February 25, 2019

Mr. Chad Staniszewski
Mr. Eugene Melnyk
NYS Department of Environmental Conservation
270 Michigan Avenue
Buffalo NY 14203

Subject: **Babcock Street (OU-2 East) TCLP Soil Sample Results**
Buffalo, New York

Dear Mr. Staniszewski & Mr. Melnyk:

On behalf of Elk Street Commerce Park, LLC (ESCP), Amec E&E PC (Amec) is providing a summary of analyses of samples from OU-2 for Toxicity Characteristic Leachate Procedure (TCLP) lead. Amec has tabulated the analytical results in the attached table (Table 1). A summary of the sample collection, anaylsis results, and are provided below.

Sample Collection & Analysis Results

On January 15 & 16, 2019, soil samples were collected from 33 soil borings within the stabilized soil treatment cells of OU-2 East. Soil samples were collected in accordance with the approved OU2 East Remedial Action Work Plan Addendum, dated December 21, 2018. That plan proposed that samples would be collected from 36 borings for TCLP analyses of lead. **Figure 1** of this letter was prepared for the sampling to illustrate the locations of 36 borings and the identification of each. As of the time of the preparation of this report, in-situ stabilization (ISS) has not been completed at the locations of borings 10, 11, and 14 and samples have not been collected from those areas.

Primary and secondary samples were selected from each boring using a random number generator and the anticipated depth of treated soil at each location. Attachment A includes the random number table that identified samples to be collected at each boring for analyses. Soil samples were collected for the analyses of TCLP lead from randomly selected, one-half foot increments ranging from 1.0 foot below ground surface to 1.0 feet above the total depth of the treated soil column. Upon advance of borings at SB-2, SB-3, and SB-23, it was confirmed that the depth to clay was significantly less than the depth anticipated in the selection of samples. Boring SB-2 provided indication that the depth of clay was 5.0 feet; the intended sample depth was 4.5 to 5.0, which would have been within one foot of the total depth. Therefore, another primary sample depth was randomly selected and the sample was collected from 3.0 to 3.5 feet. The depth to clay at boring SB-3 was anticipated to greater than 10 feet and was determined to be 8.0 feet by that boring. The proposed Primary sample between 9.5 and 10.0 feet was replaced by a random selection of a depth interval, which was 3.0 to 3.5 feet. Boring 23 was anticipated to be greater than 9.5 feet to clay and the boring identified the clay at a depth of 4.0 feet. The proposed primary sample was to be collected between 9.0 and 9.5 feet was replaced with a randomly selected sample collected between 1.0 and 1.5 feet. Each of the borings confirmed that mixing had occurred to the total depth of the clay.

The primary samples were hand delivered to TestAmerica laboratory in Amherst, New York under uniform chain-of custody and Amec retained custody of the secondary samples. TestAmerica completed analyses of the samples for TCLP lead and provided an analytical report under Job Number: 480-148084-1. A sample results table (**Table 1**) is attached.

TCLP lead results exceeded the Resources Conservation and Recovery Act (RECRA) limit of 5 milligrams per liter (mg/l) at two samples. Analysis of SB18-P-11.0-11.5 detected 14.1 mg/l lead in the sample leachate and analysis of SB34-P-2.0-2.5 detected 5.6 mg/l lead in the sample leachate. The exceedances initiated the reanalysis of the primary samples and analysis of a secondary sample within each respective soil boring.

AMEC E&E PC
Clifton Park NY
518 372 0905

Reanalysis of the two Primary Samples + Secondary Sample Analysis

As per the approved Work Plan Addendum, if the Primary sample exceeds TCLP lead criteria (5 mg/l), the primary sample was reanalyzed along with the secondary sample for that boring.

