Remedial Investigation/ Alternatives Analysis Report/ Interim Remedial Measures Report

Niagara Street and Pennsylvania Avenue Site
Buffalo, New York
BCP Site No. C915223

August 2009
Revised October 2009

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Prepared For:

1093 Group, LLC

Prepared By:

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REMEDIAL INVESTIGATION/ ALTERNATIVES ANALYSIS REPORT/ INTERIM REMEDIAL MEASURES REPORT

NIAGARA STREET and PENNSYLVANIA AVENUE SITE
BUFFALO, NEW YORK
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RI/AAR/IRM REPORT

Niagara Street and Pennsylvania Avenue Site

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1.0 INTRODUCTION

This Remedial Investigation/Alternatives Analysis Report/Interim Remedial Measures (RI/AAR/IRM) Report has been prepared on behalf of 1093 Group, LLC for the Niagara Street and Pennsylvania Avenue Site in the City of Buffalo, New York (see Figures 1 and 2).

1093 Group, LLC elected to pursue cleanup and redevelopment of the Site under the New York State Brownfield Cleanup Program (BCP), and executed a Brownfield Cleanup Agreement (BCA) in November 2008 (BCP No. C915223). The RI/AAR/IRM Work Plan was approved by the NYSDEC on November 18, 2008, and TurnKey provided engineering oversight of the RI/IRM activities at the Site between February and June 2009.

1.1 Purpose and Scope

This RI/AAR/IRM Report has been prepared on behalf of 1093 Group, LLC to describe and present the findings of the 2009 RI and IRM activities, and evaluate the IRM as the final remedial alternative for the Site.

This report contains the following sections:

- Section 2.0 summarizes the IRM activities
- Section 3.0 presents the approach for the soil and groundwater investigation
- Section 4.0 describes the physical characteristics of the Site as they pertain to the investigation findings
- Section 5.0 presents the investigation results by media
- Section 6.0 describes the fate and transport of the constituents of primary concern (COPCs)
- Section 7.0 presents the qualitative risk assessment
- Section 8.0. presents an evaluation of remedial alternatives for the Site
- Section 9.0 presents the RI/AAR/IRM summary and conclusions
- Section 10.0 provides a list of references for this report.

1.2 Background

1.2.1 Property and Site Description

The property located at 517 Niagara Street, in the City of Buffalo, New York (Erie County S.B.L. No. 110.27-5-1.1) is an approximate 0.25-acre parcel, located on the southeast corner of Niagara Street and Pennsylvania Avenue, and bordered by Reynolds Alley to the east (see Figures 1 and 2). The Site is currently vacant but was historically used as a retail gasoline station and automobile repair facility.

1.2.2 Previous Investigations

A summary of the investigations that have occurred at the Site are presented below.

1.2.2.1 June 2003 – Limited Subsurface Investigation

A Subsurface Investigation Report was completed by Construction Lending Services, Inc. in June 2003 (Ref. 1) to determine the presence/absence of potential subsurface contamination associated with the former Marranca's Service Station (i.e., 517 Niagara Street). Based on that study, soil borings along Niagara Street and Pennsylvania Avenue were impacted with volatile organic compounds (VOCs). The impact was based on visual and olfactory observations and elevated photoionization detector (PID) readings. No samples were submitted for chemical analysis at that time. Construction Lending Services, Inc. concluded that the Marranca's Service Station is the likely source of the contamination.

1.2.2.2 August 2007 – Phase I Environmental Site Assessment

A Phase I Environmental Site Assessment (ESA) Report was completed for the Site by TurnKey in August 2007 (Ref. 2). The Phase I ESA identified several environmental concerns due to the potential for chemical and/or petroleum product releases associated with historic use of the Site as a gasoline station and automotive repair shop. The Site included an abandoned gasoline station/automotive repair building, at least three abandoned underground storage tanks (USTs), several drums and other containers of automotive fluids and one in-ground hydraulic lift on the property.

1.3 Constituents of Primary Concern (COPCs)

Constituent of Primary Concern (COPCs) for the Site are petroleum-related volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and lead in soil and groundwater.

2.0 INTERIM REMEDIAL MEASURES (IRM)

An IRM was implemented at the Niagara Street and Pennsylvania Avenue Site concurrent with RI activities in accordance with the NYSDEC-approved RI/AAR/IRM Work Plan (Ref. 3). The Work Plan called for: UST system removal; in-ground hydraulic lift system removal; impacted soil source removal via excavation; off-site disposal or treatment of impacted soil; and, extraction and treatment of groundwater within the excavation. The lateral extent of the impacted area as shown on Figure 3 was excavated and disposed off-site per the approved Work Plan. Project photographs are included in Appendix A. Specific elements of the IRM, as implemented, included:

- Demolition of the former service station building and product dispenser canopy;
- Removal and recycling of approximately 80 tons of concrete by Iron City in Lackawanna, New York.
- Removal of five USTs, including: two 6,000-gallon steel gasoline USTs; one – 3,000-gallon steel gasoline UST; one 1,000-gallon steel gasoline UST; and, one 550-gallon steel waste oil UST. All associated dispensing units and underground product piping was removed.
- Prior to USTs removal, approximately 3,379 gallons of gasoline/water mixture was extracted from the USTs by NYETECH, Inc. and disposed of at Industrial Oil Corp, facility in Oriskany, New York. Approximately 437-gallons of used oil/water mixture was extracted by NYETECH, Inc., and disposed of at Norlite Corp, facility in Cohoes, New York. Approximately 50-gallons of wash water from the vacuum truck were disposed at Cycle Chem, Inc. in Lewisberry, PA.
- Excavation of approximately 2,938 tons of non-hazardous petroleum-impacted soil/fill followed by off-site transportation by Zoladz Construction for disposal at Modern Landfill in Model City, New York. The remedial excavation was approximately 12 ft in depth, with the lateral extents of the excavation shown on Figure 3.
- Excavation and disposal of an additional 1,098 tons of soil/fill with slightly elevated SVOCs (above commercial SCOs) across the southeast portion of the site (see Figure 3). That material was also transported off-Site and disposed of at Modern Landfill in Model City, New York.
- Collection of 15 post-excavation confirmation samples for analysis of NYSDEC STARS List VOCs, STARS List SVOCs, lead and tetra ethyl lead; post-excavation soil sample results were below 6NYCRR Part 375 Residential Soil Cleanup

Objectives (SCOs), with the minor exceptions noted in Table 1. All post-excavation soil sample results were below 6NYCRR Part 375 Commercial SCOs.

- Extraction and treatment using filter bags and granular activated carbon (GAC) of approximately 6,000-gallons of groundwater from the excavation during remediation activities. The treated water was discharged to the City of Buffalo Municipal Sewer with permission from the Buffalo Sewer Authority.
- Placement and compaction of approximately 5,402 tons of 2" crusher run stone backfill from the Buffalo Crushed Stone, Inc. quarry at 8615 Wehrle Drive in Lancaster, NY to the approximate pre-existing grade.

Although not a required component of the IRM, as a "best management practice", 1093 Group, LLC installed an Oxygen Release Compound (ORC) sock within MW-1 to further enhance bioremediation of residual VOCs and mitigate potential off-Site migration of contaminants. The Final Engineering Report, to be submitted as a separate document, includes additional details of the IRM. The Final Engineering Report is supplemented with a Site Management Plan.

3.0 INVESTIGATION APPROACH

The purpose of the April 2009 RI field activities was to more fully define the nature and extent of contamination on the BCP Site, and to collect data of sufficient quantity and quality to perform the remedial alternatives evaluation. On-site field activities included: surface soil sampling; soil boring and subsurface soil sampling; monitoring well installation; groundwater sampling of newly installed monitoring wells; and, collection of hydraulic data.

Field team personnel collected environmental samples in accordance with the rationale and protocols described in the Field Sampling Plan (FSP) presented in the Quality Assurance Project Plan (QAPP) submitted with the RI/AAR/IRM Work Plan. USEPA and NYSDEC-approved sample collection and handling techniques were used. Samples for chemical analysis were analyzed in accordance with USEPA SW-846 methodology with an equivalent Category B deliverable package to meet the definitive-level data requirements. Analytical results were evaluated by a third-party data validation expert in accordance with provisions described in the QAPP.

3.1 Field Investigation Activities

3.1.1 Soil/Fill Investigation

A soil/fill investigation was completed to supplement previous environmental data and to further delineate petroleum-impacts on-site.

Five soil borings, identified as B-3 through B-7, were advanced across the site using direct-push drilling techniques to investigate subsurface conditions (see Figure 3). Four of the boring locations were subsequently converted to monitoring well locations, and were designated MW-3 (B-3) through MW-6 (B-6). No macro cores were collected from MW-1 and MW-2, based on location within the backfilled IRM excavation area. Borings were advanced to a depth of approximately 18 fbgs. Soil/fill samples were collected from the soil borings, as described below, and field-screened for the presence of VOCs using a field photoionization detector (PID). No elevated PID reading above background levels (0.0 ppm), odors or other evidence of contamination were noted in any of the five boring locations. Subsurface soil/fill samples were collected for laboratory analysis from B-3/MW-3 and B-4/MW-4 for characterization purposes. Samples were not collected from the other

borings because there were no elevated PID readings nor were visual/olfactory impacts identified. Borehole logs are presented in Appendix B.

Based on the extent of the excavation during IRM activities, whereby the excavation was completed to the property boundaries along Niagara Street and Pennsylvania Avenue, and the excavation covers over 50% of the area of the BCP Site, an alternative RI sampling approach was proposed, discussed, and accepted by the NYSDEC. The alternative sampling approach called for analysis of seven samples collected from the excavation sidewalls and floors in lieu of collecting additional subsurface soil samples. Specifically, confirmatory sample locations F-2, F-3, F-5, SW-5, SW-7, SW-8 and SW-9 were used, in addition to the soil boring investigation, as proposed in the RI/AAR/IRM Work Plan.

Two surface soil samples (i.e. Surface-1 and Surface-2) were collected from 0.0 to 1.0 fbgs for site characterization purposes. Surface-1 was collected prior to removal of approximately one-foot of soil over the southeast portion of the site; Surface-2 was collected after soil removal in that area.

One off-site subsurface soil/fill sample was collected on July 1, 2009. Site redevelopment activities (i.e. installation of water line) allowed TurnKey to collect an off-site sample immediately adjacent to the property boundary along Niagara Street (see Figure 3).

3.1.2 Soil/Fill Sample Analyses

Soil/fill samples were collected using dedicated stainless steel sampling tools. Representative soil samples were placed in pre-cleaned laboratory provided sample bottles, cooled to 4ºC in the field, and transported under chain-of-custody command to Test America, located in Amherst, New York, a New York State Department of Health (NYSDOH) ELAP-certified analytical laboratory.

The subsurface soil/fill samples B-3 and B-4 were analyzed for Target Compound List (TCL) plus NYSDEC STARS List VOCs including MtBE, TCL SVOCs, and Target Analyte List (TAL) Metals. The subsurface soil/fill samples F-2, F-3, F-5, SW-5, SW-7, SW-8 and SW-9 were analyzed for TCL plus NYSDEC STARS List VOCs including MtBE, TCL SVOCs, and total lead and tetraethyl lead in accordance with the alternative sampling approach. Sample locations SW-5, SW-7, and B-4 were also analyzed for polychlorinated biphenyls (PCBs), herbicides and pesticides.

The surface soil sample Surface-1 was analyzed for TCL plus STARS VOCs, TCL SVOCs, TAL metals, and PCBs. Sample Surface-2 was analyzed for TCL SVOCs as the other sample parameters were below Part 375 Residential SCOs in Surface-1.

On July 1, 2009, an off-site subsurface (4-6 fbgs) sample was collected and analyzed for TCL plus STARS VOCs, TCL SVOCs, and lead.

All samples were collected and analyzed in accordance with USEPA SW-846 methodology with equivalent NYSDEC Category B deliverables to allow for independent third-party data usability assessment.

3.1.3 Groundwater Investigation

TurnKey personnel provided oversight for the installation of six new groundwater monitoring wells (i.e., MW-1 through MW-6) on April 3rd and April 6th, 2009 to investigate groundwater flow and quality. Figure 3 shows the locations of the monitoring wells. Monitoring well installation, well development, and groundwater sample collection are discussed in the following sections.

3.1.4 Monitoring Well Installation

Monitoring wells were installed in accordance with the approved RI/AAR/IRM Work Plan. Monitoring well construction details are presented on the Field Borehole Logs in Appendix B.

3.1.5 Groundwater Sample Collection

Newly installed monitoring wells were developed prior to sampling to remove residual sediments and ensure hydraulic connection within the water-bearing zone. A minimum of three well volumes were removed from each well. Prior to sample collection, static water levels were measured and recorded from all on-site monitoring wells. Following water level measurement, TurnKey personnel sampled monitoring wells using a peristaltic pump and dedicated pump tubing following low-flow/minimal drawdown purge and sample collection procedures. Field measurements for pH, specific conductance, temperature, turbidity, and water level as well as visual and olfactory field observations were periodically recorded and monitored for stabilization. Purging was considered complete when pH, specific conductivity, and temperature stabilized, and when turbidity measurements fell

below 50 Nephelometric Turbidity Units (NTU) or became stable above 50 NTU. Upon stabilization of field parameters, groundwater samples were collected.

Prior to and immediately following collection of groundwater samples, field measurements for pH, specific conductance, temperature, turbidity, dissolved oxygen, and water level as well as visual and olfactory field observations were recorded. All collected groundwater samples were placed in pre-cleaned, pre-preserved laboratory provided sample bottles, cooled to 4°C in the field, and transported under chain-of-custody command to Test America for analysis.

3.1.6 Groundwater Sample Analyses

Groundwater samples were collected from MW-1, MW-3, MW-4, MW-5, and MW-6. A groundwater sample was not collected from MW-2, as that well was dry at the time of sampling. Collected groundwater samples were analyzed for TCL plus NYSDEC STARS list VOCs including MtBE, TCL SVOCs, total lead, and tetraethyl lead. In addition, MW-3, MW-4, and MW-5 were analyzed for TAL Metals and PCBs. All samples were collected and analyzed in accordance with USEPA SW-846 methodology with equivalent NYSDEC Category B deliverables to allow for independent third-party data usability assessment.

3.1.7 Field Specific Quality Assurance/Quality Control Sampling

In addition to the soil/fill and groundwater samples described above, field-specific quality assurance/quality control (QA/QC) samples were collected and analyzed to ensure the reliability of the generated data as described in the QAPP and to support the required third-party data usability assessment effort. Site-specific QA/QC samples included matrix spikes, matrix spike duplicates, blind duplicates, and trip blanks.

3.2 Site Mapping

A Site map was developed during the RI field investigation. All sample points and relevant Site features were located on the map. TurnKey employed a Trimble GeoXT handheld GPS unit to identify the locations of all soil borings and newly installed wells relative to State planar grid coordinates. Monitoring well elevations were measured by TurnKey's surveyor. An isopotential map showing the general direction of groundwater flow was prepared based on water level measurements relative to USGS vertical datum (see Figure 4).

4.0 SITE PHYSICAL CHARACTERISTICS

The physical characteristics of the Site observed during the RI are described in the following sections.

4.1 Site Topography and Drainage

The Site is generally flat lying with limited distinguishable Site features. Precipitation (i.e., rain or melting snow) moves via surface flow to storm drains located along Niagara Street and Pennsylvania Avenue. Surface and shallow groundwater flow are likely impacted by various cycles of development and filling, as well as utility lines and foundations.

4.2 Geology and Hydrogeology

4.2.1 Overburden

The U.S. Department of Agriculture Soil Conservation Service soil survey map of Erie County (Ref. 4) describes the general soil type at the Site as urban land, indicating level to gently sloping land with at least 80 percent of the soil surface covered by asphalt, concrete, buildings, or other impervious structures typical of an urban environment. The presence of overburden fill material is widespread and common throughout the City of Buffalo.

The geology at the Site is generally described as fill materials overlying dense brown/reddish-brown silty clay. The fill materials consist of silt, sand, and gravel with varying amounts of brick fragments at depths ranging from 1.5 to 5 feet below ground surface (fbgs). Native materials consist of dense silty clay with varying amounts of sand and gravel to depths up to 18 fbgs.

