CRS —

ExxonMobil
Environmental Services Company
1001 Wampanoag Trail
Riverside, Rhode Island 02915

ExxonMobil

August 13, 2008

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

RE: EXXON MOBIL OIL CORPORATION
FORMER BUFFALO TERMINAL
625 ELK STREET
BUFFALO, NEW YORK
BROWNFIELD SITE #C915201
SOIL VAPOR SAMPLING PLAN – RESPONSE TO COMMENTS

Dear Mr. Staniszewski:

Attached, please find the response to NYSDEC comments dated July 22, 2008 regarding the Soil Vapor Sampling Plan for the above referenced site. We are prepared to begin field work upon your approval. We again would like to confirm approval for collecting the samples during the summer or early fall.

If there are any questions please call me at (401) 434-7356.

Sincerely,

J.A. Abel

Project Manager

Cc: Mr. Cameron O'Connor - NYSDOH

ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES INC

209 SHAFTER STREET
Islandia, New York 11749-5074 TEL 631-232-2600 FAX 631-232-9898

August 11, 2008

Mr. Joseph Abel
ExxonMobil Corporation
East Providence Terminal
1001 Wampanoag Trail
Riverside, Rhode Island 02915

Re: Response to NYSDEC/NYSDOH Emailed Comments Dated July 22, 2008
Regarding Soil Vapor Sampling Plan dated April 21, 2008 (Site # C915201) and
Associated Responses to Comments dated June 20, 2008
Former Buffalo Terminal, ExxonMobil Oil Corporation

Dear Mr. Joseph Abel:

Roux Associates, Inc. (Roux Associates), on behalf of ExxonMobil Oil Corporation (ExxonMobil), has prepared the following response to the comment contained in the New York State Department of Environmental Conservation (NYSDEC)/New York State Department of Health (NYSDOH) Comments on the Response to Comments (dated June 20, 2008) regarding the Soil Vapor Sampling Plan dated April 21, 2008 for the Former Buffalo Terminal (BCP Site #C915201). These comments were sent via email to ExxonMobil on July 22, 2008. The NYSDEC/NYSDOH comment is verbatim in italics followed by Roux Associates' response.

1. *Original Comment #2: The NYSDEC and DOH are concerned about the potential off-site migration of vapors from existing contamination in the northern portion of the FRA. Therefore, it will be necessary to quantify soil vapor concentrations in, or migrating from, this area. Your response indicates that groundwater is frequently less than 2-feet bgs in this area. Observed depth to groundwater in excavations completed this spring in the northern portion of the FRA was approximately 5 feet bgs in most excavations. Therefore, there may be times of the year, or areas within the northern portion of the FRA, that would permit acceptable conditions for soil vapor sampling.*

   Response to Comment # 1:
   In response to the NYSDEC/NYSDOH comment regarding the location of the soil vapor point along the northern property line, SV-8 has been moved west into the FRA. The new location selected is between test pit (TP-12A; the furthest one north in the FRA) and the property line. A revised Plate 1 showing the new location is attached. The soil vapor point will be constructed as shown on Figure 2 of the work plan, which is attached for reference. If groundwater levels are shallower than 2.5

feet below grade during installation, the soil vapor point will not be installed until water levels in the area are deeper.

We assume that following their review of this response, the NYSDEC and NYSDOH will provide approval to complete this work. We also need confirmation that NYSDEC and NYSDOH will approve completion of this work in the summer months.

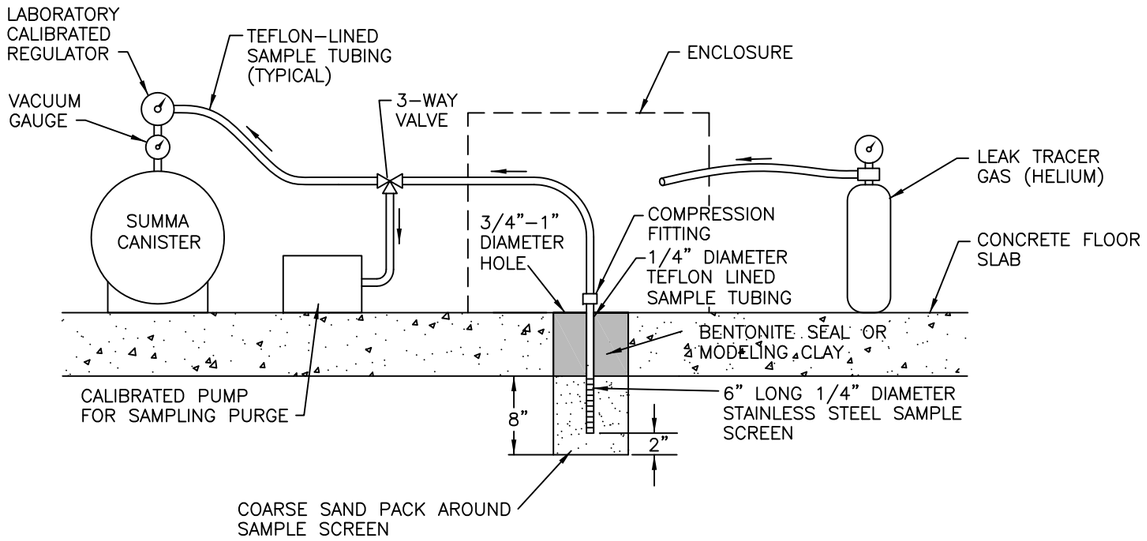
If you have any questions, please don't hesitate to contact us.

Sincerely,

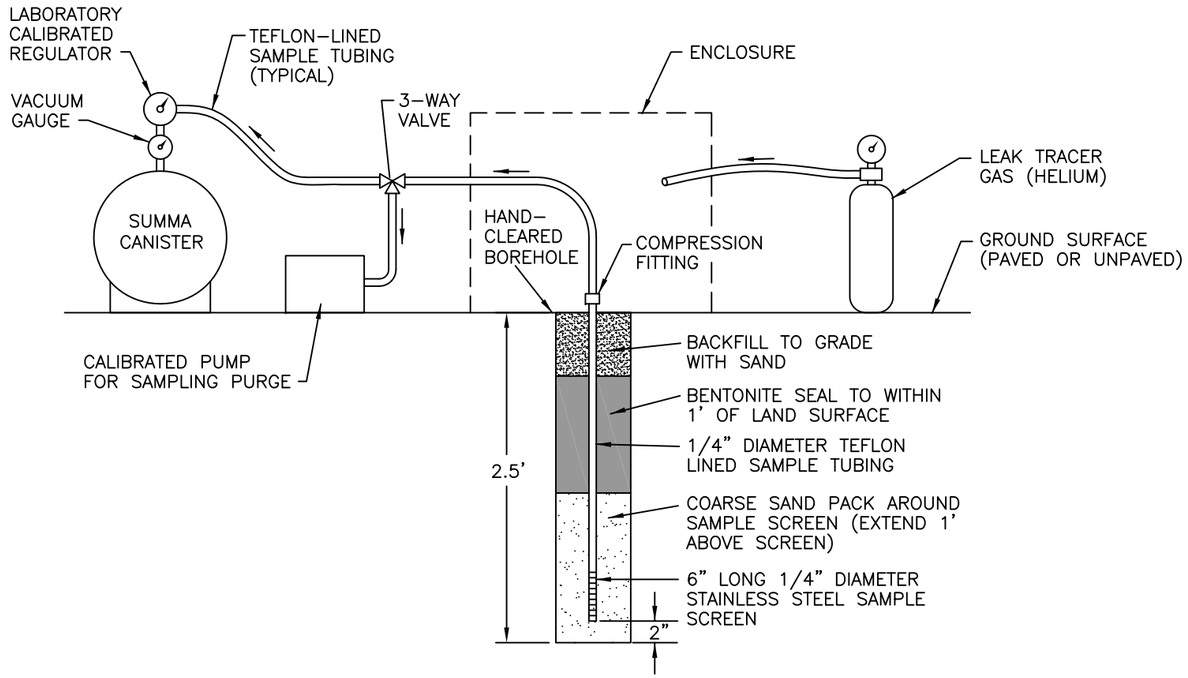
ROUX ASSOCIATES, INC.

Denise Kmetzo
Senior Scientist

Noelle M. Clarke, P.E.
Principal Engineer



TYPICAL TEMPORARY SUB–SLAB VAPOR MONITORING POINT FOR VOCs



TYPICAL TEMPORARY SOIL VAPOR MONITORING POINT FOR VOCs

Title:

TYPICAL TEMPORARY SUB-SLAB VAPOR AND SOIL VAPOR MONITORING POINT AND SAMPLING SCHEME FOR VOCs

Prepared For:

EXXONMOBIL OIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: N.C.	Date: 16APR08	FIGURE
Prepared by: G.M.	Scale: NTS	2
Project Mgr: N.C.	Office: NY	
File No: MC5236901	Project: 17252Y	

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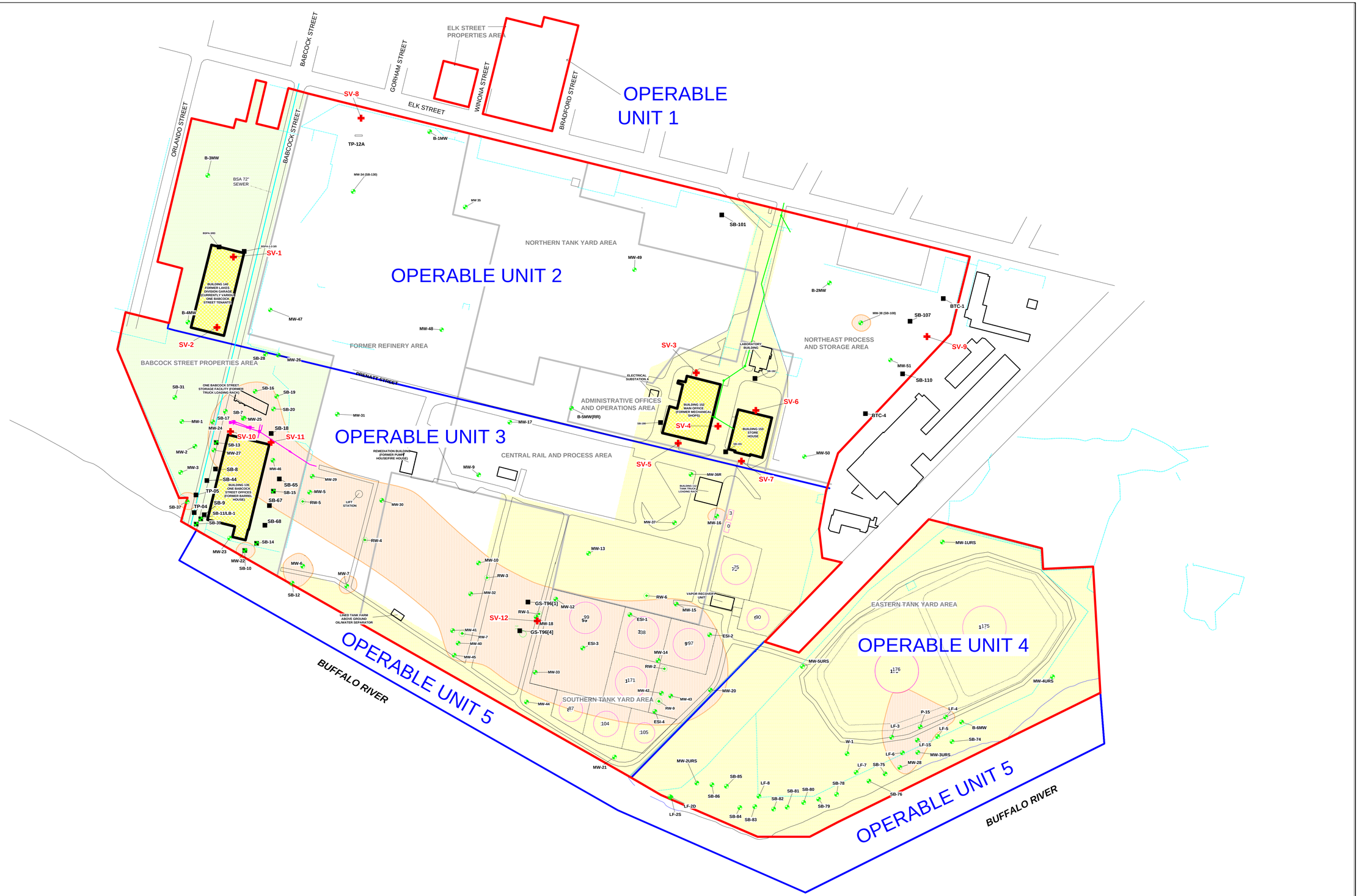

SOIL SAMPLE IN THE VICINITY OF PROPOSED VAPOR SAMPLE LOCATIONS

MONITORING WELL

SOIL VAPOR SAMPLE LOCATION

STORM SEWER PIPING (ONLY SELECTED PIPING IN THE BSPA SHOWN)

STORM SEWER CATCH BASIN (ONLY SELECTED CATCH BASINS IN THE BSPA SHOWN)

PROPERTY OWNED AND OPERATED BY ONE BABCOCK STREET, INC. SINCE 1994

PROPERTY OWNED AND OPERATED BY BUCKEYE TERMINALS, LLC AS OF MAY 4, 2005

NOTE: EXXONMOBIL OWNS ALL PROPERTY WITHIN THE BCP SITE BOUNDARY THAT IS NOT OWNED BY ONE BABCOCK STREET, INC OR BUCKEYE TERMINALS LLC.