Upon request for the reanalysis of the two Primary samples, Wood was notified by the lab (Test America) that insufficient volume remained to allow an analysis without a "non-conformance" qualifier. To meet the requirements of the TCLP regulation, a minimum of 100 grams was required. The lab reported the following volume of sample remaining from these locations:

SB18-P-11.0-11.5 - 78 grams
SB34-P-2.0-2.5 - 41 grams

At the time of sampling, the cores were photo-documented and placed adjacent to the boring orientated such that depth was increasing to the left. Wood subsequently retrieved the cores from the two borings with TCLP exceedances and extracted additional volume from the appropriate sample interval. The original photographs were used to confirm orientation of the cores. Additional photographs were obtained documenting the retrieval of the additional sample volume. These photographs are included below. The additional volume was provided to TestAmerica who were instructed to blend with the remaining volume of sample to achieve the volume required to perform a repeat TCLP analyses.

Photograph documentation.

Photo 1: Soil Boring SB18 showing Primary and Secondary sample locations. For the 4 ft cores, depth increases from right to left and from bottom of the photo to top of the 3 cores. Labeled sample jars are shown at the interval where the sample was obtained. (Photo and sample date Jan 15, 2019)

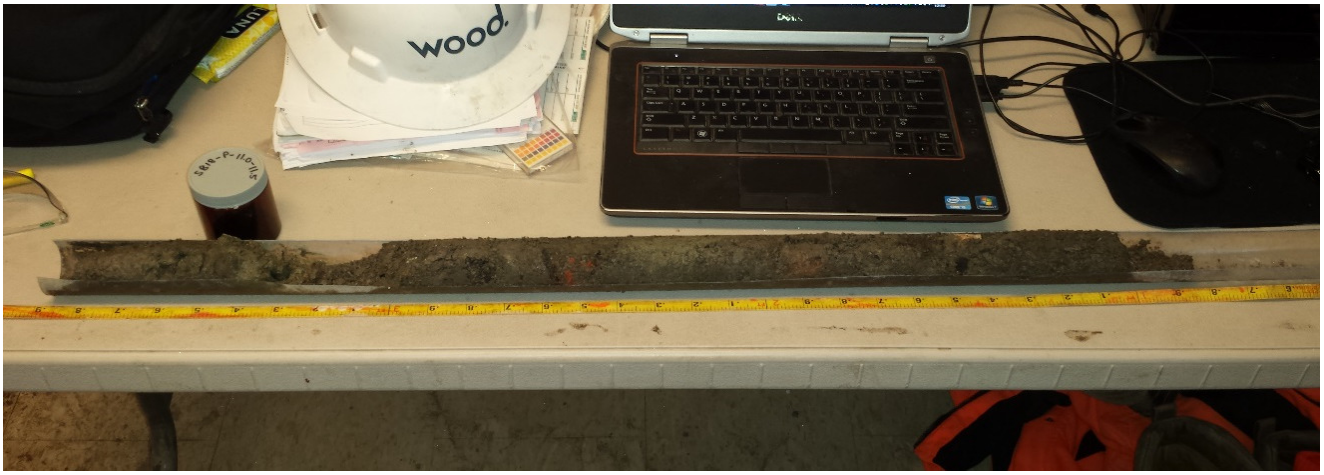


Photo 2: SB18 core from the interval 8 ft to 12 ft subsequently retrieved and oriented from which additional sample volume was obtained. Original photograph was used to confirm orientation and interval by noting position of distinguishing features such as brick fragments. (Photo and additional volume retrieval date: Jan 29, 2019)

Photo 3: Soil Boring SB34 showing Primary and Secondary sample locations. For the 4 ft cores, depth increases from right to left. Labeled sample jars are shown at the interval where the sample was obtained. (Photo date Jan 16, 2019)

