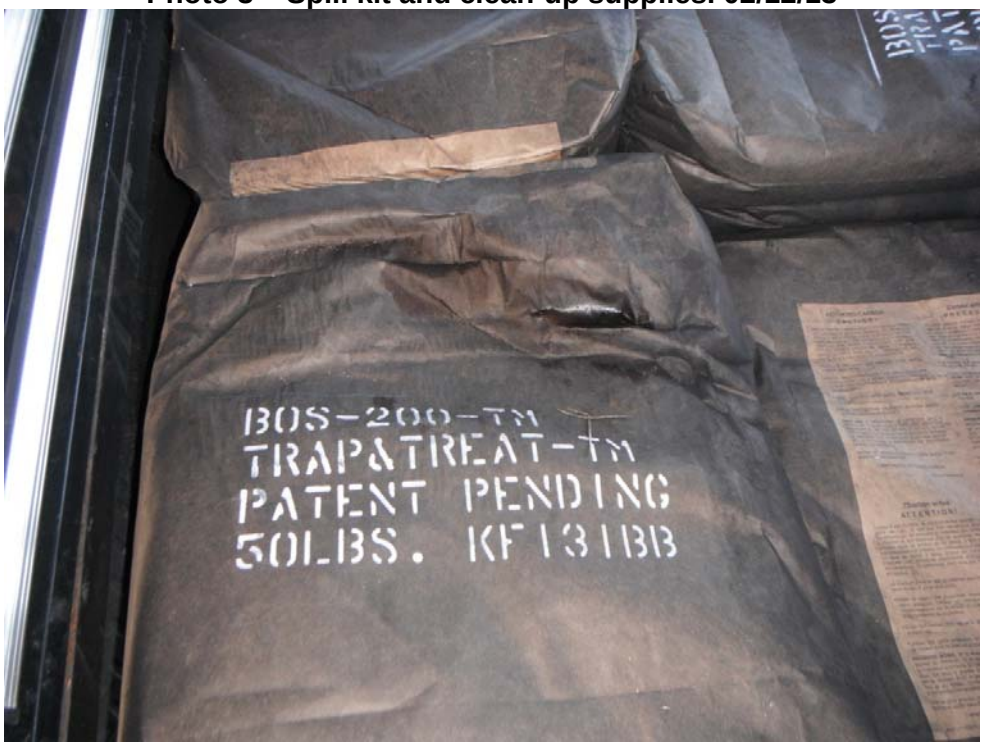


Photo 4 – BOS 200® material to be injected. 02/12/13