4.2.2 Bedrock

Based on the bedrock geologic map of Erie County, the Site is situated over the Onondaga Formation of the Middle Devonian Series. The Onondaga Formation is comprised of a varying texture from coarse to very finely crystalline with a dark gray to tan color and chert and fossils within. The unit has an approximate thickness of 110 to 160 feet. Structurally, the bedrock formations strike in an east-west direction and exhibit a regional dip that approximates 40 feet per mile (3 to 5 degrees) toward the south and southwest. As a result of this dip, the older Onondaga limestone outcrops or subcrops north of the

Hamilton Group. An intersecting, orthogonal patter of fractures and joint sets are common throughout the bedrock strata. The surficial geomorphology of the bedrock strata was modified by period subaerial erosion and continental glaciation. Bedrock was not encountered during RI soil boring advancement.

4.2.3 Hydrogeology

Based on the groundwater gauging completed during the RI, localized groundwater flow was determined to be west based on the depth to water measurements. Groundwater was typically encountered between 7.5-8.5 fbgs during the soil boring investigation. Figure 4 depicts the groundwater isopotential map, and monitoring well and groundwater elevation data is shown on Table 4.

5.0 INVESTIGATION RESULTS BY MEDIA

The following sections discuss the analytical results of the Remedial Investigation. Tables 2 and 3 summarize the soil/fill and groundwater analytical data, respectively. Table 2 includes F-2, F-3, F-5, SW-5, SW-7, SW-8 and SW-9, which were post-excavation samples that were also used for RI soil characterization, per the approved alternative aampling program. Appendix C includes the laboratory analytical data packages. Sample locations are shown on Figure 3.

5.1 Soil/Fill

Table 2 presents a comparison of the detected soil/fill parameters to Restricted Use Soil Cleanup Objectives (SCOs) for protection of public health on residential and commercial properties per regulations contained in 6NYCRR Part 375-6 (December 2006). Although the Site is intended to be used for commercial purposes, evaluating a more restricted-use scenario is a requirement of the BCP; soil/fill analytical data compared to Part 375 Unrestricted SCOs is further discussed in Section 8.3.2. Sample results are described below according to contaminant class.

5.1.1 Volatile Organic Compounds

The majority of the analyzed VOCs were reported as non-detectable or at trace (estimated) concentrations below the sample quantitation limits. None of the sample results concentrations exceeded Part 375 Residential SCOs.

5.1.2 Semi-Volatile Organic Compounds

The majority of the samples analyzed had SVOCs reported as non-detectable or at trace (estimated) concentrations below the sample quantitation limit. All sample locations had SVOCs concentrations below Part 375 Commercial SCOs. Constituents detected slightly above the residential SCOs was limited to one polycyclic aromatic hydrocarbon (PAH) [i.e., dibenzo(a,h)anthracene] in sample SW-5. Based on the lack of elevated PID readings, visual and/or olfactory evidence of contamination, the elevated SVOC appears to be associated with urban background levels of SVOCs, which are common in the City of Buffalo.

Surface sample (Surface-1) analytical results detected several PAH constituents (i.e. benzo(a)pyrene, chrysene, benzo(b)flouranthene, benzo(k)flouranthene, benzo(a)pyrene,

indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene) above the residential SCOs. However, approximately 1,098 tons of soil/fill material was removed from the ground surface to approximately 1.0 fbgs in the southeast portion of the site in the area of Surface-1 to meet final Site design grades, and subsequently resampled (Surface-2) for TCL SVOCs. Surface-2 results indicate that benzo(b)flouranthene was slightly elevated above its Part 375 Residential SCO (i.e., 1.1 mg/kg over the its Part 375 Residential SCO of 1.0 mg/kg) . Surface-2 results for benzo(b)flouranthene were reported by the laboratory as an estimated value, and that the analysis revealed evidence of coelution, and the reported value was the summation of benzo(b)flouranthene and benzo(k)flouranthene.

5.1.3 Inorganic Compounds

None of the soil/fill samples exceeded the Part 375 Residential SCOs.

5.1.4 Pesticides, Herbicides and Polychlorinated Biphenyls

None of the soil/fill samples detected herbicides or pesticides above Part 375 Residential SCOs.

One sample (Surface-1) detected PCBs at trace (estimated) concentrations below the sample quantitation limit; however, none of the concentrations exceeded Part 375 Residential SCOs.

5.1.5 Summary

As described above, concentrations of VOCs, metals, pesticides, herbicides, and PCBs were below Part 375 Residential SCOs. Dibenzo(a.h)anthracene was detected at sample location SW-5, and benzo(b)flouranthene was detected at sample location Surface-2, at concentrations slightly above their respective Part 375 Residential SCOs. PAHs tend to be ubiquitous in the environment, as they are produced from incomplete combustion of fossil fuels and other organic fuel sources, and are commonly found in urban environments, including the City of Buffalo.

5.2 Groundwater

Table 3 presents a comparison of the detected groundwater parameters to the Class GA Groundwater Quality Standards (GWQS) per NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and

Guidance Values and Groundwater Effluent Limitations (June 1988). The sampling results for monitoring wells MW-1, and MW-3 through MW-6 are discussed in the following sections. No sample results are available from MW-2, as the well was dry during the sampling event.

5.2.1 Volatile Organic Compounds

Several VOCs were detected in monitoring well MW-1, and benzene was detected at concentrations slightly above GWQS in the samples collected from monitoring wells MW-5 and MW-6 (see Table 3). Monitoring well MW-1 is the hydraulically down-gradient well located in the west/northwest corner of the IRM excavation, immediately adjacent to the Niagara Street and Pennsylvania Avenue property boundaries. No VOCs were detected above GWQS in MW-3 or MW-4, which are the hydraulically up-gradient wells. Based on the groundwater data, the extent of VOCs above GWQS on-Site appears to be limited to the western approximate half of the Site.

5.2.2 Semi-Volatile Organic Compounds

Only one SVOC, phenol, was detected above GWQS in monitoring well MW-1.

5.2.3 Inorganic Compounds

Metals detected at concentrations above GWQS were limited to naturally-occurring minerals, including iron, magnesium, manganese, and sodium.

5.2.4 Polychlorinated Biphenyls

All of the analyzed PCB Aroclors were reported as non-detectable in each of the wells sampled.

5.2.5 Summary

As described above and shown on Table 3, the concentrations of several VOCs were detected above GWQS in monitoring wells MW-1, which is the down-gradient well on-Site. Benzene was detected slightly above its GWQS in MW-5, and MW-6 with concentrations of 1.1 ug/L and 3.1 ug/L, respectively (benzene GWQS is 1.0 ug/L). One SVOC, phenol, was also detected in MW-1 above GWQS. Metals detected at concentrations above GWQS are naturally occurring minerals.

The on-site UST system, in-ground hydraulic lift, and petroleum-impacted source soils have been removed, and it is expected that groundwater concentrations will continue to naturally attenuate. Upon receipt of the groundwater analytical data and discussions with NYSDEC personnel, TurnKey implemented in-situ groundwater treatment utilizing an Oxygen Release Compounds (ORC) sock within MW-1 to enhance natural attenuation of petroleum VOCs in that area. Based on the removal of the UST system and source area soils to residential SCOs; extraction and treatment of groundwater during the IRM excavation; initiation of in-situ treatment in MW-1; and the analytical results of groundwater within upgradient wells, concentrations in MW-1 are expected to decrease over time.

5.3 Data Usability Summary

In accordance with the RI Work Plan, the laboratory analytical data from this investigation was independently assessed and, as required, submitted for independent review. Ms. Judy Harry of Data Validation Services located in North Creek, New York performed the data usability summary assessment, which involved a review of the summary form information and sample raw data, and a limited review of associated QC raw data. Specifically, the following items were reviewed:

- Laboratory Narrative Discussion
- Custody Documentation
- Holding Times
- Surrogate and Internal Standard Recoveries
- Matrix Spike Recoveries/Duplicate Recoveries
- Field Duplicate Correlation
- Preparation/Calibration Blanks
- Control Spike/Laboratory Control Samples
- Instrumental IDLs
- Calibration/CRI/CRA Standards
- ICP Interference Check Standards
- ICP Serial Dilution Correlations
- Sample Results Verification

The Data Usability Summary Report (DUSR) was conducted using guidance from the USEPA Region 2 validation Standard Operating Procedures, the USEPA National Functional Guidelines for Data Review, as well as professional judgment.

In summary, most sample results are usable as reported, or with minor qualification. However, several tetraethyl lead (TEL) results are not usable, and as such TEL non-detect (ND) result for sample locations SW-1, SW-2, and F-1 were rejected. Based on the lack of detections of TEL in the other 12 samples analyzed for TEL, the rejected data does not appear to affect achievement of data objectives. Any additional qualifications of the data have been incorporated to the summary data tables. Appendix D includes the DUSR.

6.0 FATE AND TRANSPORT OF COPCS

The soil/fill and groundwater sample analytical results were incorporated with the physical characterization of the Site to evaluate the fate and transport of COPCs in Site media. The mechanisms by which the COPCs can migrate to other areas or media are briefly outlined below.

6.1 Fugitive Dust Generation

Volatile and non-volatile chemicals present in soil can be released to ambient air as a result of fugitive dust generation. However, the site soil has been removed to meet residential standards and the excavation was backfilled with imported virgin gravel. Furthermore, the Site is currently being developed for commercial land use, and the majority of the Site will be covered by structures, asphalt, concrete, and grass/ornamental landscaping. This migration pathway is therefore not considered relevant under the current and reasonably anticipated future land use.

6.2 Volatilization

Volatile chemicals present in soil/fill and groundwater may be released to ambient or indoor air through volatilization either from or through the soil/fill underlying current or future building structures. Volatile chemicals typically have a low organic-carbon partition coefficient (K_{oc}), low molecular weight, and a high Henry's Law constant.

No volatile organic compounds were detected in on-Site soils above 6NYCRR Part 375 unrestricted use SCOs, with the exception of sample locations F-1, F-2, and F-4 (see Table 5). However, VOC concentrations in these soil samples were below Part 375 Residential SCOs. Post-excavation soil sample SW-1 did contain concentrations of VOCs above Part 375 Residential SCOs, but below Part 375 Commercial SCOs. However, the IRM excavation was extended to the property boundary in that area and that sample location was collected from the property perimeter and is not representative of residual on-Site VOCs concentrations. All other post-excavation samples along the property perimeters were below Part 375 Residential SCOs for VOCs.

Several petroleum VOCs were detected in Site groundwater at concentrations above Class GA GWQS. However, these petroleum-related volatile chemicals are present in Site groundwater at relatively low (i.e., maximum of 1,536 ug/L total VOCs) concentrations. Based on the UST system and source soil removal to Part 375 Residential SCOs, impacted

groundwater extraction and treatment activities completed during the IRM excavation and initiation of in-situ treatment in MW-1, VOCs concentrations will continue to degrade over time as a result of natural biodegradation. It should also be noted that no VOCs were detected above GWQS in the upgradient monitoring wells, MW-3 or MW-4, and that MW-5 and MW-6 contained only slightly elevated for benzene, with concentrations of 1.1 ug/L and 3.1 ug/L, respectively (benzene GWQS – 1.0 ug/L). Accordingly, the groundwater volatilization pathway is not considered relevant with the potential exception of groundwater in the vicinity of MW-1.

6.3 Surface Water Runoff

The potential for soil particle transport with surface water runoff is low, as the Site has been cleaned up to residential standards, and the majority of Site will be covered with asphalt and building foundations. Furthermore, the Site is serviced by the Buffalo Sewer Authority's (BSA's) combined sanitary/storm water collection system. BSA's collection system provides a mechanism for controlled surface water transport that will ultimately result in sediment capture in the BSA's grit chambers followed by disposal at a permitted sanitary landfill. As such, surface water runoff is not considered a relevant migration pathway.

6.4 Leaching

Leaching refers to chemicals present in soil/fill migrating downward to groundwater as a result of infiltration of precipitation. However, all source area soils have been removed from the Site during IRM activities to below residential standards. As such, leaching is not considered a relevant migration pathway.

6.5 Groundwater Transport

Groundwater underlying the Site migrates to the west/northwest. Chemicals present in groundwater may be transported across the Site via this pathway. Petroleum-related volatile chemicals detected in groundwater are present at a maximum of 1,536 ug/L total VOCs. Groundwater flows through a relatively low permeability silty-clay geologic unit, with an estimated hydraulic conductivity of $1x10^{-5}$ to $1x10^{-6}$ centimeters per second (cm/s) and porosity range of 0.25 and 0.5 (ref. 5) and a measured hydraulic gradient of approximately 0.068 ft/ft. Based on the hydraulic conductivity and measured gradient,

Darcy's Law calculation indicates that shallow overburden groundwater migrates to the west/northwest at a rate of approximately 0.004 to 0.0008 ft/day.

The Site and surrounding area are serviced by a municipal (supplied) water service, with no evidence of potable wells within 1 mile of the subject property.

6.6 Exposure Pathways

Based on the analysis of chemical fate and transport provided above, potential exposure pathways by which contaminants may reach onsite and offsite receptors include ingestion of contaminated groundwater, dermal contact with contaminated groundwater and/or inhalation of VOCs originating from contaminated groundwater. However, the site and surrounding area are serviced by a municipal supplied potable water source Therefore, onsite and offsite exposure via ingestion of contaminated groundwater is unlikely. In addition, the depth to groundwater in MW-1 was measured at approximately 14.9 fbgs. As this is below the depth of conventional foundation and buried utility construction exposure to onsite or offsite receptors via incidental dermal contact is also unlikely. Accordingly, the only remaining pathway by which Site COPCs may reach onsite or offsite receptors is through volatilization of residual dissolved-phase VOCs present in groundwater.

The Site Management Plan prepared for the Site provides protocols to complete a soil vapor intrusion (SVI) evaluation prior to occupation of the newly constructed building, to determine whether any mitigation measures are necessary to eliminate potential exposure to VOC vapors.

During construction, SVI mitigation system components, including a vapor barrier, sub-slab suction pit and PVC piping, were installed in the structure. Based on the findings of the SVI evaluation and review by the NYSDEC and NYSDOH, if mitigation is deemed necessary, a fan will be added to convert the installed components to an active sub-slab depressurization system.

A work plan to complete the SVI sampling has been developed and approved by the NYSDEC and NYSDOH to complete the sampling once the building has been substantially completed.

7.0 QUALITATIVE RISK ASSESSMENT

7.1 Potential Human Health Risks

The Niagara Street and Pennsylvania Avenue Site is presently unoccupied, but under redevelopment as a commercial retail facility. As such, under current conditions human contact with the Site can be expected to occur primarily by two types of receptors: trespassers who may traverse the property, and construction workers. Trespassers may be comprised of adolescents or adults, whereas construction workers would be limited to adults. In both instances, exposure frequency is expected to be minimal. A security fence surrounds the Site, reducing the risk for trespassers. For trespasser and construction workers, the Site contaminants in soil were removed to residential standards, which provide a level of cleanup greater than required to protect these receptors at commercial facilities.

The reasonably anticipated future use of the Site is consistent with its current commercial use and zoning, with exposed receptors comprised of adults who may work on the property in an occupational setting, customers (adults, adolescents and children) who visit the property for short durations, and occasional construction workers who may access subsurface utilities during non-routine maintenance activities. Site soils were remediated to levels deemed protective of this type of end use.

For groundwater, the urban nature of the area and availability of a municipal water source at the Site mitigates the potential for routine direct human contact or ingestion (i.e., as might occur with use of on-site groundwater water for potable or process purposes). Non-routine contact with Site groundwater is expected to be limited to short durations under specific construction conditions (e.g., a construction worker managing groundwater during deep excavation work). Given the limited frequency and duration of these non-routine activities, and the relatively isolated area impacted by petroleum VOCs (i.e. MW-1), direct groundwater exposure pathways for onsite and offsite receptors are not considered relevant.

The potential for indirect contact with groundwater constituents via the volatilization/indoor vapor intrusion pathway is dependent on several factors, including: the types and concentrations of detected constituents; site geology; depth to groundwater; and building construction. The New York State Department of Health (NYSDOH) has published guidance for evaluating vapor intrusion. As of October 2007, only seven

compounds are included in the decision matrices: trichloroethylene; carbon tetrachloride; tetrachloroethene; 1,1,1-trichloroethane; vinyl chloride; 1,1-dichloroethene; and cis-1,2-dichloroethene. The groundwater samples yielded non-detect levels of these compounds. Nevertheless, the NYSDOH evaluates all VOCs that may impact indoor air quality and, as discussed in Section 6.6, an SVI evaluation is planned prior to occupancy of the building under construction. As such, active measures will be taken, as necessary, to address potential unacceptable exposures to onsite receptors.