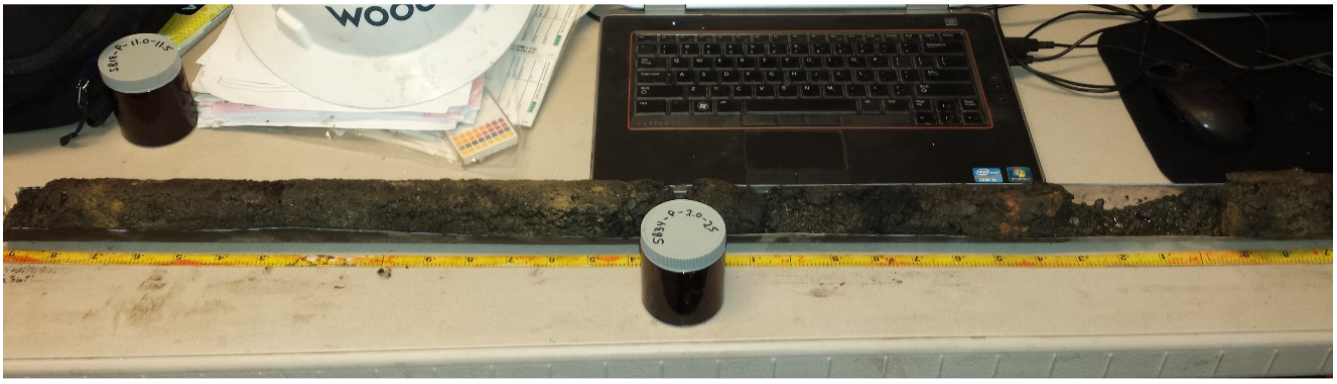


Photo 4: SB34 core from the interval 0 ft to 4 ft subsequently retrieved and oriented from which additional sample volume was obtained. Original photograph was used to confirm orientation and interval by noting position of distinguishing features such as brick fragments. (Photo and additional volume retrieval date: Jan 29, 2019)

In addition to reanalyzing the primary samples, a secondary soil sample from a separate interval within the respective soil borings was also submitted for TCLP lead analysis. The Secondary samples had been maintained under Amec custody at the office trailer since collection and were submitted to TestAmerica under a separate Chain of Custody.

The reanalysis of the primary samples did not detect lead in the TCLP leachate of sample identified as SB18-P-11.0-11.5. The initial analysis had detected 14.1 mg/l in that sample. The Secondary sample at boring SB-18 was identified as SB18-S-8.5-9.0 and its analysis detected a concentration of 1.7 mg/l lead in the TCLP Leachate. Based on the reanalysis and the conditions described in the December 21, 2019 Work Plan Addendum, analyses of samples from boring SB-18 demonstrate lead has been adequately treated in soil represented by that boring.

The reanalysis of the primary samples detected 0.03 mg/l lead in the TCLP leachate of the sample identified as SB34-P-2.0-2.5. The initial analysis had detected a lead concentration in the TCLP leachate of 5.6 mg/l. Analyses of the secondary sample, identified as SB34-S-1.0-1.5, detected lead at a concentration of 0.023 mg/l in the TCLP Leachate. TCLP lead concentrations below the SCO for lead. Based on the reanalysis and the conditions described in the December 21, 2019 Work Plan Addendum, analyses of samples from boring SB-34 demonstrate lead has been adequately treated in soil represented by that boring.

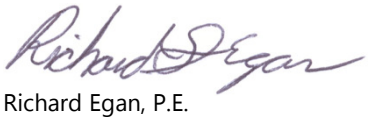
Each of the remaining soil samples submitted to the laboratory for analyses were reported to have lead concentrations detected in the TCLP Leachate less than 5.0 mg/l or not detected. The results are provided in attached **Table 1**. As per the approved OU2 East Remedial Action Work Plan Addendum dated Dec. 21, 2018, these sample results indicate that the treatment of soil has treated lead to an adequate degree.

Therefore, Amec proposes that no further action is necessary in the respective OU-2 East mixing area. Sampling will be conducted at borings locations 10, 11, and 14 when ISS activities are completed at those locations.

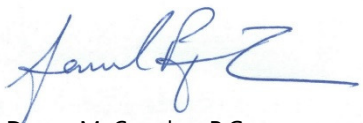
Please contact myself or Dayne Crowley at 724-514-1600 if you have any questions or require any additional information.