BCP SITE BOUNDARY

OPERABLE UNIT BOUNDARY

GEOGRAPHIC AREA BOUNDARY

EXISTING STRUCTURE

EXISTING OCCUPIED BUILDING TO BE ASSESSED DURING SOIL VAPOR INVESTIGATION

HISTORICAL AND CURRENT SEPARATE-PHASE PRODUCT

EXISTING ROAD

ACTIVE ABOVE GROUND TANK BERMS

SANITARY SEWER SYSTEM

72" BUFFALO SEWER AUTHORITY (BSA) SEWER

FENCELINE

130' 0 130'

N

Title:

PROPOSED SOIL VAPOR SAMPLING LOCATIONS

Prepared For:

EXXONMOBIL OIL CORPORATION

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: NC	Date: APRIL 16, 2008	PLATE
Prepared by: NC	Scale: AS SHOWN	1
Project Mgr: NC	Office: NY	
File No: MC523690\R.WOR	Project: 17252Y10	

ExxonMobil
Environmental Services Company
1001 Wampanoag Trail
Riverside, Rhode Island 02915

CRS —

ExxonMobil

June 20, 2008

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

RE: EXXON MOBIL OIL CORPORATION
FORMER BUFFALO TERMINAL
625 ELK STREET
BUFFALO, NEW YORK
BROWNFIELD SITE #C915201
SOIL VAPOR SAMPLING PLAN
RESPONSE TO NYSDEC COMMENTS

Dear Mr. Staniszewski:

Attached, please find the "Response to NYSDEC Draft Comments Dated May 28, 2008" dated June 16, 2008 for the above referenced site.

If there are any questions please call me at (401) 434-7356.

Sincerely,

J.A. Abel

Project Manager

Cc: Buckeye Terminals LLC

One Babcock Terminals

Mr. Cameron O'Connor - NYSDOH Buffalo

ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES, INC.
209 SHAFTER STREET
Islandia, New York 11749-5074 TEL 631-232-2600 FAX 631-232-9898

June 16, 2008

Mr. Joseph Abel
ExxonMobil Corporation
East Providence Terminal
1001 Wampanoag Trail
Riverside, Rhode Island 02915

Re: Response to NYSDEC Draft Comments Dated May 28, 2008
Regarding Soil Vapor Sampling Plan dated April 21, 20098 (Site # C915201)
Former Buffalo Terminal, ExxonMobil Oil Corporation

Dear Mr. Abel:

Roux Associates, Inc. (Roux Associates), on behalf of ExxonMobil Oil Corporation (ExxonMobil), has prepared the following responses to the comments contained in the New York State Department of Environmental Conservation (NYSDEC)/New York State Department of Health (NYSDOH) May 28, 2008 Draft Comments on the Soil Vapor Sampling Plan dated April 21, 2008 for the Former Buffalo Terminal (BCP Site #C915201). These comments were sent via email to ExxonMobil on May 28, 2008. Each NYSDEC/NYSDOH comment is verbatim in italics followed by Roux Associates' response.

1. *The plan proposes to sample soil vapor adjacent to buildings 135, 152 and 153. Sub-slab soil vapor sampling is the preferred method of sampling existing buildings, unless conditions prevent such sampling (i.e. access issues, disturbing building activities, etc.). Please provide justification for not directly sampling the sub-slab of the above referenced buildings.*

   Response to Comment # 1:
   The occupied areas of the first floor of Building 135 are elevated above grade due to the former use of the building for loading/unloading of petroleum products through truck/rail loading bays. The configuration of the space beneath the first floor is not known due to lack of construction drawings for the building. Therefore, sampling beneath the slab of the first floor may not be appropriate (i.e., there could be a void space beneath the entire first floor). As such, vapor samples collected from the locations shown, which are above the separate-phase product plume, within asphalt areas, and at least 10 feet from the building, would provide an extremely conservative estimate for potential soil vapor impacts to the building.

   Regarding Buildings 152 and 153, there is little evidence of petroleum-related impact immediately surrounding the buildings based on existing data. Sampling in paved

areas at least 10 feet from the building will help to identify if there is more potential for impacts on one side of the buildings versus another due to potential preferential pathways associated with sewers or other utilities. Based upon the results of the exterior soil vapor sampling, the need to perform further sampling will be evaluated.

2. *One additional soil vapor sampling location should be positioned along the northern property boundary in the FRA adjacent to the cluster of sample locations that have elevated VOC concentrations.*

   Response to Comment # 2:
   We considered sampling in the area referenced during the development of the plan due to conditions observed during pipe removal and the concentrations in samples collected from this area. However, the depth to groundwater in the northern portion of the FRA is frequently less than two feet, which is too shallow to enable shallow soil vapor sampling.

   The majority of OU-2, including the portion of the FRA referenced by the NYSDEC, is currently unimproved (i.e., no buildings or pavement exist). If a future redevelopment scenario for OU-2 includes construction of buildings, vapor intrusion issues and potential mitigation measures will be required to be addressed as part of the Site Management Plan (SMP) or redevelopment plan.

3. *Sample points installed next to buildings with continuous (or nearly continuous) footings must be installed to a depth corresponding to the bottom of the footer. Do any buildings, where the sub-slab cannot be directly sampled, have footers? If yes, what depth is the bottom of the footer? Also, samples should not be collected immediately adjacent to any footer or edge of building to avoid a possible 'venting' situations caused by building backfill/drain tile.*

   Response to Comment # 3:
   ExxonMobil does not have as-built drawings of the existing site buildings to determine the depth of the footings. Buildings 152 and 153 are constructed as single story slab on grade structures and, therefore, footings are not expected to be substantial. Building 135 is a multi-story building which may have more substantial footings. However, as shown on Plate 1, the soil vapor samples will be collected at a distance greater than 10 feet away from the edge of any building to avoid the potential for venting situations associated with the footings.

4. *Soil vapor sampling locations requiring shutdown of the well point system for sampling should be sampled on the same day to minimize system shutdown.*

   Response to Comment # 4:
   We understand and acknowledge the concern related to operating the wellpoint system. However, it is also important to have static conditions during the soil vapor sampling. We will monitor the groundwater levels in wells near the well point

system to assess when the pumping influences are no longer evident and commence sampling as soon as practical thereafter. We will also monitor the Buffalo River for evidence of sheen during the period of when the well point system is not operating and will make every effort to limit the duration of the system downtime.

5. *1,2,4-trichlorobenzene was detected in monitoring wells B5MWR, MW-34, MW-48 and MW-50 during the September 2007 sampling event. Given the proximity of several of these wells to the buildings 152 and 153, very limited groundwater sampling for chlorinated solvents and the fact that chlorinated solvents were not sampled in site soils, soil vapor locations associated with the two referenced building should be sampled for 1, 2, 4-trichlorobenzene.*

   Response to Comment # 5:
   None of the wells listed above where 1,2,4-trichlorobenzene was detected are in very close proximity occupied site buildings. MW-48, which is more than 120 feet cross gradient to Building 153, is the closest of these wells to any occupied building. The other wells are between 280 and 620 feet way from any building. In addition, there are no subsurface conduits (i.e., pipelines) that run to the occupied buildings from the areas where the wells are located. Many chlorinated VOCs, including 1,2,4-trichlorobenzene, will be analyzed and reported as part of the TO-15 analysis. A list of parameters that will be reported for the TO-15 analysis is included in Attachment 1.

6. *The NYSDEC and NYSDOH will not accept estimated indoor air concentrations based on sub-slab results. If sub-slab concentrations are determined to be a potential concern regarding indoor air quality, then indoor air sampling will be required.*

   Response to Comment # 6:
   Upon receipt of the sampling results, we will discuss the results with NYSDOH/NYSDEC to determine the appropriate path forward.

If you have any questions, please don't hesitate to contact us.

Sincerely,

ROUX ASSOCIATES, INC.

Denise Kmetzo
Senior Scientist

Noelle M. Clarke, P.E.
Principal Engineer

ATTACHMENT 1

TO-15 Analyte List

TestAmerica Laboratories, Inc.

Date: 10-Apr-08

Test Code: TO15
Test Number: TO15
Test Name: Volatile Organics in Air
Matrix: Air **Units:** ppbv

METHOD DETECTION / REPORTING LIMITS

Updated: 02-Nov-05

Type	Analyte	MDL	PQL
A	1,1,1-Trichloroethane	0.157897	0.5
A	1,1,2,2-Tetrachloroethane	0.155495	0.5
A	1,1,2-Trichloroethane	0.149007	0.5
A	1,1-Dichloroethane	0.131749	0.5
A	1,1-Dichloroethene	0.167299	0.5
A	1,2,4-Trichlorobenzene	0.491623	2
A	1,2,4-Trimethylbenzene	0.139214	0.5
A	1,2-Dibromoethane	0.129408	0.5
A	1,2-Dichlorobenzene	0.17119	0.5
A	1,2-Dichloroethane	0.139045	0.5
A	1,2-Dichloropropane	0.165745	0.5
A	1,3,5-Trimethylbenzene	0.118596	0.5
A	1,3-Butadiene	0.14106	0.5
A	1,3-Dichlorobenzene	0.183267	0.5
A	1,4-Dichlorobenzene	0.1958	0.5
A	2,2,4-Trimethylpentane	0.121534	0.5
A	2-Butanone (MEK)	0.211507	1
A	2-Hexanone	0.121728	1
A	2-Propanol	0.111439	2
A	4-Ethyltoluene	0.12269	0.5
A	4-Methyl-2-pentanone	0.12628	1
A	Acetone	1.423103	5
A	Allyl chloride	0.116798	0.5
A	Benzene	0.119976	0.5
A	Benzyl chloride	0.308331	2
A	Bromodichloromethane	0.16617	0.5
A	Bromoethene(Vinyl Bromide)	0.147898	0.5
A	Bromoform	0.185436	0.5
A	Bromomethane	0.14156	0.5
A	Carbon disulfide	0.127945	0.5
A	Carbon tetrachloride	0.164749	0.5
A	Chlorobenzene	0.142553	0.5
A	Chloroethane	0.167018	0.5
A	Chloroform	0.135099	0.5
A	Chloromethane	0.193261	0.5
A	cis-1,2-Dichloroethene	0.127577	0.5
A	cis-1,3-Dichloropropene	0.13562	0.5
A	Cyclohexane	0.145169	0.5
A	Dibromochloromethane	0.150733	0.5
A	Dichlorodifluoromethane(F-12)	0.171876	0.5
A	Dichlorotetrafluoroethane(F-114)	0.163747	0.5
A	Ethyl Acetate	0.09602	0.5

TestAmerica Laboratories, Inc.

Date: 10-Apr-08

Test Code: TO15
Test Number: TO15
Test Name: Volatile Organics in Air
Matrix: Air **Units:** ppbv

METHOD DETECTION / REPORTING LIMITS

Updated: 04-Dec-03

Type	Analyte	MDL	PQL
A	Ethylbenzene	0.131392	0.5
A	Heptane	0.14678	0.5
A	Hexachlorobutadiene	0.198662	1
A	Hexane	0.115989	0.5
A	m&p-Xylene	0.259451	1
A	Methyl tert-butyl ether	0.122882	1
A	Methylene chloride	0.135099	0.5
A	o-Xylene	0.135099	0.5
A	Propene (Propylene)	0.160115	0.5
A	Styrene	0.13317	0.5
A	Tetrachloroethene	0.178587	0.5
A	Tetrahydrofuran	1.658205	2
A	Toluene	0.141726	0.5
A	trans-1,2-Dichloroethene	0.130854	0.5
A	trans-1,3-Dichloropropene	0.120368	0.5
A	Trichloroethene	0.153822	0.5
A	Trichlorofluoromethane(F-11)	0.17486	0.5
A	Trichlorotrifluoroethane(F-113)	0.159084	0.5
A	Vinyl acetate	0.105809	0.5
A	Vinyl chloride	0.149007	0.5
S	4-Bromofluorobenzene	0	0.5
X	1,4-Dioxane	2.282262	5
X	Pentane (See Qualifier T 2)	0	0
X	Total Volatile Hydrocarbons	0	4

ExxonMobil
Refining & Supply Company
Global Remediation
1001 Wampanoag Trail
Riverside, Rhode Island 02915

ExxonMobil
Refining & Supply

April 22, 2008

Mr. Martin Doster, P.E.
New York State Department of
Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203

RE: EXXON MOBIL OIL CORPORATION
FORMER BUFFALO TERMINAL
625 ELK STREET
BUFFALO, NEW YORK
BROWNFIELD SITE #C915201
OPERABLE UNITS 2 & 3
SOIL VAPOR SAMPLING PLAN

Dear Mr. Doster:

Attached please find the "Soil Vapor Sampling Plan" dated April 21, 2008 for Operable Units 2 and 3 for the above referenced site. The "CD" version of the report was mailed under separate cover.

If there are any questions please call me at (401) 434-7356.

Sincerely,

J.A. Abel
Project Manager

Cc: Mr. Gary Litwin – NYSDOH – Correspondence only
Ms. Maura C. Desmond – NYSDEC – Correspondence only
Mr. Cameron O'Connor - NYSDOH Buffalo
Buckeye Terminals LLC
One Babcock Terminal

April 21, 2008

SOIL VAPOR SAMPLING PLAN

ExxonMobil Former Buffalo Terminal
Buffalo, New York

Prepared for

EXXONMOBIL OIL CORPORATION
1001 Wampanoag Trail
Riverside, Rhode Island 02915

ROUX ASSOCIATES, INC.

