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December 20, 2010

Mr. Eugene Melnyk, P.E.
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999

Subject: **Site Management Plan**
Former Buffalo Color Corporation Site – Area C
NYSDEC BCP Site #C915231
Buffalo, New York (Erie County)
MACTEC Project: 3410090701

Dear Mr. Melnyk:

MACTEC Engineering and Consulting, Inc. (MACTEC) has prepared the referenced Site Management Plan (SMP) for Area C of the former Buffalo Color Corporation Site on behalf of South Buffalo Development LLC (SBD). Enclosed please find three (3) copies of the SMP. An electronic copy of the SMP has been posted on our FTP site for your use; instructions regarding how to access the FTP site were issued to you via email. The SMP has been prepared in accordance with the current NYSDEC SMP template.

Please contact me at (412) 279-6661 or Mr. John Yensan of SBD at (716) 856-3333 ext. 302 should you have any questions regarding this submittal or require additional information.

Sincerely,

MACTEC Engineering and Consulting, Inc.

John M. Scrabis
Senior Principal Engineer

JMS:anw

cc: J. Yensan (SBD) – electronic copy
R. Galloway (Honeywell) – electronic copy

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FORMER BUFFALO COLOR CORPORATION SITE - AREA C

ERIE COUNTY, NEW YORK

Site Management Plan

NYSDEC Site Number: C915231

Prepared for:
South Buffalo Development LLC
333 Ganson Street
Buffalo, New York

Prepared by:
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Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date

December 2010

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SITE MANAGEMENT PLAN

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required as an element of the remedial program at Area C at the former Buffalo Color Corporation Site (hereinafter referred to as the "site") under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC). The site was remediated in accordance with Brownfield Cleanup Agreement (BCA) Index # B9-0784-08-06 (Site #C915231), which was executed on April 27, 2009.

1.1.1 General

South Buffalo Development LLC (SBD) entered into a BCA with the NYSDEC as a Volunteer to remediate a 6.03-acre property located in the City of Buffalo, Erie County, New York. This BCA required the Remedial Party, SBD, to investigate and remediate contaminated media at the site. Figure 1 provides a Site location map, Figure 2 shows the boundaries of the overall site including the 6.03-acre area subject to this Plan, and Figure 3 shows the Area C Site Plan. Figure 4 provides the layout of the existing underground sewers on and adjacent to Area C. The boundaries of the site are more fully described in the metes and bounds site description and ALTA survey plan (Appendix A), which is part of the Environmental Easement.

Per the NYSDEC-approved Remedial Action Work Plan (RAWP), contamination remained in the subsurface at this site at the completion of site remedial work, which is hereafter referred to as 'remaining contamination." This Site Management Plan (SMP) was prepared to manage remaining contamination at the site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by Mactec Engineering and Consulting, Inc., (Mactec) on behalf of SBD in accordance with the RAWP and the requirements of NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated November 2009, and the guidelines provided by NYSDEC. This SMP addresses the means and methods for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Environmental Easement for the site.

1.1.2 Purpose

Per the RAWP, certain contamination will remain on-site after completion of the remedial action. As a result, Engineering Controls have been incorporated into the site remedy to control exposure to remaining contamination during the use of the site to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Erie County Clerk, will require compliance with this SMP and all ECs and ICs placed on the site. The ICs place restrictions on site use, and mandates operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the means and methods necessary to ensure compliance with all ECs and ICs required by the Environmental Easement for remaining contamination. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination, including: (1) implementation and management of all Engineering and Institutional Controls; (2) media monitoring; (3) operation and maintenance of all treatment, collection, containment, or recovery systems; (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports; and (5) defining criteria for termination of treatment system operations.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and

recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual for complex systems).

This plan also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that this SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the environmental easement, which is grounds for revocation of the Certificate of Completion;

Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the BCA (Index # B9-0784-08-06) for the site, and any person who does not comply may be subject to applicable penalties.

1.1.3 Revisions

Revisions to this plan must be proposed in writing to the NYSDEC's project manager. In accordance with the Environmental Easement for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 SITE BACKGROUND

1.2.1 Site Location and Description

The site is located in the City of Buffalo, County of Erie, New York and is identified as being all of tax parcel SBL#122.12-1-36, part of tax parcel SBL#122.12-1-35, and parte of tax parcel SBL #122.12-1-30, all as shown on the tax maps of the County of Erie. The site is an approximately 6.03-acre area bounded by Elk Street to the north, a rail spur and associated right-of-way to the south, Lee Street to the east, and railroad tracks to the west (see Figure 2).

Structures located on Area C include the former Buffalo Color powerhouse (208), boiler house (207), as well as the other structures shown on Figure 3. These structures

have been cleared of asbestos and residual chemicals and are currently planned to be renovated for adaptive reuse.

The site is part of the former Buffalo Color Corporation facility, which also included Areas A and B located beyond the rail spur to the south and Area E located across Lee Street to the east (Figure 2). The surrounding area consists of industrial and residential properties. The boundaries of the site are more fully described in Appendix A, Metes and Bounds.

1.2.2 Site History

Originally founded as the Schoellkopf Aniline and Dye Company in 1879, the plant produced dyes and organic chemicals based primarily on aniline and various aniline derivatives. The company was reorganized into the National Aniline Chemical Company in 1916. It became one of the five companies that merged to create Allied Chemical Corporation (Allied Chemical) in 1920. The existing dye-making facility and the right to produce certain dyes and intermediates were sold by Allied Chemical to Buffalo Color Corporation on July 1, 1977. At the time of the sale, the plant was divided into eight areas designated with the letters A, B, C, D, E, F, G, and H. Buffalo Color Corporation purchased the manufacturing areas A through E, while Allied Chemical retained an acid plant (which was subsequently sold to PVS Chemical in 1981), the research and development facility on Area F, and the parking lots on Areas G (Elk Street) and H (Smith Street).

In 2005, Buffalo Color Corporation filed for bankruptcy. During the bankruptcy proceedings, some of the facility's production equipment was sold and removed from the site. In conjunction with the bankruptcy, the office building and former plant hospital located at 100 Lee Street on Area B and the warehouse building (Building 322) located near Elk Street on Area E, along with some of the land under and around those buildings, were sold to other parties. Agreements are in place to preserve access rights to the land for the purposes of any required environmental investigation and remediation activities. The remaining buildings and property on Areas A, B, C, D and E were purchased by SBD in 2008.

1.2.3 Geologic Conditions

The following summarizes the geologic conditions known to exist at the site.

1.2.3.1 Site Lithology

The Remedial Investigation (RI) report (Mactec, August 2008) identifies a number of subsurface zones at the site with contrasting hydrogeologic properties. In order of increasing depth, these zones include:

Fill: This unconsolidated material is found over the majority of the surface of the site. It typically consists of clay, silt, crushed stone, gravel, bricks, and miscellaneous building demolition debris. Concrete pads and foundations associated with former structures are known to exist within the fill layer on Area C. The fill thickness generally ranges from 4 feet to greater than 10 feet, with the maximum thickness occurring at the former powerhouse building, which has a basement.

Clay and Silt Tills (Upper Tills): This unit is unconsolidated fine-grained clay and silt tills, with varying amounts of sand and sand seams. The thickness of this material on Area C generally ranges 5 to 10 feet.

Glaciolacustrine Clay: This unit is primarily soft clay, with limited occurrence of fine sands. This unit underlies the entire site and has a thickness that ranges from 24 to 36 feet. Grain size analysis shows that this unit is comprised almost entirely of clay sized particles. These materials have a relatively low hydraulic conductivity and the unit is considered an aquitard between the shallow and underlying confined water-bearing units.

Basal Till: This unit is a mixture of sand, silt, gravel, and minor amount of clay. This unit was encountered beneath the glaciolacustrine clay in all deep borings advanced at the former Buffalo Color property, and was encountered immediately above the bedrock. Thickness of this unit ranged from 2 to 5 feet.

Onondaga Limestone: This bedrock unit was described as fractured and

weathered, dark gray limestone. Only the upper few feet of this unit were penetrated during site investigation activities. The bedrock surface slopes gently to the south, at a rate of approximately 1.2 feet per 100 feet.

Three geologic cross sections were completed for the remedial excavations at Area C. The locations of the cross sections and sewer lines for Area C are shown on Figure 5. Cross Section A-A' is shown on Figure 6, Cross Section B-B' is shown on Figure 7, and Cross Section C-C' is shown on Figure 8.

1.2.3.2 Site Hydrogeology

Two aquifers have been identified at the site. The first aquifer encountered, the shallow aquifer, is a saturated unconfined system within the fill and sediments above the glaciolacustrine clay unit. The second aquifer, the confined aquifer, occurs within the basal till and weathered upper surface of the bedrock. The RCRA Facility Investigation report (Golder, 1997) concluded that the thick, low conductivity glaciolacustrine clay unit acts as an aquitard, separating these aquifers and providing a confining layer for the deeper aquifer.

Groundwater flow in the shallow aquifer at the site is generally south, towards the Buffalo River. However, it was concluded that subsurface utilities and other manmade features influence local flow conditions. Sewer lines and associated backfill are below the water table at various locations and were found to act as groundwater discharge points because depressions in the water table surface at the site coincided with the location of utilities. Such a depression was identified between Area B and Area C. At Area C, shallow groundwater is typically encountered within 3 to 5 feet of the ground surface, and varies seasonally.

During the RFI, the water levels for the confined aquifer were measured in 12 monitoring wells located across the Buffalo Color facility that were screened within the basal till unit (four of which were installed during the RFI, and eight of which were installed prior to the RFI). The groundwater in the confined aquifer exists under apparent confined conditions within the basal till unit and upper portion of the Onondoga Limestone beneath the base of the glaciolacustrine clay. During the RFI, the confined aquifer contours were interpreted by Golder to indicate a groundwater divide on the eastern side of Area E. Groundwater flow is shown within the confined aquifer as to the east and west of the divide area, parallel to the Buffalo River. Golder reported that

gradient in the confined aquifer ranged from 0 to 0.008 ft/ft on two separate occasions in 1997.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

Numerous environmental investigations have been completed for the Buffalo Color property, including Area C, dating back to the 1980s. In 2007-2008, Mactec completed (and NYSDEC approved) a Remedial Investigation (RI) to build off of prior studies and characterize the nature and extent of contamination at the site. The results of prior studies, the 2007 RI, and 2009-2010 Pre-Design Investigation (PDI) work are described in detail in the following reports:

- Final Report on RCRA Facility Investigation, Buffalo Color Corporation, Golder Associates, 1997.
- Addendum to Final Report on RCRA Facility Investigation, Buffalo Color Corporation, Golder Associates, 1998.
- Remedial Investigation Report, Former Buffalo Color Corporation, Area ABCE Site, Mactec, August 2008.
- Pre-Design Investigation and Final Design Report, Former Buffalo Color Corporation Site – Area C, Mactec, September 2010.

Generally, the RI determined that site soil contained concentrations of certain metals and organic substances that exceeded the NY Commercial Soil Cleanup Objectives (SCOs). Shallow groundwater on the northern half of Area C was found to contain concentrations of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) that exceeded the NY Class GA standards.

Below is a summary of site conditions when the RI was performed in 2008, supplemented by the PDI work completed by Mactec in 2009-2010:

<u>Soil</u>

Metals (primarily arsenic and mercury) and polycyclic aromatic hydrocarbons (PAHs) were found across Area C, in both surface and subsurface soil, at concentrations that exceed the SCOs. For the direct contact pathway, surface soil samples are

considered the most relevant data points. Roughly half of Area C is currently covered by pavement or buildings which have concrete floor slabs or basements.