Sincerely,

AMEC E&E PC



Richard Egan, P.E.
Associate Geotechnical Engineer



Dayne M. Crowley, P.G.
Senior Principal Hydrogeologist

Attachments

cc: Mr. Paul Neureuter(ESCP)
Mr. Arnie Cubins (Krog)
Mr. John Luttinger (Wood)
Mr. Rick Egan (Wood)

Table 1
ExxonMobil Former Buffalo Terminal, Buffalo, New York
Elk Stree Project - OU2 East TCLP Soil Samples
Sample Collection: 1/15&16/2019

TCLP Lead				SB1-P-3.0-3.5		SB2-P-3.0-3.5		SB3-P-3.0-3.5		SB4-P-3.5-4.0		SB4-DUP		SB5-P-3.5-4.0		SB6-P-2.5-3.0		SB7-P-2.0-2.5		SB8-P-1.0-1.5		SB9-P-1.5-2.0	
				mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		mg/l	
Analyte	**Analytical Method**	**CAS Number**	**Commercial Soil Cleanup Objective (mg/l)**	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers
Lead	SW6010C	7439-92-1	**5.0**	**0.0055**	**J**	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	**0.0048**	**J**	0.02	U

														Primary Exceedance		**Primary Re-Run**		**Secondary Interval**					
TCLP Lead				SB12-P-7.0-7.5		SB13-P-2.0-2.5		SB15-P-3.5-4.0		SB16-P-5.0-5.5		SB17-P-9.5-10.0		SB18-P-11.0-11.5		SB18-P-11.0-11.5		SB18-S-8.5-9.0		SB19-P-2.5-3.0		SB20-P-4.5-5.0	
				mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		mg/l	
Analyte	**Analytical Method**	**CAS Number**	**Commercial Soil Cleanup Objective (mg/l)**	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers
Lead	SW6010C	7439-92-1	**5.0**	**0.0054**	**J**	0.02	U	0.02	U	**0.013**	**J**	**0.0046**	**J**	**14.1**		0.02	U	**1.7**		0.02	U	**0.011**	**J**

TCLP Lead				SB21-P-4.0-4.5		SB22-P-8.5-9.0		SB23-P-1.0-2.5		SB24-P-2.0-2.5		SB25-P-1.5-2.0		SB26-P-2.5-3.0		SB27-P-3.0-3.5		SB28-P-2.5-3.0		SB29-P-1.5-2.0		SB30-P-1.0-1.5	
				mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		mg/l	
Analyte	**Analytical Method**	**CAS Number**	**Commercial Soil Cleanup Objective (mg/l)**	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers
Lead	SW6010C	7439-92-1	**5.0**	**0.14**		**0.015**	**J**	0.02	U	**3.5**		0.02	U	0.02	U	**0.017**	**J**	**0.021**		0.02	U	0.02	U

										Primary Exceedance		**Primary Re-Run**		**Secondary Interval**					
TCLP Lead				SB31-P-1.5-2.0		SB32-P-1.5-2.0		SB33-P-1.0-1.5		SB34-P-2.0-2.5		SB34-P-2.0-2.5		SB34-S-1.0-1.5		SB35-P-2.0-2.5		SB36-P-1.5-2.0	
				mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		mg/l	
Analyte	**Analytical Method**	**CAS Number**	**Commercial Soil Cleanup Objective (mg/l)**	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers	Result	Lab Qualifiers
Lead	SW6010C	7439-92-1	**5.0**	**0.006**	**J**	**0.025**		0.02	U	**5.6**		**0.03**		**0.023**		0.02	U	0.02	U

14.1 Exceeds Commercial Soil Cleanup Objective
J = Result is less than the Reporting Limit (RL) but greater than or equal to the Method Detection Limit (MDL) and the concentration is an approximate value.
U = Compound was not detected above its respective RL.
BOLD indicates compound was detected above its respective RL.

