INVENTUM ENGINEERING, PC

May 23, 2024

Megan Kuczka
Project Manager
New York State Department of Environmental Conservation
700 Delaware Avenue
Buffalo, NY 14209.

Re: Corrective Measures Investigation Work Plan
Site Name: 275 Franklin Street & 432 Pearl Street BCP Sites
Site No.: C915208 & C915237
Site Address: 275 Franklin Street, Buffalo, NY 14202

Dear Ms. Kuczka:

On behalf of Buffalo Development Corporation (BDC), Inventum Engineering, P.C. (Inventum) has prepared this Corrective Measures Investigation Work Plan (CMIWP) for the 275 Franklin Street and 432 Pearl Street Brownfield Cleanup Program (BCP) Sites (BCP Site Nos. C915208 & C915237). In a letter dated August 3, 2023, the New York State Department of Environmental Conservation (NYSDEC) required BDC to develop a work plan detailing corrective measures to further treat chlorinated volatile organic compounds (VOCs) in groundwater on the Site.

Inventum has identified data gaps that preclude a more comprehensive understanding of the potential applicable remedial approaches to manage the residual contamination on the Site. The largest data gap is the lack of any soil data characterizing VOCs in saturated soils on the Site. The target environmental data gap is the potential presence of VOCs in soil between 12- and 40-feet below ground surface (bgs).

Borings are proposed to resolve the data gap and gather data to support the evaluation of various remedial technologies that could be implemented as corrective measures to further treat chlorinated VOCs on the Site.

Scope of Work

Inventum will advance eleven (11) hollow-stem auger (HSA) borings at the approximate locations shown on Figure 1. Each of the soil borings will be advanced to the top of bedrock (approximately 50 feet bgs). Unconsolidated material samples will be continuously collected with a split-barrel sampler driven through the augers for observation, lithological characterization, and screening with a photoionization detector (PID). Of particular interest will be:

- Visual or olfactory evidence of potential source materials in each split barrel sample;
- Visual or olfactory evidence of VOCs in groundwater encountered during drilling;
- PID readings of each split barrel sample;
- Standard penetration testing for qualitative estimation of compressive strength;
- Evidence of upwelling, or boiling, into the HSA suggesting a risk of excavation instability; and

- Logging and characterization of the media and presence of moisture encountered.

It would appear that the source area of any residual mass lies in or near the rear of the former dry-cleaning facility in the vicinity of MW-4 and MW-5R.

A subset of samples will be submitted for environmental and/or geotechnical analysis:

- Samples will be collected at each location on the 275 Franklin Street Site (DPB-01 through DPB-08) and 432 Pearl Street Site (DPB-09 through DPB-11) and submitted for Target Compound List (TCL) VOC analysis (EPA Method 8260/5035) at a depth of approximately 12 to 13 feet bgs (upper saturated interval) and 17 to 18 feet bgs (lower saturated interval). The lower saturated interval is approximately 5-feet below the "smear zone" (9.5 to 11.8 feet bgs) identified in the October 2017 Final Engineering Report[1]. The sample collection depth also corresponds to approximately 5 feet below the base of the excavations conducted in 2016 (Figure 1).

- One sample from the upper saturated interval (DPB-01) and one sample from the lower saturated interval (DPB-04) will also be submitted to Regenesis® for analysis of Soil Oxidant Demand (SOD) if sufficient volume is available. The SOD data is intended to aid in design of a potential primary or complimentary In-Situ Chemical Oxidation (ISCO) remedial approach. The samples locations (DPB-01 and DPB-04) are intended to gain an understanding of the differing oxidant demands, if present, inside and outside of the main source area.

- Additional samples will be collected from the three (3) borings (BPB-01, -02, and -03) proposed in the 2016 excavation areas and the boring (DPB-04) near MW-6 (Figure 1). One additional sample will be collected at a depth of approximately 23 to 25-feet bgs and submitted for TCL VOC analysis (EPA Method 8260/5035). This sample interval corresponds to below the monitoring interval of the two closest downgradient shallow offsite monitoring wells (MW-23S and MW-24S) and below the base of the screened interval at site monitoring well MW-5R.