Site-Related Groundwater

Shallow groundwater on the northern half of Area C was found to contain concentrations of VOCs (principally chlorobenzene and dichlorobenzenes) and SVOCs (primarily aniline and nitrobenzene) at concentrations that exceed the NY Class GA standards. Total VOC levels exceeded 10 milligrams per liter (mg/L) or total SVOCs exceeded 10 mg/L at certain monitoring points on Area C, as shown on Figure 9. Visual evidence of a thin accumulation of dense non-aqueous phase liquids (DNAPL) was found in former monitoring wells MW-C02 and MW-C03. The specific source of the groundwater contamination has not been determined, but it is likely related to prior use and storage of chemicals that occurred on the northern half of Area C.

Site-Related Soil Vapor Intrusion

Soil vapor intrusion sampling was not performed on Area C. Concentrations of VOCs in shallow groundwater indicate that the vapor intrusion (VI) pathway may exist and therefore will be addressed for existing or future structures on-site. Requirements for evaluation and mitigation of the VI pathway are presented in the Engineering and Institutional Control Plan (Chapter 2) of this document.

Underground Storage Tanks

No evidence of prior or existing underground storage tanks (USTs) on Area C was found during the RI.

Site Sewers

The former site process sewers are connected to the nearby Buffalo Sewer Authority (BSA) sewer lines. The RI sampling completed in 2007 identified the presence of residual contaminants in solids within the former facility process sewers (including sediments or sludge). Shallow groundwater may infiltrate portions of facility storm and/or process sewers. Abandonment/plugging of the site underground sewer system was addressed by SBD, as described in the AAR and project design documents. The Area C Final Design Report describes the abandonment and plugging of certain process

and storm sewer lines, as well as the replacement of storm sewer lines that will be used during future redevelopment of Area C. Figure 4 provides a site plan that shows existing site sewer lines, as well as abandoned/plugged lines.

1.4 SUMMARY OF REMEDIAL ACTIONS

The site was remediated in accordance with both the NYSDEC-approved RAWP, specifically the remedial alternatives presented in Section 9.0 of the AAR (Mactec, 2009), as well as the NYSDEC- approved remedial design documents. Specific details regarding the remedial construction activities are presented in the Area C Final Engineering Report (Mactec, 2010).

The following is a summary of the Remedial Actions performed at the site:

- Excavation and off-site disposal of approximately 10,527 CY (in-place volume) of VOC-contaminated soils from two locations on the northern side of Area C to accomplish mass removal of the source material;
- The addition of a bioremediation enhancement agent (Regenesis ORC-A) to the excavation backfill to promote the bioremediation of residual soil and groundwater contamination at the excavated areas;
- Utilization of an integrated site-wide cover system consisting of a combination of a minimum of one foot of imported clean soil and topsoil (seeded with native grasses) underlain by a demarcation layer consisting of a woven geotextile, existing/new pavement (asphalt or concrete), and/or existing buildings to address human exposure to remaining contamination at the site, consistent with the presumptive remedy as identified in 6 NYCRR Part 375 (Figure 10 provides a plan view of the Area C site cover system);
- Abandonment/plugging of unused process sewers and installation of new storm sewer infrastructure, as appropriate (Figure 4 provides a site plan with existing and abandoned sewer locations);
- Execution and recording of an Environmental Easement in favor of NYSDEC to restrict land use and address future exposure to any remaining contamination at the site. Elements of the Environmental Easement include

prohibiting groundwater use, providing protocols for disturbance of Site and, soils and/or groundwater, limiting future land use to commercial or industrial use, and requiring that occupied structures associated with future development at the Site address the vapor intrusion (VI) pathway (either through construction methods or through additional characterization to ensure that the area over which the structure will reside does not present a potential VI concern); and

- Development and implementation of a Site Management Plan for long term management of remaining contamination as required by the Environmental Easement, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting;

The above-described remedial activities were completed at the site in 2010 and are documented in the Area E Final Engineering Report (Mactec, 2010).

1.4.1 Removal of Contaminated Materials from the Site

A total of approximately 10,527 CY (in-place volume) of VOC-contaminated soil was removed from two excavations (identified as C-1 and C-2) on the northern side of Area C. Figure 11 shows the location and lateral extent of each remedial excavation. Based on analytical results for the excavated materials, it is estimated that 40,600 pounds of VOCs and 30 pounds of SVOCs were removed from the site.

Table 1 summarizes post-remedial contaminant concentrations in excavation sidewall and bottom samples. Table 2 summarizes pre-remedial (baseline) and post-remedial contaminant concentrations in shallow groundwater downgradient of the excavated areas.

As specified in the design documents, ORC-A (and fertilizer) were applied to each of the first nine one-foot lifts of backfill (i.e., from the bottom to the first zone of saturation to approximately 4 feet below ground surface). The ORC-A (and fertilizer) were applied at the rates and quantities specified in the design specifications. The dry

material was evenly spread by hand or with a broadcast spreader across the surface of each backfill lift.

1.4.2 Site-Related Treatment Systems

No long-term treatment systems were installed as part of the remedy for Area C.

1.4.3 Remaining Contamination

Table 1 and Figure 12 summarize the results of soil samples delineating the remaining contamination at the site after completion of Remedial Action that exceed the applicable SCOs. Table 2 and Figure 13 summarize the results of groundwater samples delineating the remaining contamination at the site after completion of Remedial Action that exceed the applicable groundwater standards.

As discussed previously, an integrated cover system and institutional controls have been used to prevent exposure to soil exceeding the NY Commercial SCOs. The cover system consists of a minimum of one foot of soil, asphalt or concrete pavement, or buildings, consistent with the presumptive remedy as identified in 6 NYCRR Part 375. Existing paved surfaces, including building floor slabs, asphalt parking lots, and access drives used as part of the cover system have been cleaned and rehabilitated as necessary to prevent direct contact with soil exceeding commercial SCOs. A demarcation layer consisting of woven geotextile has been placed between existing surface soils and the one-foot thick clean soil cover layer so the boundary between clean fill and existing Site soils can be identified in the future. The demarcation layer location(s) has been identified on the base American Land Title Association (ALTA) survey map, so that periodic inspections can readily identify any erosion or damage to the cover system in those areas. At locations with paved surfaces or buildings, any soil encountered immediately below shall be considered potentially contaminated and must be managed in accordance with the procedures specified in Chapter 2.0 of this Plan.

Imported fill soil used as a component of the site-wide cover system meets the more stringent of commercial SCOs or protection of groundwater SCOs, but as a conservative measure and in the absence of contravening data should be assumed to meet

the commercial SCOs but exceed unrestricted use SCOs. As a protective measure and in the absence of contravening data, any soil beneath the demarcation layer and beneath existing building basements, floor slabs, asphalt parking lots, and asphalt or concrete access drives should be assumed to exceed unrestricted use and commercial use SCOs.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

Because of the remaining contamination at the Site, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

This plan provides:

- A description of all EC/ICs on the site;
- The basic implementation and intended role of each EC/IC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Excavation Work Plan for the proper management of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC.

2.2 ENGINEERING CONTROLS

2.2.1 Engineering Control Systems

2.2.1.1 Integrated Cover

Exposure to remaining contamination in soil/fill at the site is addressed by a cover system placed over the site (as shown on Figure 10). This cover system is comprised of a combination of imported clean soil with a minimum thickness of 12 inches with

demarcation fabric layer, asphalt or concrete paved areas, and areas covered by existing buildings. The Excavation Work Plan provided in Appendix B outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining soil is disturbed. Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 4 of this SMP.

The cover system is a permanent control and the quality and integrity of this system will be maintained and inspected at defined, regular intervals in perpetuity.

2.2.1.2 Vapor Intrusion Mitigation

Because soil and groundwater containing VOCs above applicable NY criteria will remain on portions of the Site, the vapor intrusion (VI) pathway is potentially present for any existing or future occupied structures on Area C.

Current redevelopment plans call for the renovation of former BCC Building Nos. 204, 205, 207, 208, 220, 221, and 223. On June 25, 2010, a Mactec engineer with vapor intrusion mitigation design experience conducted a detailed site inspection of these Area C buildings. The inspection included an evaluation of the basements and structural floor slabs. The site inspection included observing and recording current conditions and construction of the basements and slabs to assess requirements for future vapor intrusion mitigation in accordance with Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006). The site inspection including photographic documentation. Following is a summary of the VI inspection results and preliminary recommendations for VI mitigation for each Area C structure:

Structure: Building 204
Construction: First story extends to two lower below grade levels, utility tunnel daylights within interior at southern wall, brick exterior/façade construction.
Condition: Fair, cracks observed, utility tunnel submerged greater than 1 foot deep, floor trenches and sumps observed.
Conclusion: Could not inspect the utility tunnel due to standing water and demolition debris. Floor cracks, trenches, and sumps would need to be repaired or sealed.

Structure: Building 205

Construction: First story has large equipment sump/pit that extends below grade, brick exterior/façade construction.
Condition: Fair, cracks observed, floor sumps observed.
Conclusion: Floor cracks and sumps would need to be repaired or sealed.

Structure: Building 207
Construction: Two below grade basement levels, brick exterior/façade construction.
Condition: Fair, cracks observed, lowest basement level submerged.
Conclusion: Floor cracks would need to be repaired or sealed. Reportedly, there are trenches within the lowest basement area (submerged). Without pumping, the basement floods to approximately one-foot up the wall of the Building 208 basement (highest basement level).

Structure: Building 208
Construction: One below grade basement level, brick exterior/façade construction.
Condition: Fair, cracks observed, floor drains and small sumps observed.
Conclusion: Floor cracks would need to be repaired or sealed. Without pumping, basement floods to approximately one-foot up the wall (staining on wall observed).

Structure: Building 220
Construction: One elevated story (not at grade level) extending between Building 205 and Building 221.
Condition: n/a
Conclusion: n/a

Structure: Building 221
Construction: No basement, brick exterior/façade construction, freight elevator with lower level to approximately four feet below grade, one room has metal floor, 8 to 10-foot deep equipment sump.
Condition: Fair, large cracks in floor, one large area where concrete slab completely broken up, small sumps/drains beneath metal covers.
Conclusion: Sections of concrete slab require repair, large cracks require sealing, area of metal flooring would need to be replaced, sump/lower level areas would need to be sealed.

Structure: Building 222
Construction: No basement, brick exterior/façade construction, 4-foot deep equipment sump below wooden floor.
Condition: Fair, large cracks in floor, one large area where concrete slab completely broken up.
Conclusion: Sections of concrete slab require repair, large cracks require sealing, area of metal flooring would need to be replaced, sump/lower level areas would need to be sealed.

Structure: Building 223
Construction: Main level has wooden floor, basement/lower level appears to have dirt floor throughout, adjacent first level room has dirt floor.
Condition: Poor, dirt/earthen floor.
Conclusion: Dirt/earthen floor would require installation of a vapor barrier or floor slab.

To address the potential for soil vapor intrusion into existing structures scheduled for re-use and any future constructed structures, engineering controls consisting of soil vapor intrusion mitigation measures consistent with Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006, prepared by the New York State Department of Health, Center for Environmental Health, Bureau of Environmental Exposure Investigation (NYSDOH, 2006) (or any then-appropriate requirement) may be required unless future studies demonstrate to the satisfaction of NYSDEC and NYSDOH that the VI pathway is not complete. For an existing structure intended for occupancy, soil vapor mitigation measures would be evaluated and implemented, prior to issuance of occupancy permits, as follows in coordination with the specific redevelopment/remodeling approach selected for each structure:

1. A visual inspection of the subject building would be conducted to identify any specific characteristics and configurations (e.g., large cracks in the foundation slab(s), exposed earth in crawlspaces, open stairways to basements) and operational conditions (e.g., continuously running Heating, Ventilation and Air Conditioning (HVAC) systems or operational windows) that may affect the design, installation, and effectiveness of soil vapor intrusion mitigation measures.

2. As part of the building/visual inspection, the existing conditions would be documented, including the location of load-bearing walls, drain fixtures, cracks in the slab, HVAC systems, suspected or confirmed vapor entry points, results of any diagnostic testing. Documentation shall include adequate detail to support the subsequent design of any soil vapor intrusion mitigation measures.