WORK LIMITS AT FIRE WATER SERVICE

ELK STREET

3.00'

PROPOSED SAMPLING LOCATION

AUGMENT ISS MIX TO INCLUDE 1% BENTONITE BY WEIGHT ALONG THE EASTERN PROPERTY LINE (3-FT WIDE)

OU2 EAST

BUCKEYE TERMINAL

FORMERLY PRENATT STREET

MW-36R

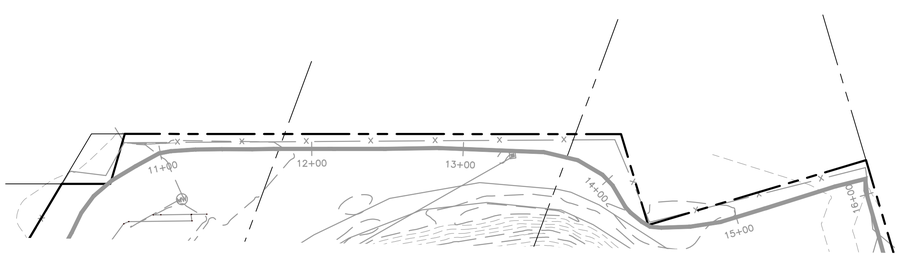
MW-16

LEGEND

- STABILIZE SOILS TO CLAY ELEVATION
- STABILIZE SOILS TO 5 FOOT DEPTH BELOW EXISTING GRADE
- (10) SOIL DEPTH TO CLAY CONTOUR (FROM EXISTING GRADE)
- LEAD IMPACTED SOIL LIMITS
- OU2 WEST IMPACTED SOIL EXCAVATION LIMITS
- EXCAVATION CELL LIMTS
- EXCAVATION FLOOR SAMPLE ONE PER 900 SF
- EXCAVATION WALL SAMPLE ONE PER 30 LF
- ϕ5 PROPOSED SAMPLING LOCATIONS

NOTES

1. DEPTH OF STABILIZATION WITHIN 5 FEET OF PERMANENT STRUCTURES SHALL ONLY BE EXTENDED TO 3 FEET BELOW EXISTING GROUND SURFACE OR AS DIRECTED BY ENGINEER.
2. CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE STRUCTURE OR FOUNDATION SYSTEM.
3. BENTONITE TO MEET API SPECIFICATION 13A, SECTION 9 CRITERIA.



Prepared/Date: WJW 12/13/18
Checked/Date: RSE 12/13/18

0 25 50 100
SCALE IN FEET

REMEDIAL DESIGN ELK STREET PROPERTY BUFFALO, NEW YORK	amec	OU2 EAST TCLP SAMPLING LOCATIONS Project 3617-16-7397 Figure 1

Z:\Projects\ExxonMobil-HRQ\-Elk Street\OU2 Design\Sheets\Figures\FIG_1 - OU2 East TCLP Sampling Loc.dwg Thu, 13 Dec 2018 - 11:14pm william.whitten

Attachment A
Primary and Secondary Randomized Sample Locations
Elk Street Property, OU-2
Buffalo, NY

