August 30, 2016

Mr. Chad Staniszewski
Mr. Eugene Melnyck
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203

Dear Mr. Staniszewski & Mr. Melnyck:

OU 2 Test Pit Investigation Work Plan

On behalf of ExxonMobil and Krog-Renova, and per the requirements of the Brownfield Cleanup Program, Amec Foster Wheeler is submitting this remedial investigation work plan for a limited remedial investigation at the ExxonMobil Operable Unit (OU) 2 property on Elk Street in Buffalo, New York. The limited investigation consists of conducting test pit activities. The intent of the investigation is make visual and olfactory observations of subsurface materials at each location and to collect bulk soil samples to support a treatability study for stabilizing impacted soils present on the OU 2 parcel. The field investigation and following treatability study will be used to supplement a previous investigation and treatability testing conducted in 2015.

SCOPE OF WORK

The proposed remedial investigation consists of excavating up to eight test pits. The locations of the proposed test pits, as well as the 2015 test pits, are overlaid on the "Summary of Observations During Test Trenching for Delineation of Petroleum Impacted Soil" figure developed by Roux Associates Inc., and presented as Attachment 1. The following procedures will be adhered to at each test pit location:

- Test pits will be excavated by a small to mid-sized excavator capable of excavating up to ten feet below ground surface.
- The test pits will be excavated in a controlled manner, approximately 8 to 12-inches in depth per bucket, from the ground surface until the groundwater table is encountered. It is anticipated that groundwater will be generally encountered between 4 and 5 feet below ground surface with a maximum depth of approximately 8 feet below ground surface.
- At the completion of excavating each test pit, the excavated materials will be replaced back into the excavation in such a manner that the material that was excavated last will be placed back in the excavation first. The backfilled material will be compacted by tamping with the excavator's bucket.

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- Amec Foster Wheeler will provide an engineer or geologist to observe the excavation, document the dimension and locations of each test pit, log and photograph the test pits, excavated materials and depth to groundwater and collect soil samples for treatability testing.
- Selected soil samples will be retained in sealed 5-gallon buckets and transported to a laboratory for treatability testing.
- The excavator will be decontaminated prior to being demobilized from the site at the completion of test pitting.

All field work will be conducted in adherence to the current site Health and Safety Plan including appropriate personal protection equipment and air monitoring procedures. It is anticipated that test pitting activities will be completed during the course of a single work day (Wednesday, August 31, 2016).

At the conclusion of the field investigation, a laboratory treatability testing program will be initiated. The laboratory program would include developing various mixtures of soil and amendments. Each amendment will be mixed with collected soil samples at various percentages by weight. The results of the 2015 treatability testing will be used to refine the amendment-soil mixtures for the proposed testing. It is anticipated that the treatability testing may include the following amendments:

- Portland cement
- Lime kiln dust
- Quick lime
- Blast furnace slag

It is anticipated that the following laboratory testing will be performed on the amendment-soil mixtures:

- Unconfined Compressive Strength – ASTM D2166
- Permeability – ASTM D2434
- Synthetic Precipitation Leaching Procedure – US EPA Method 1312

Sincerely,
AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE

Richard Egan
Senior Geotechnical Engineer

Attachments

ATTACHMENT 1

TEST PIT LOCATION PLAN

Existing Test Pit

Proposed Test Pit

TP-2
Depth 7ft
Water 5.5 ft
sheen noted

TP-5
Depth 6ft
Water 5.5 ft
heavy sheen

TP-9

TP-4
Depth 5ft
Water 2 ft
odor

TP-11

TP-6
Depth >3 ft
Water 2.8 ft
odor/sheen

TP-1
Depth 10.5 ft
Water 6.5 ft
paint waste

TP-14

TP-7

TP-8

TP-3
Depth 6.5ft
Water 5.5 ft
free product

TP-12

TP-13

TP-10

GORHAM STREET
WINONA STREET
BRADFORD STREET
ELK STREET
PRENATT STREET
BABCOCK STREET
PARCEL #4
PARCEL #5
BABCOCK STREET PROPERTIES AREA
TANK FARM AREA
NORTHEAST PROCESS AND STORAGE AREA
ADMINISTRATIVE OFFICES AND OPERATIONS AREA
CENTRAL TAIL AND PROCESS AREA
SOME PETROLEUM IMPACTED SOIL
OIL AT 3.5'

LEGEND

- EXISTING TANK
- EXISTING STRUCTURE
- CURRENT PROPERTY LINE (BASED ON DENLUCK–O'NEILL ENGINEERING AND SURVEYING, DEC. 15, 1988; AND NUSSBAUMER & CLARKE, INC. FEBRUARY 6, 1995)
- LIMITS OF PROPERTY FORMERLY OWNED BY EXXONMOBIL OIL CORPORATION
- GEOGRAPHIC AREA BOUNDARY AND/OR FORMER PROPERTY LINES
- CLAY PIPE REMOVED
- STEEL PIPE REMOVED
- CONDUIT PIPE REMOVED
- CAST IRON PIPE REMOVED
- CONCRETE PIPE REMOVED
- EXPLORATORY TRENCHES
- STEEL, HP WATER MAIN
- SLAB
- MW-35 LOCATION AND DESIGNATION OF MONITORING WELL COMPLETED DURING PREVIOUS INVESTIGATIONS
- SB-116 LOCATION AND DESIGNATION OF SOIL BORING COMPLETED DURING PREVIOUS INVESTIGATIONS
- TP-31 TEST PITS FOR DELINEATION OF LEAD OR EVALUATION OF PETROLEUM IMPACTED SOIL
- TP-10 TEST TRENCHES FOR EVALUATION OF PETROLEUM IMPACTED SOIL
- TT-83 DESIGNATION OF TEST TRENCH
- NON–PETROLEUM IMPACTED SOIL
- 1-4' PETROLEUM IMPACTED SOIL WITH OBSERVED DEPTH
- NOT OBSERVED DUE TO SURFACE WATER
- NOT OBSERVED DUE TO CONCRETE/ASPHALT OBSTRUCTION
- A LOCATION AND DESIGNATION OF PIPE REMOVAL SOIL SAMPLE (SEE BELOW FOR LIST OF SOIL SAMPLES)

SAMPLING LOCATIONS

A	BSPA–1–2–3/0	M	FRA 209/+60
B	BSPA–3/83	N	FRA 210/+0
C	FRA 12/+75	O	FRA 210/+60
D	FRA 20–29/+75	P	FRA 276–280/+145
E	FRA 54–69/+15	Q	FRA 309/+36
F	FRA 74–81/+25	R	FRA 365/+175
G	FRA 96/+75	S	FRA 400/+25
H	FRA 103/+130	T	NTYA 570/+0
I	FRA 137/+170	U	NPSA 1161–1163/+25
J	FRA 154/+25	V	NPSA 1161–1163/+75
K	FRA 171/+25	W	NPSA 1164–1167/+50
L	FRA 176 CONT./+125		

N

80' 0 80'

Title:
SUMMARY OF OBSERVATIONS DURING TEST TRENCHING FOR DELINEATION OF PETROLEUM IMPACTED SOIL

EXXONMOBIL FORMER BUFFALO TERMINAL, BUFFALO, NEW YORK

Prepared For:
EXXONMOBIL OIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: W.K.	Date: 28SEP12	PLATE
Prepared by: J.A.D.	Scale: AS SHOWN	7
Project Mgr: N.C.	Project: 0172.0052Y015	
File: 0172.0052Y441.15.DWG		

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