3. For structures with active HVAC systems, backdraft testing would be conducted during the building/visual inspection to evaluate the existence of, or the potential for, backdrafting of natural draft combustion appliances.

4. Openings around piping penetrations in the slab and foundation wall, accessible openings around utility penetrations of the foundation walls and

slab, and other openings shall be sealed using methods and materials that are permanent and durable. Sealing the joint between the foundation wall and slab may be appropriate. If the joint is greater than ½ ″ thick, a foam backer or rod shall be inserted into the joint prior to applying a sealant. All sealing requirements shall be in conformance with ASTM E2121 03 Section 7.3.4. All sealant materials are to be approved by NYSDEC prior to use.

5. As an option, the entire floor slab or basement area (including all penetrations) may be sealed with one or more types of commercially available sealant (Liquid BootTM or similar). This option may be used alone with NYSDOH approved routine sampling to demonstrate effectiveness or in combination with a sub-slab depressurization system (described below) to mitigate the VI pathway.

6. If, subsequent to addressing potential soil vapor intrusion pathways as discussed above, indoor air and/or sub-slab soil vapor conditions indicate that soil vapor intrusion mitigation is necessary, testing may be conducted to support design and construction of asub-slab depressurization system (SSDS). The testing may consist of installation of temporary probes or extraction points installed beneath the floor slab for the purposes of identifying the viability and potential issues associated with installation of a SSDS. Testing may consist of monitoring sub-slab pressure at one or more locations point to evaluate sub-slab depressurization resulting from extraction at the temporary extraction point.

7. Soil vapor intrusion mitigation methods would be designed and implemented consistent with guidance set forth in Section 4.0 of the NYSDOH Guidance (NYSDOH, 2006) and existing best practices for radon mitigation.

8. The approach for sub-slab depressurization of an existing structure would consist of passive venting or active extraction from one or more of the following:
    a. A new or existing layer of sand, gravel, crushed rock or other porous media (subbase) present beneath the structure
    b. an existing sub-slab drain tile system
    c. an existing foundation sump system
    d. an existing foundation block wall
    e. a new sub-slab drain tile/horizontal piping system
    f. a new a manufactured soil gas mat system

9. New structures would require a sub-slab soil vapor barrier, and the approach for sub-slab depressurization would consist of passive or active extraction from one or more of the following:
    a. crushed rock beneath the structure
    b. a sub-slab drain tile/horizontal piping system
    c. a manufactured soil gas mat system

10. In addition to, or as an alternative to, an SSD system, the heating, ventilation and air conditioning (HVAC) system for the building may be designed such that positive pressure is generated within the building, preventing the occurrence of vapor intrusion.

A figures showing a conceptual layout for an SSDS piping system is provided as Appendix C.

Post-Mitigation testing would be conducted consistent with guidance set forth in Section 4.0 of the NYSDOH Guidance (NYSDOH, 2006) to evaluate the performance and establish a baseline for the SVI mitigation system.

Use of a SVI mitigation system in any occupied structure will not be discontinued unless prior written approval is granted by the NYSDEC. In the event that monitoring data indicates that the mitigation system is no longer required, a proposal to discontinue use of the system will be submitted by the property owner to the NYSDEC and NYSDOH.

2.2.2 Monitored Natural Attenuation

Groundwater monitoring activities to assess contaminant levels in shallow site groundwater, and assess the process of natural attenuation, will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over an extended period. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC or do not trend downward in a satisfactory manner, additional source removal, treatment and/or control measures will be evaluated. Requirements for long-term groundwater monitoring are provided in Section 3.3 of this Plan.

2.3 INSTITUTIONAL CONTROLS

A series of Institutional Controls is required by the RAWP to: (1) implement, maintain and monitor Engineering Control systems; (2) address future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the site to commercial and industrial uses only. Adherence to these Institutional Controls on the site is required by the Environmental Easement and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns;
- All Engineering Controls must be operated and maintained as specified in this SMP;
- All Engineering Controls on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP;
- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP; and
- Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP.

Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The site has a series of Institutional Controls in the form of site restrictions. Adherence to these Institutional Controls is required by the Environmental Easement. Site restrictions that apply to the Controlled Property are:

- The property may only be used for commercial or industrial use provided that the long-term Engineering and Institutional Controls included in this SMP are employed and maintained.

- The property may not be used for a higher level of use, such as unrestricted or restricted residential use, without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;
- All future activities on the property that will disturb remaining contamination must be conducted in accordance with this SMP;
- The use or withdrawal of Site groundwater for drinking, irrigation, or other consumptive purposes will be prohibited;
- The potential for vapor intrusion must be evaluated for any existing or future buildings or structures intended for human use or occupancy, and any potential impacts that are identified must be monitored or mitigated. For existing renovated buildings or newly constructed buildings, the vapor intrusion pathway will be mitigated via the use of vapor barriers and/or soil gas mitigation systems (active or passive), unless an investigation is completed in accordance with applicable NYSDOH and NYSDEC regulations and guidance which indicates that the vapor intrusion pathway does not exist.
- Vegetable gardens and farming on the property are prohibited; and
- The site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or at a longer interval that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

2.3.1 Excavation Work Plan

The site has been remediated for restricted commercial or industrial use under the NY BCP Track 4 cleanup scenario. Any future intrusive work that will penetrate the cover system, or encounter or disturb remaining contamination, including any

modifications or repairs to the existing cover system, must be performed in compliance with the Excavation Work Plan (EWP) that is attached as Appendix B to this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the site. A sample HASP is attached as Appendix D to this SMP that is in compliance with current DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State, and local regulations. Based on future changes to State and Federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section A-1 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP, and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

The site owner and associated responsible parties preparing the remedial documents submitted to the State, and parties performing this work, are jointly responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation spoils, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). The site owner will ensure that site development activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

2.3.2 Soil Vapor Intrusion Evaluation

As part of the renovation or construction of any enclosed structures at the site, an SVI evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. Alternatively, an SVI mitigation system may be installed as an element of the building foundation to mitigate or eliminate the vapor intrusion pathway prior to occupancy. This mitigation system will include a vapor barrier and/or passive or active sub-slab depressurization system, as appropriate.

Prior to conducting an SVI investigation or installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH. The workplan will be similar to the approved SVI workplan approved for 100 Lee Street (attached in Appendix C) for approval. This work plan will be developed in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York". Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for any necessary follow-up action, such as mitigation. Validated SVI data will be transmitted to the property owner and/or tenant within 30 days of validation. If any indoor air test results exceed NYSDOH guidelines, relevant NYSDOH fact sheets will be provided to all tenants and occupants of the property within 15 days of receipt of validated data.

SVI sampling results, evaluations, and follow-up actions will also be summarized in the Periodic Review Report.

2.4 INSPECTIONS AND NOTIFICATIONS

2.4.1 Inspections

Inspections of all remedial components installed at the site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will evaluate and document the following:

- Whether Engineering Controls continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria;

- Sampling and analysis of appropriate media during monitoring events;
- If site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system.

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 5).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the site by a qualified environmental professional as determined by NYSDEC.

2.4.2 Notifications

Notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

1. 60-day advance notice of any proposed changes in site use that are required under the terms of the BCA, 6NYCRR Part 375, and/or Environmental Conservation Law.
2. 15-day advance notice of any proposed ground-intrusive activities pursuant to the Excavation Work Plan.
3. Notice within 48-hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action to be taken to mitigate the damage or defect.
4. Notice within 48-hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the site, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
5. Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the BCA, and all approved work plans and reports, including this SMP.

- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing.

2.5 CONTINGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance, the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to the qualified environmental professional listed in the table below. These emergency contact lists must be maintained in an easily accessible location at the site.

Table 2.1: Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362
NYSDEC Region 9 Contacts Regional Hazardous Waste Remediation Engineer	(716) 851-7220

Table 2.2: Other Contact Numbers

Mr. Jon Williams, President SBD Holdings 1, Inc (Site Owner)	(716) 856-3333
Qualified Environmental Professional Mr. John Scrabis Mactec Engineering and Consulting, Inc.	(412) 279-6661

* Note: Contact numbers subject to change and should be updated as necessary

2.5.2 Map and Directions to Nearest Health Facility

Site Location: 100 Lee Street, Buffalo, NY

Nearest Hospital Name: Mercy Hospital

Hospital Location: 565 Abbott Road, Buffalo, NY

Hospital Telephone: (716) 826-7000

Directions to the Hospital:

1. Exit the site and proceed southwest on Lee Street.

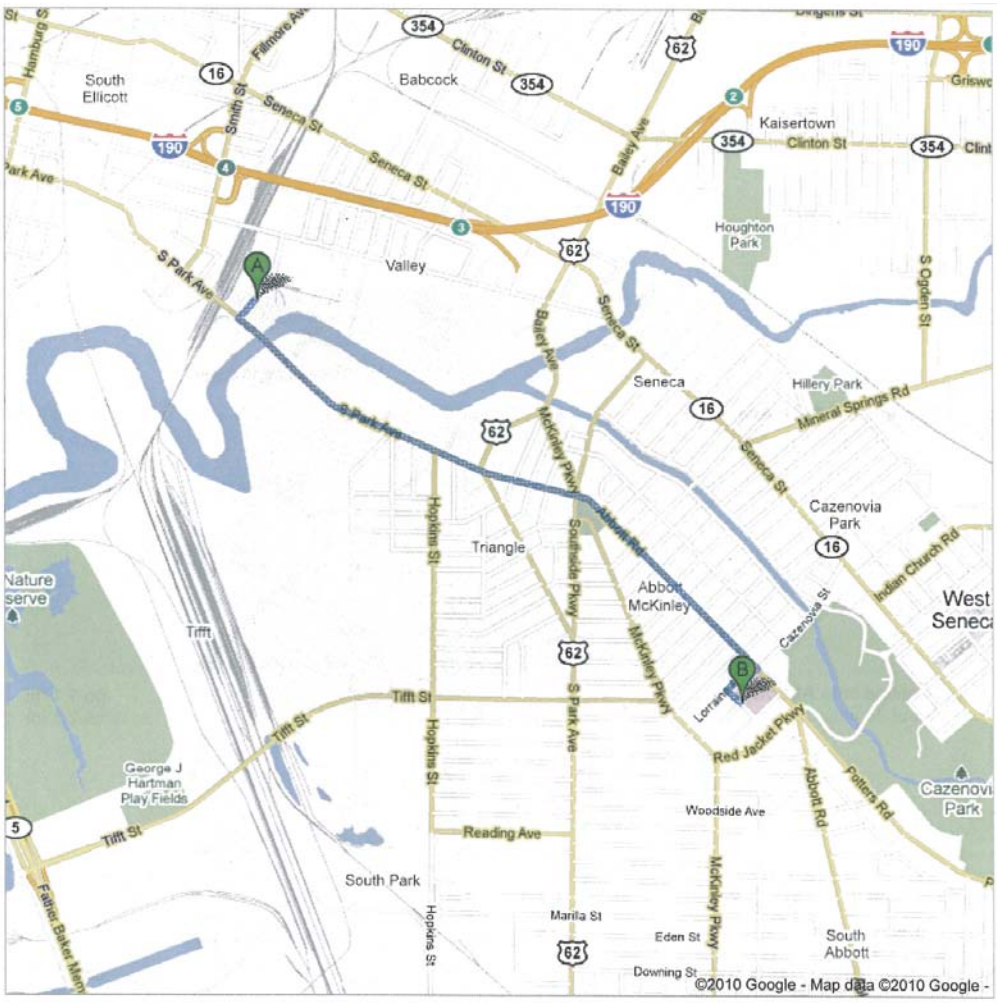
2. Turn left (southeast) onto South Park Avenue.

3. Continue straight - S. Park Avenue becomes US-62, then CR-4 (Abbott Road), 1.1 miles. Follow signs to the hospital emergency room entrance.