Boring Location	Depth to Clay (feet)	Random Primary	Random Secondary	Primary Sample Name	Secondary Sample Name
1	6	**3**	*4*	**SB1 -P- 3.0 - 3.5**	**SB1 -S- 4.0 - 4.5**
2	6	**4.5**	*3.5*	**SB2 -P- 4.5 - 5.0**	**SB2 -S- 3.5 - 4.0**
3	11	**9.5**	*7*	**SB3 -P- 9.5 - 10.0**	**SB3 -S- 7.0 - 7.5**
4	5	**3.5**	*1*	**SB4 -P- 3.5 - 4.0**	**SB4 -S- 1.0 - 1.5**
5	6	**3.5**	*4*	**SB5 -P- 3.5 - 4.0**	**SB5 -S- 4.0 - 4.5**
6	8	**2.5**	*7*	**SB6 -P- 2.5 - 3.0**	**SB6 -S- 7.0 - 7.5**
7	4	**2**	*2.5*	**SB7 -P- 2.0 - 2.5**	**SB7 -S- 2.5 - 3.0**
8	4	**1**	*1.5*	**SB8 -P- 1.0 - 1.5**	**SB8 -S- 1.5 - 2.0**
9	4	**1.5**	*2.5*	**SB9 -P- 1.5 - 2.0**	**SB9 -S- 2.5 - 3.0**
10	4	**2**	*3*	**SB10 -P- 2.0 - 2.5**	**SB10 -S- 3.0 - 3.5**
11	5	**3**	*4*	**SB11 -P- 3.0 - 3.5**	**SB11 -S- 4.0 - 4.5**
12	10	**7**	*1*	**SB12 -P- 7.0 - 7.5**	**SB12 -S- 1.0 - 1.5**
13	4	**2**	*1*	**SB13 -P- 2.0 - 2.5**	**SB13 -S- 1.0 - 1.5**
14	4	**2**	*1.5*	**SB14 -P- 2.0 - 2.5**	**SB14 -S- 1.5 - 2.0**
15	6	**3.5**	*4*	**SB15 -P- 3.5 - 4.0**	**SB15 -S- 4.0 - 4.5**
16	8	**5**	*1*	**SB16 -P- 5.0 - 5.5**	**SB16 -S- 1.0 - 1.5**
17	13	**9.5**	*10.5*	**SB17 -P- 9.5 - 10.0**	**SB17 -S- 10.5 - 11.0**
18	13	**11**	*8.5*	**SB18 -P- 11.0 - 11.5**	**SB18 -S- 8.5 - 9.0**
19	10	**2.5**	*2*	**SB19 -P- 2.5 - 3.0**	**SB19 -S- 2.0 - 2.5**
20	9	**4.5**	*8*	**SB20 -P- 4.5 - 5.0**	**SB20 -S- 8.0 - 8.5**
21	6	**4**	*5*	**SB21 -P- 4.0 - 4.5**	**SB21 -S- 5.0 - 5.5**
22	11	**8.5**	*7.5*	**SB22 -P- 8.5 - 9.0**	**SB22 -S- 7.5 - 8.0**
23	12	**9**	*8*	**SB23 -P- 9.0 - 9.5**	**SB23 -S- 8.0 - 8.5**
24	3	**2**	*1*	**SB24 -P- 2.0 - 2.5**	**SB24 -S- 1.0 - 1.5**
25	6	**1.5**	*2*	**SB25 -P- 1.5 - 2.0**	**SB25 -S- 2.0 - 2.5**
26	5	**2.5**	*3.5*	**SB26 -P- 2.5 - 3.0**	**SB26 -S- 3.5 - 4.0**
27	5	**3**	*3.5*	**SB27 -P- 3.0 - 3.5**	**SB27 -S- 3.5 - 4.0**
28	4	**2.5**	*2*	**SB28 -P- 2.5 - 3.0**	**SB28 -S- 2.0 - 2.5**
29	4	**1.5**	*2*	**SB29 -P- 1.5 - 2.0**	**SB29 -S- 2.0 - 2.5**
30	4	**1**	*1.5*	**SB30 -P- 1.0 - 1.5**	**SB30 -S- 1.5 - 2.0**
31	4	**1.5**	*3*	**SB31 -P- 1.5 - 2.0**	**SB31 -S- 3.0 - 3.5**
32	4	**1.5**	*2*	**SB32 -P- 1.5 - 2.0**	**SB32 -S- 2.0 - 2.5**
33	3	**1**	*1.5*	**SB33 -P- 1.0 - 1.5**	**SB33 -S- 1.5 - 2.0**
34	3	**2**	*1*	**SB34 -P- 2.0 - 2.5**	**SB34 -S- 1.0 - 1.5**
35	4	**2**	*1.5*	**SB35 -P- 2.0 - 2.5**	**SB35 -S- 1.5 - 2.0**
36	4	**1.5**	*3*	**SB36 -P- 1.5 - 2.0**	**SB36 -S- 3.0 - 3.5**

*depths and sample locations given in ft BGS

* Primary and secondary samples will be taken from their sample depth + 0.5 ft.