Environmental Consulting & Management

ROUX

209 Shafter Street, Islandia, New York 11749 ♦ 631-232-2600

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(Continued)

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APPENDICES

PLATES

1.0 INTRODUCTION

Roux Associates, Inc. (Roux Associates), on behalf of ExxonMobil Oil Corporation (ExxonMobil), has prepared the following scope of work for soil vapor sampling within Operable Units 2 and 3 (OU-2 and OU-3) of the ExxonMobil former Buffalo Terminal, Buffalo, New York (Site; Figure 1). OU-2, located south of Elk Street and north of Prenatt Street as shown in Plate 1, has been the subject of recent investigations as documented in the Roux Associates and Remedial Engineering, P.C. report titled "Revised Alternatives Analysis Report for Operable Unit 2" (AAR) which was submitted to the New York State Department of Environmental Conservation (NYSDEC), dated October 5, 2007. In the AAR, ExxonMobil discussed the design-phase collection of soil vapor samples to evaluate the potential for soil vapor intrusion per the New York State Department of Health (NYSDOH) Soil Vapor Intrusion Guidance Document (NYSDOH, 2006). OU-3 was included within this work plan as one occupied building is present within OU-3. Investigations within OU-3 were completed in 2000 and 2001 and were summarized in the Babcock Street Properties Area (BSPA) Investigation Completion Report (Roux, 2001) and the Site Investigation Completion Report (Roux, 2002). This scope of work describes the proposed soil vapor sampling and analysis of the potential for soil vapor intrusion and is intended to address the following three goals:

- Evaluation of existing occupied buildings on Site;
- Evaluation of Site property boundaries; and
- Evaluation of the potential for vapor generation from areas of separate-phase product.

This work plan relates to four buildings associated with the former petroleum refinery and/or active petroleum storage and distribution operation that are currently occupied within the limits of OU-2 and OU-3. These are:

- the Buckeye Terminals, LLC (Buckeye) warehouse/garage/main terminal office in the Administrative Offices and Operations Area (AOOA) in OU-2 (identified on Plate 1 as Building 152 - Main Office [Former Mechanical Shops]);
- the building identified on Plate 1 as Building 153 - Store House in the AOOA in OU-2;
- the garages in the BSPA in OU-2 (identified on Plate 1 as Building 140 - One Babcock Street Tenants (One Babcock) [former Lakes Division Garage]); and,
- the One Babcock Street offices and warehouse (identified on Plate 1 as Building 135 – One Babcock Street Offices [former Barrel House]), located within the BSPA in OU-3.

Vehicles and equipment are stored and maintained in the garages in all buildings with the exception of Building 135, and activities include the use of petroleum products. In addition, portions of each of the buildings include office and/or storage space. Unoccupied buildings are not included in this work plan, and include the Laboratory Building, located within the AOOA, which is abandoned and locked, with no plans to reopen it, the Electrical Sub-Station A structure in the AOOA, which is not used for continuous occupancy and the One Babcock Street Storage Facility [former Truck Loading Rack], used for storage and which is not occupied on a regular basis.

To evaluate existing occupied buildings, ExxonMobil will collect multiple soil vapor and/or sub-slab vapor samples either beneath the slabs of the occupied buildings, or immediately adjacent to the buildings. Samples are being collected due to the presence of volatile petroleum constituents and/or mercury in soil and groundwater in the vicinity of occupied buildings and utility corridors and due to the presence of separate-phase product in OU-3.

In addition, several soil vapor samples will be collected along the BCP site boundary in areas where volatile petroleum constituents and/or mercury were detected in soil and groundwater during previous investigations.

Finally, soil vapor samples will be collected at two locations above the separate-phase product plume in OU-3 to evaluate the potential for generation of impacted soil vapor in separate-phase product areas.

Where possible, soil vapor points will be located underneath pavement or concrete.

Sampling will be conducted in accordance with the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006). The results of the soil vapor and sub-slab samples will be evaluated relative to typical background levels of volatile organic compounds (VOCs) in indoor air and Occupational Safety and Health Administration Permissible Exposure Limits (OSHA PELs) after applying a conservative sub-slab attenuation factor to convert these reference air values to sub-slab vapor concentrations protective of indoor air. ExxonMobil

proposes to collect soil vapor and/or sub-slab vapor samples and conduct the vapor intrusion evaluation during the spring season of 2008.

In order to address the environmental conditions at the Site, ExxonMobil entered into a Brownfield Site Cleanup Agreement with the New York State Department of Environmental Conservation (NYSDEC) on April 3, 2006. Under this agreement, the Site entered into New York State's Brownfield Cleanup Program (BCP). The Site is defined, for the purposes of the BCP, as the area within the limits of the five OUs. In addition, the Site was divided into nine geographic areas for the purpose of assessing environmental conditions and reporting the results of area-specific activities. These geographic areas were designated according to the historical primary operations that occurred in each portion of the Site. OU-2 encompasses portions of the former geographic areas designated as the northern portion of the BSPA and the AOOA, as well as the northern portion of the Former Refinery Area (FRA), Northern Tank Yard Area (NTYA), Northeast Process and Storage Area (NPSA), and a small northern portion of the Central Rail and Process Area (CRPA). OU-2 is depicted on Plate 1. OU-3 encompasses the southern portions of the BSPA, FRA and CRPA, as well as the entire STYA, as shown on Plate 1.

The operational portion of the Site south of Elk Street is currently a petroleum products storage and distribution facility owned and operated by Buckeye with the surrounding non-operating area (formerly part of historic operations) owned by ExxonMobil. The requirements and recommendations of the NYSDEC guidance document, Draft Brownfield Cleanup Program Guide (May 2004), were incorporated into the AAR in addition to the requirements and recommendations of the NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation (DER-10), dated December 25, 2002.

The AAR evaluated remedial alternatives to address soil and groundwater impacts due to former refinery and terminal operations on portions of OU-2. A separate AAR will be prepared to evaluate remedial alternatives to address soil, groundwater and separate-phase product impacts within OU-3. Currently, there is no redevelopment plan for OU-2 or OU-3. Current and reasonable future uses of the Site include vacant land, with a portion operating as a petroleum products storage and distribution terminal owned and operated by Buckeye and a portion (on the Babcock Street Properties Area (BSPA)) owned and operated One Babcock for various industrial

purposes. This work plan will guide further evaluation of soil vapor impacts based on current and reasonably anticipated future uses of the property.

In addition, the AAR provided a summary of the history of OU-2, including ownership, current zoning, current and future land use, past and present operations (i.e., buildings, tanks, etc), and spills or releases, and a summary of environmental conditions based upon the results of all investigations completed in OU-2. The historical information for OU-3 is provided in History of Operations at Buffalo Terminal (Roux Associates, 2000), the BSPA Investigation Completion Report (Roux, 2001) and the Site Investigation Completion Report (Roux Associates 2002). Information relevant to this work plan is discussed in further detail below.

2.0 SITE SETTING AND HISTORY

The historical information presented in this Section was obtained from the document entitled History of Operations at Buffalo Terminal (Roux Associates, 2000).

The Site refinery and terminal operations occurred south of Elk Street in an area of approximately 89 acres. The petroleum refining operations at the Site began in 1880. The majority of the Site was purchased by Standard Oil Company of New York (SOCONY), ExxonMobil's predecessor, in 1892. Throughout the Site's history, the areal extent of property owned by ExxonMobil changed as portions of the property were acquired or sold for various reasons. In May 1981, the Site terminated all refinery operations. The Site continued as an ExxonMobil distribution terminal, receiving product via a pipeline and barge until May 2005. In 1995, the BSPA was sold to One Babcock. The active petroleum products storage and distribution terminal portion of the Site was sold on May 4, 2005 and is now owned and operated by Buckeye. The area of Buckeye's active terminal is approximately 35.8 acres. The area within the current ExxonMobil property boundary is approximately 43.6 acres.

2.1 General History of the OU-2

The portions of six geographic areas associated with OU-2 (BSPA, FRA, NTYA, AOOA, NPSA, and CRPA) are located south of Elk Street and north of Prenatt Street and encompass approximately 39.1 acres. In OU-2, one occupied building considered in this work plan is located in the BSPA and two occupied buildings are located in the AOOA. There are currently no plans for future development in OU-2; therefore no evaluation of potential future buildings is included in this work plan. Relevant historical information in the geographic areas with occupied buildings (BSPA and AOOA) is discussed below.

2.1.1 BSPA within OU-2

In total, the BSPA encompasses approximately 11.1 acres. The BSPA within OU-2 encompasses approximately 4.3 acres. The northern portion of the BSPA is bounded by Elk Street to the north, Babcock Street to the east, Prenatt Street to the south, and Orlando Street to the west. The entire BSPA and associated structures were sold to One Babcock in 1994.

2.1.1.1 Current Structure in the BSPA within OU-2

The Lakes Division Garage was constructed on the northwest corner of Prenatt Street and Babcock Street between 1939 and 1951. The structure remains, and is occupied by commercial vehicle repair garages.

2.1.1.2 Spills/Releases in the BSPA within OU-2

One release was documented in the northern portion of the BSPA within OU-2. Historical evidence supporting the occurrence of the following release in this area is based on the knowledge of current and/or former ExxonMobil employees.

- The seals on the pumps located south of Tank 82 (in the FRA immediately adjacent to the Lakes Division Garage in the BSPA) would reportedly leak due to handling the heavy, heated petroleum products. When the seals would leak, the heavy product would drain to the ground surface. The quantities of product released and the timeframe during which these incidents occurred are not known.

2.1.2 AOOA within OU-2

The AOOA is centrally located within OU-2 and encompasses approximately 3.7 acres.

2.1.2.1 Current Occupied Structures in the AOOA within OU-2

Two buildings within the AOOA are currently occupied and in use:

- **Main Office/Mechanical Shop.** This structure was constructed at the former location of the Car Shop and the Wheel Shop/Blacksmith Shop/Machine Shop. The Mechanical Shop contained a garage for repairs and offices. The Mechanical Shop currently exists at the Site and is used as the Main Office.

- **Store House.** The Store House is located adjacent to and to the east of the Mechanical Shop. The structure currently exists at the Site and is used as a warehouse for storing miscellaneous equipment (e.g., snow plows). Located to the north were two storage sheds.

2.1.2.2 Waste Handling Areas (WHA) in the AOOA within OU-2

One storage tank was identified in the AOOA as a WHA from company records. The storage tank was designated as WHA-11 and is represented on Plate 1. This storage tank measured approximately 6 feet by 4 feet by 2 feet and was located adjacent to the Mechanical Shop. The tank was utilized to store waste oils and solvents generated from the maintenance and repair operations in the Mechanical Shop. A contractor was retained, as needed, for off-site

reclamation of the waste. According to company records dated 1994, the tank was moved to a wash bay.

2.1.2.3 Spills/Releases in the AOOA within OU-2

No significant spills have been documented to occur in this area. One small spill occurred April 24, 1991, when an exchanger from the boiler area was laid down and leaked oil onto a small puddle of rainwater. Less than 5 gallons of #6 fuel oil spilled. The released product was recovered with absorbents and a vacuum truck. To prevent further releases, the exchanger was drained.

2.2 General History of the OU-3

The portions of four geographic areas associated with OU-3 (BSPA, FRA, CRPA and STYA) are located south Prenatt Street and encompasses approximately 33.5 acres. One occupied building being considered in this work plan is located in the southern portion of the BSPA. Relevant historical information, including former and current structures in the geographic area with an occupied building (BSPA), is discussed below.

2.2.1 BSPA within OU-3

In total, the BSPA encompasses approximately 11.1 acres. The BSPA area within OU-3 encompasses approximately 6.8 acres. The southern portion of the BSPA is bounded by Prenatt Street to the north, the FRA to the east, the Buffalo River to the south, and PVS Chemicals Corporation to the west. The entire BSPA and associated structures were sold to One Babcock in 1994.

The original route of the Buffalo River bisected the southern portion of the BSPA. Between 1914 and 1917, the river was filled and rerouted to the south to form a relatively straight channel (Plate 1). The rerouting of the Buffalo River was intended to facilitate the navigation of ships and in turn, benefit industries along the river. The rerouted river line became the Site's southern boundary.

The portion of the BSPA located on the west side of Babcock Street and between Prenatt Street and the Buffalo River was leased by ExxonMobil from Allied Chemical from 1956 through

1974, at which time ExxonMobil purchased the property. This portion of the BSPA was primarily used for employee parking. Following the purchase of this property, ExxonMobil installed several catch basins and below grade piping for drainage of the parking area. These parking lot drains discharged to the Buffalo River through a single pipe located just west of the Buffalo Sewer Authority (BSA) sewer line.

2.2.1.1 Former and Current Structures in the BSPA within OU-3

Following the purchase of various sections of the BSPA by SOCONY, the southern portion of the BSPA, on the east side of Babcock Street, was utilized to house refinery-associated structures and storage tanks. Later, these areas were occupied by the Lakes Division, the marketing division of SOCONY, and used specifically for the distribution of petroleum products. Several storage tanks were formerly located in the southern portion of the BSPA. The following is a description of the only occupied building in OU-3.

One Babcock Street Offices (Former Barrel House). This 200 ft by 125 ft structure was constructed between 1917 and 1924 in the southeast portion of the BSPA. It is currently the only continuously occupied building in OU-3.

The first floor was utilized for storage. This structure was primarily used for the manufacture and containerization of lubricating oil. It contained up to 40 storage tanks with capacities ranging from 1,600 to 12,000 gallons on the second and third floors. Piping ran between the third and second floors and out through the east wall of the building. After exiting the building, the piping continued below grade and connected the tanks within the building to the storage tanks located at the eastern border of the BSPA. Two railroad tracks spurred southward between the Barrel House and the tanks to the east from the tracks that ran westward along Prenatt Street. The former Barrel House currently exists and is occupied by One Babcock Street and several of their tenants (identified on Plate 1 as Building 135 - One Babcock Street Offices (Former Barrel House). The northern portion of the building is used as office space, and the southern portion of the building functions as a warehouse. A gasoline shed was identified on the 1939 and 1951 maps at the southeast corner of the Barrel House. The purpose of the gasoline shed could not be determined from the available information.

2.2.1.2 Spills/Releases in the BSPA within OU-3

One release was documented in the southern portion of the BSPA within OU-3. Historical evidence supporting the occurrence of the following release in this area is based on the knowledge of current and/or former ExxonMobil employees.