For offsite receptors, the potential for volatilization/vapor intrusion to result in unacceptable exposures is considered low. The contaminant source area was removed via the IRM, and groundwater concentrations will attenuate with distance from MW-1. Installation of an ORC sock within MW-1 will also help reduce VOCs in groundwater within and downgradient of MW-1.

7.2 Potential Ecological Risks

The Niagara Street and Pennsylvania Avenue BCP Site is a former commercial facility located within a highly developed, urban area in the City of Buffalo. The Site is currently vacant, providing little or no wildlife habitat or food value. No natural waterways are present on or adjacent to the Site. The reasonably anticipated future use is commercial with the majority of the Site covered by buildings, concrete sidewalks and asphalt. As such, no unacceptable ecological risks are anticipated under the current or reasonably anticipated future use scenario.

8.0 REMEDIAL ALTERNATIVES EVALUATION

8.1 Remedial Action Objectives

The final remedial measures for the Niagara Street and Pennsylvania Avenue Site must satisfy Remedial Action Objectives (RAOs). Remedial Action Objectives are site-specific statements that convey the goals for minimizing or eliminating substantial risks to public health and the environment. Appropriate RAOs for the Niagara Street and Pennsylvania Avenue Site are:

- Removal of petroleum-impacted soil/fill within the tank farm and dispenser fill area, and in-ground hydraulic lift area to levels protective of human health (residential SCOs).
- Mitigate contaminant loadings to groundwater from petroleum-impacted soil/fill sufficiently to achieve or nearly achieve compliance with groundwater quality standards.

In addition to achieving RAOs, NYSDEC's Brownfield Cleanup Program calls for remedy evaluation in accordance with DER-10 Technical Guidance for Site Investigation and Remediation. Specifically, the guidance states "When proposing an appropriate remedy, the person responsible for conducting the investigation and/or remediation should identify and develop a remedial action that is based on the following criteria..:"

- **Overall Protection of Public Health and the Environment**. This criterion is an evaluation of the remedy's ability to protect public health and the environment, assessing how risks posed through each existing or potential pathway of exposure are eliminated, reduced, or controlled through removal, treatment, engineering controls, or institutional controls.
- **Compliance with Standards, Criteria, and Guidance (SCGs)**. Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance.
- **Long-Term Effectiveness and Permanence**. This criterion evaluates the long-term effectiveness of the remedy after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: (i) the magnitude of the remaining risks (i.e., will there be any significant threats, exposure pathways, or risks to the community and environment from the remaining wastes or treated residuals), (ii) the adequacy of the engineering and institutional controls intended to limit the risk, (iii) the

reliability of these controls, and (iv) the ability of the remedy to continue to meet RAOs in the future.

- **Reduction of Toxicity, Mobility or Volume with Treatment**. This criterion evaluates the remedy's ability to reduce the toxicity, mobility, or volume of Site contamination. Preference is given to remedies that permanently and significantly reduce the toxicity, mobility, or volume of the wastes at the Site.
- **Short-Term Effectiveness**. Short-term effectiveness is an evaluation of the potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during construction and/or implementation. This includes a discussion of how the identified adverse impacts and health risks to the community or workers at the Site will be controlled, and the effectiveness of the controls. This criterion also includes a discussion of engineering controls that will be used to mitigate short term impacts (i.e., dust control measures), and an estimate of the length of time needed to achieve the remedial objectives.
- **Implementability**. The implementability criterion evaluates the technical and administrative feasibility of implementing the remedy. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.
- **Cost**. Capital, operation, maintenance, and monitoring costs are estimated for the remedy and presented on a present worth basis.
- **Community Acceptance**. This criterion evaluates the public's comments, concerns, and overall perception of the remedy.

8.2 Future Land Use Evaluation

In developing and screening remedial alternatives, NYSDEC's Part 375 regulations require that the reasonableness of the anticipated future land be factored into the evaluation. The regulations identify 16 criteria that must be considered. These criteria and the resultant outcome for the Niagara Street and Pennsylvania Avenue Site are presented in Appendix E. As indicated, this evaluation supports commercial redevelopment as the reasonably anticipated future use of the Site, consistent with past use. Accordingly, remedial alternatives to clean up the Site to restricted commercial end use are identified and evaluated herein.

In addition to the evaluation of alternatives to remediate to the likely end use of the Site, NYSDEC regulation and policy calls for evaluation of more restrictive end-use

scenarios. These include an unrestricted use scenario (considered under 6NYCRR Part 375-2.8 to be representative of cleanup to pre-disposal conditions), and a scenario less restrictive than the reasonably anticipated future use (which again is unrestricted use). Per NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, evaluation of a "no-action" alternative is also required to provide a baseline for comparison against other alternatives.

Since an IRM has already been completed for the Site, the alternatives discussed in greater detail in Section 8.3 include:

- No Further Action;
- Implementation of a Site Management Plan; and,
- Unrestricted Use Cleanup

8.3 Alternatives Evaluation

8.3.1 No Further Action

Under this alternative, the Site would remain in its current state, with no additional controls in-place.

Overall Protection of Public Health and the Environment – The Site as it exists is not protective of human health and the environment, due to the absence of institutional controls to prevent less restrictive forms of future site use (e.g., unrestricted). Accordingly, no further action is not protective of public health and does not satisfy the RAOs.

Compliance with SCGs – Under the current and reasonably anticipated future use scenario, the concentrations of constituents detected in the soil/fill and groundwater generally comply with applicable SCOs and GWQS, with low-level residual petroleum VOCs in groundwater posing notable exceptions.

Long-Term Effectiveness and Permanence – The no further action alternative involves no additional equipment, institutional controls or facilities subject to maintenance, but provides no long-term effectiveness toward achieving the RAOs.

Reduction of Toxicity, Mobility, or Volume with Treatment – The interim remedial measures completed at the Site have reduced the toxicity, mobility and volume of prior constituents of concern. With the exception of low-level residual petroleum VOCs in groundwater, further reduction in toxicity, mobility, or volume of constituents in the soil/fill, surface soil, or groundwater is not necessary based on the RI findings.

Short-Term Effectiveness – There would be no short-term adverse impacts and risks to the community, workers, or the environment attributable to implementation of the no further action alternative.

Implementability – No technical or action-specific administrative implementability issues are associated with the No Further Action alternative.

Cost – The capital cost of the completed IRM was approximately $300,000. There would be no capital or long-term operation, maintenance, or monitoring costs associated with the no further action alternative.

Community Acceptance – The RI/AAR/IRM Work Plan was made available for comment from November 20, 2008 through December 19, 2008. No comments opposing the work were received.

8.3.2 Implementation of a Site Management Plan

The IRM achieved removal of the petroleum-impacted soil/fill on-site to below residential SCOs, which is expected to protect and improve on-site groundwater quality. The "Implementation of a Site Management Plan" alternative is defined as performing no additional cleanup activities at the Site beyond that which was already performed as an IRM (refer to Section 2.0), with implementation of a Site Management Plan (SMP). The SMP will include:

- **An Institutional Controls Plan**. Institutional controls at the site will include groundwater use restrictions and use restrictions of the Site to restricted use (i.e. residential or commercial purposes).

- **An Excavation Work Plan** to assure that future intrusive activities and soil/fill handling at the Site are completed in a safe and environmentally responsible manner.

- **A Site Monitoring Plan** that includes: provisions for a groundwater monitoring plan; a SVI evaluation; and, a Site-wide Inspection program to assure that the Institutional controls have not been altered and remain effective.

Overall Protection of Public Health and the Environment – Since the IRM achieved removal of impacted soil/fill to below residential SCOs, this alternative is fully protective of human health and the environment, and successfully achieves all RAOs for the Site. The Site Management Plan will include a groundwater monitoring plan to monitor residual constituents in groundwater, an excavation work plan to address any impacted soil/fill encountered during post-development maintenance activities, a Soil Vapor Intrusion (SVI) Evaluation; and a Site-wide Inspection program to assure that the Institutional controls placed on the Site have not been altered and remain effective. Furthermore, although not a required component of the IRM, as a "best management practice", 1093 Group, LLC installed an Oxygen Release Compound (ORC) sock within MW-1 to further enhance bioremediation of residual VOCs and mitigate potential off-Site migration of contaminants.

Compliance with SCGs – The IRM was performed in accordance with applicable, relevant, and appropriate standards, guidance, and criteria. The IRM achieved removal of impacted soil/fill to below residential SCOs, this alternative is fully protective of human health and the environment, and successfully achieves all RAOs for the Site. The Site Management Plan will include a groundwater monitoring plan to monitor residual constituents in groundwater, an excavation work plan to address any impacted soil/fill encountered during post-development maintenance activities, a Soil Vapor Intrusion (SVI) Evaluation; and a Site-wide Inspection program to assure that the Institutional controls placed on the Site have not been altered and remain effective.

Long-Term Effectiveness and Permanence **–** The IRM achieved removal of petroleum-impacted soil/fill in the area of former UST and product dispensers, in-ground hydraulic lift area, and surface soils to below residential SCOs (note - post-excavation confirmatory samples show excavation sidewalls and bottoms meet NYSDEC residential SCOs for all sample locations, with the exception of SW-1 (off-site) and also meet unrestricted SCOs, with minor exceptions as shown on Table 5. The Site Management Plan will include a groundwater monitoring plan to monitor residual constituents in groundwater, an excavation work plan to address any impacted soil/fill encountered during post-development maintenance activities, a Soil Vapor Intrusion (SVI) Evaluation; and a Site-wide Inspection program to assure that the Institutional controls placed on the Site have not been altered and remain effective. Furthermore, although not a required component of the IRM, as a "best management practice", 1093 Group, LLC installed an Oxygen Release Compound (ORC) sock within MW-1 to further enhance bioremediation of residual VOCs and mitigate potential off-Site migration of contaminants.

As such, this alternative is expected to provide long-term effectiveness and permanence.

Reduction of Toxicity, Mobility, or Volume with Treatment **–** Through removal of impacted soil/fill exceeding residential SCOs, the IRM permanently and significantly reduced the toxicity, mobility, and volume of Site contamination. The Site Management Plan will include a groundwater monitoring plan to monitor residual constituents in groundwater, an excavation work plan to address any impacted soil/fill encountered during post-development maintenance activities, a Soil Vapor Intrusion (SVI) Evaluation; and a Site-wide Inspection program to assure that the Institutional controls placed on the Site have not been altered and remain effective. Furthermore, although not a required component of the IRM, as a "best management practice", 1093 Group, LLC installed an Oxygen Release Compound (ORC) sock within MW-1 to further enhance bioremediation of residual VOCs and mitigate potential off-Site migration of contaminants.

Accordingly, this alternative satisfies this criterion.

Short-Term Effectiveness **–** The short-term adverse impacts and risks to the community, workers, and environment during implementation of the IRM were effectively controlled. Temporary safety construction fencing was placed around the outer perimeter of

the work area to distinguish the work zone and discourage trespassing. During soil/fill excavation and loading activities, dust monitoring was performed to assure conformance with NYSDOH-approved community air monitoring action levels. The potential for chemical exposures and physical injuries were reduced through safe work practices; proper personal protection equipment; environmental monitoring; establishment of work zones and Site control; and appropriate decontamination procedures. The IRM achieved the RAOs for the Site in approximately two months.

Implementability – No technical or action-specific administrative implementability issues are associated with implementation of the IRM or the SMP. An Environmental Easement will be filed with Erie County documenting the controls placed on the Site.

Cost –The capital cost of the IRM was approximately $300,000. Groundwater monitoring and annual certification is estimated at approximately $10,000 per year. Based on an assumed 30 years of groundwater monitoring and annual certifications, the net present value of this alternative is approximately $485,000 as shown on Table 6a. Table 6c is a summary of costs of each of the alternatives.

Community Acceptance – The RI/AAR/IRM Work Plan was made available for comment from November 20, 2008 through December 19, 2008. No comments opposing the work were received.

8.3.3 Unrestricted Use Alternative

An Unrestricted Use alternative would necessitate remediation of all soil/fill where concentrations exceed the unrestricted use SCO per 6NYCRR Part 375 (see Table 5). For Unrestricted Use scenarios, excavation and off-site disposal of impacted soil/fill is generally regarded as the most applicable remedial measure, because engineering controls cannot be used to supplement the remedy. As such, the Unrestricted Use alternative assumes that the additional soil/fill would be excavated from the southeast portion of the Site and disposed at an off-site commercial solid waste landfill. Additionally, the newly constructed building would need to be demolished so that contaminants above Unrestricted SCOs in the vicinity of F-1 and F-4 could be excavated. Approximately 12-feet of approved backfill material underlying the new building would need to be excavated and temporarily staged on-site. An

additional 3-foot of material in the vicinity of F-1 and F-4 would be excavated to a total depth of 15-fbgs.

The estimated total volume of impacted soil/fill that would be removed from this area is approximately 500 cubic yards. As part of the unrestricted alternative, in-situ groundwater treatment would be required in the vicinity of MW-1, MW-5, and MW-6.

Overall Protection of Public Health and the Environment – The Unrestricted Use alternative would achieve the corresponding Part 375 SCOs, which are designed to be protective of human health under any reuse scenario.

Compliance with SCGs – Similar to the IRM soil/fill removal activities, the Unrestricted Use alternative would need to be performed in accordance with applicable, relevant, and appropriate standards, guidance, and criteria.

Long-Term Effectiveness and Permanence – The Unrestricted Use alternative would achieve removal of all residual impacted soil/fill; therefore, no soil/fill exceeding the unrestricted use SCOs would remain on the Site. As such, the Unrestricted Use alternative would provide long-term effectiveness and permanence. Post-remedial groundwater monitoring and certifications may be required.

Reduction of Toxicity, Mobility, or Volume with Treatment – Through removal of all impacted soil/fill, the Unrestricted Use alternative would permanently and significantly reduce the toxicity, mobility, and volume of Site contamination.

Short-Term Effectiveness – The short-term adverse impacts and risks to the community, workers, and environment during implementation of the Unrestricted Use alternative are not considered significant and are controllable, but would increase the duration of time community, workers, and the environment is exposed to fugitive dust or volatile emissions at the site or migrating off the site during remediation.

Implementability – No technical implementability issues would be encountered in construction of the Unrestricted Use alternative. Administrative implementability issues may include the need for rezoning of the area, since residential, agricultural, and other

unrestricted uses are not consistent with current zoning or the reasonably anticipated future use of the Site.

Cost – The capital cost of implementing an Unrestricted Use alternative (post-IRM) is estimated at $889,000 (see Table 6b), which is cost of the unrestricted use cleanup plus the capital costs of the IRM that was completed. Post-remedial groundwater monitoring and annual certification costs would not be incurred. Table 6c is a summary of costs of each of the alternatives.

Community Acceptance – Community acceptance will be evaluated based on comments to be received from the public in response to Fact Sheets and other planned Citizen Participation activities.

8.4 Recommended Remedial Measure

Based on the Alternatives Analysis evaluation, the completed IRM and Implementation of Site Management Plan fully satisfies the remedial action objectives and is fully protective of human health and the environment. Accordingly, the implementation of a Site Management Plan is the recommended final remedial approach for the Niagara Street and Pennsylvania Avenue Site.

9.0 RI/IRM/AAR SUMMARY AND CONCLUSIONS

Based on the data and analyses presented in the preceding sections, we offer the following summary and conclusions:

- An IRM was implemented at the Niagara Street and Pennsylvania Avenue Site concurrent with RI activities. The IRM included: demolition of the former service station building and product dispenser canopy; removal of five USTs, including two 6,000-gallon steel gasoline USTs, one 3,000-gallon steel gasoline UST, one 1,000-gallon steel gasoline UST, and one 550-gallon steel waste oil UST; removal of all associated underground product piping; extraction and disposal of approximately 3,379-gallons of gasoline/water mixture and approximately 487-gallons of used oil/water mixture from the USTs; excavation of approximately 4,036-tons of non-hazardous petroleum-impacted soil/fill followed by off-site transportation and disposal at a permitted solid waste landfill; extraction and treatment of approximately 6,000-gallons of groundwater from within the excavation; and, placement and compaction of approximately 5,400 tons of crusher run stone backfill. On-site post-excavation soil sample results were below 6NYCRR Part 375 Residential SCOs for NYSDEC STARS List VOCs, NYSDEC STARS List SVOCs, and lead, with the one exception of the slight exceedance of dibenzo(a,h)anthracene at sample location SW-5. The Final Engineering Report, to be submitted as a separate document, includes additional details of the IRM.