Total Distance: Approximately 2 miles

Total Estimated Time: Five to 10 minutes, depending on traffic

Map Showing Route from the site to the Hospital:



2.5.3 Response Procedures

As appropriate, the fire department and other emergency response groups will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (Table 2.1: Emergency Contact Numbers). The list will also be posted prominently at the site and made readily available to all personnel at all times. Responding to emergencies or spills associated with operations conducted by site occupants or tenants will be the responsibility of the occupant or tenant involved. Emergencies or spills known or suspected to have been caused by remaining contamination will be addressed in the following manner:

1. Any person noticing or suspecting a release should contact the owner and appropriate emergency response agencies, as listed in Section 2.5.1.

2. The person making the initial report should give as much information as possible including:
   - Substance spilled and approximate amount.
   - Location and source of spill.
   - Approximate time spill began or time first noticed.
   - Is release ongoing?
   - Does the spill pose an immediate threat to human health or the environment?

3. Personnel at the scene of the spill shall cease activities and take whatever means are safe and available to restrain further spillage and contain the materials that have been released. The individual(s) providing initial response should first identify any clear health hazards and take appropriate measures to avoid personal injury prior to initiating any response actions. In no case should a person attempt any action if unfamiliar with the material spilled, or if there exists reasonable doubt concerning safety or risk of injury. Specific caution should be taken before attempting to eliminate the spill source of flammable materials (i.e. solvent or gasoline). Flammable materials such as solvents or gasoline pose the additional threat of fire or explosion that may endanger the lives of others present at the site and must be handled with extreme care. The need for appropriate personal protective equipment and response equipment (i.e. non-sparking tools) should be evaluated by the individual(s) that have discovered the release prior to initiating any response measures. The primary motivation for interim response measures by the individuals observing the spill or release is to block potential routes of entry into storm drains or other watercourses and to prevent contamination to soil, surface water, and groundwater.
4. After initiating preliminary containment measures as described in paragraph 3) above, personnel involved will secure the area affected.

5. Upon notification, the site owner (or tenant, if applicable) will proceed to the spill area.

6. It is the responsibility of the site owner (or tenant, if applicable) to determine the potential severity of an oil spill and the need to verbally notify the local fire department, local emergency response agencies, the federal EPA and/or the National Response Center (NRC).

7. If the site owner (or tenant, if applicable) determines the spill to be of a minor consequence and below applicable reporting thresholds, he or she may direct the resumption of normal activities at the site.

8. If the site owner (or tenant, if applicable) determines that the spill is significant and/or reportable due to type or quantity of material spilled, he or she will initiate

an appropriate response effort. If the Site does not have the internal resources available to effectively handle the spill response, the site owner (or tenant, if applicable) will arrange for assistance from outside resources.

9. It is the responsibility of the site owner (or tenant, if applicable) to determine the most effective means of cleanup and proper methods to ultimately dispose of the spilled materials. In most cases this will mean placing the spill residue in a suitable container (e.g. drums). Specific care should be taken in the event of a corrosive spill as these materials often interact with standard steel drums.

10. All spilled materials containerized as part of a spill response will be marked as to the type and quantity of the materials contained and the date.

11. Records and written documentation regarding the emergency or spill event shall be maintained by the site owner (or tenant, if applicable), as required by law.

12. The site owner (or tenant, if applicable) will be responsible for assessing and preparing any reports or notifications required for external agencies (NYSDEC, federal EPA, local fire department, NRC, etc.).

3.0 SITE MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, the soil cover system, and all affected site media identified below. Monitoring of other Engineering Controls is described in Chapter 4, Operation, Monitoring and Maintenance Plan. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly ambient groundwater standards and Part 375 SCOs for soil;
- Assessing achievement of the defined remedial performance criteria.
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems (e.g., well logs);
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;

- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Monitoring of the performance of the remedy and overall reduction in contamination on-site and off-site will be conducted for specific media as described below. The frequency thereafter will be determined based on available data and must be approved by NYSDEC. Trends in contaminant levels in air, soil, and/or groundwater in the affected areas will be evaluated to determine if the remedy continues to be effective in achieving remedial goals and/or if the EC/IC can be terminated. Monitoring programs are summarized in the table below and outlined in detail in Sections 3.2 and 3.3.

Table 3.1: Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Shallow Groundwater	Quarterly for first two years, then annually unless determined otherwise by NYSDEC	Groundwater	TCL VOCs, TCL SVOCs and TAL metals (at specified wells)
Storm Water	To be determined (TBD) based on SPDES Permit	Storm Water	TBD
Vapor Intrusion Pathway – occupied structures	One time based on screening requirements	Air	VOCs (site-specific)
Site Cover System	Quarterly	N/A (visual inspection only)	N/A (visual inspection only)

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

3.2 COVER SYSTEM MONITORING

On a quarterly basis, a representative of the owner will conduct a visual inspection of the site to document the condition of the cover system and identify deficiencies that require maintenance or repair. Specifically, the quarterly inspection will document the following:

- The condition of the soil cover, including
    - areas with missing or insufficient grass/vegetation;
    - and areas where runoff or erosion has compromised the soil cover and/or exposed the demarcation layer; and
    - areas where animal burrows or the presence of woody vegetation has potentially compromised the integrity of the soil cover.
- The condition of surface pavement (asphalt or concrete), including identification of areas where cracks, weathering, spalling, potholes or other conditions compromise the integrity of the pavement or expose underlying soil; and
- The condition of any at-grade or basement concrete slabs of occupied structures.

The results of each inspection, including identification of conditions requiring repair or maintenance, will be documented on an inspection checklist. Necessary repairs will be completed, where possible, prior to the next inspection. An example inspection checklist is provided in Appendix E.

3.3 MEDIA MONITORING PROGRAM

As noted in Section 3.1.2, specific media that will require monitoring after completion of remedial action are groundwater, storm water and indoor air. The monitoring requirements for each are presented in the following subsections.

3.3.1 Groundwater Monitoring

Groundwater monitoring for the shallow aquifer will be performed on a periodic basis to assess the performance of the remedy.

A network of perimeter monitoring wells located on Area C has been installed to monitor both up-gradient and down-gradient groundwater conditions at the site. The network of on-site and off-site wells to be included in the monitoring program are listed

on Table 3, including upgradient wells located along the northern side of the site, wells located in the middle part of the site, and wells located downgradient, including wells downgradient of the shallow VOC plume on the northern side of the property.

Figure 3 shows the existing monitoring wells located on and adjacent to Area C. Table 3 provides a summary of the available construction information, including total depths and screened intervals, for the Area C wells. Table 3 also includes the monitoring frequency and analytical parameters for the wells that will be included in the monitoring program. Table 4 provides a summary of 2008 groundwater monitoring data for Area C and Table 5 provides a summary of 2009 groundwater monitoring data for Area C, which establish baseline (i.e., pre-remedial) conditions. Monitoring well construction logs are included in Appendix F.

Groundwater samples will be collected from the specified Area C monitoring wells on a quarterly basis in the first two years after NYSDEC issues the Certificate of Completion (COC). It is anticipated that depending on groundwater concentration trend analysis, groundwater samples will be collected on an annual basis until such time that the frequency is reduced as approved by NYSDEC. Sampling procedures and analytical methods shall be as specified in the subsections below and may also be modified if approved by NYSDEC.

The sampling frequency and parameters may be modified with the written approval NYSDEC. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

Deliverables for the groundwater monitoring program are specified below.

3.3.1.1 Sampling Protocol

All monitoring well sampling activities will be recorded in a field book and a groundwater-sampling log presented in Appendix G. Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

Low-flow groundwater sampling techniques will be employed during each sampling event following USEPA Region I guidance. However, if low-flow sampling is

not possible (e.g., insufficient water level depth in the well or groundwater recharge rate is too slow) an alternate sampling technique may be used. The wells will be sampled using peristaltic pumps or USEPA-approved submersible pumps (e.g., Grundfos® or bladder type). The tubing will be securely fastened to the well casing or cap during sampling to prevent disturbance of any sediments in the well. Pumps will be operated at less than 500 milliliters per minute during purging and sampling.

The following equipment and supplies may be used during groundwater sample collection:

- Low Flow Groundwater Data Sheet;
- field log book;
- peristaltic pump, submersible pump or bladder pump and control box;
- appropriate hoses and connectors for dedicated and non-dedicated systems;
- compressed air or nitrogen source (with regulator) to supply bladder pump;
- alternate purging and sampling device (for alternative sampling method);
- PID meter;
- multi-parameter water quality meter equipped with a flow-through cell;
- water level indicator;
- volumetric measuring device;
- engineers rule;
- sample containers;
- disposable or digital camera;
- decontamination supplies;
- plastic sheeting to establish a clean area for equipment staging and sample collection;
- tools for opening well protective casings; and
- containers for temporary storage of purge water.

Attempts should be made to collect inorganics and metals samples with turbidity measuring below 50 Nephelometric Turbidity Units (NTUs). If the field turbidity measurement exceeds 50 NTUs and is unavoidable for a particular well, a filtered sample will be collected through a 0.45 micron filter in addition to the unfiltered fraction.

Non-dedicated groundwater sampling equipment will be decontaminated prior to use. Calibration of the monitoring equipment will be in accordance with the USEPA analytical method and the manufacturer's suggested procedures and will be completed prior to each day's sampling activities and as required during the course of the day. Daily

instrument calibration data will be recorded in the field log book or on a separate calibration record. Purge water will be containerized and discharged to the onsite treatment system or allowed to infiltrate in the immediate area of the well.

3.3.1.2 Water Level Measurements

The following equipment and supplies may be used during water level measurement activities:

- field log book;
- water level indicator;
- engineers rule;
- decontamination supplies; and
- tools for opening well protective casings.

The depth to groundwater will be measured from the surveyor's mark on the well riser or, in the absence of such mark, from the highest point on the rim of the well casing or riser. Water level measurements at the various wells will be obtained using an electronic water level meter. The water level will be measured to 0.01 feet. The measured value will be checked by raising the probe 1 to 2 feet and re-measuring the water level. The probe end of the water level meter will be decontaminated between monitoring wells. The height of the protective casing stick-up and protective casing/well casing differential will also be recorded.

3.3.1.3 NAPL Recovery

If NAPL is encountered in a well during a groundwater monitoring event, the NAPL will be removed to the extent practicable at the time of the monitoring event. NAPL removal may be accomplished via bailer, pump (peristaltic), or by insertion of an absorbent material that may be left in the well to recover the NAPL over time. Locations, thicknesses and type of NAPL will be recorded on the well sampling data sheets, along with method and amount of NAPL removed. The annual report will contain the results of NAPL recovery and evaluation, including recommendations to address the presence of NAPL.

3.3.1.4 Field Sample Custody

Sample collection activities will be recorded in a bound field notebook. Details of each individual sample collection will be documented in the field log book and/or on a Sampling Log (Appendix G). Sample labels will be prepared which include the sample designation, date and time of sampling, requested analyses, and preservatives used. A uniquely numbered chain of custody (COC) form will also be prepared and signed in the field by the sampling team. Samples will be shipped by overnight carrier or courier in a sealed cooler packed with ice.

COC forms will be provided by the analytical laboratory and completed by the samplers. The following information must be included on the COC form when shipping samples:

- project name, number, and location
- COC number
- EIM Site ID (The EIM Site ID for this site is 37745)
- location ID
- field sample ID
- date and time of collection
- sample matrix
- sample purpose (or QC code)
- analytical methods
- sample preservation information
- bottle types and number of sample containers
- signature of sampler and sample manager and time relinquished
- bill of lading (as necessary)

Custody procedures associated with sample collection are divided into field custody, field notebooks/documentation, and transfer of custody/shipment. A unique COC number will be generated for each sample. The COC number will be identified as follows:

BCC-Area C-####-mmyy

where:

= monitoring well ID number

mmyy = date of sample collection (e.g., 0510 would designate May 2010)

Chains of Custody will be handwritten in the field and provided to the Site Data Manager.