- Repeated releases of mixed petroleum products have been documented at several of the catch basins located in the BSPA during heavy precipitation events. These events have been documented by ExxonMobil employees, as well as by the current occupants of the former Barrel House. During these events, two catch basins to the north (CB-69 and CB-70) and two catch basins to the east (CB-71 and CB-72) of the former Barrel House overflowed, causing a mixture of petroleum product and water to pool on paved and unpaved surfaces. The timeframe during which these incidents began is not known. Since August 29, 2000, when a water pump was installed in MH-4 (connected to the BSPA catch basins), there have been no overflows from these catch basins.

In addition to these releases, there have been several incidents where a sheen was observed on the Buffalo River in the area behind the former Barrel House, at the outfall location of the BSA Babcock Street Sewer and to the west of the BSPA along the bank of the River. These incidents are listed in the BSPA Investigation Completion Report (Roux, 2001) and will not be repeated here.

3.0 SUMMARY OF ENVIRONMENTAL CONDITIONS

Data regarding environmental conditions on OU-2 and OU-3 were obtained from a review of the results of previous investigations. This section includes a summary of the findings in close proximity to the subject buildings.

3.1 Previous Investigations

The following reports summarize all investigation data collected within OU-2:

- "BSPA Investigation Completion Report" dated June 5, 2001;
- "Site Investigation Completion Report" dated March 12, 2002, which provides a detailed presentation of investigation data for the OU-2 areas with the exception of BSPA; and
- Interim Pipe Removal Reports No. 1, No. 2 and No. 3, submitted in February 2005, February 2006, and January 2007, respectively, which provide additional soil sampling results collected during pipe removal efforts.

The results of these investigations for OU-2 are summarized in the AAR, and were reviewed for this work plan, relative to the Lakes Division Garage (Building 140), the two subject buildings in the AOOA (Buildings 152 and 153) and the northern and eastern Site boundaries. The results of these investigations for OU-3 relative to Building 135 - One Babcock Street Offices (former Barrel House) and relative to separate-phase product occurrence throughout OU-3, are discussed briefly below.

3.2 Results of Previous Investigations

The following sections provide a summary of the results of all investigations completed in proximity to active occupied buildings onsite or in proximity to proposed soil vapor samples along the Site boundaries or in separate phase product areas.

3.2.1 Geology in OU-2 and OU-3

The following is a general description of the geology of the entire Site with specific references to OU-2 and OU-3, as appropriate.

The Buffalo Terminal is located within the Erie-Ontario Lowland physiographic region of the Interior Plains Division. In general, the region is underlain by Silurian and Devonian age interbedded shales, siltstones, sandstones, limestones and dolomites, dipping approximately 0.50 degrees to the south.

Three unconsolidated deposits exist in OU-2 and OU-3. The first is a fill layer that consists of black cinders, silt, gravel, sand, slag, and varying amounts of concrete, brick, glass, and wood. The second unit, colored gray to brown, consists of alluvial deposits of silt (sandy silts to clayey silts), silts and clays, sands, sand and silt, and sand and gravel. This layer is present throughout OU-3 but is not continuous beneath OU-2. Underlying the alluvial layer is a gray to brown glacio-lacustrine clay. Fill directly overlies the clay in major portions of OU-2. Bedrock was not encountered in any of the wells installed to date. However, during a review of the Buffalo Sewer Authority's Babcock Street records, a 1917 Plan for the Babcock Street Sewer Extension shows test borings with a clay layer approximately 25 to 30 feet thick and extending approximately 40 to 50 feet below land surface to bedrock in the area adjacent to the west edge of the Site.

3.2.2 Hydrogeology in OU-2 and OU-3

The groundwater flow direction in OU-2 and OU-3 is generally southwest toward the Buffalo River. In OU-2, the depth to groundwater is generally shallow (2.5 to 8.5 feet below ground surface in the BSPA near Building 140 and 1 to 5 feet below ground surface in the AOOA near Buildings 152 and 153). Depth to groundwater in OU-3 in the vicinity of proposed vapor sampling points is deeper than in OU-2 and has ranged from approximately 9 to 19 feet below ground surface in the BSPA near Building 135 and to the east in the STYA. A more detailed description of the Site hydrogeology can be found in the previous investigation reports listed in Section 1.

3.2.3 Soil Quality in OU-2 and OU-3

In general, the soil quality in OU-2 and OU-3 has been impacted by former refinery and terminal activities. VOCs and semi-volatile organic compounds (SVOCs) are present in the soil at shallow and deep intervals across OU-2 and OU-3. Total petroleum hydrocarbons (TPH) and metals are also present throughout OU-2 and OU-3 at varying concentrations.

The AAR presents analytical results for VOCs, SVOCs, TPH, and metals, respectively, for the soil samples collected during all investigations on OU-2. Available data near the Lakes Division Garage (Buildings 140) in the BSPA, and Buildings 152 and 153 in the AOOA was reviewed to provide an indication of the environmental conditions in soil near the buildings that are part of

this vapor intrusion investigation. Only those soil borings in the immediate vicinity of the three occupied buildings in OU-2 and one occupied building in OU-3 are shown on Plate 1.

The BSPA Investigation Completion Report (Roux, 2001) presents analytical results for VOCs, SVOCs and metals for the soil samples collected during previous investigations completed in the BSPA, including around Building 135 – One Babcock Street Offices (former Barrel House). The Investigation Completion Report presents analytical results for VOCs, SVOCs, TPH and metals for the soil samples collected during investigation the of the remaining portion of OU-3. However, since no occupied buildings are present in OU-3, except in the BSPA, the results of the Investigation Completion will only be discussed relative to the proposed soil vapor sample location in the STYA.

3.2.3.1 Soil Quality in the Vicinity of Occupied Buildings in the BSPA

Two soil samples (BSPA-1-2-3/0 and BSPA-3/83) were collected from a depth of 2.5 feet, immediately north of Lakes Division Garage during pipe removal activities in the BSPA in June 2004. During excavation, product was noted in water and/or soil. In addition soil gas screening was conducted with photoionization detectors (PIDs). Maximum PID readings exceeded 10,000 parts per million (ppm) for total VOCs.

Total petroleum hydrocarbons – gasoline range organics (TPH-GRO) and total petroleum hydrocarbons – diesel range organics (TPH-DRO), as well as VOCs were detected in both of the soil samples collected next to the Lakes Division Garage in the BSPA area. In addition, mercury was detected at BSPA-1-2-3/0 at the highest concentration detected in OU-2 (309 ppm). No soil samples were collected along the east, south, or west sides of the building.

Numerous soil samples were collected in the vicinity of Building 140 – One Babcock Street Offices (former Barrel House), as summarized in the BSPA Investigation Completion Report (Roux, 2001). For the purposes of this soil vapor work plan, only VOC results for soil borings within approximately 50 feet of the building are discussed below.

Nine shallow soil samples (SB-8, SB-9, SB-10, SB-18, SB-44, SB-65, SB-67, SB-67 Dup, SB-68) were collected from depths in the range of zero to 2 feet below land surface within 50 feet of

the building. The soil boring locations are shown on Plate 1. The highest VOC concentrations were detected at SB-18 located approximately 30 feet to the north of the building and SB-67/SB-67 (DUP) located approximately 40 to the east of the centerline of the building. Mercury concentrations were low in shallow soils in the vicinity of Building 140.

Fifteen soil samples (SB-8, SB-9, SB-10, SB-11/LB-1, SB-13, SB-14, SB-15, SB-18, SB-39, SB-44, SB-65, SB-67, SB-68, TP-04 and TP-05) were collected from depths ranging from 9 to 20 feet below grade within 50 feet of the building. The soil boring locations are shown on Plate 1. The deeper samples were collected from the zone where the greatest PID reading was observed. If no PID readings were observed, the sample was collected from the soil/water interface. The highest total VOC concentration was observed at SB-13, which is located approximately 30 feet to the west of the northern end of Building 140 within the separate-phase product plume. Higher total VOC concentrations were also observed along the east side of Building 140 (SB-15 and SB-65). Mercury concentrations were low in deeper soils in the vicinity of Building 140.

3.2.3.2 Soil Quality in the Vicinity of Occupied Buildings in the AOOA

Soil samples were collected from three locations (SB-190, SB-191, and SB-192) in the vicinity of the buildings in the AOOA.

Two soil samples were collected from SB-190, located along the western wall of the Main Office (Building 152), approximately 50 feet from the southwest corner of the building. Samples were collected from 0.5 to 1 feet and one from 5 to 7 feet bgs in October 2001. TPH-DRO, TPH-GRO, and VOCs were detected in the 0.5 to 1 foot sample at relatively low levels. No TPH-DRO, TPH-GRO or VOCs were detected in the 5 to 7 foot sample. PID readings were 0.0 ppm at all depth intervals. Relatively low mercury concentrations were detected in both samples.

Two soil samples were collected from SB-191, located adjacent to the southwest corner of the Store House (Building 153). Samples were collected from 0 to 0.5 feet, and from 3 to 4 feet in October 2001. TPH-DRO, TPH-GRO, and VOCs were detected in both samples. PID readings were 0.0 ppm except at 3 to 4 feet below grade where a reading of 30 ppm was recorded. In addition, black staining and petroleum odor were observed at 3 to 4 feet below grade. Relatively low mercury concentrations were detected in both samples.

Two soil samples were collected from SB-192, located approximately 105 feet north of the Store House (Building 153) in October 2001. One sample, plus a duplicate, was collected from a depth of 1.5 to 2 feet. TPH-DRO, TPH-GRO and VOCs were detected in both of the 1.5 to 2 foot samples. A second sample was collected from a depth of 5 to 7 feet. Low levels of TPH-DRO and TPH-GRO were detected in the 5 to 7 foot sample, however, no VOCs were detected. PID readings were 0.0 ppm except at 1.5 to 2 feet below grade where a reading of 49 ppm was recorded. In addition, black staining and petroleum odor were observed at 1.5 to 2 feet below grade. Non-detect to relatively low detected concentrations of mercury were identified in samples from both depth intervals.

3.2.3.3 Soil Quality in the Vicinity the Proposed Soil Vapor Sample Location Along the Eastern Property Boundary

Soil samples from BTC-1, SB-107, SB-110 and BTC-4 were collected from between 20 feet (BTC-4) and 115 feet (SB-107) of the eastern property boundary in the vicinity of the location selected for soil vapor sampling, as shown on Plate 1. At BTC-1, two shallow soil samples were collected (zero to 2 feet below land surface). At BTC-4 samples were collected at zero to 0.5 and 2 to 4 feet below land surface. At SB-107, samples were collected from 2.5 to 3 feet, 7 to 9 and 13 to 15 feet below land surface. At SB-110, samples were collected from zero to 0.5 and 2 to 2.5 feet below land surface. Samples from all four borings were analyzed for VOCs, SVOCs and metals, while samples SB-107 and SB-110 were also analyzed for TPH-GRO and TPH-DRO. In shallow samples (zero to 2 feet below land surface), VOCs and TPH (where analyzed) were detected at all locations except BTC-1. Higher VOC concentrations in shallow soil were observed at BTC-4. In addition, mercury was detected at BTC-4 at zero to 0.5 feet below grade at one of the highest concentrations observed in OU-2 (9.3 ppm). Mercury concentrations in the other samples were relatively low.

VOCs and TPH (where analyzed) were detected in all samples at depths deeper than 2 feet below land surface. The highest VOC and TPH concentrations were observed at SB-107 beneath the water table (7 to 9 feet below grade). SB-107 had petroleum odor, black staining and sheen above and beneath the water table. PID readings above the water table were under 20 ppm and a high PID reading of 755 ppm was observed below the water table at 13 to 15 feet below land surface. Relatively high VOCs in soil were also observed in the 13 to 15 foot below land surface

interval. In addition, mercury was detected at SB-107 at 7 to 9 feet below grade at one of the highest concentrations observed in OU-2 (4.7 ppm). Mercury concentrations in the other samples were relatively low.

3.2.3.4 Soil Quality in the Vicinity the Soil Vapor Sample Along the Northern Property Boundary

Soil boring SB-101 was collected 60 feet from the northern property boundary in the general vicinity of the proposed soil vapor sample point along the northern boundary of OU-2 (165 feet west of the proposed location). In the shallow interval, VOCs and TPH were detected at relatively low levels. In the deeper interval (between 5 and 7 feet below land surface), VOCs and TPH were observed at higher levels than in the shallow interval. Mercury concentrations were relatively low.

3.2.3.5 Soil Quality in the Vicinity the Soil Vapor Samples for Evaluation of Potential Separate-Phase Product Areas

Soil quality in the vicinity of the proposed soil vapor sample to the north of Building 135 is discussed in Section 3.2.3.1.

Shallow soil borings GS-T96[1] and GS-T96[4] were collected approximately 60 feet to the northeast and southeast, respectively, from the proposed vapor sample point above the separate-phase product plume in the STYA adjacent to the line active aboveground tank farm. The samples collected at 1.5 to 2 feet indicated moderate total VOC concentrations. Deeper samples were not collected at these locations.

3.2.4 Groundwater Quality

The groundwater sampling results generally indicate lower concentrations of VOCs (SVOC results are not discussed as they are not pertinent to soil vapor issues) at the upgradient or northern edge of the Site within OU-2 and higher concentrations towards the south central area. Within OU-3, concentrations of VOCs are generally higher than observed in OU-2. Concentrations are variable across OU-3 with higher concentrations in the vicinity of the separate-phase product plume and the Tank Truck Loading Rack.