- Based on the soil data collected during the RI, concentrations of VOCs, metals, pesticides, and PCBs were below Part 375 Residential SCOs. Two SVOCs [i.e., benzo(b)flouranthene and dibenzo(a,h)anthracene] were detected at concentrations slightly above their respective 6NYCRR Part 375 Residential SCOs at sample locations Surface-2 and SW-5, respectively. Based on the sample location (i.e., not in an area of historic petroleum storage), lack of elevated PID readings, as well as absence of any visual or olfactory evidence of contamination, the elevated SVOCs appear to be attributable to urban background concentrations of PAHs, which is common throughout the City of Buffalo.

- Based on the groundwater data collected during the RI, two of the five sampled monitoring wells did not contain concentrations of petroleum-related VOCs above applicable GWQS and only benzene was detected slightly above GWQS in MW-5 and MW-6. Several petroleum-related VOCs were detected in monitoring well MW-1, which are attributable to its location hydraulically down-gradient of former USTs. In-situ enhanced aerobic bioremediation of groundwater in the vicinity of MW-1 was initiated during the RI/IRM. The enhanced groundwater

bioremediation, in conjunction with the removal of the former on-Site UST system, excavation and off-Site disposal of approximately 4,036 tons of petroleum-impacted source soils, and natural attenuation will serve to reduce VOCs in groundwater over time. One SVOC, phenol, was also detected in MW-1 slightly above it GWQS. Metals detected above GWQS are limited to naturally occurring minerals.

- Based on the Alternatives Analysis evaluation, the IRM satisfies the remedial action objectives and is protective of human health and the environment. Accordingly, Implementation of a Site Management Plan is the recommended final remedial approach for the Niagara Street and Pennsylvania Avenue Site.

10.0 REFERENCES

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TABLES

TABLE 1

SUMMARY OF POST-EXCAVATION SOIL ANALYTICAL RESULTS

NIAGARA STREET AND PENNSYLVANIA AVENUE SITE

BUFFALO, NEW YORK

Parameter [1]	Residential SCOs [2]	Commercial SCOs [2]	Sample Locations														
			Off-Site (Perimeter) Samples					On-Site Samples									
			SW-1	SW-2	SW-3	SW-4	SW-6	F-1	F-2	F-3	F-4	F-5	SW-5	SW-7	SW-8	SW-9	SW-10
STARS List Volatile Organic Compounds (VOCs) - mg/Kg																	
Methyl tert butyl ether (MTBE)	**62**	**500**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00061 J	ND	ND	ND
Benzene	**2.9**	**44**	7.8	ND	0.28	0.0016	1.1	1.6	0.55 J	0.03	0.13	ND	0.014	ND	0.00073	ND	ND
Toluene	**100**	**500**	9.5	ND	ND	0.00014	ND	0.78	0.062	0.0002	0.024	ND	0.00095	ND	ND	0.00099	ND
Ethylbenzene	**30**	**390**	43	0.5	0.0054	ND	6.2	4	0.063	ND	0.35	ND	ND	ND	ND	0.0012	ND J
Total Xylene	**100**	**500**	274	1.53	0.0073	0.0057	31.5	13	0.0052	0.00066	1.72	ND	0.0061	ND	0.00145	0.0075	0.0006 NJ
Isopropylbenzene (Cumene)	**--**	**--**	5.1	0.11	0.31 J	ND J	0.96	0.14	0.0012 J	0.0011	0.015 J	ND	0.00076 J	ND	ND	0.00054 J	0.017
n-Propylbenzene	**100**	**500**	19	0.38	0.5	ND	3.6	0.31	0.00075	0.0018	0.045 J	ND	0.001	ND	ND	ND J	0.025
1,3,5-Trimethylbenzene	**47**	**190**	42	0.69	0.065 J	ND J	9.7	0.72	ND J	ND	0.1 J	ND	0.0022 J	ND	ND	0.0035 NJ	0.0015 NJ
tert-Butylbenzene	**100**	**500**	ND	ND	0.02 NJ	ND	ND	ND	ND	ND	ND J	0.0022	ND	ND	ND	ND J	0.0016 NJ
1,2,4-Trimethylbenzene	**47**	**190**	140	2.7	0.16 NJ	ND	33	3.5	ND	ND	0.58 J	ND	0.0067	ND	0.0014 J	0.013 NJ	ND
sec-Butylbenzene	**100**	**500**	2.5 NJ	ND	0.27	ND	0.76	ND	ND	ND	ND J	0.014	ND	ND	ND	0.0035 NJ	0.024
4-Isopropyltoluene	**--**	**--**	2 NJ	ND	0.0098 NJ	ND	0.7	ND	ND	ND	0.0038 J	ND	ND	ND	ND J	ND	0.0013 NJ
n-Butylbenzene	**100**	**500**	11	0.21	0.22	ND	3.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.01 NJ
STARS List Semi-Volatile Organic Compounds (SVOCs) - mg/Kg																	
Naphthalene	**100**	**500**	8.6	0.13	ND	ND	2	0.86	ND	ND	2.1	ND	ND	ND	ND	ND	ND
Acenaphthene	**100**	**500**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	**100**	**500**	0.089	ND	0.54 NJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.12	ND
Phenanthrene	**100**	**500**	0.14	ND	0.66	0.13	ND	ND	ND	ND	ND	ND	0.12	0.12 J	ND	0.51	0.31 J
Anthracene	**100**	**500**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.11	ND
Pyrene	**100**	**500**	ND	ND	0.12	0.16	ND	ND	ND	ND	ND	ND	0.12	0.18 J	ND	0.51	0.2 J
Benzo(a)anthracene	**1**	**5.6**	ND	ND	0.07 NJ	0.11	ND	ND	ND	ND	ND	ND	0.086	0.095 J	ND	0.3	0.12 J
Chrysene	**1**	**56**	ND	ND	0.084	0.099	ND	ND	ND	ND	ND	ND	0.082	0.094 J	ND	0.48	0.12 J
Benzo(b)fluoranthene	**1**	**5.6**	ND	ND	0.09	0.1	ND	ND	ND	ND	ND	ND	0.076	0.11 J	ND	0.23	ND
Benzo(k)fluoranthene	**1**	**56**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.089 NJ	ND
Benzo(a)pyrene	**1**	**1**	0.32	ND	0.082	0.086	ND	ND	ND	ND	ND	ND	0.068	0.093 J	ND	0.22	0.11 J
Indeno(1,2,3-cd)pyrene	**0.5**	**5.6**	0.11	0.12	0.46	0.43	0.09	ND	ND	ND	ND	ND	0.46	ND	ND	0.2	0.097 J
Dibenzo(a,h)anthracene	**0.33**	**0.56**	ND	ND	0.41	0.4	ND	ND	ND	ND	ND	ND	0.43	ND	ND	ND	ND
Benzo(g,h,i)perylene	**100**	**500**	0.086	0.092	0.51	0.46	ND	ND	ND	ND	ND	ND	0.49	ND	ND	0.2	0.1 J
Fluoranthene	**100**	**500**	ND	ND	0.13	0.18	ND	ND	ND	ND	ND	ND	0.15	0.15 J*	ND	0.47 NJ	0.22 J
Total Lead - mg/Kg																	
Lead	**400**	**1000**	24.9 J	27.2 J	20.8 J	86.6 J	38.8 J	16.2 J	14.8 J	11.9 J	16.1 J	15.8 J	21.2 J	49.3 J	50.7 J	57.7 J	54.9 J

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per 6NYCRR Part 375 Soil Cleanup Objectives
3. Sample results were reported by the laboratory in ug/kg and converted to mg/kg for comparison to SCOs.

Exceeds Residential SCO

Exceeds Commercial SCO

Definitions:

ND = Parameter not detected above laboratory detection limit.
NA = Sample not analyzed for parameter.
"--" = No SCO available.
D = Constituent identified at the second dilution level

J = Estimated value; result is less than the sample quantitation limit but greater than zero.
E = Estimated value; compound exceeds the upper level of instrument range for the specified analysis.
N = Indicates a tentative identification based on presumptive evidence
* = LCS or LCSD exceeds the control limits

TABLE 2

SUMMARY OF REMEDIAL INVESTIGATION SOIL ANALYTICAL RESULTS

NIAGARA STREET AND PENNSYLVANIA AVENUE SITE

BUFFALO, NEW YORK

Parameter [1]	Residential SCOs [2]	Commercial SCOs [2]	Sample Locations												
			F-2	F-3	F-5	SW-5	SW-7	SW-8	SW-9	B-3	B-4	BLIND[4]	Surface-1	Surface-2	Off-Site
TCL + STARS Volatile Organic Compounds (VOCs) - mg/Kg [3]															
Acetone	**100**	**500**	ND	ND	ND	ND	ND	ND	ND	ND*	ND*	ND*	ND*	NA	0.0098 NJ
Benzene	**2.9**	**44**	0.55 J	0.03	ND	0.014	ND	0.00073	ND	ND	ND	ND	ND	NA	ND
Cyclohexane	**--**	**--**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.32 NJ
Ethylbenzene	**30**	**390**	0.063	ND	ND	ND	ND	ND	0.0012	ND	ND	ND	ND	NA	0.025
Methylcyclohexane	**--**	**--**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.12
Toluene	**100**	**500**	0.062	0.0002	ND	0.00095	ND	ND	0.00099	ND	ND	ND	ND	NA	ND
Total Xylene	**100**	**500**	0.0052	0.00066	ND	0.0061	ND	0.0011	0.0075	ND	ND	ND	ND	NA	0.024
Isopropylbenzene (Cumene)	**--**	**--**	0.0012 J	0.0011	ND	0.00076 J	ND	ND	0.00054 J	ND	ND	ND	ND	NA	0.015
n-Propylbenzene	**100**	**500**	0.00075	0.0018	ND	0.001	ND	ND	ND J	ND	ND	ND	ND	NA	0.055
1,3,5-Trimethylbenzene	**47**	**190**	ND J	ND	ND	0.0022 J	ND	ND	0.0035 NJ	ND	ND	ND	ND	NA	0.017
1,2,4-Trimethylbenzene	**47**	**190**	ND	ND	ND	0.0067	ND	0.0014 J	0.013 NJ	ND	ND	ND	ND	NA	0.029
sec-Butylbenzene	**100**	**500**	ND	ND	0.014	ND	ND	ND	0.0035 NJ	ND	ND	ND	ND	NA	0.011
p-Cymene (p-isopropyltoluene)			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.0022 J
n-Butylbenzene	**100**	**500**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.024
Methyl tert butyl ether (MTBE)	**62**	**500**	ND	ND	ND	ND	0.00061 J	ND	ND	ND	ND	ND	ND	NA	ND
TCL Semi-Volatile Organic Compounds (SVOCs) - mg/Kg [3]															
Naphthalene	**100**	**500**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.15 J	ND	ND
2-Methylnaphthalene	**--**	**--**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.11 J	ND	ND
Acenaphthylene	**100**	**500**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.36 J	ND	ND
Acenaphthene	**100**	**500**	+	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.35 J	ND	ND
Dibenzofuran	**--**	**--**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.24 J	ND	ND
Fluorene	**100**	**500**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.39 J	ND	ND
Phenanthrene	**100**	**500**	ND	ND	ND	0.12	0.12 J	ND	0.51	ND	ND	ND	4.2	1.5 D,J	ND
Carbazole	**--**	**--**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.61 J	ND	ND
Anthracene	**100**	**500**	ND	ND	ND	ND	ND	ND	0.11	ND	ND	ND	1.1	0.35 D,J	ND
Fluoranthene	**100**	**500**	ND	ND	ND	0.15	0.15 J	ND	0.47 NJ	ND	ND	ND	5.9	ND	ND
Pyrene	**100**	**500**	ND	ND	ND	0.12	0.18 J	ND	0.51	ND	ND	ND	4.8	ND	ND
Benzo(a)anthracene	**1**	**5.6**	ND	ND	ND	0.086	0.095 J	ND	0.3	ND	ND	ND	3	1 D,J	0.11 D,J
Chrysene	**1**	**56**	ND	ND	ND	0.082	0.094 J	ND	0.48	ND	ND	ND	2.9	0.83 D,J	ND
bis(2-Ethylhexyl)phthalate	**--**	**--**	ND	ND	ND	ND	ND	ND	ND	ND	41 J	ND	0.35 J	ND	ND
Benzo(b)fluoranthene	**1**	**5.6**	ND	ND	ND	0.076	0.11 J	ND	0.23	ND	ND	ND	3	1.1 D,ID4,J	0.11 NJ
Benzo(k)fluoranthene	**1**	**56**	ND	ND	ND	ND	ND	ND	0.089 NJ	ND	ND	ND	1.1	ND	0.13 NJ
Benzo(a)pyrene	**1**	**1**	ND	ND	ND	0.068	0.093 J	ND	0.22	ND	ND	ND	3	0.75 D,J	ND
Indeno(1,2,3-cd)pyrene	**0.5**	**5.6**	ND	ND	ND	0.46	ND	ND	0.2	ND	ND	ND	2.1	0.4 D,J	0.11 NJ
Dibenzo(a,h)anthracene	**0.33**	**0.56**	ND	ND	ND	0.43	ND	ND	ND	ND	ND	ND	1	0.16 D,J	ND
Benzo(g,h,i)perylene	**100**	**500**	ND	ND	ND	0.49	ND	ND	0.2	ND	ND	ND	2.2	0.43 D,J	0.11 D,J
Metals - mg/Kg															
Silver	**36**	**1500**	NA	NA	NA	NA	NA	NA	NA	ND	0.17	1.6	1.6	NA	NA
Aluminum	**--**	**--**	NA	NA	NA	NA	NA	NA	NA	11300	17500	17400	13100	NA	NA
Arsenic	**16**	**16**	NA	NA	NA	NA	NA	NA	NA	4.6 J	3.4 J	3.5 J	5.9 J	NA	NA
Barium	**350**	**400**	NA	NA	NA	NA	NA	NA	NA	75.6 J	167 J	109 J	149 J	NA	NA
Beryllium	**14**	**590**	NA	NA	NA	NA	NA	NA	NA	0.56 J	0.94 J	0.92 J	0.72 J	NA	NA
Calcium	**--**	**--**	NA	NA	NA	NA	NA	NA	NA	69900	4510	3840	15400	NA	NA
Cadmium	**2.5**	**9.3**	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	0.64 J	NA	NA
Cobalt	**--**	**--**	NA	NA	NA	NA	NA	NA	NA	7.8 J	12.6 J	8.1 J	8.1 J	NA	NA
Chromium	**36**	**400**	NA	NA	NA	NA	NA	NA	NA	14.5	23.1	22.2	20.7	NA	NA
Copper	**270**	**270**	NA	NA	NA	NA	NA	NA	NA	18.4	17	16.3	35.9	NA	NA
Iron	**--**	**--**	NA	NA	NA	NA	NA	NA	NA	17300 J	26900 J	23800 J	19300 J	NA	NA
Potassium	**--**	**--**	NA	NA	NA	NA	NA	NA	NA	2310	2000	2140	1820	NA	NA
Magnesium	**--**	**--**	NA	NA	NA	NA	NA	NA	NA	26800	5180	4960	8830	NA	NA
Manganese	**2000**	**10000**	NA	NA	NA	NA	NA	NA	NA	480 J	1850 J	517 J	591 J	NA	NA
Sodium	**--**	**--**	NA	NA	NA	NA	NA	NA	NA	141	45.7 J	45.9 J	75.9 J	NA	NA
Nickel	**140**	**310**	NA	NA	NA	NA	NA	NA	NA	17.3	23.6	20	20.5	NA	NA
Lead	**400**	**1000**	14.8 J	11.9 J	15.8 J	21.2 J	49.3 J	50.7 J	57.7 J	15.1	24	17.8	352	NA	41.8 J
Thallium	**--**	**--**	NA	NA	NA	NA	NA	NA	NA	2.7 J	3 J	ND J	2.4 J	NA	NA
Vanadium	**--**	**--**	NA	NA	NA	NA	NA	NA	NA	19.9	33.8	30.6	23.5	NA	NA
Zinc	**2200**	**10000**	NA	NA	NA	NA	NA	NA	NA	64.4	110	103	360	NA	NA
Mercury	**0.81**	**2.8**	NA	NA	NA	NA	NA	NA	NA	0.0082 J	0.034 J	0.057 J	1	NA	NA
Polychlorinated Biphenyls (PCBs) - mg/Kg [3]															
Aroclor 1254	**1**	**1**	NA	NA	NA	ND	ND	NA	NA	NA	ND	NA	0.025	NA	NA
Aroclor 1260	**1**	**1**	NA	NA	NA	ND	ND	NA	NA	NA	ND	NA	0.013 J	NA	NA

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per 6NYCRR Part 375 Soil Cleanup Objectives
3. Sample results were reported by the laboratory in ug/kg and converted to mg/kg for comparison to SCOs.
4. Blind duplicate sample was collected from sample location B-4.