3.3.1.5 Analytical Protocols

This section provides a description of the proposed off-site laboratory analytical program and the analytical methods used to analyze soil and water samples collected during groundwater monitoring and field investigation activities. The majority of off-site analytical data will be generated using USEPA SW-846 analytical procedures (USEPA, 1997).

Sample analyses will be completed by a laboratory that is certified by the State of New York and the National Environmental Laboratory Accreditation Program (NELAP).

Groundwater analytical methods and parameters are summarized below:

- Target Compound List (TCL) VOCs by Method 8260B
- TCL SVOCs by Method 8270C
- Target Analyte List (TAL) Metals by Method 6010B including mercury by Methods 7470A and 7471A

Container size and type, preservative, and holding time requirements for groundwater samples for each analytical group will be consistent with USEPA SW-846 requirements.

3.3.1.6 Quality Assurance/Quality Control

Several types of field QC samples will be collected to provide additional data that will be used to evaluate whether the sample collection and handling procedures have affected the quality of the samples. These samples include:

Field Duplicates- Field duplicate samples are samples that have been divided into two or more portions at the same step in the sample collection process. The field duplicated samples will consist of two samples taken from a single purged well. The field

duplicate samples will be shipped along with field samples and analyzed by the same laboratory.

Matrix Spike/Matrix Spike Duplicate – Spikes are known amounts of specific chemical constituents added by the laboratory to selected samples to evaluate the effect of the sample matrix on the preparation and analytical procedures. Matrix spikes are performed in duplicate and are referred to as MS/MSDs.

Trip Blank - Trip blanks assess potential contamination of the samples by VOCs during sample transport. The trip blank consists of a VOC sample container filled at the laboratory with water (water samples). These containers are shipped to the Site with the sample containers, transported with the sample bottles to the sampling location, and an unopened trip blank is returned to the laboratory with each shipment of samples for analysis.

3.3.1.7 Data Management

Management of analytical data includes the following tasks:

- Organization and storage of project field records including logbooks, instrument calibration records, exploration records, field sample collection records, and sample handling and COC documents.
- Tracking of off-site laboratory samples and receipt of laboratory deliverables.
- Receipt, organization, and storage of laboratory data packages.
- Receipt of electronic data and entry of results into the project database.
- Data quality review at a validation level specified in the project-specific plan.
- Entry of data validation qualifiers and preparation of final data tables.
- Preparation of tables and figures for use in contamination assessments.

The data management process will include procedures necessary to ensure consistent and complete collection of field data, tracking of the laboratory analytical and validation processes, consistent and timely production of electronic data deliverables

(EDDs) from laboratories, and accurate and timely entry of EDDs into Owner and NYSDEC database systems, as appropriate.

Prior to the field program, the Site data manager will set up the valid values or use in a database. Valid values consist of the contractor names, laboratory names, method names, units of measure, parameter lists for each method, QC codes for the field QC samples. Validation requirements, such as holding times and surrogate recoveries for each method and appropriate validation qualifiers are entered at this time as well.

COC information will be entered by the Site Data Manager into an electronic database. The electronic COC data will be compared to the laboratory EDDs to track the completeness of the laboratory data deliverables.

Imperfect EDDs will be returned to the laboratory for correction. Returning the EDDs to the laboratory for correction prior to use or upload minimizes discrepancies between hard copy analytical reports and electronic files. Field data will be entered in an EXCEL template or other appropriate electronic file after it has been documented as being checked. Field data will be stored in the project files, along with supporting metadata such as author/creator of data, date, location, brief description. Ten percent of the analytical data and field data will be compared against hard copy. Additional data review will be completed if errors are noted.

Hardcopy data deliverables will be specified for each field program depending on the level of review planned for the sample set and the planned use of the data. Level 2 validation is planned for the groundwater monitoring sampling events. Therefore a Level 2 data package will be provided by the laboratory. For VOCs, SVOCs, and TAL metals, the laboratory will provide hard copy deliverable packages that are equivalent to Contract Laboratory Program (CLP) data package specifications. Modified CLP type forms are acceptable providing they contain equivalent information. Deliverable packages will include a narrative that summarizes activities and any problems or issues, forms summarizing sample and QC blank results, forms summarizing all QC measurement parameters specified in the method, and all associated raw data generated in support of the reported results. Results of QC measurements including calibration data summaries,

laboratory control data summaries, MS/MSD summaries (for samples requested on the COC), surrogate summaries, and laboratory duplicate summaries.

3.3.1.8 Data Review and Validation

Analytical data will be validated in accordance with the scope established for each field investigation. Validation will be completed prior to use as final data in investigation reports.

Accuracy and precision limits have been identified for the analytical quality control measurements that will be performed in association with the collection and analysis of field samples. Accuracy and precision limits will follow USEPA Region 2 guidelines. QC Limits for surrogates, spikes, and duplicates will be consistent with USEPA requirements. These limits will be used to review and evaluate data quality and data usability during data validation.

A data validation scope for the monitoring program at the Site is designated at Level 2 validation. Level 2 includes the following data checks and evaluations:

- A review of the data set narrative to identify and issues that the lab reported in the data deliverable;
- A check of sample integrity (sample collection, preservation, and holding times);
- An evaluation of basic QC measurements used to assess the accuracy and precision of data including QC blanks, laboratory control samples (LCS), MS/MSDs, surrogate recovery when applicable, and field or lab duplicate results; and,
- A review of sample results, target compounds, and detection limits to verify that project analytical requirements are met.

A database system may be used to complete a computerized Level 2 review of each data package to check that the project quality control requirements are being met. Data qualifiers will be applied to results that do not meet project goals. A summary of data validation actions will be provided for each sample set. The summaries will be

reviewed and approved by the project chemist prior to finalization of the validated data. The data will be evaluated/qualified based on the following parameters (if available/applicable) and specified criteria:

A data validation summary report will be prepared for data sets reported from each distinct sample collection effort. The validation report will include a summary of analytical methods performed, listings of samples included in the review, and summaries of data validation actions or observations.

3.3.1.9 Monitoring Well Repairs, Replacement and Decommissioning

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced (as per the Monitoring Plan), if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.3.2 Storm Water Monitoring

The site is generally flat, allowing stormwater runoff to sheet-flow along existing grades/slopes. Currently there is no discharge of stormwater from the Site. The former Buffalo Color Corporation Area C storm water system, including underground piping, was abandoned in place. A new storm water system will be designed and installed to support redevelopment. Discharge limits and requirements for storm water monitoring will be specified in a future discharge permit issued by NYSDEC. Upon issuance of the

permit, this SMP will be revised to include the monitoring and reporting requirements specified in the permit.

3.3.3 Soil Vapor Intrusion Monitoring Program

The scope and frequency of SVI monitoring of existing or future occupied structures will be determined based on the SVI screening and future sampling data. VI monitoring will be performed as required and shall be consistent with the requirements of the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York".

3.4 SITE-WIDE INSPECTION

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection form will be completed (Appendix H). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules included in the Operation and Maintenance Plan; and
- Confirm that site records are up to date.

3.5 MONITORING QUALITY ASSURANCE/QUALITY CONTROL

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the site during the Remedial

Investigation (Appendix I), or similar plan approved by NYSDEC. Main Components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
  - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
  - Sample holding times will be in accordance with the NYSDEC ASP requirements.
  - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample Tracking and Custody;
- Calibration Procedures:
  - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
  - The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.
- Analytical Procedures;
- Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules; and
- Corrective Action Measures.

3.6 MONITORING REPORTING REQUIREMENTS

Forms and any other information generated during regular monitoring events and inspections will be kept on file on-site. All forms, and other relevant reporting formats

used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in the Reporting Plan of this SMP.

All monitoring results will be reported to NYSDEC on a periodic basis in the Periodic Review Report. A letter report will also be prepared [if required by NYSDEC], subsequent to each sampling event. The report (or letter) will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions (or other sampled media) have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables are summarized in the table below.

Table 3.2: Schedule of Monitoring/Inspection Deliverables

Task	Reporting Frequency*
Periodic Review Report – Area C (will include groundwater monitoring results and other applicable monitoring reports)	Annual (February 15 of each following year)

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC

4.0 OPERATION AND MAINTENANCE PLAN

Because the buildings are presently unoccupied, the site remedy does not currently rely on any mechanical systems, such as sub-slab depressurization systems, currently to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP. Should an active system be required in the future, this SMP will be modified accordingly to address operation and maintenance requirements.

5.0 INSPECTIONS, REPORTING AND CERTIFICATIONS

5.1 SITE INSPECTIONS

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan of this SMP. At a minimum, a site-wide inspection will be conducted annually. Inspections of remedial components will also be conducted when a breakdown of any treatment system component has occurred or whenever a severe event has taken place, such as an erosion or flooding event that may affect the ECs.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate forms for their respective system including the inspection form for the Site Cover System (Appendix E). Additionally, a general site-wide inspection form will be completed during the site-wide inspection (see Appendix H). These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format in the Periodic Review Report.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,

- The site remedy continues to be protective of public health and the environment and is performing as designed in the RAWP and FER.

5.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

After the last inspection of the reporting period, a Professional Engineer licensed to practice in New York State will prepare the following certification:

For each institutional or engineering control identified for the site, I certify that all of the following statements are true:

- The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;

- The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;

- Nothing has occurred that would impair the ability of the control to protect the public health and environment;

- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;

- Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;

- Use of the site is compliant with the environmental easement;

- The engineering control systems are performing as designed and are effective;

- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and

- The information presented in this report is accurate and complete.

- No new information has come to my attention, including groundwater monitoring data from wells located at the site boundary, if any, to indicate that the

assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid; and

- Every five years the following certification will be added: "The assumptions made in the qualitative exposure assessment remain valid."

- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner's Designated Site Representative] (and if the site consists of multiple properties): [I have been authorized and designated by all site owners to sign this certification] for the site.

The signed certification will be included in the Periodic Review Report described below.

5.3 PERIODIC REVIEW REPORT

A Periodic Review Report will be submitted to the Department every year, beginning eighteen months after the Certificate of Completion is issued. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in Appendix A (Metes and Bounds). The report will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site;

- Results of the required annual site inspections and severe condition inspections, if applicable;

- All applicable inspection forms and other records generated for the site during the reporting period in electronic format;

- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;

- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will

include a presentation of past data as part of an evaluation of contaminant concentration trends;

- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;

- A site evaluation, which includes the following:

    - The compliance of the remedy with the requirements of the site-specific RAWP;
    - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
    - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
    - The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Central Office and Regional Office in which the site is located, and in electronic format to NYSDEC Central Office, Regional Office and the NYSDOH Bureau of Environmental Exposure Investigation.

5.4 CORRECTIVE MEASURES PLAN

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

Conditions that will trigger the preparation of a corrective measures plan, which may include the requirements for additional characterization and remedial action, include the following:

- A statistically increasing trend, or unacceptable static levels, in concentrations of site-related contaminants in groundwater at downgradient monitoring wells (as determined via statistical analysis against baseline data);
- Evidence of vapor intrusion within an occupied structure at levels that exceed applicable State and/or Federal criteria;
- Significant erosion, thinning, lack of sufficient surface vegetation, rutting, deteriorated pavement, or other damage that compromises the integrity of the site cover system and that cannot be addressed via routine maintenance;
- Exceedances of storm water discharge limits as established in any future regulatory agency permit(s) for the discharge of storm water from the site; and
- Conditions that represent an immediate or imminent threat to human health or the environment.