3.2.4.1 Groundwater Quality in the Vicinity of the Former Lakes Division Garage Building (140)

The following is a description of VOC results for wells that are located in the vicinity of Building 140 – Former Lakes Division Garage:

- B-4MW, is located adjacent to the southwest corner of the building about 250 feet from the locations of known soil contamination along the north side of the building. In the September 2007, no VOCs were detected in groundwater collected from this well. Historically, there have been infrequent detections of very low levels of VOCs in B-4MW.

- B-3MW is located approximately 210 feet to the northwest (generally upgradient) of the building. In the September 2007, no VOCs were detected in groundwater collected from this well. Historically, there have been infrequent detections of very low levels of VOCs in B-3MW.

- MW-34 is located in the FRA approximately 370 feet to the northeast (upgradient) of the building. In the September 2007 sampling event, very low levels of VOCs were detected in groundwater collected from this well. Historically, there have been infrequent detections of very low levels of VOCs in MW-34.

- MW-47 is located in the FRA approximately 110 feet to the east of the building (cross-gradient). In the September 2007 sampling round, very low levels of VOCs were detected in groundwater collected from this well.

3.2.4.2 Groundwater Quality in the Vicinity of the One Babcock Street Offices (Fomer Barrel House, Building 135)

Several wells in the vicinity of Building 135 are sampled on a regular basis. The following is a brief summary of VOC results from these wells. Occurrence of separate-phase product in individual wells is also noted where applicable, although product in general is discussed in Section 3.3.

- MW-31 is located upgradient of the building approximately 220 feet to the northeast. Low levels of VOCs have been detected in this well.

- MW-26 is located generally upgradient of the building approximately 270 feet to the north. Recently, no VOCs have been detected in this well. Historically, there have been infrequent detections of very low levels of VOCs in MW-26.

- SB-16 is located upgradient of the building approximately 140 feet to the north. It is located adjacent to the One Babcock Street Storage Facility (former Truck Loading Rack). Elevated VOCs have been observed in this well historically and recently. In addition, measurable separate-phase product had been observed occasionally, but not since April 2006.

- MW-24 is located cross-gradient to the building, approximately 60 feet to the northwest. This well is located just to the west of the BSA 72-inch sewer the extends from the Buffalo River to Elk Street. Elevated VOCs have been observed in this well historically and recently. In addition, measurable separate-phase product has been observed occasionally, but not since November 2002.

- MW-27 is located cross-gradient to the northern end of the building, approximately 30 feet to the west. This well is located just to the east of the BSA 72-inch sewer. Elevated VOC concentrations have been observed in this well historically. In addition, separate-phase product has been observed almost continually in this well since August 2000.

- SB-37 is located cross-gradient to the building approximately 70 feet to the west of the southern end of the building. This well is located just to the west of the BSA 72-inch sewer. Recently, no VOCs have been detected in this well. Historically, there have been infrequent detections of very low levels of VOCs in SB-37. In addition, measurable separate-phase product has been observed occasionally, but not since May 2005.

- SB-11/LB-1 is located 20 feet from the southwest corner of the building. Historically and recently generally low VOC concentrations have been observed in this well.

- MW-22 is located 30 feet from the southeast corner of the building. Historically and recently generally low VOC concentrations have been observed in this well. In addition, measurable separate-phase product has been observed occasionally, but not since May 2005.

3.2.4.3 Groundwater Quality in the Vicinity of the Main Office (Building 152) and the Store House (Building 153)

The following wells are located in the vicinity of Buildings 152 – Main Office and 153 – Store House:

- B-5MWRR is located cross-gradient of and approximately 300 feet west of the Main Office (Building 152) in the south central portion of OU-2 in the AOOA just north of the border with OU-3. Historically and during recent sampling events, the highest VOC concentrations in OU-2 have been observed in this well.

- The nearest upgradient wells to Buildings 152 and 153 are B-2MW (420 feet to the northeast) in the NPSA and MW-49 (450 feet to the northwest) in the NTYA. Both of these wells were sampled in September 2007 and all VOCs were non-detect.

- The nearest cross-gradient well to Building 153 is MW-50 (120 feet to the east) in the NPSA. This well was sampled in September 2007 and VOC concentrations were very low.

- The nearest downgradient well to Buildings 152 and 153 is MW-16, which is located in the CRPA, adjacent to the Tank Truck Loading Rack. Historically and during recent sampling events, MW-16 has consistently had some of the highest concentrations of VOCs observed in OU-3.

3.2.5 Separate-Phase Product

The following is a discussion of separate-phase product occurrence within OU-2 and OU-3 that that has the potential to impact soil vapor quality beneath the existing occupied buildings onsite through migration along preferential pathways. In addition, separate-phase product may generate methane in soil vapor, which will be assessed through implementation of this work plan. The limits of historical and current separate-phase product are shown on Plate 1.

Only one well in OU-2 has shown evidence of separate-phase product (MW-38 in the NPSA). Separate-phase product was also observed once in BTC-4, just after its installation in July 1998, at a thickness of 0.01 feet. Free phase product was not detected during any of the subsequent eight gauging rounds prior to the well being destroyed and is not considered to be an issue in this area.

In addition, MW-16, located in OU-3 in the vicinity of the Tank Truck Loading Rack, has shown evidence of separate-phase product. This well is the closest well to the subject buildings (Main Office [Former Mechanical Shops] and the Store House) to show evidence of separate-phase product. Although, it is located over 150 feet downgradient of the subject buildings, there are electrical/signal conduits that run from the Tank Truck Loading Rack to the Main Office (Former Mechanical Shops) and there are sewers in the area that could potentially act as a preferential pathway for vapor migration.

Although none of the monitoring wells in the vicinity of the Former Lakes Division Garage (Building 140) have shown evidence of separate-phase product, the western portion of the main product plume that is present in OU-3 begins approximately 200 feet southeast of the building. In addition, separate-phase product has been observed in the southern part of the BSPA along the 72-inch Buffalo Sewer Authority sewer that runs beneath Babcock Street from the Buffalo River to Elk Street. This sewer and associated bedding material could potentially act as a preferential pathway for vapor migration.

Separate-phase product exists throughout much of the southern portion of the Site in OU-3. Product extends from the west side of the Babcock Street sewer in the BSPA through the southern portion of the FRA and the southern portion of the STYA. The eastern limit of the

product plume in the STYA is approximately to the Erie-Lackawanna Railroad, which separates the STYA from the ETYA. Historically, there have been many wells in OU-3 in which separate-phase product was observed. The following is a brief summary of product occurrence in existing wells in the vicinity (within 100 feet) of Building 135 and the proposed soil vapor point in the STYA (VP-11).

Wells in the Vicinity of Building 135in the BSPA

- SB-37 is located approximately 70 feet to the west of the southern portion of Building 135 (on the west side of the BSA 72-inch sewer). Measurable product was only observed in this well from July 22, 2002 through September 26, 2002 and on May 24, 2005 at thicknesses ranging from 0.01 feet to 0.04 feet.

- MW-24 is located approximately 60 feet to the northwest of Building 135 (on the west side of the BSA 72-inch sewer). Measurable product was only observed in this well between June 17, 2002 and November 5, 2002 at a thicknesses ranging from 0.01 feet to 0.08 feet.

- MW-27 is located approximately 30 feet to the west of the northern portion of Building 135 just to the east of the BSA 72-inch sewer. Measurable product is consistently observed in this well at thicknesses ranging from 0.01 feet to 4.18 feet. As a note, the 4.18 feet of product was observed in August 2000 just after installation (in July 2000) and may have been an erroneous reading. The next highest product thickness was 1.3 feet, also in August 2000.

- SB-17 is located approximately 70 feet to the northwest of Building 135. Measurable product is consistently observed in this well at thicknesses ranging from 0.01 feet to 7.00 feet.

- MW-25 is located approximately 60 feet to the north of building 135. Measurable product was frequently detected in this well at thicknesses ranging from 0.01 to 3.38 feet. This well is no longer routinely gauged since June 2007.

- SB-20 is located approximately 105 feet to the north of Building 135. Measurable product has frequently been observed in this well at thicknesses ranging from 0.01 feet to 2.24 feet. As a note, the 2.24 feet of product was observed in August 1999 just after installation (in July 1999) and may have been an erroneous reading. The next highest product thickness was 0.61 feet, in December 1999.

- MW-46 is located approximately 20 feet to the east of the northern portion of Building 135. Measurable product has frequently been observed in this well at thicknesses ranging from 0.01 feet to 1.99 feet. An automated product-only recovery system has been installed in this well since November 1, 2004 to recover product.

- MW-22 is located approximately 30 feet to the south of Building 135. Measurable product has been observed infrequently in this well and not since May 24, 2005. Product thicknesses have ranged from 0.01 feet to 0.14 feet.

Wells in the Vicinity of Proposed Soil Vapor Point SV-12 in the STYA

- MW-18 is located approximately 13 feet to the north of proposed soil vapor point SV-12 in the STYA. Measurable product has consistently been observed in this well at thicknesses ranging from 0.01 to 2.87 feet. Analysis of separate-phase product samples from MW-18 indicated that the product was comprised of 55 percent gasoline range hydrocarbons and 35 percent diesel range hydrocarbons and 10 percent higher boiling point hydrocarbons.

- RW-1 is located approximately 22 feet to the north of proposed soil vapor point SV-12 in the STYA. Measurable product has consistently been observed in this well until the second half of 2007 at thicknesses ranging from 0.01 to 3.28 feet. RW-1 has a dual phase product recovery system installed to recover product. Analysis of separate-phase product samples from RW-1 indicated that the product was comprised of 60 percent gasoline range hydrocarbons and 30 percent diesel range hydrocarbons and 10 percent higher boiling point hydrocarbons.

- MW-12 is located approximately 85 feet to the north of proposed soil vapor point SV-12 in the STYA. Measurable product has consistently been observed in this well at thicknesses ranging from 0.01 to 4.21 feet. Analysis of separate-phase product samples from MW-12 indicated that the product was comprised of 10 percent gasoline range hydrocarbons and 60 percent diesel range hydrocarbons and 25 percent higher boiling point hydrocarbons.

4.0 EVALUATION OF SOIL VAPOR INTRUSION

Because volatile petroleum constituents have been detected in soil and groundwater in OU-2 and OU-3, and separate-phase product has been identified in Site wells, ExxonMobil will evaluate the potential for intrusion of Site-related constituents from the subsurface to the interior spaces for the three occupied buildings in OU-2 and the occupied building in OU-3. In addition, ExxonMobil will evaluate the potential for soil vapor near the separate-phase product plume and the Site property boundary. All samples will be analyzed for petroleum-related VOCs and methane. In addition, two samples will be analyzed for mercury, as described below. As described in Section 1, soil vapor sampling activities are proposed at four buildings associated with the former petroleum refinery and/or active petroleum storage and distribution operation are currently occupied within the limits of OU-2 and OU-3. These are:

- the One Babcock Street offices [former Barrel House], identified as Building 135, located within the BSPA;
- the garages in the BSPA (identified as Building 140 – Former Lakes Division Garage [One Babcock Street Tenants]);
- the Buckeye's warehouse/garage/main terminal office in the AOOA (identified as Building 152 - Main Office (Former Mechanical Shops)); and
- the building identified as Building 153 - Store House in the AOOA.

Because soil samples collected near the four occupied buildings have measured concentrations of volatiles as discussed in Section 3, and one occupied building in the BSPA is in the vicinity of a separate-phase product plume, ExxonMobil will collect multiple soil vapor and/or sub-slab vapor samples either beneath the slabs of the occupied buildings, or immediately adjacent to the buildings. The locations and depths of the samples are described below, by area. Plate 1 shows the locations of the proposed sub-slab and/or soil vapor samples. Figure 2 presents a schematic showing the cross-section of the sub-slab vapor and soil vapor sampling point installations. The rationale for the selected sampling points is described in detail below; a summary describing the rationale for sampling locations is provided in Table 1. In the event that these specific locations cannot be sampled, sub-slab or soil vapor samples will be relocated to a nearby location.

BSPA Vapor Samples in the Vicinity of Buildings 135 and 140

Soil samples collected from the BSPA near Building 135 identified petroleum impacts in shallow and deep soil. Soil samples collected near Building 140 identified petroleum and mercury impacts in at 2.5 feet below grade. The soil vapor samples will be collected from a shallow depth of 2 feet, approximately 1 foot deeper than the building slab of the slab-on-grade buildings to evaluate the potential for vapor intrusion into the buildings.

A well point system for groundwater remediation operates along the entire southern border of OU-3 adjacent to the bulkhead. The well point system depresses the water table and extracts groundwater by inducing a vacuum on the well points. In order to limit the potential effects of the vacuum generated by the well point system on the soil vapor samples in OU-3, the well point system will be temporarily shut down one day before and during the sampling event.

A discussion of the sampling locations for each building is described below. Plate 1 presents the locations of each sample. All samples will be analyzed for petroleum-related VOCs and methane. In addition, sample SV-1 will be analyzed for mercury.

Building 135

Separate product has been identified in the immediate vicinity of Building 135 - One Babcock Street Offices (former Barrel House). Separate-phase product thicknesses are generally higher in the vicinity of the northern portion of Building 135. In addition, the highest concentrations of VOCs in soil and groundwater were observed toward the northern end of the building and upgradient of the building. A storm sewer (potential preferential pathway) runs east-west approximately 30 feet north of the building. One soil vapor sample (SV-10) will be installed in asphalt between the One Babcock Street Offices and the sewer line near the northwest corner of the building. A second soil vapor sample (SV-11) will be installed in asphalt between the One Babcock Street Offices and the storm sewer line near the northeast corner of the building. These samples will be used to assess the potential for soil vapor intrusion into the occupied building, as well as the potential for generation of impacted soil vapor in separate-phase product areas (discussed further below).The northern portion of the building is occupied with offices. The southern portion of the building is used as warehouse space. Since separate-phase product has only been detected infrequently in isolated monitoring wells near the southern portion of the

building and since the southern end of the building is unoccupied, no soil vapor samples are proposed at the southern end of the building.