Definitions:

ND = Parameter not detected above laboratory detection limit.
NA = Sample not analyzed for parameter.
"--" = No SCO available.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
N = Compound is tentatively identified
D = Constituent identified at the second dilution level
B = Analyte was detected in the associated blank as well as in the sample. Value is above the action level for consideration as being external contamination.
ID4 = Benzo(b)flouranthene coelutes with benzo(k)flouranthene. The reported result is a summation of the isomers.
* = Indicates the spike or duplicate analysis is not within the quality control limits.

Exceeds Residential SCO
Exceeds Commercial SCO

TABLE 3

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

NIAGARA STREET AND PENNSYLVANIA AVENUE SITE

BUFFALO, NEW YORK

PARAMETER[1]	GWQS/ GV[2]	MW-1		MW-3		MW-4		MW-5		MW-6	
TCL + STARS LIST Volatile Organic Compounds (VOCs) - ug/L											
Acetone	**50**	120	J	10	J	0.69	J	2.8	J	29	J
Benzene	**1**	990		0.37	J	0.81		1.1		3.1	
Methyl Ethyl Ketone (MEK)	**50**	ND		ND		ND		0.94	J	4.1	
Carbon disulfide	**60**	4.5	J	3.5		1.3		2		5.8	
Chloroform	**7**	ND		ND		ND		ND		ND	
1,2-Dichloroethane	**0.6**	17		ND	*	ND		ND	*	ND	*
Ethylbenzene	**5**	26		1.4		1.8		1.7		2.2	
2-Hexanone	**50**	ND		ND		ND		1.2	J	1.5	J
Methylene Chloride	**5**	7.2	J	ND		ND		ND		ND	
Methyl tert-butyl ether (MTBE)	**10**	170		ND		ND		ND		0.88	
Toluene	**5**	16		0.74		0.83		0.79		0.9	
Xylenes, Total	**5**	64		0.23	J	2		0.53	J	2.4	
m-Xylene & p-Xylene	**5**	27	J	0.23	J	0.55	J	0.53	J	0.79	J
o-Xylene	**5**	37		ND		1.5		ND		1.6	
Isopropylbenzene	**5**	17		ND		ND		ND		ND	
N-Propylbenzene	**5**	13		ND		ND		ND		ND	
1,3,5-Trimethylbenzene	**5**	28		ND		ND		0.91	J	ND	
1,2,4-Trimethylbenzene	**5**	ND		ND		ND		1.2		1.2	
TCL Semi-volatile organic compounds (SVOCs) - ug/L											
2,4-Dimethylphenol	**50**	5.8		ND		ND		ND		ND	
2-Methylnaphthalene	**5**	1.6	NJ	ND		ND		ND		ND	
Acetophenone	**--**	7.6		ND		ND		ND		1.5	J
Bis(2-ethylhexyl) phthalate	**5**	1.6	J	ND		0.66	J	1.3	J	2.2	J
Di-n-butyl phthalate	**5**	ND		ND		0.42	J	0.36	J	ND	
Fluorene	**50**	ND		ND		ND		0.32	J	ND	
Phenanthrene	**50**	ND		ND		0.81	J	ND		ND	
Phenol	**1**	65		ND		ND		ND		ND	
TAL METALS - ug/L											
Aluminum	**--**	NA		690		450		1200		NA	
Arsenic	**25**	NA		ND		7.2	J	ND		NA	
Barium	**1000**	NA		31		57		41		NA	
Calcium	**--**	NA		97600		125000		150000		NA	
Cobalt	**--**	NA		1.9	J	1.9	J	3.6	J	NA	
Chromium	**50**	NA		0.99	J	ND		1.5	J	NA	
Copper	**200**	NA		4.5	J	5.8		5.8		NA	
Iron	**300**	NA		1100		720		2000		NA	
Potassium	**--**	NA		7500		13000		5400		NA	
Magnesium	**35000**	NA		40800		24100		39100		NA	
Manganese	**300**	NA		170		130		640		NA	
Sodium	**20000**	NA		20900		9700		21600		NA	
Nickel	**100**	NA		3.6	J	1.9	J	4.9	J	NA	
Lead	**25**	6.4	J	2.7	J	ND		6.3	J	4.2	J
Thallium	**8**	NA		ND		ND		4.7	J	NA	
Vanadium	**--**	NA		2.9	J	1.8	J	3.9	J	NA	
Zinc	**2000**	NA		9.1	J	36		18	J	NA	
Selenium	**--**	NA		ND		19	J	ND		NA	

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Division of Water Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations - GA Class (TOGS 1.1.1)
3. Blind duplicate collected from MW-5.

Definitions:

ND = Parameter not detected above laboratory detection limit.
NA = Sample not analyzed for parameter.
"--" = No GWQS available.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
N = Indicates a tentative identification based on presumptive evidence
* = Indicates the spike or duplicate analysis is not within the quality control limits.
= Indicates that the sample result exceeds standard.

TABLE 4

GROUNDWATER ELEVATION MEASUREMENTS

NIAGARA STREET AND PENNSYLVANIA AVENUE SITE

BUFFALO, NEW YORK

Monitoring Location	Top of PVC Riser Elev.	Water Level from Top of Riser	Groundwater Elevation
MW-1	499.88	14.91	484.97
MW-2	500.20	Dry	--
MW-3	500.58	8.10	492.48
MW-4	501.28	6.68	494.60
MW-5	501.06	7.46	493.60
MW-6	500.14	12.86	487.28

Notes:

1. All wells were surveyed on 4/23/09
2. All elevations are feet above mean sea level.

TABLE 5

COMPARISON OF SOIL ANALYTICAL RESULTS TO UNRESTRICTED SCOs

NIAGARA STREET AND PENNSYLVANIA AVENUE SITE

BUFFALO, NEW YORK

Parameter [1]	Unrestricted SCOs [2]	Sample Location												
		F-1	F-2	F-3	F-4	F-5	SW-5	SW-7	SW-8	SW-9	SW-10	B-3	B-4	SURFACE-2
Volatile Organic Compounds (VOCs) - mg/Kg [3]														
Benzene	**0.06**	1.6	0.55 J	0.03	0.13	ND	0.014	ND	0.00073	ND	ND	ND	ND	NA
Ethylbenzene	**1**	4	0.063	ND	0.35	ND	ND	ND	ND	0.0012	ND	ND	ND	NA
Methylene chloride	**0.05**	ND	ND	ND	NA	ND	ND	ND	ND	ND	NA	ND	ND	NA
Toluene	**0.7**	0.78	0.062	0.0002	0.024	ND	0.00095	ND	ND	0.00099	NA	ND	ND	NA
Total Xylene	**0.26**	13	0.0052	0.00066	1.72	ND	0.0061	ND	0.0011	0.0075	0.0006 NJ	ND	ND	NA
Isopropylbenzene (Cumene)	**--**	0.14	0.0012 J	0.0011	0.015 J	ND	0.00076 J	ND	ND	0.00054 J	0.017	ND	ND	NA
n-Propylbenzene	**3.9**	0.31	0.00075	0.0018	0.045 J	ND	0.001	ND	ND	ND J	0.025	ND	ND	NA
1,3,5-Trimethylbenzene	**8.4**	0.72	ND J	ND	0.1 J	ND	0.0022 J	ND	ND	0.0035 NJ	0.0015 NJ	ND	ND	NA
tert-Butylbenzene	**5.9**	ND	ND	ND	ND	ND	ND	ND	ND	ND J	0.0016 NJ	ND	ND	NA
1,2,4-Trimethylbenzene	**3.6**	3.5	ND	ND	0.58	ND	0.0067	ND	0.0014 J	0.013 NJ	ND	ND	ND	NA
sec-Butylbenzene	**11**	ND	ND	ND	ND	0.014	ND	ND	ND	0.0035 NJ	0.024	ND	ND	NA
p-Cymene (p-isopropyltoluene)		ND	ND	ND	0.0038 J	ND	ND	ND	ND	ND	0.0013 NJ	ND	ND	NA
n-Butylbenzene	**100**	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.01 NJ	ND	ND	NA
Methyl tert butyl ether (MTBE)	**0.93**	ND	ND	ND	ND	ND	ND	0.00061 J	ND	ND	ND	ND	ND	NA
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg [3]														
Naphthalene	**12**	0.86	ND	ND	2.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	**100**	ND	ND	ND	ND	ND	0.12	0.12 J	ND	0.51	0.31 J	ND	ND	1.5 D,J
Anthracene	**100**	ND	ND	ND	ND	ND	ND	ND	ND	0.11	ND	ND	ND	0.35 D,J
Fluoranthene	**100**	ND	ND	ND	ND	ND	0.15	0.15 J	ND	0.47 NJ	0.22 J	ND	ND	ND
Pyrene	**100**	ND	ND	ND	ND	ND	0.12	0.18 J	ND	0.51	0.2 J	ND	ND	ND
Benzo(a)anthracene	**1**	ND	ND	ND	ND	ND	0.086	0.095 J	ND	0.3	0.12 J	ND	ND	1 D,J
Chrysene	**1**	ND	ND	ND	ND	ND	0.082	0.094 J	ND	0.48	0.12 J	ND	ND	0.83 D,J
bis(2-Ethylhexyl)phthalate	**--**	ND	ND	ND	NA	ND	ND	ND	ND	ND	NA	ND	41 J	ND
Benzo(b)fluoranthene	**1**	ND	ND	ND	ND	ND	0.076	0.11 J	ND	0.23	ND	ND	ND	1.1 D,ID4,J
Benzo(k)fluoranthene	**0.8**	ND	ND	ND	ND	ND	ND	ND	ND	0.089 NJ	ND	ND	ND	ND
Benzo(a)pyrene	**1**	ND	ND	ND	ND	ND	0.068	0.093 J	ND	0.22	0.11 J	ND	ND	0.75 D,J
Indeno(1,2,3-cd)pyrene	**0.5**	ND	ND	ND	ND	ND	0.46	ND	ND	0.2	0.097 J	ND	ND	0.4 D,J
Dibenzo(a,h)anthracene	**0.33**	ND	ND	ND	ND	ND	0.43	ND	ND	ND	ND	ND	ND	0.16 D,J
Benzo(g,h,i)perylene	**100**	ND	ND	ND	ND	ND	0.49	ND	ND	0.2	0.1 J	ND	ND	0.43 D,J
Metals - mg/Kg														
Silver	**2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.17	NA
Aluminum	**--**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11300	17500	NA
Arsenic	**13**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 J	3.4 J	NA
Barium	**350**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	75.6 J	167 J	NA
Beryllium	**7.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.56 J	0.94 J	NA
Calcium	**--**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	69900	4510	NA
Cobalt	**--**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.8 J	12.6 J	NA
Chromium	**30**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.5	23.1	NA
Copper	**50**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.4	17	NA
Iron	**--**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17300 J	26900 J	NA
Potassium	**--**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2310	2000	NA
Magnesium	**--**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	26800	5180	NA
Manganese	**1600**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	480 J	1850 J	NA
Sodium	**--**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	141	45.7 J	NA
Nickel	**30**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17.3	23.6	NA
Lead	**63**	16.2	14.8 J	11.9 J	16.1 J	15.8 J	21.2 J	49.3 J	50.7 J	57.7 J	54.9 J	15.1	24	41.8 J
Thallium	**--**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7 J	3 J	NA
Vanadium	**--**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.9	33.8	NA
Zinc	**109**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	64.4	110	NA
Mercury	**0.18**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0082 J	0.034 J	NA

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per 6NYCRR Part 375 Soil Cleanup Objectives
3. Sample results were reported by the laboratory in ug/kg and converted to mg/kg for comparison to SCOs.

Definitions:

ND = Parameter not detected above laboratory detection limit.
NA = Sample not analyzed for parameter.
"--" = No SCO available.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
D = Constituent identified at the second dilution level
B = Analyte was detected in the associated blank as well as in the sample. Value is above the action level for consideration as being external contamination.
ID4 = Benzo(b)flouranthene coelutes with benzo(k)flouranthene. The reported result is a summation of the isomers.
* = Indicates the spike or duplicate analysis is not within the quality control limits.

Exceeds Unrestricted SCO

TABLE 6a
COST FOR IRM and IMPLEMENTATION OF A SITE MANAGEMENT PLAN

NIAGARA STREET AND PENNSYLVANIA AVENUE SITE

BUFFALO, NEW YORK

Item	Quantity	Units	Unit Cost	Total Cost
Interim Remedial Measures				
	1	EST	$ 300,000.00	$ 300,000
Institutional Controls				
Develop Site Management Plan	1	LS	$ 10,000.00	$ 10,000
Environmental Easement	1	LS	$ 6,500.00	$ 6,500
Subtotal:				**$ 316,500**
Total Capital Cost				**$ 316,500**
SVI Evaluation				
	1	LS	$ 15,000.00	$ 15,000
Subtotal:				**$ 15,000**
Annual Operation Maintenance & Monitoring (OM&M):				
Annual Groundwater Monitoring	1	Yr	$ 8,500.00	$ 8,500
Annual Certifications	1	Yr	$ 1,500.00	$ 1,500
Total Annual OM&M Cost				**$ 10,000**
Number of Years (n):				30
Interest Rate (I):				5%
p/A value:				15.3725
OM&M Present Worth (PW):				**$ 153,725**

Total Present Worth (PW): Capital Cost + OM&M PW	**$ 485,225**

TABLE 6b
COST ESTIMATE FOR UNRESTRICTED USE ALTERNATIVE

NIAGARA STREET AND PENNSYLVANIA AVENUE SITE

BUFFALO, NEW YORK

Item	Quantity[2]	Units	Unit Cost	Total Cost
Building Demolition				
Building Demolition and Disposal	1	LS	$ 350,000.00	$ 350,000
Subtotal:				**$ 350,000**
Clean Soil/Fill Handling				
Clean Soil/Fill Excavating & Staging	200	CY	$ 15.00	$ 3,000
Clean Soil/Fill Placement & Compaction	200	CY	$ 15.00	$ 3,000
Subtotal:				**$ 6,000**
Impacted Soil/Fill Removal				
Soil/Fill Excavating & Hauling	500	CY	$ 20.00	$ 10,000
Disposal at TSDF (1.5 tons per CY)	750	TON	$ 50.00	$ 37,500
Verification Sampling[1]	10	EA	$ 350.00	$ 3,500
Subtotal:				**$ 51,000**
Site Restoration				
Backfill, Place & Compact	500	CY	$ 15.00	$ 7,500
Subtotal:				**$ 7,500**
Subtotal Capital Cost				**$ 414,500**
Contractor Mobilization/Demobilization (5%)				$ 20,725
Health and Safety (2%)				$ 8,290
Engineering/Contingency (35%)				$ 145,075
Total Unrestricted Cleanup Cost				**$ 588,590**
Total IRM Cost				**$ 300,000**
Total Capital Cost				**$ 888,590**

Notes:

1. STARS List VOCs and SVOCs; expedited turn around time of 3 days.

TABLE 6C
SUMMARY OF REMEDIAL ALTERNATIVES COSTS

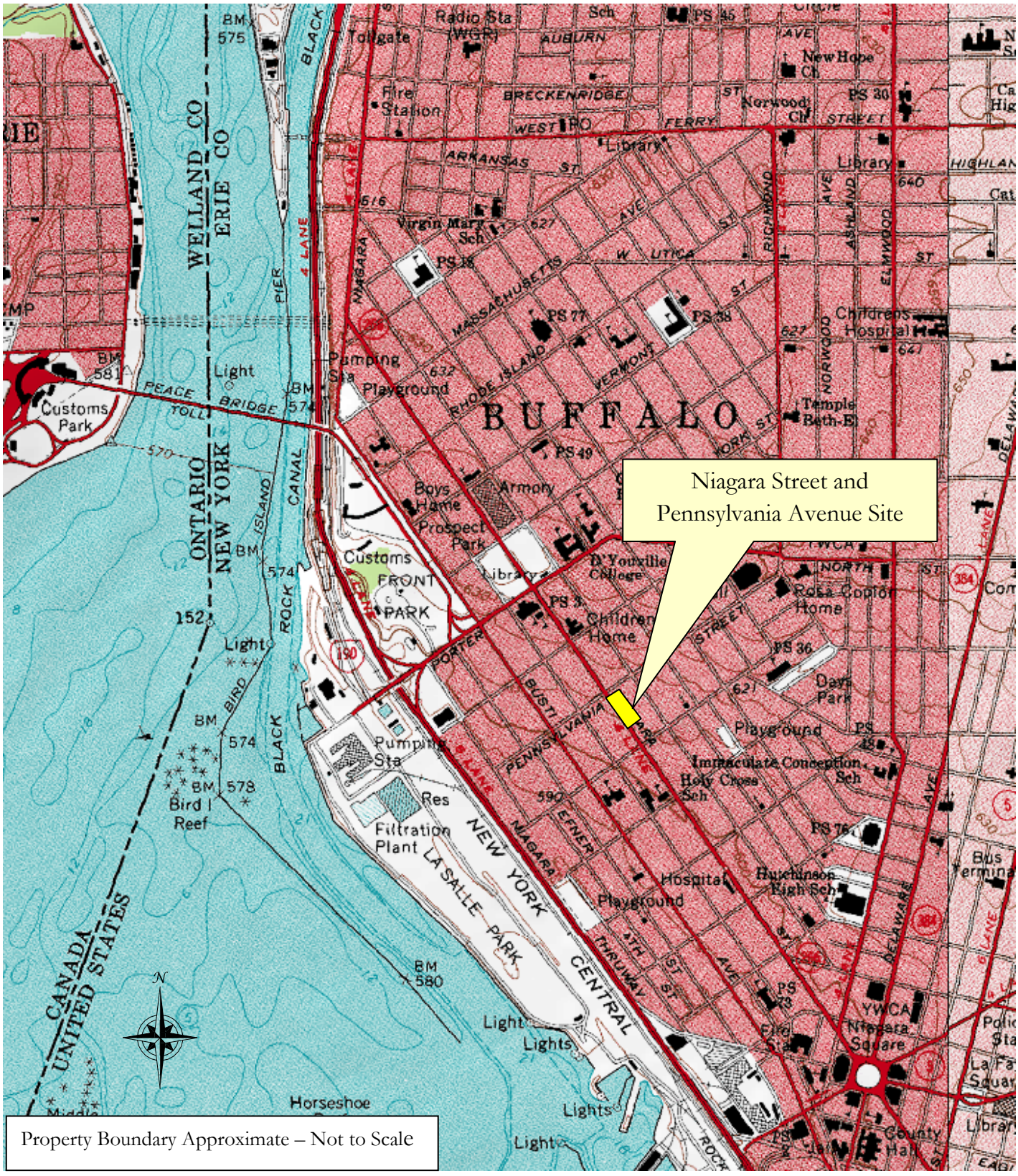
NIAGARA STREET AND PENNSYLVANIA AVENUE SITE

BUFFALO, NEW YORK

Remedial Alternative	Estimated Cost
No Further Action (Cost of completed IRM)	**$300,000**
IRM and Implementation of Site Management Plan (SMP) (Cost of completed IRM, plus SMP and future O&M)	**$485,000**
Unrestricted Use Cleanup (Cost of completed IRM, plus unrestricted use cleanup)	**$889,000**

FIGURES

FIGURE 1



TurnKey Environmental Restoration, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0136-002-301

DATE: OCTOBER 2009

DRAFTED BY: NTM

SITE LOCATION AND VICINITY MAP

RI / AAR / IRM REPORT

NIAGARA STREET AND PENNSYLVANIA AVENUE SITE
BCP SITE No. C915223
BUFFALO, NEW YORK

PREPARED FOR

1093 GROUP, LLC

BCP Parcel Boundary Approximate

Not to Scale

TurnKey Environmental Restoration, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0136-002-301

DATE: OCTOBER 2009

DRAFTED BY: NTM

SITE PLAN (AERIAL)

RI / AAR / IRM REPORT

NIAGARA STREET AND PENNSYLVANIA AVENUE SITE
BCP SITE No. C915223
BUFFALO, NEW YORK

PREPARED FOR

1093 GROUP, LLC

FIGURE 2

PENNSYLVANIA AVENUE

CONCRETE SIDEWALK

NIAGARA STREET

CONCRETE SIDEWALK

REYNOLDS ALLEY

OFF-SITE
MW-1
SW-2
SW-6
MW-2
SW-10
MW-3
(B-3)
TANK A
TANK B
TANK C
TANK D
TANK E
FORMER CANOPY
FORMER AUTO REPAIR BUILDING
SW-1
F-1
F-4
SW-9
F-5
SW-8
SW-3
F-2
F-3
B-7
SW-4
SW-7
SW-5
SS
SS
SS
MW-6
(B-6)
MW-5
(B-5)
(B-4)
MW-4

16' 0' 16' 32'

SCALE: 1 INCH = 16 FEET
SCALE IN FEET
(approximate)

- BCP PROPERTY BOUNDARY
- PARCEL BOUNDARIES
- APPROXIMATE EXCAVATION LIMITS
- APPROXIMATE SURFACE SOIL REMOVAL LIMITS
- MW-4 MONITORING WELL LOCATIONS
- B-7 SOIL BORING LOCATION
- SW-3 CONFIRMATORY SIDEWALL SAMPLE LOCATIONS
- F-2 CONFIRMATORY FLOOR SAMPLING LOCATIONS
- SS COMPOSITE SURFACE SOIL SAMPLING LOCATIONS
- OFF-SITE OFF-SITE SUBSURFACE SAMPLING LOCATION
- TANK E FORMER UST LOCATIONS
- FORMER IN-GROUND HYDRAULIC LIFT LOCATION
- OFF-SITE EXCAVATION FOR UTILITIES
- SEWER MANHOLE COVER

DATE: JULY 2009
DRAFTED BY: NTM

726 EXCHANGE STREET
SUITE 624
BUFFALO, NEW YORK 14210
(716) 856-0635

TURNKEY ENVIRONMENTAL RESTORATION, LLC

JOB NO.: 0136-002-301

IRM EXCAVATION LIMITS
RI / AAR / IRM REPORT
NIAGARA STREET AND PENNSYLVANIA AVENUE SITE
BCP SITE No. C915223
BUFFALO, NEW YORK
PREPARED FOR
1093 GROUP, LLC

FIGURE 3

PENNSYLVANIA AVENUE

NIAGARA STREET

REYNOLDS ALLEY

MW-1 (484.97)

MW-2 (dry)

MW-3 (492.48)

MW-4 (494.60)

MW-5 (493.60)

MW-6 (487.28)

FORMER CANOPY

FORMER AUTO REPAIR BUILDING

485

487

489

491

493

495

497

513

511

99999

187

MH

BCP PROPERTY BOUNDARY

PARCEL BOUNDARIES

MW-3 (492.48) MONITORING WELL LOCATIONS

GROUNDWATER CONTOUR

GROUNDWATER FLOW DIRECTION

16' 0' 16' 32'

SCALE: 1 INCH = 16 FEET
SCALE IN FEET
(approximate)

DATE: JULY 2009
DRAFTED BY: NTM

726 EXCHANGE STREET
SUITE 624
BUFFALO, NEW YORK 14210
(716) 856-0635

TURNKEY ENVIRONMENTAL RESTORATION, LLC

JOB NO.: 0136-002-301

GROUNDWATER ISOPOTENTIAL MAP

RI / AAR / IRM REPORT

NIAGARA STREET AND PENNSYLVANIA AVENUE SITE
BCP SITE No. C915223
BUFFALO, NEW YORK

PREPARED FOR
1093 GROUP, LLC

FIGURE 4

PENNSYLVANIA AVENUE

CONCRETE SIDEWALK

NIAGARA STREET

REYNOLDS ALLEY

CONCRETE SIDEWALK

OFF-SITE

MW-1

SW-2

SW-6

MW-2

SW-10

MW-3

SW-1

TANK A

TANK B

TANK C

TANK D

TANK E

F-1

F-4

FORMER CANOPY

F-5

FORMER AUTO REPAIR BUILDING

SW-9

SW-8

SW-3

F-2

F-3

B-7

SW-7

SW-4

SW-5

MW-6

SS

MW-5

MW-4

187

517

513

517

16' 0' 16' 32'

SCALE: 1 INCH = 16 FEET
SCALE IN FEET
(approximate)

- BCP PROPERTY BOUNDARY
- PARCEL BOUNDARIES
- APPROXIMATE EXCAVATION LIMITS
- APPROXIMATE SURFACE SOIL REMOVAL LIMITS
- UNRESTRICTED USE ALTERNATIVE - AREA OF IMPACT
- MW-4 MONITORING WELL LOCATIONS
- B-7 SOIL BORING LOCATION
- SW-3 CONFIRMATORY SIDEWALL SAMPLE LOCATIONS
- F-2 CONFIRMATORY FLOOR SAMPLING LOCATIONS
- SS COMPOSITE SURFACE SOIL SAMPLING LOCATIONS
- OFF-SITE OFF-SITE SUBSURFACE SAMPLING LOCATION
- TANK E FORMER UST LOCATIONS
- FORMER IN-GROUND HYDRAULIC LIFT LOCATION
- OFF-SITE EXCAVATION FOR UTILITIES

DATE: OCTOBER 2009
DRAFTED BY: NTM

726 EXCHANGE STREET
SUITE 624
BUFFALO, NEW YORK 14210
(716) 856-0635

TURNKEY ENVIRONMENTAL RESTORATION, LLC

JOB NO.: 0136-002-301

UNRESTRICTED USE ALTERNATIVE

RI / AAR / IRM REPORT

NIAGARA STREET AND PENNSYLVANIA AVENUE SITE
BCP SITE No. C915223
BUFFALO, NEW YORK

PREPARED FOR
1093 GROUP, LLC

FIGURE 5

APPENDIX A

PROJECT PHOTOLOG

SITE PHOTOGRAPHS

Photo 1:

Photo 2:

Photo 3:

Photo 4:

Photo 1: Site building and canopy (Looking East)

Photo 2: Site building and canopy (Looking Northeast)

Photo 3: Site after demolition (Looking East)

Photo 4: Site after demolition (Looking Northeast)

SITE PHOTOGRAPHS

Photo 5:

Photo 6:

Photo 7:

Photo 8:

Photo 5: Beginning IRM excavation (Looking Southeast)

Photo 6: Excavation of impacted Soils

Photo 7: Groundwater treatment system (Looking North)

Photo 8: UST excavation

SITE PHOTOGRAPHS

Photo 9:

Photo 10:

Photo 11:

Photo 12:

Photo 9: UST removal (Looking Southeast)

Photo 10: UST removal (Looking South)

Photo 11: UST excavated pit (Looking West)

Photo 12: UST excavation

SITE PHOTOGRAPHS

Photo 13:

Photo 14:

Photo 15:

Photo 16:

Photo 13: Excavation in progress (Looking North)

Photo 14: Excavation (Looking Southwest)

Photo 15: Excavation (Looking North)

Photo 16: Backfill preparation (Looking Northwest))

SITE PHOTOGRAPHS

Photo 17:

Photo 18:

Photo 19:

Photo 20:

Photo 17: Backfill (Looking Southwest)

Photo 18: Backfill and compaction (Looking Northeast)

Photo 19: Backfill (Looking Northwest)

Photo 20: Backfill (Looking South)

SITE PHOTOGRAPHS

Photo 21:

Photo 22:

Photo 23:

Photo 24:

Photo 21: Final grade (Looking Southwest)

Photo 22: Drilling (Looking East)

Photo 23: Drilling (Looking Southwest)

Photo 24: Well installed

APPENDIX B

FIELD BOREHOLE LOGS AND WELL COMPLETION DETAILS

Project No: 0136-002-301

Borehole Number: B-3/MW-3

Project: 517 Niagara St

Client: Ellicott Development

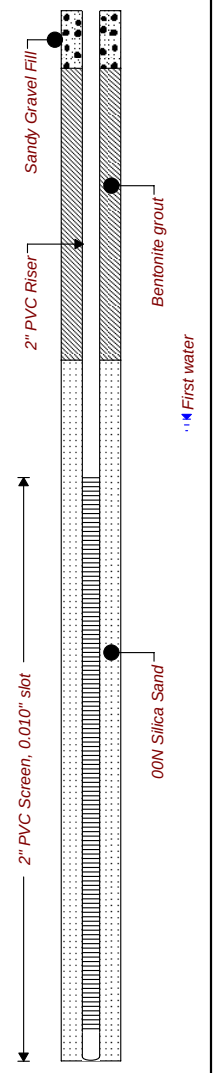
Logged By: BMG

Site Location: 517 Niagara St

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Lackawanna, NY
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm (0 / 1000 / 2000)	Lab Sample	Well Completion Details or Remarks
0.0	0.0	Ground Surface							
	0.0	***Fill*** Brown, moist, mixed silt, ash and bricks with Silty Clay, low to medium plasticity, medium dense	s-1	NA	2.2		0.0 / 0.0		
	-4.5								
	4.5	***Silty Clay*** Brown, moist, Silty Clay with few gravel, low to medium plasticity, dense	s-2	NA	4.0		0.0 / 0.0	sampled 5-7'	
5.0	-7.0								
	7.0	***Sandy Silt*** Brown, wet, Sandy Silt with few gravel, soft,							
	-8.0								
	8.0	***Silty Clay*** Brown, moist, Silty Clay with trace Sand, medium plasticity, dense	s-3	NA	4.0		0.0 / 0.0		
10.0	-12.0								
	12.0	***Silty Clay*** Reddish brown, moist, Silty Clay, highly plasticity, dense	s-4	NA	2.5		0.0		
15.0			s-5	NA	.8		0.0		
			s-6	NA	1.0		0.0		
	-18.0								
	18.0	End of Borehole							
20.0									



Drilled By: TREC Environmental
Drill Rig Type: Geoprobe 6620DT
Drill Method: Direct push/HSA

Drill Date(s): 4-3-09

Hole Size: 5"
Stick-up: 2'
Datum:

Sheet: 1 of 1

Project No: 0136-002-301

Borehole Number: B-4/MW-4

Project: 517 Niagara St

Client: Ellicott Development

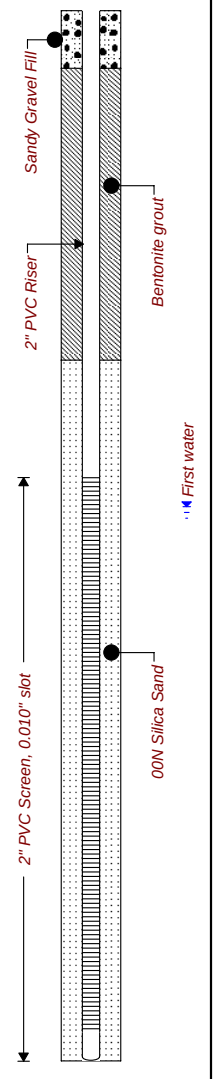
Site Location: 517 Niagara St

Logged By: BMG

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Lackawanna, NY
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm (0 / 1000 / 2000)	Lab Sample	Well Completion Details or Remarks
0.0	0.0	Ground Surface							
	0.0	***Fill*** Brown, moist, mixed silt, ash and bricks with Silty Clay, low to medium plasticity, stiff	s-1	NA	2.8		0.0		
	-5.0						0.0		
5.0	5.0	***Silty Clay*** Brown, moist, Silty Clay with few gravel, low to medium plasticity, verry stiff	s-2	NA	4.0		0.0	Sampled 5-7'	
	-8.5						0.0		
	8.5	***Sandy Silt*** Brown, wet, Sandy Silt with few gravel, medium dense,	s-3	NA	3.0		0.0		
10.0	-10.5						0.0		
	10.5	***Silty Clay*** Reddish brown, moist, Silty Clay, highly plasticity, soft	s-4	NA	3.5		0.0		
15.0							0.0		
			s-6	NA	1.3		0.0		
	-18.0								
	18.0	End of Borehole							
20.0									