- Standard Penetration Test data will be collected continuously to bedrock at all borings. Geotechnical samples will be collected from two (2) of the borings outside of the 2016 excavation area (Figure 1)[2]. Samples will be collected continuously (0 to 2 feet, 2 to 4 feet, etc.) to a depth of 10-feet bgs and thereafter at 5-foot centers to auger refusal on bedrock. Samples will be submitted for USCS soil classification (ASTM D4083) which includes particle-size characteristics and Atterberg Limits. This data will be beneficial for the evaluation and design of a targeted excavation remedial approach.

[1] Final Engineering Report. 275 Franklin Street Site, BCP Site No. C915208 and 432 Pearl Street Site, BCP Site No. C915237. Benchmark Environmental Engineering & Science, PLLC. October 2017.
[2] Additional geotechnical samples may be collected at owners' discretion.

- Inventum will attempt to collect two thin-walled tube samples[3] at two locations (Figure 1) from within the native sand at depths of approximately 14 to 16 feet bgs and 30 to 32 feet bgs. If collected, thin-walled tube samples will be submitted for unit weight (ASTM D2937), sieve and hydrometer (ASTM D422-63; AASHTO T83), Atterberg Limits (ASTM D4318), and permeability (ASTM D5084). This data will be beneficial for the evaluation and design of a targeted excavation remedial approach. Depending on the depth of a potential remedial excavation, this data will also be beneficial for determination of the feasibility and design of shoring, excavation/excavation safety, and excavation dewatering.

- One boring (DPB-08) will be advanced a minimum of 5-feet into the underlying bedrock.

VOC samples will be sent to either Alpha Analytical or Eurofins Laboratories in Buffalo, New York. Geotechnical samples will be submitted to 3rd Rock, LLC in East Aurora, New York or Atlantic Testing Laboratories in Hamburg, New York. A Data Usability Summary Report (DUSR) will be obtained for the validation of all VOC data.

Soils from the boreholes will be stockpiled onsite on poly sheeting, covered with poly sheeting if staged overnight, and profiled for waste characterization and offsite disposal. Soils exhibiting any characteristics of gross contamination (free phase liquids, strong odor, visual indication of contamination, or PID>100 parts per million [ppm]) will be segregated, contained in separate 55-gallon open-topped steel drums, and profiled for waste characterization and offsite disposal. All boreholes will be completed with a cement grout and asphalt patch to match the surrounding grade. Water generated from the decontamination of downhole tooling will be containerized in 55-gallon reconditioned drums and profiled for offsite disposal.

Upwind and downwind monitoring for particulates and VOCs will be conducted during all intrusive stie work in accordance with the Community Air Monitoring Plan (CAMP). All work will be conducted in accordance with the Excavation Work Plan (EWP) and site-specific Health and Safety Plan (HASP) included in the Site Management Plan (SMP).

Schedule and Reporting

BDC anticipates completing the scope of work in June or July 2024 subject to NYSDEC approval of the CMIWP and drilling contractor availability. A Corrective Measures Investigation Report will be submitted to the NYSDEC 60-days following receipt of all environmental and geotechnical data. At minimum, the report will include:

- CMI Scope of Work and Results Summary
- Boring logs
- Laboratory Data Reports – NYSDEC Category B
- Evaluation of potentially applicable remedial technologies
- Corrective Measures Evaluation Schedule

Please feel free to call with any questions or comments.

[3] The practicality of thin-walled tube sample collection in medium to coarse grained soils can be limited.