Building 140

The highest concentrations in soil and/or groundwater were in samples collected on the upgradient end of Building 140. As pipe removal activities were conducted just north of the building, and the most occupied garage is located at the northern end of the building, a sub-slab vapor sample (SV-1) will be collected within the occupied portion of Building 140. Utilities are located on the southern and eastern edges of the building and may present a preferential pathway of vapor migration. A second sub-slab vapor sample (SV-2) will be collected within the occupied office space located on the southeast end of the building. The southern sample, SV-2, is closest to the western end of OU-2; therefore, it was also selected to evaluate for the presence of subsurface vapor at the Site property boundary.

AOOA Vapor Samples in the Vicinity of Buildings 152 and 153

Soil samples collected from the AOOA near Buildings 152 and 153 identified petroleum impacts in shallow soils in the area. The shallow contamination is likely due to surface spills, instead of groundwater contamination, as deeper soils at the groundwater table are generally not contaminated. As groundwater is shallow and potential sources are likely related to surface spills, the soil vapor samples will be collected from a shallow depth of 2 feet, approximately 1 foot deeper than the building slab of the slab-on-grade buildings to evaluate the potential for vapor intrusion into the buildings. A discussion of the sampling locations for each building is described below. Plate 1 presents the locations of each sample. Samples will be analyzed for petroleum-related VOCs and methane.

Building 152

To characterize potential vapors in the vicinity of Building 152, and to identify any areas for future characterization, three soil vapor samples will be collected from paved areas around Building 152. One sample, (SV-3) will be collected from the paved area upgradient of the building near the storm sewer line, and will be spaced to provide representative distribution across this area. One soil vapor sample (SV-4) will be collected east of Building 152, in the paved area between this building and Building 153. In addition, one soil vapor sample (SV-5)

will be collected from a paved area at the downgradient edge of the building to characterize soil vapor on the southern side of the building. This sample will be located near the underground electrical/control conduit, which runs south from Building 152 to the Tank Truck Loading Rack (Building 112), in order to also characterize the potential preferential pathway along the underground utility that may be due to migration of vapors from separate-phase product and soil impacts in the vicinity of the loading rack.

Building 153

Two soil samples which were collected from SB-192, located approximately 100 feet north of the Store House (Building 153), identified petroleum constituents at a shallow depth, stained soils, and PID reading in excess of 100 ppm. As this area may have a source of volatile constituents and is located upgradient of the building, one soil vapor sample (SV-6) will be collected from a concrete area to the north of Building 153, downgradient of SB-192. In addition, one soil vapor sample (SV-7) will be collected from a paved area immediately downgradient of the building, to characterize the extent of any potential soil vapor contamination. This sample is located approximately 100 feet northeast of the Tank Truck Loading Rack (Building 112). This point is intended to characterize the extent of any potential soil vapor impacts that may be due to migration of vapors from separate-phase product and soil impacts in the vicinity of the loading rack. In addition, it is located approximately 50 feet to the east of soil boring SB-191 where VOC soil concentrations, black staining, petroleum odor and a PID reading of 30 ppm were observed at 3 to 4 feet below land surface.

OU-3 Characterization of the Potential for Soil Vapor Generation in Separate-Phase Product Areas

In addition, to characterizing potential for vapor intrusion into Building 135, SV-10 and SV-11 will also characterize soil vapor VOCs and methane related to the separate-phase product plume in OU-3. One additional sample (SV-12) will be collected in OU-3 for this purpose. Sample SV-12 will be collected above the main product plume in OU-3 in a paved road just to the west of the active lined aboveground tank farm in the STYA. The soil vapor samples will be collected from a shallow depth of 2 feet.

SV-12 is located in the vicinity of MW-18 and MW-12, which currently and historically have separate-phase product present, and RW-1, which historically has had product present. Analysis of separate-phase product samples from MW-18 and RW-1 indicated that the product was comprised of 55 to 60 percent gasoline range hydrocarbons and 30 to 35 percent diesel range hydrocarbons and 10 percent higher boiling point hydrocarbons. Analysis of separate-phase product samples from MW-12 indicated that the product was comprised of 10 percent gasoline range hydrocarbons and 65 percent diesel range hydrocarbons and 25 percent higher boiling point hydrocarbons. VOC results from shallow soil samples in the vicinity of the proposed sample location indicated moderate levels of VOCs. This sample will also assess soil vapor quality beneath the tank farm liner.

In order to limit the potential effects of the vacuum generated by the well point system on the soil vapor samples in OU-3, the well point system will be temporarily shut down one day before and during the sampling event.

Additional Boundary Soil Vapor Samples

As described above, sub-slab soil vapor sample SV-2 will be collected to understand soil vapor concentrations that may migrate to offsite areas to the west, as well as assessing potential soil vapor impacts to the occupied building. Two additional samples, SV-8 and SV-9, will be collected on the northern property boundary within the NYTA and northeastern property boundary, within the NPSA, respectively. The soil vapor samples will be collected from a shallow depth of 2 feet.

These samples will be collected to further understand the concentrations of soil vapor that may be present at the Site boundaries adjacent to offsite areas. Sample SV-8 will be collected from beneath a paved parking area adjacent to a sewer pipe that extends from OU-2 to beneath Elk Street to the north. The sewer could act as a preferential pathway for vapor migration. Soil borings that were located between 80 and 150 feet from the proposed location indicated relatively low VOC concentrations. SV-9 will be collected from an unpaved area just west of the OU-2 boundary and current ExxonMobil property line. No utilities are located in this area. SV-9 is located between soil boring SB-107 and the property line since SB-107 had the highest total VOC and TPH concentrations in the vicinity of and below the water table in this area of OU-2

and had one of the highest concentrations of mercury in OU-2. SV-9 will therefore be analyzed for petroleum-related VOCs, methane and mercury. SV-8 will be analyzed for petroleum-related VOCs and methane.

4.1 Overview of the Scope of Work

The Scope of Work for the sample collection and data evaluation is divided into the following tasks:

- Task 1 – Utility Clearance Activities;
- Task 2 – Sample Collection and Analysis; and
- Task 3 – Data Evaluation and Report Preparation.

Each task is described below:

4.1.1 Task 1 – Utility Clearance and Installation of Soil Vapor Sampling Points

Prior to any intrusive activities, the New York One Call center will be contacted to mark out all of the utilities in the study area. To ensure that no utilities are disrupted during the installation of the sampling points, a utility clearance will be completed by hand prior to installing the sample collection point. The building owner will also be questioned to provide information regarding the location of any potential utilities in the areas that are to be sampled.

Soil Vapor Sample Points

The soil vapor sample points will be installed to a depth of 2 to 2.5 feet, using hand tools. The sample point will be installed at least one foot above the water table. Approximately 2 inches of sand will be installed in the bottom of the borehole and a length of Teflon-lined sample tubing fitted with a six inch long stainless steel sample screen will be inserted into the borehole. The annular space will be backfilled with coarse sand to one foot above the sample tubing. Above the sand a bentonite seal will be installed in the annular space to within one foot of ground surface to secure the sample tubing in place and to seal the borehole to prevent infiltration of ambient air to the soil gas sample point. The borehole will then be backfilled with non-impacted native material or clean sand to grade. Figure 2 provides a schematic of the sampling set-up for VOCs and Figure 3 provides a schematic of the sampling setup for mercury. The end of the tubing protruding above the land surface will be sealed until the soil sampling begins. Following soil

vapor sample collection at each of the proposed locations, the sample tubing will be removed, the boring will be backfilled with clean sand and the asphalt will be patched.

Sub-Slab Vapor Sample Points

For indoor sub-slab samples, a 3/4-inch to 1-inch hole will be drilled through the concrete slab and a vacuum will be used to loosen and remove the material within the boring to a depth of eight inches below the slab. Upon reaching the target depth, two inches of coarse sand will be installed in the bottom of the borehole. A six inch long stainless steel sample screen attached to a length of Teflon-lined sample tubing will be extended to the bottom of the boring (the screened interval will be zero to six inches below the slab). The annular space will then be backfilled with coarse sand to the top of the sample screen. Above the sand a temporary bentonite or modeling clay seal will be installed in the annular space between the sample tubing and the slab penetration to secure the sample tubing in place and to seal the penetration through the slab to prevent migration of any potential vapors present beneath the slab into the building. Figure 2 provides a schematic of the sampling set-up for VOCs and Figure 3 provides a schematic of the sampling setup for mercury. Following sub-slab soil vapor sample collection at each of the proposed locations, the sample tubing will be removed, the boring will be backfilled with clean sand and the penetration through the slab will be patched and sealed with quick-drying hydraulic cement.

4.1.2 Task 2 – Sample Collection and Analysis

Soil vapor samples will be collected from the locations described earlier in Section 4. The following procedural steps will be followed during soil vapor sample collection:

1. For both VOC and mercury sampling new Teflon-lined tubing will be passed through a plastic container (i.e., bucket) and connected to a 'T' connector three-way valve assembly, with one end of the 'T' connector leading to a vacuum air purge pump and the other end leading to:

    a. a pre-evacuated six-liter summa canister with regulator calibrated to collect a sample over a 8-hour period for VOC sampling.

    b. the mercury sampling train including the mixed cellulose ester (MCE) pre-filter cartridge, solid sorbent tube (Hopcalite media) and pre-calibrated sample pump.

2. A tracer gas (i.e., helium) will then be used to enrich the atmosphere in the immediate vicinity of the sampling location (using an inverted bucket) where the sampling tubing intersects the ground surface in order to test the borehole seal and verify that ambient air

is not inadvertently drawn into the sample. The tracer gas is used to verify that ambient air does not dilute the soil vapor sample being collected.

3. The soil vapor sample tubing will be purged of approximately three volumes of the sample tubing using a vacuum pump set at a rate of approximately 0.2 liters per minute.

4. Both the purged air in the sample tubing and the helium-enriched area within the bucket will be screened for the tracer gas. The tracer gas will be measured utilizing a Gas Check 3000 meter, which measures the rate of helium leakage in milliliters per second. If the screening results indicate that the rate of helium detected in the sampling tubing is greater than 20 percent of the helium detected in the enriched area (i.e., within the bucket), the seals around the sampling equipment will have to be reset and the sample tubing purged again until the tracer gas is no longer detected at levels greater than 20 percent of the enriched concentration located directly above the borehole.

5. Following the purging and tracer gas verification steps, the air purge pump will be turned off, the valve leading to the air purge pump will be closed, and the soil vapor will be directed to the summa canister for VOC samples or mercury sample pump for mercury samples for sample collection. The summa canister regulator will restrict the sample collection rate to approximately 12.5 milliliters per minute (0.0125 liters per minute) to allow the sample to be collected over an 8-hour period. The mercury sample pump will be field calibrated (with the complete sampling train inline) for a flow rate of 210 milliliters per minute (0.21 liters per minute) to allow for a 100 liter sample to be collected over 8 hours. Note that the sample tube used for field calibrating the pump will be replaced with a new tube immediately prior to sampling.

6. Upon completion of sub-slab sample collection, each penetration through the slab will be patched with hydraulic cement to eliminate preferential pathways for potential soil vapor intrusion into the building. For soil vapor samples, the borehole will be filled with clean sand and the asphalt will be patched.

Outdoor ambient air samples will be collected concurrently with the sub-slab soil vapor sampling. Two duplicate samples for VOCs will be obtained during the sampling program by collecting two samples sequentially from the same sample point.

Each VOC sample will be collected in Summa canisters over an 8-hour period. Each VOC air sample will be collected using the sampling methods in accordance with the NYSDOH Draft Guidance. Each air/soil vapor sample will be analyzed for VOCs under a USEPA Method TO-15 list of analytes and methane by modified ASTM 1946 (modified method achieves a detection limit of 10 ppmv). In addition, soil vapor sample SV-1 will be collected with a sample train consisting of a solid sorbent tube with MCE pre-filter cartridge and analyzed for mercury by NIOSH method 6009. The use of the pre-filter will allow for analysis of only elemental mercury

vapor on the sorbent tube. The pre-filter will not be analyzed. Method-specific QA/QC protocols will be followed by the laboratory. Test America Laboratories of Nashville, Tennessee and Phoenix, Arizona will provide all laboratory services including the sampling containers and regulators. Test America is an Environmental Laboratory Approved Program (ELAP) certified laboratory. Laboratory data will to be reported in NYSDEC ASP Category B deliverables. In addition, a Data Usability Summary Report (DUSR) will be prepared for the vapor samples by a party independent from the laboratory performing the analysis in accordance with Appendix 2B of DER-10.

During sampling, weather conditions will be recorded (e.g., precipitation, indoor and outdoor temperature, and barometric pressure). In addition, any pertinent outdoor observations (e.g., odors, PID readings, and significant activities in the vicinity) will be recorded.

The field sampling team will maintain a sample log sheet summarizing the sample identification, date and time of sample collection, identity of samplers, sampling methods and devices utilized, vacuum of canisters before and after samples are collected, and sample analyses. The sample log sheet to be used is included as Appendix A.

4.1.3 Task 3 – Data Evaluation and Report Preparation

The results of the soil vapor and sub-slab samples will be evaluated relative to typical background levels of VOCs in indoor air and OSHA PELs after applying a conservative sub-slab attenuation factor to convert these reference air values to sub-slab vapor concentrations protective of indoor air. The report will include site diagrams showing all the sampling locations, data tables, and laboratory analytical reports.

4.2 Project schedule

Roux Associates estimates that the utility clearance activities and soil vapor sample collection point installation can be performed at a rate of 3 locations per day. Outdoor ambient air, and soil vapor sample collection will commence at the properties following the equilibrium period. The field activities described above will occur according to the following schedule:

- Sample collection, outdoor ambient air sample collection, and soil vapor sample collection at 12 locations – three business days;

- Laboratory analysis of sub-slab and soil vapor and ambient air samples (14-day turnaround time); and
- Evaluation of the analytical data and report preparation (45 business days).