Drilled By: TREC Environmental
Drill Rig Type: Geoprobe 6620DT
Drill Method: Direct push/HSA

Drill Date(s): 4-3-09

Hole Size: 5"
Stick-up: 2'
Datum:

Sheet: 1 of 1

Project No: 0136-002-301

Borehole Number: B-5/MW-5

Project: 517 Niagara St

Client: Ellicott Development

Logged By: BMG

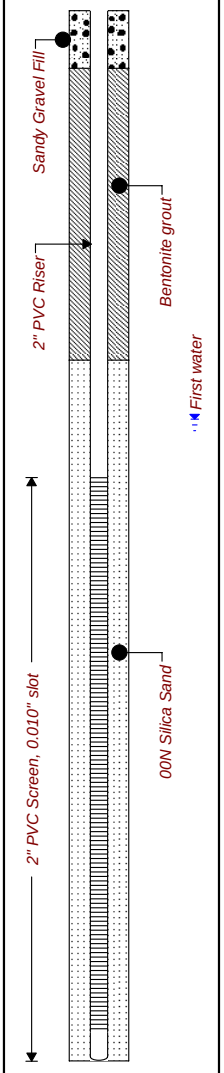
Site Location: 517 Niagara St

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Lackawanna, NY
(716) 856-0635

Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs (ppm)	Lab Sample	Well Completion Details or Remarks
0.0	0.0	Ground Surface							
	0.0	***Fill*** Brown, moist, mixed silt, ash and bricks with Silty Clay, low to medium plasticity, medium dense							
	-2.0 / 2.0	***Silty Clay*** Brown, moist, Silty Clay, low to medium plasticity, medium dense	s-1	NA	2.5		0.0		
5.0			s-2	NA	3.0		0.0		
	-6.0 / 6.0	***Sandy Silt*** Brown, moist to wet (7.0'), Sandy Silt with few gravel, soft,					0.0		
	-9.0 / 9.0	***Silty Clay*** Reddish brown, moist, Silty Clay, medium plasticity, medium dense	s-3	NA	4.0		0.0		
10.0			s-4	NA	4.0		0.0		
15.0			s-5	NA	1.0		0.0		
			s-6	NA	2.0		0.0		
	-18.0 / 18.0	End of Borehole							
20.0									

PID VOCs scale: 0 – 1000 – 2000 ppm



Drilled By: TREC Environmental
Drill Rig Type: Geoprobe 6620DT
Drill Method: Direct push/HSA

Drill Date(s): 4-3-09

Hole Size: 5"
Stick-up: 2'
Datum:

Sheet: 1 of 1

Project No: 0136-002-301

Borehole Number: B-6/MW-6

Project: 517 Niagara St

Client: Ellicott Development

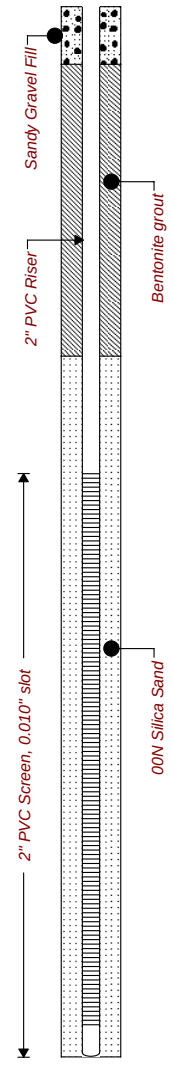
Logged By: BMG

Site Location: 517 Niagara St

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Lackawanna, NY
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm (0 / 1000 / 2000)	Lab Sample	Well Completion Details or Remarks
0.0	0.0	Ground Surface							
	0.0	***Fill*** Brown, moist, mixed silt, ash and bricks with Silty Clay, low to medium plasticity, stiff					0.0		
	-2.0 / 2.0	***Silty Clay*** Brown, moist, Silty Clay with few gravel, low to medium plasticity, verry stiff	s-1	NA	3.8		0.0		
	-3.8 / 3.8	***Sandy Silt*** Brown, wet, Sandy Silt with few gravel, medium dense,							
5.0			s-2	NA	3.7		0.0		
	-8.0 / 8.0	***Silty Clay*** Brown, moist, Silty Clay, medium plasticity, stiff					0.0		
10.0			s-3	NA	4.0+		0.0		
	-13.0 / 13.0	***Silty Clay*** Reddish brown, moist, Silty Clay, highly plasticity, soft	s-4	NA	3.3		0.0		
15.0			s-5	NA	3.2		0.0		
			s-6	NA	1.0				
	-18.0 / 18.0	End of Borehole							
20.0									



Drilled By: *TREC Environmental*
Drill Rig Type: *Geoprobe 6620DT*
Drill Method: *Direct push/HSA*

Drill Date(s): *4-3-09*

Hole Size: *5"*
Stick-up: *2'*
Datum:

Sheet: *1 of 1*

Project No: 0136-002-301

Borehole Number: B-7

Project: 517 Niagara St

Client: Ellicott Development

Site Location: 517 Niagara St

Logged By: BMG

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Lackawanna, NY
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm (0 / 1000 / 2000)	Lab Sample	Well Completion Details or Remarks
0.0	0.0	Ground Surface							
	0.0	***Fill*** Brown, moist, mixed silt, ash and bricks with Silty Clay, low to medium plasticity, stiff	s-1	NA	3.9		0.0		
							0.0		
	-5.0								
5.0	5.0	***Silty Clay*** Brown, moist, Silty Clay, low to medium plasticity, verry stiff							
	-6.0								
	6.0	***Sandy Silt*** Brown, wet, Sandy Silt with few gravel, medium dense,	s-2	NA	3.8		0.0		
							0.0		
	-8.0								
	8.0	***Silty Clay*** Brown, moist, Silty Clay, medium plasticity, verry stiff					0.0		
10.0			s-3	NA	4.0+				
							0.0		
	-12.0								
	12.0	***Silty Clay*** Reddish brown, moist, Silty Clay, highly plasticity, soft	s-4	NA	2.0		0.0		
15.0			s-5	NA	1.3		0.0		
			s-6	NA	1.1				
	-18.0								
	18.0	End of Borehole							
20.0									

Drilled By: TREC Environmental
Drill Rig Type: Geoprobe 6620DT
Drill Method: Direct push/HSA

Drill Date(s): 4-3-09

Hole Size: 2"
Stick-up: NA
Datum:

Sheet: 1 of 1

Project No: 0136-002-301

Borehole Number: MW-1

Project: 517 Niagara St

Client: Ellicott Development

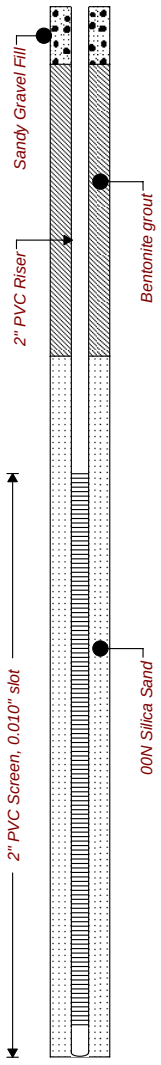
Logged By: BMG

Site Location: 517 Niagara St

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Lackawanna, NY
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm (0 – 1000 – 2000)	Lab Sample	Well Completion Details or Remarks
0.0	0.0 / 0.0	Ground Surface ***No Macrocores Collected***							
	-18.0 / 18.0	End of Borehole							



Drilled By: TREC Environmental
Drill Rig Type: Geoprobe 6620DT
Drill Method: Direct push/HSA

Drill Date(s): 4-6-09

Hole Size: 5"
Stick-up: 2'
Datum:

Sheet: 1 of 1

Project No: 0136-002-301

Borehole Number: MW-2

Project: 517 Niagara St

Client: Ellicott Development

Logged By: BMG

Site Location: 517 Niagara St

Checked By: BCH

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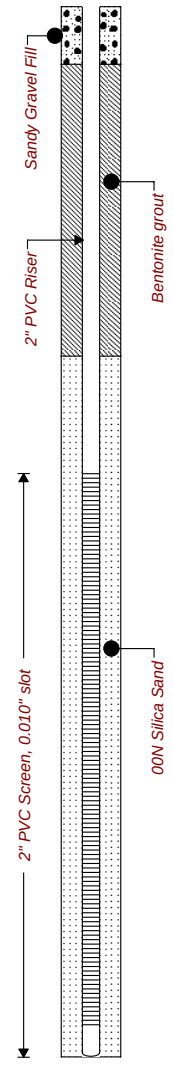
2558 Hamburg Turnpike, Suite 300
Lackawanna, NY
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm (0 – 1000 – 2000)	Lab Sample	Well Completion Details or Remarks
0.0	0.0 / 0.0	Ground Surface ***No Macrocores Collected***							
	-18.0 / 18.0	End of Borehole							



Drilled By: TREC Environmental
Drill Rig Type: Geoprobe 6620DT
Drill Method: Direct push/HSA

Drill Date(s): 4-6-09

Hole Size: 5"
Stick-up: 2'
Datum:

Sheet: 1 of 1

APPENDIX C

IRM AND RI SAMPLING DATA

(PROVIDED ELECTRONICALLY)

APPENDIX D

DATA USABILITY SUMMARY REPORT (DUSR)

Data Validation Services

120 Cobble Creek Road P.O. Box 208
North Creek, NY 12853

Phone 518-251-4429
Facsimile 518-251-4428

July 2, 2009

Mike Lesakowski
Benchmark Engineering
726 Exchange St. Suite 624
Buffalo, NY 14210

RE: Niagara and Pennsylvania site
Data Usability Summary Report (DUSR)
TestAmerica-CT SDG Nos. 220-8144, 220-8156, 20-8166, 220-8184, 220-8201, 220-8338, 220-8478, 220-8677, and 220-8775
TestAmerica-Buffalo SDG Nos. RSB0683, RSC0279, RSC0706, RSD0224, and RSD0535

Dear Mr. Lesakowski:

Review has been completed for the data packages generated by TestAmerica Laboratories (TAL) that pertain to samples collected 02/20/09 through 04/14/09 at the Niagara and Pennsylvania site. Eight soil samples were processed for STARS volatiles, STARS semivolatiles, lead and tetraethyl lead (TEL). Six soil samples were processed for TCL+STARS volatiles and semivolatiles, lead, and TEL. Two of those samples and a field duplicate were also processed for TCL pesticides, PCBs, and three herbicides. Four soil samples and a field duplicate were processed for TCL+STARS volatiles and semivolatiles, and TAL metals. Two of those were also processed for TCL pesticides, PCBs, and three herbicides; another was also processed for PCBs. Five aqueous samples and a field duplicate were processed for TCL volatiles and semivolatiles. All but one of those were also processed for PCBs and TAL metals; the other sample was also processed for total lead. Two of the soil samples and a blind duplicate were processed for herbicides at both TAL-Buffalo and TAL-Canton. Methodologies utilized are those of the USEPA SW846 6000/7000/8000. All but the herbicide and TEL analyses were subcontracted to TAL-CT.

The data packages submitted contained full deliverables for validation, but this usability report is primarily generated from review of the summary form information, with full review of sample raw data, and limited review of associated QC raw data. Full validation has not been performed. However, the reported summary forms have been reviewed for application of validation qualifiers, using guidance from the USEPA Region 2 validation SOPs and the USEPA National Functional Guidelines for Data Review, with consideration of the requirements of the project QAPP and the specific methodologies. The following items were reviewed:

* Laboratory Narrative Discussion
* Case Narratives
* Custody Documentation
* Holding Times

* Surrogate and Internal Standard Recoveries
* Matrix Spike Recoveries/Duplicate Correlations
* Field Duplicate Correlations
* Preparation/Calibration Blanks
* Matrix Spiked Blanks/Laboratory Control Samples
* Instrumental Tunes
* Calibration/CRI Standards
* ICP Interference Check Standards
* ICP Serial Dilution Correlations
* Method Compliance
* Sample Result Verification

Those items listed above which show deficiencies are discussed within the text of this narrative. All of the other items were determined to be acceptable for this level of review.

In summary, most results for the samples are usable as reported, or usable with minor qualification due to sample matrix or to processing outliers. However, TEL results in four samples are not usable due to laboratory processing.

Copies of the laboratory sample identifications and laboratory case narratives are attached to this text, and should be reviewed in conjunction with this report. Also included with this report are validation qualifier definitions and qualified client results tables/laboratory forms.

The following text discusses quality issues of concern.

Blind Field Duplicates

Blind field duplicate evaluations were performed for various analytical fractions on SW-5, SW-7, B-4, and MW-5.

Correlations are acceptable, with the following exceptions, results of which are qualified as estimated in value in the parent sample and duplicate:

TCL Volatiles by EPA 8260B

F-2 showed inconsistent results for benzene in two different analyses. The initial result well exceeded the linear range of the instrument (the inaccurate quantitation concentration is 550 ug/L). The sample should have been reanalyzed at dilution, but was logged as being analyzed again undiluted. That value was 49 ug/L. The initial result for benzene is used, but qualified as estimated due to response outside the established linear range.

The detections of methylene chloride in samples reported in 220-8156, 220-8184, and Clean Soil Pile 1 are considered external contamination, and are edited to reflect non-detection, due to presence in associated method blanks. The detection of chloroform in MW-1 is similarly considered and edited due to presence in the associated method blank. Although not found in the aqueous blank, and therefore not qualifierd, the detection of methylene chloride in MW-1 is suspect as being external contamination.

Results for the following detected analytes are qualified as tentative in identification and estimated in value due to poor mass spectral quality (matrix interferences):

- sec-butylbenzene and 4-isopropyltoluene in SW-1
- t-butylbenzene, 1,2,4-trimethylbenzene, and 4-isopropyltoluene in SW-3
- acetone and 2-butanone in SW-5
- sec-butylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and naphthalene in SW-9
- m,p-xylene, t-butylbenzene, n-butylbenzene, 1,3,5-trimethylbenzene, and 4-isopropyltoluene in SW-10

Results for the following detected analytes are edited to reflect non-detection due to very poor mass spectral quality (matrix interferences):

- toluene in SW-3
- t-butylbenzene in F-5
- o-xylene in SW-8
- naphthalene in SW-10
- 2-butanone in MW-1

Surrogate recoveries and internal standard responses are within required ranges. Instrument tunes meet protocol requirements.

The calibration standard responses are within validation guidelines, with the following exceptions, results for which are qualified as estimated in the indicated samples:

- dichlorodifluoromethane (83%D) and chloromethane (32%D) in Clean Soil Pile 1
- isopropyl alcohol (25%D) and 1,3,5-trimethylbenzene (25%D) in samples reported in 220-8156
- 4-isopropyltoluene, sec-butylbenzene, 1,2,4-trimethylbenene,, t-butyl alcohol, 1,3,5-trimethylbenzene, 4-ethyltoluene, isopropyl benzene, n-propylbenzene, and naphthalene (22%D to 26%D) in F-4, SW-8, and SW-9
- m,p-xylene (24%RSD) in samples reported in 220-8775

Samples matrix spikes (MS/MSD) were performed on B-4, SW-10, and MW-4. Recoveries and duplicate correlations are acceptable, with the following exceptions, results for which are qualified as estimated in the parent sample:

- carbon disulfide (75% and 77%) and chloromethane (63% and 68%) in B-4
- ethylbenzene, m,p-xylene, and o-xylene (64% to 66%) in SW-10
- m,p-xylene (122% and 121%) in MW-4

The following results are qualified as estimated due to outlying LCS recoveries:

- carbon disulfide (67%) and tetrachloroethene (66%) in Clean Pile Soil #1
- acetone (153%) detections in the aqueous samples
- the detection of MTBE (131%) in sample SW-7
- bromomethane (74%) in Clean Soil Pile 1

Naphthalene was reported in the data package as a target analyte in both the volatile and semivolatile fractions.