TABLES

Table 1
Area C Site Management Plan
Post-Remedial Action Soils Exceeding Applicable SCOs
Former Buffalo Color Facility, Buffalo, NY

			Area	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C
			Location	TB-C01	TB-C01	TB-C02	TB-C02	TB-C03	TB-C03	TB-C04	TB-C04	TB-C05	TB-C05	TB-C06	TB-C06	TB-C08	TB-C08	TB-C09	TB-C09	TB-C10	TB-C10	TB-C12	TB-C12	TB-C13	TB-C13
			Sample Date	01/08/07	01/08/07	01/08/07	01/08/07	01/08/07	01/08/07	01/08/07	01/09/07	01/09/07	01/09/07	01/09/07	01/09/07	01/11/07	01/11/07	01/09/07	01/09/07	01/11/07	01/11/07	01/08/07	01/08/07	01/08/07	01/08/07
			Sample ID	TB-C01-0304	TB-C01-SURFACE	TB-C02-0304	TB-C02-SURFACE	TB-C03-0304	TB-C03-SURFACE	TB-C04-SURFACE	TB-C04-0304	TB-C05-0102	TB-C05-SURFACE	TB-C06-0304	TB-C06-SURFACE	TB-C08-0506	TB-C08-SURFACE	TB-C09-0304	TB-C09-SURFACE	TB-C10-0304	TB-C10-SURFACE	TB-C12-0304	TB-C12-SURFACE	TB-C13-0304	TB-C13-SURFACE
Parameter	**Units**	**Industrial**	**Commercial**																						
METALS																									
CYANIDE	MG/KG	10,000	27	1.1 UJ	1 UJ	1 UJ	1.1 UJ	0.94 UJ	0.68 UJ	2.8 J	1.2 UJ	1.3 UJ	1 UJ	1.2 UJ	1 UJ	1.1 U	0.81 U	1.1 UJ	1 UJ	0.89 UJ	0.91 U	1 U	10.7 J	0.71 UJ	0.84 UJ
ALUMINUM	MG/KG			6840 J	4910 J	1960 J	6240 J	1630 J	4370 J	2370 J	1430 J	4710 J	4170 J	4030 J	4440 J	12900 J	5250 J	4110 J	5800 J	3100 J	4610 J	6310 J	4260 J	436 J	3370 J
ANTIMONY	MG/KG			18.9 R	16.7 R	16.9 R	17.6 R	17.8 R	15.5 R	16.1 R	20.4 UJ	18.5 UJ	17.8 UJ	18.6 UJ	16 UJ	19.2 R	15.3 R	19.6 UJ	16.9 UJ	19.5 UJ	16.1 R	18 R	32.7 J	16.6 R	15.6 R
ARSENIC	MG/KG	16	16	239	25.2	15.3	6.7	9.3	18.6	5.7	50.2	12.5	5.4	4.6	5.6	10.7 J	11.5 J	57.3	8.9	18.5 J	15.3 J	35.6	16.5	21.2	7.9
BARIUM	MG/KG	10,000	400	75.3 J	100 J	21.5 J	25.2 J	35.7 J	79.1 J	18.9 J	50.5	2320	20.9	57.1	22	80.6 J	94.4 J	98.6	56.9	51.3 J	60.5 J	152 J	86.3 J	21.3 J	43 J
BERYLLIUM	MG/KG	2,700	590	0.58 J	0.78 J	0.34 J	0.4 J	0.4 J	0.71 J	0.33 J	0.27 U	0.57	0.26	0.5	0.28	0.64	0.27	0.57	0.31	0.38	0.34	0.63 J	0.56 J	0.36 J	0.32 J
CADMIUM	MG/KG	60	9.3	0.25 UJ	0.59 J	0.22 UJ	0.68 J	0.28 J	0.7 J	0.31 J	0.27 U	0.25 U	0.31	0.25 U	0.25	0.89 J	0.23 J	2.8	0.46	1.6 J	0.39 J	1.8 J	0.91 J	0.22 UJ	0.29 J
CALCIUM	MG/KG			3740	164000	4580	29900	7460	82100	265000	1440	14400	36600	8810	27800	39300	87500	10200	86600	22200 J	116000	14200	48000	515	111000
CHROMIUM	MG/KG	6,800	1,500	217	5	12.1	2.5	67	8.7	2.8	8.5	9.4	8.2	7.5	25.9	13 J	16	8.7	16.2	21.6 J	3420	94.1	208	3.1	31.1
COBALT	MG/KG			6.8	4.2	4.2	7	1.7	4.4	1.6	5.3	3.4	5	5.4	5.4	9.8 J	4.7 J	9.2	4.2	4.8	4.1 J	6.6	6.5	0.55 U	4.3
COPPER	MG/KG	10,000	270	121	38.7	13.3	38.2	10.2	69.3	14.6	306	19.4	24.7	50.6	28	53.4 J	30.8 J	54.2	62.4	66.6 J	75.8 J	299	149	7.9	29.4
IRON	MG/KG			23500	38000	11200	17000	3960	25600	6680	79000	10200	11700	13300	12700	27800 J	17500 J	19100	9590	14000	12400 J	30700	45600	24000	14900
LEAD	MG/KG	3,900	1000	300 J	72.7 J	12.7 J	17.6 J	25 J	188 J	27.8 J	156	32.8	13	35.9	14.9	447 J	327 J	113	11.9	180	187 J	1390 J	262 J	8.3 J	74.5 J
MAGNESIUM	MG/KG			1880	11400	1210	6570	436	9440	6960	285 J	1100 J	4780 J	1010 J	4750 J	13100	79900	1360 J	4820 J	1580 J	6250	2000	62700	59.4	48300
MANGANESE	MG/KG	10,000	10000	113	5370	123	303	47.3	980	190	38.4	70.8	245	185	275	380	503	257	444	115 J	364	379	663	2.6	859
MERCURY	MG/KG	5.7	2.8	4.3	0.63	0.34	0.06	0.29	4.4	0.62	0.38	0.84	0.2	1.2	0.28	6.2 J	7.2 J	8.5	0.17	6.3	2.1 J	60.8	10.4	0.19	3.1
NICKEL	MG/KG	10,000	310	18.1	40.7	13.4	30.5	5.8	24.7	6.5	26.1	9.9	21.9	11	19.4	30.3 J	12.5 J	17.9	20.1	12.2	13.3 J	25.4	59.2	1.6	40.1
POTASSIUM	MG/KG			694	794	496	967	260	730	384	735	518	799	368	782	2170 J	1290 J	435	363	456 J	914 J	468	691	460	755
SELENIUM	MG/KG	6,800	1500	5 U	4.5 U	4.5 U	4.7 U	4.7 U	4.1 U	4.3 U	5.4 U	4.9 U	4.7 U	5 U	4.3 U	5.1 U	4.1 U	5.2 UJ	4.5 U	4.8 U	5.2 U	4.4 U	4.2 U	4.2 U	4 U
SILVER	MG/KG	6,800	1500	0.63 U	0.56 U	0.56 U	0.59 U	0.59 U	0.52 U	0.54 U	0.91	0.62 U	0.59 U	0.62 U	0.53 U	0.64 U	0.51 U	0.65 U	0.56 U	0.65 U	0.54 U	5.2	0.65 U	0.55 U	0.52 U
SODIUM	MG/KG			489 J	673 J	202 J	165 UJ	166 UJ	354 J	209 J	235	172 U	166 U	174 U	149 U	3010 J	1840 J	335	199	197	519 J	179 J	181 UJ	1150 J	192 J
THALLIUM	MG/KG			7.6 UJ	6.7 UJ	6.7 UJ	7.1 UJ	7.1 UJ	6.2 UJ	6.4 UJ	8.1 U	7.4 U	7.1 U	7.4 U	6.4 U	7.7 UJ	6.1 UJ	7.8 U	6.7 U	7.8 UJ	6.5 UJ	7.2 UJ	7.7 UJ	6.6 UJ	6.2 UJ
VANADIUM	MG/KG			14.6	148	8.7	14.8	6.3	43	7.9	3.6 U	12.3	18.6	11.4	13.2	22.8 J	15.3 J	13.3	16.2	13.2 J	15.5 J	261	47.9	15.6 J	110
ZINC	MG/KG	10,000	10000	150 R	121 R	40.6 R	125 R	72.8 R	183 R	71 R	156	61.4	75.2	143	84.3	237 J	82.5 J	147	45.2	151	147 J	994 R	250 R	3.2 R	73.8 R
SVOCS																									
1-METHYL-2,4-DINITROBENZENE	MG/KG			2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
2,2'-DICHLORODIISOPROPYLETHER	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	MG/KG			4.9 U	18 U	0.92 U	0.91 U	9.1 U	18 U	8.4 U	1.1 U	5.1 U	0.92 U	10 U	0.84 U	0.96 U	84 U	1 U	0.89 U	1 U	8.6 U	4.7 U	20 U	0.91 U	4.2 U
2,4,6-TRICHOLORPHENOL	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	MG/KG			2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
2,4-DIMETHYLPHENOL	MG/KG			2 U	7.3 U	0.38 U	3.8 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
2,4-DINITROPHENOL	MG/KG			9.8 UJ	36 UJ	1.8 U	1.8 UJ	18 UJ	36 UJ	17 UJ	2.2 U	10 U	1.8 U	20 U	1.7 U	1.9 U	170 U	2 U	1.8 U	2.1 U	17 U	9.4 U	41 U	1.8 UJ	8.5 UJ
2,4-DINITROTOLUENE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROPHENOL	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	MG/KG			2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
2-CHLORONAPHTHALENE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	MG/KG			2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
2-METHYLNAPHTHALENE	MG/KG			0.14 J	0.81 J	1.1	0.38 U	0.36 J	0.67 J	3.5 U	0.11 J	0.17 J	0.38 U	4.1 U	0.028 J	0.4 U	34 U	0.35 J	0.37 U	0.039 J	3.6 U	0.11 J	8.4 U	2.8	0.12 J
2-METHYLPHENOL	MG/KG	1,000	500	2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
2-NITROANILINE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	MG/KG			9.8 U	36 U	1.8 U	1.8 U	18 U	36 U	17 U	2.2 U	10 U	1.8 U	20 U	1.7 U	1.9 U	170 U	2 U	1.8 U	2.1 U	17 U	9.4 U	41 U	1.8 U	8.5 U
3-METHYLPHENOL	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	MG/KG			9.8 U	36 U	1.8 U	1.8 U	18 U	36 U	17 U	2.2 U	10 U	1.8 U	20 U	1.7 U	1.9 U	170 U	2 U	1.8 U	2.1 U	17 U	9.4 U	41 U	1.8 U	8.5 U
4,6-DINITRO-2-METHLYPHENOL	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENOL PHENYL ETHER	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	MG/KG			2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
4-CHLOROANILINE	MG/KG			2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
4-CHLOROPHENYL PHENYL ETHER	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	MG/KG	1,000	500	2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
4-NIRTOANILINE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	MG/KG	1,000	500	0.54 J	0.51 J	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.021 J	0.046 J	0.013 J	4.1 U	0.02 J	0.4 U	34 U	0.037 J	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
ACENAPHTHYLENE	MG/KG	1,000	500	2 U	2.3 J	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.022 J	2.1 U	0.012 J	4.1 U	0.008 J	0.4 U	34 U	0.36 J	0.37 U	0.17 J	3.6 U	1.9 U	8.4 U	0.058 J	1.8 U
ACETOPHENONE	MG/KG			2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
ANILINE	MG/KG	1,000		2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.16 J	2.1 U	0.38 U	4.1 U	0.81	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
ANTHRACENE	MG/KG	1,000	500	1.4 J	3.2 J	0.38 U	0.041 J	3.8 U	0.48 J	0.47 J	0.21 J	0.11 J	0.028 J	4.1 U	0.032 J	0.02 J	34 U	0.32 J	0.009 J	0.1 J	0.44 J	1.9 U	1 J	0.052 J	0.19 J
BENZIDINE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	MG/KG	11	5.6	3.1	10	0.075 J	0.24 J	3.8 U	2.5 J	2.5 J	1.4	0.55 J	0.12 J	4.1 U	0.14 J	0.11 J	1.9 J	0.7	0.067 J	0.43	1.9 J	0.37 J	7.7 J	0.24 J	0.79 J
BENZO(A)PYRENE	MG/KG	1.1	1	2.8	8.4	0.035 U	0.25 J	3.8 U	2.2 J	2.2 J	1.1	0.59 J	0.13 J	4.1 U	0.14 J	0.12 J	34 U	0.73	0.08 J	0.58	2.2 J	0.49 J	5.8 J	0.11 J	0.75 J
BENZO(B)FLUORANTHENE	MG/KG	11	5.6	3.4	11	0.098 J	0.54	3.8 U	4.3 J	3.1 J	1.5	0.7 J	0.19 J	4.1 U	0.21 J	0.19 J	34 U	0.92	0.13 J	1.1	3.8	1 J	12	0.29 J	1 J
BENZO(G,H,I)PERYLENE	MG/KG	1,000	500	1.4 J	4.8 J	0.04 J	0.18 J	3.8 U	1.2 J	1.2 J	0.88	0.45 J	0.12 J	4.1 U	0.12 J	0.055 J	34 U	0.65	0.11 J	0.41 J	1.3 J	0.54 J	6.2 J	0.073 J	0.48 J
BENZO(K)FLUORANTHENE	MG/KG	110	56	1 J	3.7 J	0.38 U	0.38 U	3.8 U	7.4 U	1 J	0.63	0.33 J	0.073 J	4.1 U	0.056 J	0.061 J	34 U	0.36 J	0.052 J	0.42 U	1.3 J	1.9 U	4.6 J	0.37 U	0.34 J
BENZOIC ACID	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIPHENYL	MG/KG			2 U	7.3 U	0.12 J	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.053 J	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.41	1.8 U
BIS(2-CHLOROETHOXY)METHANE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYLJETHER	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	MG/KG			2 U	7.3 U	0.26 J	0.32 J	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.18 J	4.1 U	0.41	0.077 J	34 U	0.14 J	0.073 J	0.16 J	3.6 U	0.33 J	8.4 U	0.32 J	0.46 J
BUTYLBENZYL PHTHALATE	MG/KG			2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
CAPROLACTAM	MG/KG			2 UJ	7.3 UJ	0.38 UJ	0.38 UJ	3.8 UJ	7.4 UJ	3.5 UJ	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 UJ	34 UJ	0.42 U	0.37 U	0.42 UJ	3.6 UJ	1.9 UJ	8.4 UJ	0.37 UJ	1.8 UJ
CARBAZOLE	MG/KG			0.47 J	0.7 J	0.031 J	0.033 J	3.8 U	7.4 U	0.21 J	0.062 J	2.1 U	0.02 J	4.1 U	0.026 J	0.4 U	34 U	0.099 J	0.011 J	0.042 J	0.32 J	1.9 U	1.1 J	0.37 U	0.11 J
CHRYSENE	MG/KG	110	56	3	8.4	0.14 J	0.29 J	3.8 U	2.5 J	2.4 J	1.1	0.5 J	0.12 J	4.1 U	0.14 J	0.11 J	34 U	0.68	0.084 J	0.46	2.1 J	0.37 J	8.3 J	0.4	0.78 J
DI-N-BUTYL PHTHALATE	MG/KG			2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
DI-N-OCTYL PHTHALATE	MG/KG			2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.011 J	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.01 J	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
DIBENZO(A,H)ANTHRACENE	MG/KG	1.1	0.56	0.36 J	1.8 J	0.02 J	0.038 J	3.8 U	0.39 J	0.38 J	0.22 J	0.14 J	0.031 J	4.1 U	0.03 J	0.4 U	34 U	0.19 J	0.023 J	0.12 J	0.34 J	0.14 J	1.6 J	0.028 J	0.13 J
DIBENZOFURAN	MG/KG	1,000	350	0.36 J	0.65 J	0.24 J	0.38 U	3.8 U	7.4 U	3.5 U	0.052 J	0.054 J	0.008 J	4.1 U	0.017 J	0.4 U	34 U	0.18 J	0.37 U	0.022 J	3.6 U	1.9 U	8.4 U	1	1.8 U
DIETHYL PHTHALATE	MG/KG			2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	0.76 J	8.4 U	0.37 U	1.8 U
DIMETHYL PHTHALATE	MG/KG			2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
FLUORANTHENE	MG/KG	1,000	500	7.6	23	0.11 J	0.54	3.8 U	4.5 J	4.9	2.5	0.97 J	0.27 J	4.1 U	0.3 J	0.16 J	3.6 J	1.2	0.15 J	0.64	5.1	0.54 J	20	0.46	1.7 J
FLURENE	MG/KG	1,000	500	0.58 J	1.1 J	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.033 J	2.1 U	0.019 J	4.1 U	0.02 J	0.4 U	34 U	0.24 J	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
HEXACHLOROBENZENE	MG/KG	12	6	2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
HEXACHLOROBUTADIENE	MG/KG			2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
HEXACHLOROCYCLOPENTADIENE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	MG/KG	11	5.6	1.3 J	4.3 J	0.02 J	0.15 J	3.8 U	1.1 J	1.1 J	0.83	0.41 J	0.11 J	4.1 U	0.11 J	0.053 J	34 U	0.59	0.09 J	0.35 J	1.1 J	0.45 J	5.2 J	0.055 J	0.42 J
ISOPHORONE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOI-N-PROPYLAMINE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIMETHYLAMINE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	MG/KG			2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
NAPHTHALENE	MG/KG	1,000	500	0.45 J	1.1 J	12	0.076 J	21	1.8 J	3.5 U	0.12 J	0.26 J	0.032 J	0.14 J	0.32 J	0.4 U	4.8 J	0.4 J	0.009 J	0.07 J	3.6 U	1 J	8.4 U	2.1	1.8 U
NITROBENZENE	MG/KG	455		2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.42 U	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
O-NITROANANILINE	MG/KG			9.8 U	36 U	1.8 U	1.8 U	18 U	36 U	17 U	2.2 U	10 U	1.8 U	20 U	1.7 U	1.9 U	170 U	2 U	1.8 U	2.1 U	17 U	9.4 U	41 U	1.8 U	8.5 U
PENTACHLOROPHENOL	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	MG/KG	1,000	500	6.6	12	0.57	0.23 J	0.3 J	2.4 J	2.6 J	0.5	0.48 J	0.14 J	4.1 U	0.19 J	0.067 J	5.8 J	1.1	0.055 J	0.26 J	2.4 J	0.25 J	7.5 J	2.1	1 J
PHENOL	MG/KG	1,000	500	2 U	7.3 U	0.38 U	0.38 U	3.8 U	7.4 U	3.5 U	0.45 U	2.1 U	0.38 U	4.1 U	0.35 U	0.4 U	34 U	0.42 U	0.37 U	0.026 J	3.6 U	1.9 U	8.4 U	0.37 U	1.8 U
PYRENE	MG/KG	1,000	500	5.6	17	0.097 J	0.36 J	3.8 U	3.3 J	3.6	2	0.78 J	0.19 J	4.1 U	0.23 J	0.12 J	2.3 J	0.92	0.11 J	0.48	2.8 J	0.48 J	15	0.35 J	1.3 J