Therefore, the total time to complete the field investigation activities, evaluate the resulting data, and prepare an investigation summary report is approximately thirteen weeks. Preliminary results including the laboratory analytical data, summary tables, and a brief cover letter will be provided one week following the receipt of the laboratory results. A final report including a thorough evaluation of the data will be submitted 45 business days following the laboratory analysis of the samples.

Respectfully Submitted,

ROUX ASSOCIATES, INC.

Denise Kmetzo

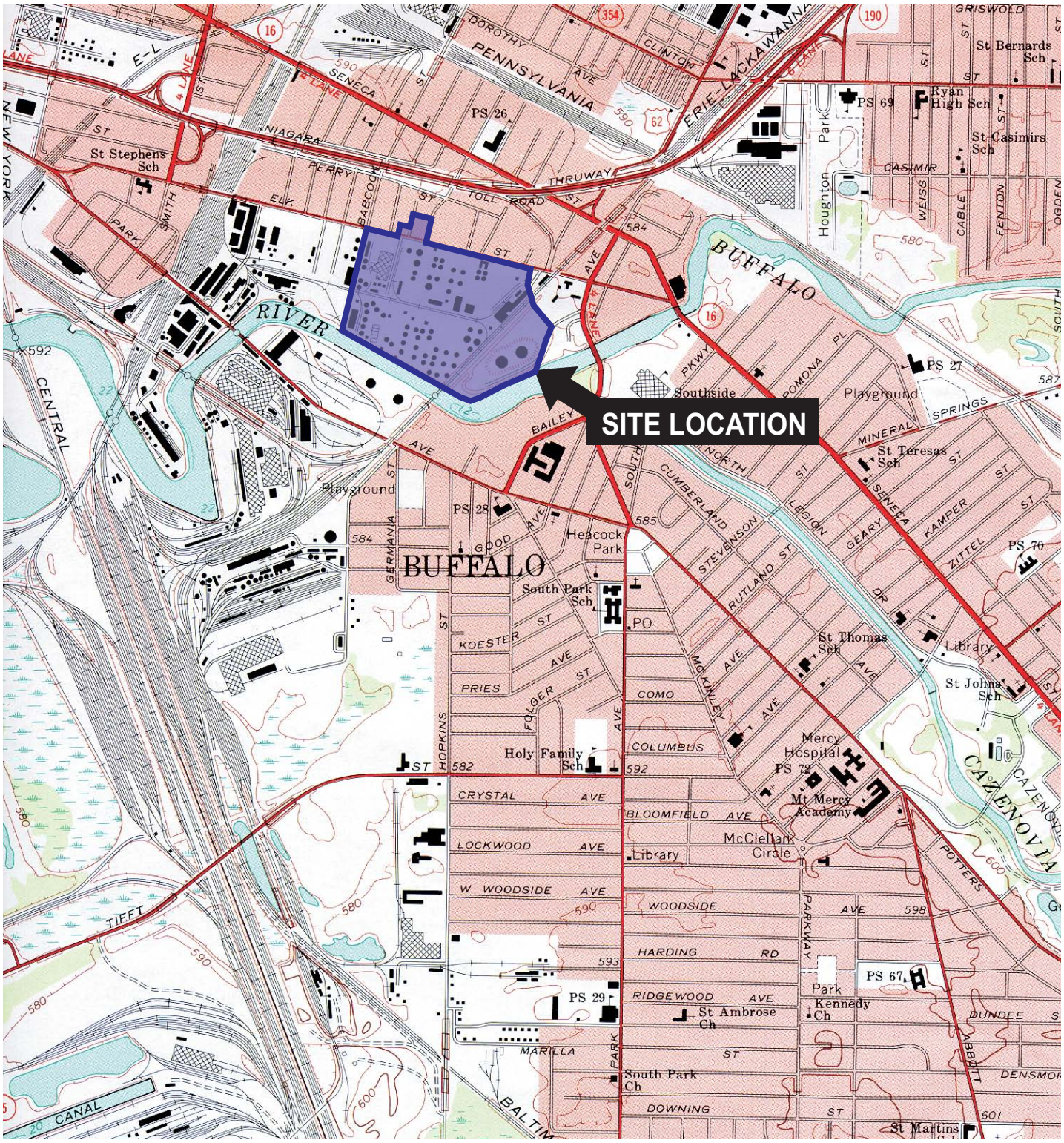
Denise Kmetzo
Senior Scientist

Noelle M. Clarke, P.E.
Principal Engineer

Enclosure

Table 1: Selection of Soil Vapor Sampling Locations, Former Buffalo Terminal,

Soil Vapor Location	Area of Assessment	Rationale for Location	Ground Cover	Estimated Depth of Probe (ft)[(1)]	Analysis
SV-1	Building 140	- Subslab point beneath the northern portion of the building. - Near area of highest VOC and mercury concentrations at BSPA-1-2-3/0 and BSPA-3/83. - Underneath the most occupied portion of the building.	Concrete slab	2	ASTM 1946, TO-15, mercury via NIOSH method 6009
SV-2	Building 140 /Western Site Boundary	- Subslab point beneath the southeastern portion of the building. - Adjacent to the 72-inch BSA sewer and north of the product plume in OU-3. - To assess the potential for vapor migration to offsite areas to the west.	Concrete slab	2	ASTM 1946 and TO-15
SV-3	Building 152	- North of the building. - Near storm sewer piping that could act as a preferential pathway for soil vapor.	Asphalt	2	ASTM 1946 and TO-15
SV-4	Building 152/153	- Located between the Buildings 152 and 153. - In vicinity of storm sewers that may be a preferential pathway from potential source areas to the south, including impacts in the vicinity of the Tank Truck Loading Rack.	Asphalt	2	ASTM 1946 and TO-15
SV-5	Building 152	- South of the building. - Near electrical and signal conduit that may be a preferential migration pathway from potential source areas to the south, including impacts in the vicinity of the Tank Truck Loading Rack.	Asphalt	2	ASTM 1946 and TO-15
SV-6	Building 153	- North of the building. - Located downgradient of soil sample SB-192 that indicated stained soils, PID readings exceeding 100 ppm and petroleum constituents at a shallow depth (0-2 feet below land surface).	Concrete	2	ASTM 1946 and TO-15
SV-7	Building 153	- South of the building. - Located approximately 50 feet to the east of soil boring SB-191 where VOC soil concentrations, black staining, petroleum odor and PID reading of 30 ppm were observed. - To characterize the extent of any potential soil vapor impacts due to migration of vapors from impacts in the vicinity of the Tank Truck Loading Rack.	Asphalt/concrete	2	ASTM 1946 and TO-15
SV-8	OU-2 Northern Boundary	- Located in the main entrance road to the Site in the AOOA in an area where VOCs were detected in soil. - In the vicinity of the sanitary sewer pipe that extends from Buildings 152 and 153 in OU-2 to Elk Street and could be a preferential pathway. - To assess the potential for vapor migration to offsite areas to the north.	Asphalt	2	ASTM 1946 and TO-15
SV-9	OU-2 Eastern Boundary	- Near eastern edge of OU-2/Site boundary in Northeast Process and Storage Area. - Between SB-107 and the Site boundary, which had petroleum odor, black staining and sheen above the water table and relatively high VOCs and TPH.'- Subslab point beneath the northern portion of the building. - Near area of highest VOC and mercury concentrations in OU-2 at BTC-4.	Soil	2	ASTM 1946, TO-15, mercury via NIOSH method 6009
SV-10	Building 135/OU-3 Product Plume	- Northwest corner of the Building. - Within area of product plume to evaluate the potential for vapor generation in product areas. - Near storm sewer piping.	Asphalt	2	ASTM 1946 and TO-15
SV-11	Building 135/OU-3 Product Plume	- Northeast corner of the Building. - Within area of product plume to evaluate the potential for vapor generation in product areas. - Near storm sewer piping.	Asphalt	2	ASTM 1946 and TO-15
SV-12	OU-3 Product Plume	- In central area of the separate phase plume near MW-18 which currently has separate-phase product present. - Adjacent to the lined active aboveground tank farm to assess potential soil vapor issues. - In area where separate phase product has a higher content of (more volatile) gasoline range hydrocarbons relative to diesel range hydrocarbons. - To evaluate the potential for vapor generation in product areas.	Asphalt	2	ASTM 1946 and TO-15



QUADRANGLE LOCATION

N

SOURCE:
USGS; 1965, Buffalo SE, New York
7.5 Minute Topographic Quadrangle

0 2000’

Title:

SITE LOCATION MAP

BUFFALO TERMINAL

Prepared for:

EXXONMOBIL OIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: N.C.		Date: 17APR08	FIGURE
Prepared by: G.M.		Scale: AS SHOWN	1
Project Mgr.: N.C.		Office: NY	
File No.: MC5236903.CDR		Project No.: 17252Y	

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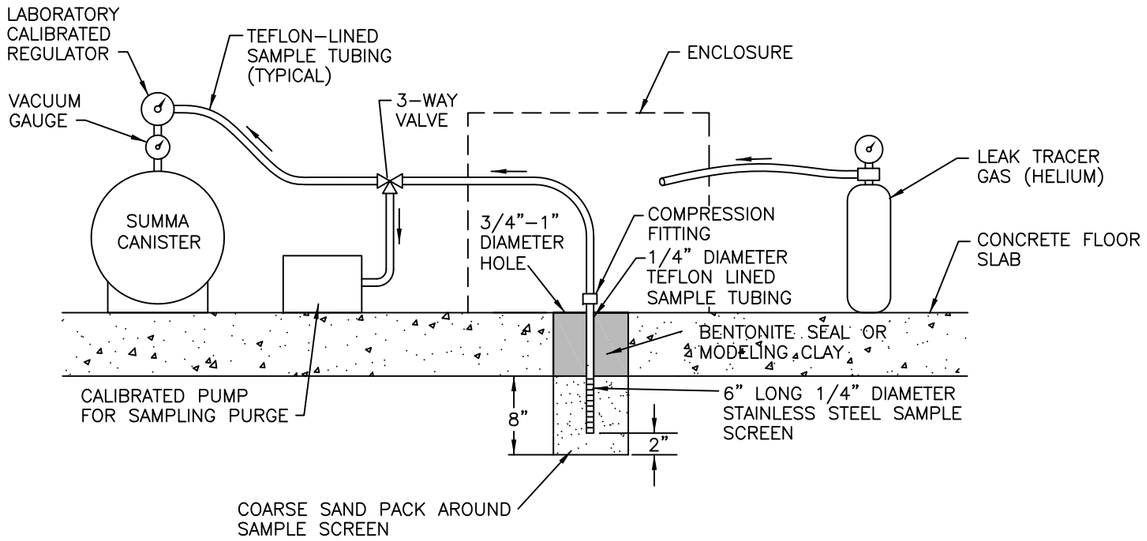
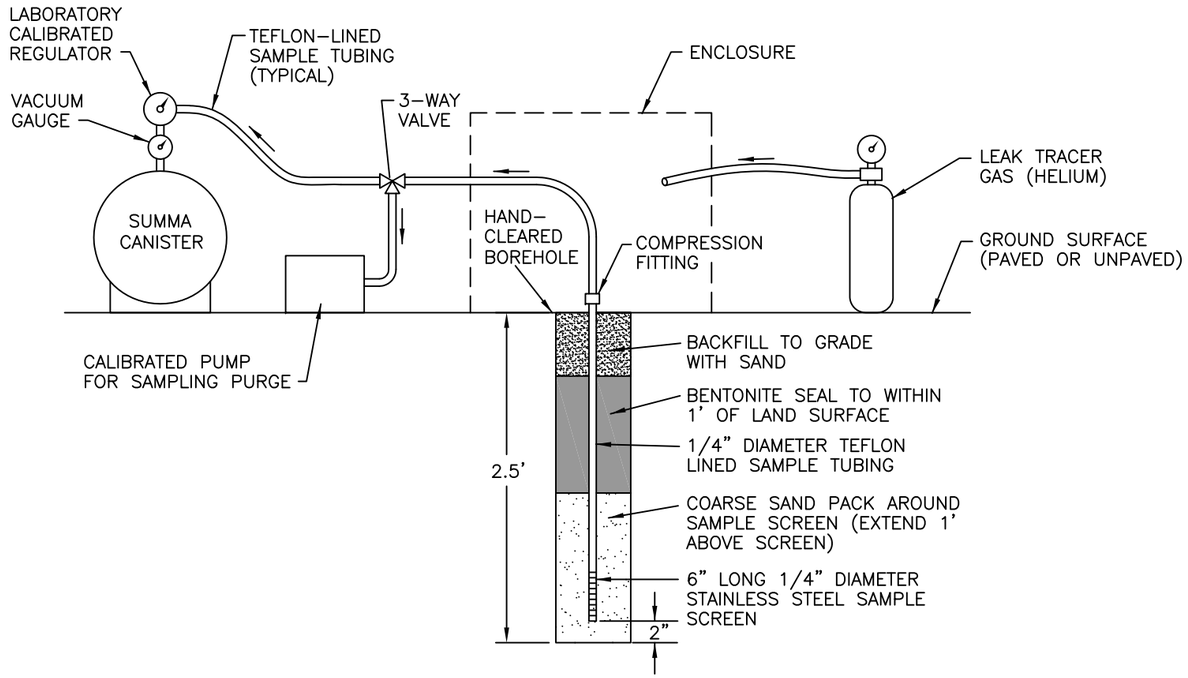


TYPICAL TEMPORARY SUB–SLAB VAPOR MONITORING POINT FOR VOCs



TYPICAL TEMPORARY SOIL VAPOR MONITORING POINT FOR VOCs

Title:

TYPICAL TEMPORARY SUB-SLAB VAPOR AND SOIL VAPOR MONITORING POINT AND SAMPLING SCHEME FOR VOCs

Prepared For:

EXXONMOBIL OIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: N.C.	Date: 16APR08	FIGURE
Prepared by: G.M.	Scale: NTS	2
Project Mgr: N.C.	Office: NY	
File No: MC5236901	Project: 17252Y	

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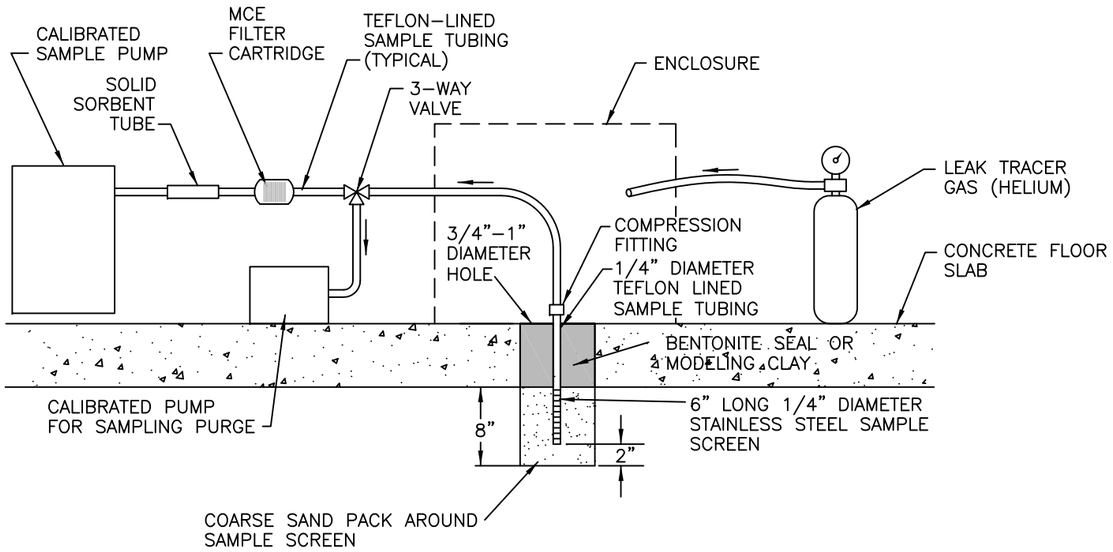
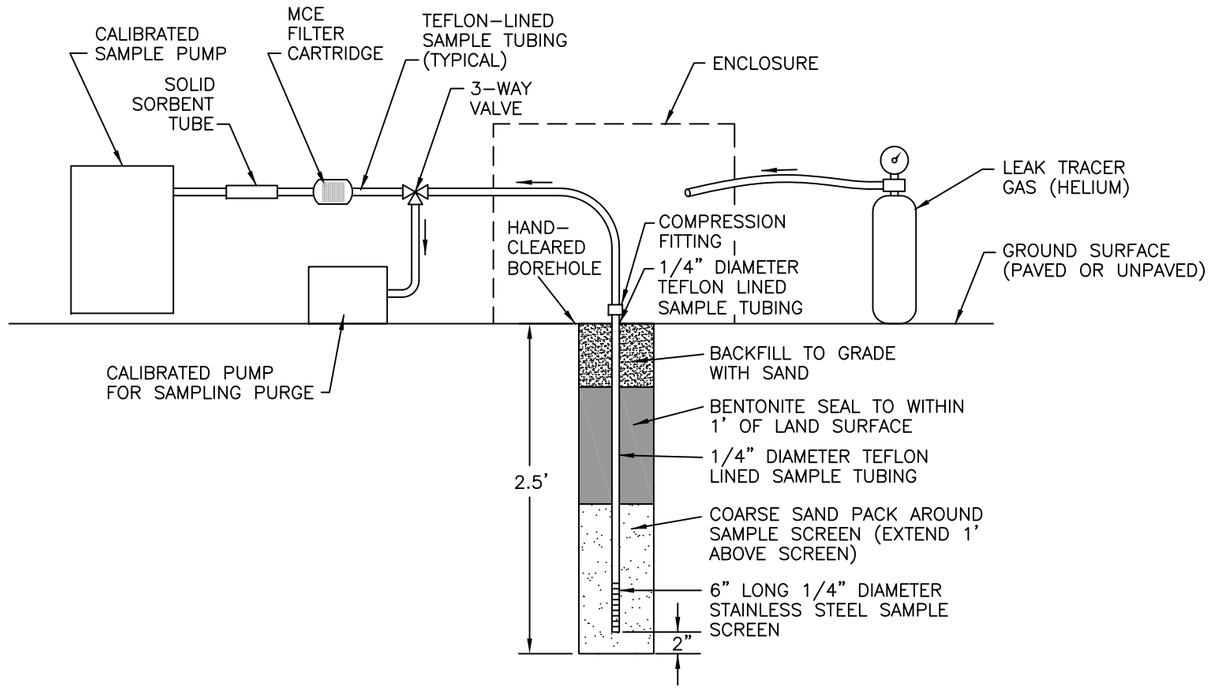


TYPICAL TEMPORARY SUB–SLAB VAPOR MONITORING POINT FOR MERCURY



TYPICAL TEMPORARY SOIL VAPOR MONITORING POINT FOR MERCURY

MCE – MIXED CELLULOSE ESTER

NOTE:

SAMPLE PUMP WILL BE FIELD CALIBRATED WITH THE COMPLETE SAMPLE TRAIN IN LINE BEFORE AND AFTER SAMPLING. SORBENT TUBE USED FOR FIELD CALIBRATION WILL BE REPLACED WITH A NEW TUBE IMMEDIATELY PRIOR TO SAMPLING.

Title:

TYPICAL TEMPORARY SUB-SLAB VAPOR AND SOIL VAPOR MONITORING POINT AND SAMPLING SCHEME FOR MERCURY

Prepared For:

EXXONMOBIL OIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: N.C.	Date: 16APR08	FIGURE
Prepared by: G.M.	Scale: NTS	3
Project Mgr: N.C.	Office: NY	
File No: MC5236902	Project: 17252Y	

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Appendix A

Soil Vapor Sampling Form
ExxonMobil Former Buffalo Terminal

Date: _____
Time: _____
Sampled By: _____
Sampling Identification #: _____
Summa Canister Identification #: _____
Flow Regulator ID # _____
Analysis _____

Weather (general description) : _____
Temperature: _____ Humidity: _____
Wind Magnitude: _____ Wind Direction: _____
Barometric Pressure: _____ Barometer Falling /Rising (circle one)

Site Condition (i.e. any adjacent facilities, vent pipes, tanks, etc. and what type of basements are present)

Sample Purge and Leak Tracer Test:
Calibrate the Helium detection meter

Purge Rate: _____ Must be less than 0.2 L/min
Purge Time: _____ note : Assuming 0.17" I.D. tubing purge 15 sec. for every 10 ft of tubing
Helium Rate at enclosure: _____
Helium Rate from sample tubing: _____ Is this rate <20% of the rate at the enclosure **Yes**

If the Helium readings have a greater ratio than 20% the seals should be rechecked and the tracer gas should be reapplied.

Sample Collection for VOCs:

Once the tracer gas screening procedures are completed and no short-circuiting is determined to be present at the location, the soil vapor sample can be collected in a lab certified clean summa canister at a rate less than 0.2 L/min.

Finishing pressure should be within 0.5 - 4 " of Hg

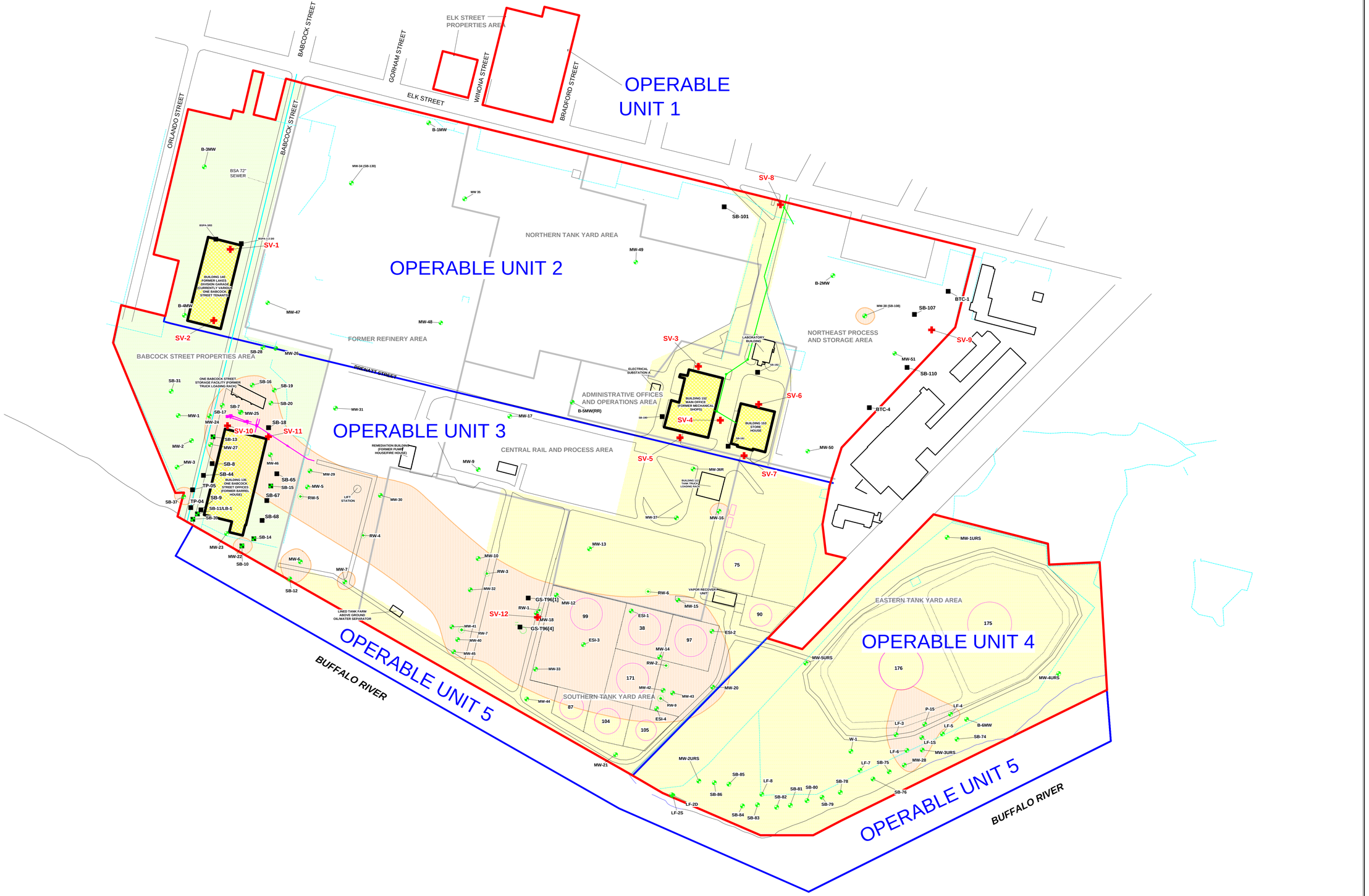
Starting Pressure: _____ in. of Hg
Starting Time: _____
Ending Time: _____
Ending Pressure: _____ in. of Hg

Sample Collection for Mercury:

Once the tracer gas screening procedures are completed and no short-circuiting is determined to be present at the location, the soil vapor sample can be collected with a sample train consisting of a calibrated sample pump, solid sorbent tube and MCE filter cartridge

Pump shall be field calibrated before and after sampling with the complete sample train in line to a flow rate of 210 ml/min (sorbent tube used for initial calibration must be replaced with a new tube immediately prior to sampling)

Pre-sampling pump flow rate: _____ ml/min
Starting Time: _____
Ending Time: _____
Post-sampling pump flow rate: _____ ml/min



- SOIL SAMPLE IN THE VICINITY OF PROPOSED VAPOR SAMPLE LOCATIONS
- MONITORING WELL
- SOIL VAPOR SAMPLE LOCATION
- STORM SEWER PIPING (ONLY SELECTED PIPING IN THE BSPA SHOWN)
- STORM SEWER CATCH BASIN (ONLY SELECTED CATCH BASINS IN THE BSPA SHOWN)

- PROPERTY OWNED AND OPERATED BY ONE BABCOCK STREET, INC. SINCE 1994
- PROPERTY OWNED AND OPERATED BY BUCKEYE TERMINALS, LLC AS OF MAY 4, 2005

NOTE: EXXONMOBIL OWNS ALL PROPERTY WITHIN THE BCP SITE BOUNDARY THAT IS NOT OWNED BY ONE BABCOCK STREET, INC OR BUCKEYE TERMINALS LLC.

- BCP SITE BOUNDARY
- OPERABLE UNIT BOUNDARY
- GEOGRAPHIC AREA BOUNDARY

- EXISTING STRUCTURE
- EXISTING OCCUPIED BUILDING TO BE ASSESSED DURING SOIL VAPOR INVESTIGATION
- HISTORICAL AND CURRENT SEPARATE-PHASE PRODUCT
- EXISTING ROAD
- ACTIVE ABOVE GROUND TANK BERMS
- SANITARY SEWER SYSTEM
- 72" BUFFALO SEWER AUTHORITY (BSA) SEWER
- FENCELINE

Title:

PROPOSED SOIL VAPOR SAMPLING LOCATIONS

Prepared For:

EXXONMOBIL OIL CORPORATION

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: NC	Date: APRIL 18, 2008	PLATE
Prepared by: NC	Scale: AS SHOWN	1
Project Mgr: NC	Office: NY	
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