Respectfully submitted,

Todd Waldrop

ecc: Andrea Caprio – NYSDEC
Euguene Melnyk – NYSDEC
Christopher Budd – NYSDOH
Sara Bogardus – NYSDOH
Robert Knoer – The Knoer Group
John P. Black, P.E. – Inventum Engineering

Figure 1

LEGEND:

- 275 FRANKLIN STREET BCP SITE (BCP NO. C915208)
- 432 PEARL STREET BCP SITE (BCP NO. C915237)
- EXISTING BUILDING
- FORMER DRY CLEANER BUILDING
- PARCEL LINE
- FENCE
- EXTENT OF REMEDIAL EXCAVATION AREA (DECEMBER 2016)
- MW-1 — DEEP / INTERMEDIATE / OFF-SITE MONITORING WELL
- MW-21S — OFF-SITE SHALLOW MONITORING WELL (4) (NYSDEC, May 2009)
- MW-21D — OFF-SITE DEEP MONITORING WELL (4) (NYSDEC, May 2009)
- MW-25S — OFF-SITE SHALLOW MONITORING WELL (3) (NYSDEC, September 2012)
- MW-5 — SHALLOW MONITORING WELL
- PZ-4 — SHALLOW PIEZOMETER
- MW-5 — ABANDONED MONITORING WELL (2)
- PROPOSED CORRECTIVE MEASURES INVESTIGATION BORING

NOTES:
1. Deep well MW-4 and shallow well MW-5 were decommissioned in December 2016.

REFERENCE:
1. All existing site features and legend entries were digitized directly from Figure 6 (2016 Remedial Excavation Area) of the October 2017 Final Engineering Report prepared by Benchmark Environmental & Engineering & Science, PLLC on behalf of Buffalo Development Corporation.

Proposed Corrective Measures Investigation Borings				
	Sample Collection Plan			
	Environmental		Geotechnical	
Boring ID	Depth (ft. bgs)	Lab Analysis	Depth (ft. bgs)	Lab Analysis
DPB-01	12-13	TCL VOCs; SOD	Geotechnical Samples may be collected at owners' discretion.	
	17-18	TCL VOCs		
	23-25	TCL VOCs		
DPB-02	12-13	TCL VOCs		
	17-18	TCL VOCs		
	23-25	TCL VOCs		
DPB-03	12-13	TCL VOCs		
	17-18	TCL VOCs		
	23-25	TCL VOCs		
DPB-04	12-13	TCL VOCs		
	17-18	TCL VOCs; SOD		
	23-25	TCL VOCs		
DPB-05	12-13	TCL VOCs	Continuous 0-10 feet then 5-foot centers to refusal	USCS Soil Classification (ASTM D4083)
	17-18	TCL VOCs	14-16	Thin-Walled Tube (ASTM D2937, D422, D4318, D5084)
			30-32	Thin-Walled Tube (ASTM D2937, D422, D4318, D5084)
DPB-06	12-13	TCL VOCs	Geotechnical Samples may be collected at owners' discretion.	
	17-18	TCL VOCs		
DPB-07	12-13	TCL VOCs		
	17-18	TCL VOCs		
DPB-08	12-13	TCL VOCs	Continuous 0-10 feet then 5-foot centers to refusal	USCS Soil Classification (ASTM D4083)
	17-18	TCL VOCs	14-16	Thin-Walled Tube (ASTM D2937, D422, D4318, D5084)
			30-32	Thin-Walled Tube (ASTM D2937, D422, D4318, D5084)
DPB-09	12-13	TCL VOCs	Geotechnical Samples may be collected at owners' discretion.	
	17-18	TCL VOCs		
DPB-10	12-13	TCL VOCs		
	17-18	TCL VOCs		
DPB-11	12-13	TCL VOCs		
	17-18	TCL VOCs		

TCL VOCs = Target Compound List Volatile Organic Compounds
SOD = Soil Oxidant Demand

DRAWING BY
CHECKED
APPROVED

Corrective Measures Investigation Work Plan Boring Locations

275 Franklin Street and 432 Pearl Street
BCP Site
NYSDEC Site Nos. C915208 and C915237
Buffalo, NY

INVENTUM ENGINEERING
441 CARLISLE DRIVE
SUITE C
HERNDON, VIRGINIA 20170
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FIGURE 1