TCL Semivolatile (SVOA) and Tetraethyl Lead (TEL) Analyses by EPA8270C

TEL data show inconsistent and often low recoveries in the spiked controls, indicating a processing problem with recovery of the analyte. The following outliers, and resulting qualifications are indicated:

- results for TEL in the samples collected 2/20/09 are rejected, not usable, due to lack of recovery in one of the associated spiked controls (LCSs).
- the single TEL LCS associated with two samples collected 2/26/09 also showed a recovery below 10% (8%). Those samples were re-extracted, with one LCS showing a low recovery of 36%; 76%RPD. Results for TEL in those two samples have been qualified as estimated.
- the TEL LCSs associated with samples collected 2/23/009 recovered at 10% and 172%. The results for TEL in those samples have been qualified as estimated.

The detections of bis(2-ethylhexyl)phthalate in samples reported in 220-8478 are considered external contamination, and are edited to reflect non-detection, due to presence in associated method blank.

Results for the following detected analytes are qualified as tentative in identification and estimated in value due to poor mass spectral quality (matrix interferences):

- fluorene and benzo(a)anthracene in SW-3
- fluoranthen+e and benzo(k)fluoranthene in SW-9
- 2-methylnapththalene in MW-1

The calibration standard responses are within validation guidelines, with the following exceptions, results for which are qualified as estimated in the indicated samples:

- caprolactum (30%RSD) in samples reported in 220-8478
- benzaldehyde (41%RSD) in samples reported in 220-8677
- benzoic acid (27%RSD), 4-chloroaniline (34%D), and 3,3'-dichlorobenzidine (28%D) in samples reported in 220-8775
- TEL (31%D) in samples collected 2/25/09

Surrogate recoveries and internal standard responses are within required ranges. Instrument tunes meet protocol requirements.

Matrix spikes were performed for SVOA and TEL on SW-10 and MW-4 with recoveries and duplicate correlations falling within validation guidelines, with the exceptions of benzo(a)pyrene (55% and 52%) and benzo(k)fluoranthene (54% and 57%) in MW-4, the results for which are qualified as estimated in the parent sample.

Tentatively Identified Compounds (TICs) flagged as "B" or "A" by the laboratory are considered external contamination (indicated by presence in associated blanks), and are to be rejected as sample components.

TCL Pesticide, PCB, and Herbicide Analyses by EPA8081A, EPA8082, and EPA8151

Many of the pesticide detections show elevated dual column quantitative correlations (above the protocol recommended limit of 40%RPD). This indicates matrix interferences that can result in falsely elevated concentrations or potential false positives. The affected analyte results have therefore been qualified as either estimated in value, tentative in identification and estimated in value, or edit to non-detection.

b-BHC NJ in Blind Dup
aldrin to U "
Aroclor 1260 in Surface
separater forms

The "P" flag was not applied to pesticide results where required.

Blind Dup should have been reported with a detection of b-BHC at 0.24 ug/kg. This detection is then flagged as tentative in identification and estimated in value.

Herbicide matrix spikes of SW-7 performed by both laboratories show acceptable accuracy and precision. No QC summary report Forms 10A were provided by TAL-Buffalo for those spikes.

The matrix spikes of Aroclors 1016 and 1260 in MW-4 show elevated recoveries for the former. Parent sample results, which show no detection of that mixture, are unaffected. Matrix spikes of Aroclors 1016 and 1260 in SW-7 show acceptable accuracy and precision.

Pesticide matrix spikes of SW-7 show acceptable accuracy and precision.

One of the two LCSs extracted 3/27/09 shows elevated surrogate standard and spike compound recoveries. This is an extract anomaly, and sample reported results are unaffected.

The calibration standards that closed the analytical pesticide sequence of 3/23/09-3/24/09 showed elevated responses for most analytes. The only associated sample detections are already qualified due to dual column correlation.

The laboratory should have processed the Aroclor mixtures that were detected in samples as part of their continuing calibration standard evaluations.

Some of the pesticides analyses were conducted on an analytical column exhibiting a non-compliant elevated baseline.

Raw data for solids determinations performed by TAL-Buffalo for herbicide analyses were not provided in the data package. These would be required for full validation review.

TAL Metals and Total Lead by 6010B, 7470, and 7471

The result for total lead in SW-6 is qualified as estimated due to elevated recovery in the associated low-level concentration standard (165%).

The result for selenium in the samples reported in 220-8478 are qualified as estimated due to low recovery in the associated low-level concentration standard (41%).

Matrix spike/duplicate evaluations were performed for total lead on SW-10. The sample concentration is too high for a valid recovery evaluation. The duplicate correlation is elevated at 65%RPD. All samples 2/20/09 through 2/26/09 are associated with this parent sample, and lead values in those samples are therefore qualified as estimated in value.

Matrix spike/duplicate evaluations were performed for TAL metals on B-4 and MW-4. Barium and antimony produced low recoveries (12% through 60%) in both spikes of B-4, and results for those two elements in the samples reported in 220-8478 and 220-8677 are therefore qualified as estimated in value.
Recoveries and correlations for MW-4 are acceptable.

The ICP serial dilution evaluations of lead in SW-10 and MW-4 show acceptable correlations. The ICP serial dilution of TAL metals in B-4 shows elevated correlations for iron and manganese (12%D and 19%D). Deected results for those two elements in the samples reported in 220-8478 and 220-8677 are therefore qualified as estimated in value.

Calibration standard responses are acceptable, and blanks show no contamination above the reporting limits. Instrument performance is compliant. LCSs show recoveries within acceptance limits.

Data Package Completeness

The raw sample data from TAL-Buffalo should have been identified with client ID.

TAL-CT laboratory case narratives were not signed, and some of the data packages do not provide the required "verbatim" statement.

Chain-of-Custody

No chain-of-custody was submitted for the interlaboratory transfer (from TAL-Buffalo to TAL-CT) of sample Clean Soil Pile 1. The receiving laboratory documented the temperature and provided signature entries on a copy of an email from TAL-Buffalo referencing the shipment.

The collection date/times were not present on custody pertaining to the 4/14/09 shipment. The release date and receipt dates are present on that custody.

Please do not hesitate to contact me if you have comments or questions regarding this report.

Very truly yours,

Judy Harry

Data Validation Services

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August 5, 2009

Nathan Munley
Benchmark Engineering
726 Exchange St. Suite 624
Buffalo, NY 14210

RE: Niagara and Pennsylvania site
Data Usability Summary Report (DUSR)
TestAmerica-Buffalo SDG No. RSG0136

Dear Mr. Munley:

Review has been completed for the data packages generated by TestAmerica Laboratories (TAL) that pertain to samples collected 07/01/09 at the Niagara and Pennsylvania site. One soil sample was processed for TCL volatiles, TCL semivolatiles, and total lead. One soil sample was processed for TCL semivolatiles. Methodologies utilized are those of the USEPA SW846 6000/7000/8000.

The data packages submitted contained full deliverables for validation, but this usability report is primarily generated from review of the summary form information, with full review of sample raw data, and limited review of associated QC raw data. Full validation has not been performed. However, the reported summary forms have been reviewed for application of validation qualifiers, using guidance from the USEPA Region 2 validation SOPs and the USEPA National Functional Guidelines for Data Review, with consideration of the requirements of the project QAPP and the specific methodologies. The following items were reviewed:

* Laboratory Narrative Discussion
* Case Narratives
* Custody Documentation
* Holding Times
* Surrogate and Internal Standard Recoveries
* Matrix Spike Recoveries/Duplicate Correlations
* Preparation/Calibration Blanks
* Matrix Spiked Blanks/Laboratory Control Samples
* Instrumental Tunes
* Calibration/CRI Standards
* ICP Interference Check Standards
* ICP Serial Dilution Correlations
* Method Compliance
* Sample Result Verification

Those items listed above which show deficiencies are discussed within the text of this narrative. All of the other items were determined to be acceptable for this level of review.

In summary, most results for the samples are usable as reported, or usable with minor qualification due to sample matrix or to processing outliers.

Copies of the laboratory sample identifications and laboratory case narratives are attached to this text, and should be reviewed in conjunction with this report. Also included with this report are validation qualifier definitions and qualified client results tables.

The following text discusses quality issues of concern.

TCL Volatiles by EPA 8260B

Results for acetone and cyclohexane are qualified as tentative in identification and estimated in value due to poor mass spectral quality (matrix interferences).

The result for cyclohexane is derived from the dilution analysis of the sample. All other analyte results are derived from the initial analysis.

Surrogate recoveries and internal standard responses are within required ranges. Instrument tunes meet protocol requirements.

The calibration standard responses are within validation guidelines, with the following exceptions (27%D to 44%D), results for which are qualified as estimated in the sample:
1,1,2-1,2,2-trichlorotrifluoroethane, carbon disulfide, carbon tetrachloride, cyclohexane, methyl acetate, methylcyclohexane, methylene chloride, and trans-1,3-dichloropropene

Sample matrix spikes (MS/MSD) were performed on Offsite. Recoveries and duplicate correlations are within validation guidelines.

TCL Semivolatile Analyses by EPA8270C

The detections of fluoranthene and pyrene in Surface #2 are considered external contamination, and are edited to reflect non-detection, due to presence in associated method blank.

Results for the benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, and indeno (1,2,3-cd)pyrene in Offsite are qualified as tentative in identification and estimated in value due to poor mass spectral quality (matrix interferences).

Benzo(b)fluoranthene and benzo(k)fluoranthene results in Surface#2 are qualified as estimated in value, since the reported detection of the former includes unresolved response from the latter.

Surrogate standard recoveries and the calibration standard responses are within validation guidelines. Internal standard responses are within required ranges. Instrument tunes meet protocol requirements.

No matrix spikes were performed. The spiked control recoveries show acceptable accuracy.

The samples were overly-diluted, resulting in few chromatographic responses, and unnecessarily elevated reporting limits.

Total Lead by 6010B

The matrix spike evaluation for Offsite show a low recovery (69%). The ICP serial dilution evaluation shows an elevated correlation (13%D). These indicate a matrix effect on analyte recovery, and the reported value is qualified as estimated..

Instrument performance is acceptable, and blanks show no contamination above the reporting limits. The LCS shows recovery within acceptance limits.

Data Package Completeness

The raw sample data should have been identified with client ID.

The laboratory narrative did not discuss project specifics.

Some of the laboratory sample report Forms 1 in the data package show an inapprpriate laboratory "D" qualifier.

Please do not hesitate to contact me if you have comments or questions regarding this report.

Very truly yours,

Judy Harry

APPENDIX E

LAND USE EVALUATION

APPENDIX E
LAND USE EVALUATION

NYSDEC's Part 375 regulations require that the reasonableness of the anticipated future land be factored into the evaluation of remedial alternatives. The regulations identify 16 criteria that must be considered. These criteria and the resultant outcome for the Niagara Street and Pennsylvania Avenue Site, located at 517 Niagara Street, are presented below.

1. *Current use and historical and/or recent development patterns:* The Site was a former retail gasoline station and automobile repair operation located in a highly urbanized area in the City of Buffalo. The Site is surrounded by a mix of commercial and residential parcels. The Site is currently unoccupied. **Accordingly, residential or commercial site redevelopment would be consistent with historic site use.**

2. *Applicable zoning laws and maps:* The Site is located in an area of the City zoned both residential and commercial. **Continued use in a commercial capacity is therefore consistent with current zoning.**

- *Brownfield opportunity areas as designated set forth in GML 970-r:* The Brownfield Opportunity Area (BOA) Program provides municipalities and community based organizations with assistance to complete revitalization plans and implementation strategies for areas or communities affected by the presence of brownfield sites, and site assessments for strategic sites. The subject property does not lie within a BOA.

3. *Applicable comprehensive community master plans, local waterfront revitalization plans as provided for in EL article 42, or any other applicable land use plan formally adopted by a municipality:* The 517 Niagara Street Site does not fall within the boundaries of the South Buffalo Redevelopment Plan or the City of Buffalo Local Waterfront Revitalization Program. **Sites outside of such designated revitalization or waterfront development areas are not as likely to require rezoning or change in use.**

4. *Proximity to real property currently used for residential use, and to urban, commercial, industrial, agricultural, and recreational areas:* Properties adjacent to the Site include several commercial properties, two vacant parcels, and multiple residential properties. The surrounding properties are mixed use, including commercial, residential, and vacant parcels. **Nearby and adjacent properties are mixed use, including residential and commercial. Maintaining use of the Site in a commercial capacity is consistent with surrounding property.**

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LAND USE EVALUATION

5. *Any written and oral comments submitted by members of the public on the proposed use as part of the activities performed pursuant to the citizen participation plan:* **No comments have been received from the public relevant to Site use concerns.**

6. *Environmental justice concerns, which include the extent to which the proposed use may reasonably be expected to cause or increase a disproportionate burden on the community in which the site is located, including low-income minority communities, or to result in a disproportionate concentration of commercial or industrial uses in what has historically been a mixed use or residential community:* **Nearby and adjacent property is actively used in a commercial and residential capacity. Maintaining use of the site in a commercial capacity does not pose environmental justice issues.**

7. *Federal or State land use designations:* The property is designated Urban Land (U2) by the Soil Conservation Service. Urban land typically contains ubiquitous contaminants. **Reuse in a restricted capacity is typical in areas where background conditions preclude achieving unrestricted use soil cleanup objectives.**

8. *Population growth patterns and projections:* The City of Buffalo, encompassing 40.6 square miles, has a population of 292,648 persons (2000 U.S. Census Bureau), a decrease of 35,527 from the 1990 U.S. census. A declining population indicates a surplus housing market**. Reuse of the Site in a non-residential capacity does not materially affect opportunities for residential growth.**

9. *Accessibility to existing infrastructure:* Niagara Street, Pennsylvania Avenue and Reynolds Alley all provide access to the Site. Utilities (sewer, water, electric) are present along all of these neighboring streets**. Existing infrastructure supports reuse in a commercial capacity**.

10. Proximity of the site to important cultural resources, including federal or State historic or heritage sites or Native American religious sites: **No such resources or sites are known to be present on or near the property.**

11. *Natural resources, including proximity of the site to important federal, State or local natural resources, including waterways, wildlife refuges, wetlands, or critical habitats of endangered or threatened species:* The Erie County Internet Mapping System shows that State or Federal wetlands do not exist on the subject property. Lake Erie and the Niagara River are located approximately 0.75 miles west of the Site. **The absence of**

APPENDIX E
LAND USE EVALUATION

significant ecological resources on or adjacent to the Site indicates that cleanup to restricted use conditions will not pose an ecological threat.

12. *Potential vulnerability of groundwater to contamination that might emanate from the site, including proximity to wellhead protection and groundwater recharge areas and other areas identified by the Department and the State's comprehensive groundwater remediation and protection program established set forth in ECL article 15 title 31:* Groundwater at the Site is assigned Class "GA" by 6NYCRR Part 701.15. Six groundwater monitoring wells exist on the Site. Groundwater data obtained during the RI indicate residual impacts from petroleum-related volatile organic compounds (VOCs) at wells MW-1, MW-5, and MW-6. There are no groundwater supply wells present on the Site. Regionally, groundwater in the area has not been developed for industrial, agriculture, or public supply purposes. Potable water service is provided off-site and on-site by the local municipal water authority. **The absence of potable wells, wellhead protection and groundwater recharge areas indicates that cleanup to restricted use conditions will not pose a drinking water threat.**

13. *Proximity to flood plains:* The Erie County Internet Mapping System indicates that flood plains are not present on the property; therefore there is no risk of significant soil erosion due to flooding. **As such, cleanup to residential standards does not pose a threat to surface water.**

14. *Geography and geology:* The Site is located within the Erie-Ontario lake plain physiographic province, which is typified by little topographic relief and gentle slope toward Lake Erie, except in the immediate vicinity of major drainage ways. Surface soils within the City are characterized as urban land with level to gently sloping land in which 80 percent or more of the soil surface is covered by asphalt, concrete, buildings, or other impervious structures typical of an urban environment. The presence of overburden fill material is widespread and common throughout the City of Buffalo. **Geography and geology are consistent with a residential/commercial re-use.**

15. *Current institutional controls applicable to the site:* **No institutional controls are currently present that would affect redevelopment options.**

Based on the above analysis, reuse of the Site in a commercial capacity is consistent with past and current development and zoning on and around the Site, and does not pose additional environmental or human health risk.