Created by: BCG
Checked by: NF

Table 1
Area C Site Management Plan
Post-Remedial Action Soils Exceeding Applicable SCOs
Former Buffalo Color Facility, Buffalo, NY

			Area	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C
			Location	TB-C01	TB-C01	TB-C02	TB-C02	TB-C03	TB-C03	TB-C04	TB-C04	TB-C05	TB-C05	TB-C06	TB-C06	TB-C08	TB-C08	TB-C09	TB-C09	TB-C10	TB-C10	TB-C12	TB-C12	TB-C13	TB-C13
			Sample Date	01/08/07	01/08/07	01/08/07	01/08/07	01/08/07	01/08/07	01/08/07	01/09/07	01/09/07	01/09/07	01/09/07	01/09/07	01/11/07	01/11/07	01/09/07	01/09/07	01/11/07	01/11/07	01/08/07	01/08/07	01/08/07	01/08/07
			Sample ID	TB-C01-0304	TB-C01-SURFACE	TB-C02-0304	TB-C02-SURFACE	TB-C03-0304	TB-C03-SURFACE	TB-C04-SURFACE	TB-C04-0304	TB-C05-0102	TB-C05-SURFACE	TB-C06-0304	TB-C06-SURFACE	TB-C08-0506	TB-C08-SURFACE	TB-C09-0304	TB-C09-SURFACE	TB-C10-0304	TB-C10-SURFACE	TB-C12-0304	TB-C12-SURFACE	TB-C13-0304	TB-C13-SURFACE
Parameter	**Units**	**Industrial**	**Commercial**																						
VOCS																									
1,1,1-TRICHLOROETHANE	MG/KG	1,000	500	0.006 U	0.006 U	0.004 J	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	0.008 U	0.004 U
1,1,2,2-TETRACHLOROETHANE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	MG/KG			0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	0.008 U	0.004 U
1,1-DICHLOROETHANE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	MG/KG			0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.003 J	0.005 J	0.002 J	0.005 J	0.006	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.12	0.005 U	0.008 U	0.004 U
1,2-DICHLOROBENZENE	MG/KG	1,000	500	0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.002 J	0.002 J	0.008 U	0.004 U
1,2-DICHLOROETHANE	MG/KG	60	30	0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	0.008 U	0.004 U
1,2-DICHLOROPROPANE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	MG/KG	560	280	0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	0.008 U	0.004 U
1,4-DICHLOROBENZENE	MG/KG	250	130	0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.002 J	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	0.008 U	0.004 U
2-BUTANONE	MG/KG	1,000	500	0.028 U	0.03 U	0.037 U	0.023 U	0.04 U	0.032 U	0.023 U	0.026 U	0.04 U	0.022 U	0.03 U	0.021 U	0.025 U	0.009 J	0.038 U	0.03 U	0.036 U	0.01 J	0.027 U	0.027 U	0.038 U	0.02 U
2-CHLOROETHYL VINYL ETHER	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-HEXANON	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	MG/KG	1,000	500	0.028 U	0.03 U	0.022 J	0.023 U	0.04 U	0.032 U	0.023 U	0.026 U	0.04 U	0.022 U	0.03 U	0.021 U	0.025 U	0.05 U	0.022 J	0.03 U	0.03 J	0.089	0.018 J	0.027 U	0.038 U	0.02 U
BENZENE	MG/KG	89	44	0.005 J	0.004 J	0.003 J	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.005	0.008 U	0.006 U	0.026	0.025	0.005 U	0.005 U	0.008 U	0.004 U
BROMODICHLOROMETHANE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	MG/KG			0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.003 J	0.004 U	0.005 U	0.002 J	0.008 U	0.006 U	0.005 J	0.002 J	0.005 U	0.005 U	0.008 U	0.004 U
CARBON TETRACHLORIDE	MG/KG	44	22	0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	0.008 U	0.004 U
CHLOROBENZENE	MG/KG	1,000	500	0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.016	0.008 U	0.004 U	0.006 U	0.063	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.002 J	0.008	0.008 U	0.004 U
CHLORODIBROMOMETHANE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	MG/KG	700	350	0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	0.008 U	0.004 U
CHLOROMETHANE	MG/KG			0.011 U	0.012 U	0.015 U	0.009 U	0.016 U	0.013 U	0.009 U	0.01 U	0.016 U	0.009 U	0.012 U	0.008 U	0.01 U	0.01 U	0.015 U	0.012 U	0.015 U	0.01 U	0.011 U	0.011 U	0.015 U	0.008 U
CIS-1,2-DICHLOROETHENE	MG/KG	1,000	500	0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	0.008 U	0.004 U
CIS-1,3-DICHLOROPROPENE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYCLOHEXANE	MG/KG			0.006 U	0.006 U	0.005 J	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.002 J	0.008 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	0.003 J	0.004 U
ETHYLBENZENE	MG/KG	780	390	0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.002 J	0.008 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	0.008 U	0.004 U
ISOPROPYLBENZENE	MG/KG			0.006 UJ	0.006 UJ	0.007 UJ	0.004 UJ	0.008 UJ	0.006 UJ	0.005 UJ	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.005 UJ	0.005 UJ	0.008 UJ	0.004 UJ
METHYL ACETATE	MG/KG			0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	0.008 U	0.004 U
METHYLCYCLOHEXANE	MG/KG			0.006 U	0.006 U	0.006 J	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.002 J	0.008 U	0.006 U	0.001 J	0.001 J	0.005 U	0.005 U	0.004 J	0.004 U
METHYLENE CHLORIDE	MG/KG	1,000	500	0.007 UJ	0.006 UJ	0.007 UJ	0.005 UJ	0.008 UJ	0.006 UJ	0.006 UJ	0.008 U	0.013 U	0.008 U	0.01 U	0.008 U	0.006 UJ	0.006 UJ	0.012 U	0.01 U	0.013 U	0.006 UJ	0.006 UJ	0.006 UJ	0.008 UJ	0.006 UJ
STYRENE	MG/KG			0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	0.008 U	0.004 U
TETRACHLOROETHENE	MG/KG	300	150	0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	0.008 U	0.004 U
TOLUENE	MG/KG	1,000	500	0.006 U	0.006 U	0.004 J	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.009	0.008 U	0.006 U	0.007 U	0.001 J	0.005 U	0.005 U	0.008 U	0.004 U
TRANS-1,2-DICHLOROETHENE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	MG/KG	400	200	0.006 U	0.006 U	0.007 U	0.004 U	0.008 U	0.006 U	0.005 U	0.005 U	0.008 U	0.004 U	0.006 U	0.004 U	0.005 U	0.005 U	0.008 U	0.006 U	0.007 U	0.005 U	0.005 U	0.005 U	0.008 U	0.004 U
TRICHLOROFLUOROMETHANE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	MG/KG	27	13	0.011 U	0.012 U	0.015 U	0.009 U	0.016 U	0.013 U	0.009 U	0.01 U	0.016 U	0.009 U	0.012 U	0.008 U	0.01 U	0.01 U	0.015 U	0.012 U	0.015 U	0.01 U	0.011 U	0.011 U	0.015 U	0.008 U
XYLENES, TOTAL	MG/KG	1,000	500	0.016 U	0.018 U	0.022 U	0.014 U	0.024 U	0.019 U	0.014 U	0.016 U	0.024 U	0.013 U	0.018 U	0.013 U	0.015 U	0.012 J	0.023 U	0.018 U	0.022 U	0.003 J	0.015 J	0.016 U	0.023 U	0.012 U

Created by: BCG
Checked by: NF

Table 1
Area C Site Management Plan
Post-Remedial Action Soils Exceeding Applicable SCOs
Former Buffalo Color Facility, Buffalo, NY

			Area	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C
			Location	C1-RB-1	C1-RS-1	C1-RS-2	C1-RS-3	C1-RS-4	C2-RB-1	C2-RB-2	C2-RB-3	C2-RB-4	C2-RS-1	C2-RS-2	C2-RS-3	C2-RS-4	C2-RS-5	C2-RS-6	C2-RS-7	C2-RS-8	C2-RS-9	C2-RS-10	C2-RS-11
			Sample Date	10/20/10	10/20/10	10/20/10	10/20/10	10/20/10	11/01/10	11/03/10	11/11/10	11/12/10	11/01/10	11/01/10	11/01/10	11/09/10	11/09/10	11/09/10	11/10/10	11/10/10	11/11/10	11/12/10	11/13/10
			Sample ID	C1-RB1-1213	C1-RS1-0709	C1-RS2-0811	C1-RS3-0912	C1-RS4-0507	C2-RB1-1314	C2-RB2-1213	C2-RB3-1213	C2-RB4-1213	C2-RS1-0911	C2-RS2-1012	C2-RS3-0911	C2-RS4-0607	C2-RS5-0911	C2-RS6-0810	C2-RS7-0911	C2-RS8-0911	C2-RS9-0608	C2-RS10-0911	C2-RS11-0810
Parameter	**Units**	**Industrial**	**Commercial**																				
METALS																							
CYANIDE	MG/KG	10,000	27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALUMINUM	MG/KG			15700	14600	16900	17800	17500	14600	16400	16300	13600	17100	19400	15800	15800	19000	16700	16900	15500	16700	16100	11900
ANTIMONY	MG/KG			4.78 UJ	5.05 UJ	5.32 UJ	5.53 UJ	6.95 UJ	4.38 U	4.51 U	4.01 U	4.09 U	4.37 U	7.13 U	7.13 U	5.06 U	6.26 U	7.04 U	6.28 U	4.01 U	5.08 U	5.59 U	6.85 U
ARSENIC	MG/KG	16	16	7.18	9.62	22.1	5.23	10.4	5.25	7.35	5.75	5.6	8.19	6.78	10.2	5.88	9.16	9.49	10.1	5.3	8.65	10.3	7.51
BARIUM	MG/KG	10,000	400	71.1	62.3	83.1	74.8	86.8	83.2	71.7	83.7	59.4	97.2	114	74.1	98.2	91.4	68.5	89.3	75.1	82.4	80.3	63.2
BERYLLIUM	MG/KG	2,700	590	0.735	0.618	0.919	0.781	0.887	0.676	0.765	0.747	0.634	0.775	0.893	0.735	0.671	0.863	0.818	0.822	0.707	0.756	0.773	0.628
CADMIUM	MG/KG	60	9.3	0.398 U	0.421 U	0.444 U	0.462 U	0.579 U	0.365 U	0.376 U	0.335 U	0.341 U	0.365 U	0.595 U	0.595 U	0.461	0.521 U	0.587 U	0.524 U	0.333 U	0.423 U	0.466 U	2.35
CALCIUM	MG/KG			47900	38700	37800	28300	26100	34800	12700	14700	32200	42900	33000	37700	82300	37800	37100	37200	42500	38800	37100	29600
CHROMIUM	MG/KG	6,800	1,500	20.9	19	21.6	22.8	22.7	18.9	21	21.3	18.2	21.1	24.4	20.4	18	23.1	21.2	21.7	19.8	20.6	20.9	14.4
COBALT	MG/KG			12.8	15.6	13.4	13	14.4	12.7	14.4	13.9	12	13.7	14.6	11.3	11	13.7	10.9	14.1	13.4	12.6	13.3	32.9
COPPER	MG/KG	10,000	270	30	20.9	37.3	26.2	40.1	27.8	28.9	30	28.4	30.4	28.2	29.2	25.5	29.9	27.8	33.3	26.6	28.4	31.6	67.6
IRON	MG/KG			27700	20000	31800	25600	31900	24900	27900	27600	23900	28300	29200	28300	22900	28900	28300	29900	22400	28300	28600	32600
LEAD	MG/KG	3,900	1000	12	9.71	23.3	11.9	16.9	13.2	13.3	12.5	11.1	10.6	11.3	10.8	11	11.5	12.3	12.4	11.4	13.1	14	9.81
MAGNESIUM	MG/KG			14400	13200	12100	12500	12400	13600	10900	11100	12600	12600	12300	13500	12200	13500	13200	11600	12800	12600	12300	11200
MANGANESE	MG/KG	10,000	10000	514	398	449	423	444	443	386	427	475	576	525	424	547	538	404	440	404	418	466	1050
MERCURY	MG/KG	5.7	2.8	0.0191 J	0.0206 J	0.625 J	0.0319 J	0.0362 J	0.0332	0.0144	0.0157	0.0166	0.0209	0.0296	0.0227	0.033	0.323	0.0323	0.014	0.0195	0.0224	0.0237	0.0166
NICKEL	MG/KG	10,000	310	33.2	32.4	36.4	33	38.1	32	35	34.8	30.9	37.1	37.5	32.9	29.2	38.4	33	36.6	31.7	33.8	35.8	57.8
POTASSIUM	MG/KG			3360	3210	3050	2890	3040	2840	3070	3040	2630	3390	4290	3190	2470	3700	2970	3040	2620	3030	2920	1790
SELENIUM	MG/KG	6,800	1500	0.398 U	0.421 U	0.444 U	0.462 U	0.579 U	0.365 U	0.376 U	0.335 U	0.341 U	0.365 U	0.595 U	0.595 U	0.422 U	0.521 U	0.587 U	0.517 U	0.333 U	0.423 U	0.466 U	0.57 U
SILVER	MG/KG	6,800	1500	0.798 U	0.841 U	0.886 U	0.922 U	1.16 U	0.729 U	0.753 U	0.669 U	0.681 U	0.729 U	1.19 U	1.19 U	0.842 U	1.04 U	1.17 U	1.05 U	0.668 U	0.845 U	0.932 U	1.14 U
SODIUM	MG/KG			838	1870	2270	1410	406	382	307	214	244	1470	2070	1190	438 J	562 J	511 J	669	266	368	482	409
THALLIUM	MG/KG			0.478 U	0.505 U	0.532 U	0.553 U	0.695 U	0.438 U	0.451 U	0.401 U	0.409 U	0.437 U	0.713 U	0.713 U	0.506 U	0.626 U	0.704 U	0.628 U	0.401 U	0.507 U	0.559 U	0.685 U
VANADIUM	MG/KG			29.4	27	36.9	31.1	35.6	28	31.6	31	26.2	30.9	35.8	30.5	27.6	34	31.7	31.9	27.3	29.8	30.4	21.9
ZINC	MG/KG	10,000	10000	76.8 J	95.7 J	81.8 J	78.1 J	103 J	73.1	81.1	81.9	70.8	75.9	86.8	77.3	64.2	84.7	79.4	81.7	79.2	77.1	84.5	523
SVOCS																							
1-METHYL-2,4-DINITROBENZENE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-DICHLORODIISOPROPYLETHER	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
2,4,5-TRICHLOROPHENOL	MG/KG			0.927 U	90.9 U	0.878 U	0.884 U	0.903 U	0.937 U	0.95 U	0.939 U	0.926 UJ	4.37 U	17.6 U	0.875 U	0.883 U	8.79 U	0.894 U	0.874 U	0.928 U	0.886 U	8.83 UJ	0.862 U
2,4,6-TRICHOLORPHENOL	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
2,4-DICHLOROPHENOL	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
2,4-DIMETHYLPHENOL	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
2,4-DINITROPHENOL	MG/KG			0.927 U	90.9 U	0.878 U	0.884 U	0.903 U	0.937 U	0.95 U	0.939 U	0.926 UJ	4.37 U	17.6 U	0.875 U	0.883 U	8.79 U	0.894 U	0.874 U	0.928 U	0.886 U	8.83 UJ	0.862 U
2,4-DINITROTOLUENE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	29.1 J	0.345 U
2,6-DINITROPHENOL	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
2,6-DINITROTOLUENE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	11.5 J	0.345 U
2-CHLORONAPHTHALENE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
2-CHLOROPHENOL	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
2-METHYLNAPHTHALENE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
2-METHYLPHENOL	MG/KG	1,000	500	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
2-NITROANILINE	MG/KG			0.927 U	90.9 U	0.878 U	0.884 U	0.903 U	0.937 U	0.95 U	0.939 U	0.926 UJ	4.37 U	17.6 U	0.875 U	0.883 U	8.79 U	0.894 U	0.874 U	0.928 U	0.886 U	8.83 UJ	0.862 U
2-NITROPHENOL	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
3,3'-DICHLOROBENZIDINE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
3-METHYLPHENOL	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
3-NITROANILINE	MG/KG			0.927 U	90.9 U	0.878 U	0.884 U	0.903 U	0.937 U	0.95 U	0.939 U	0.926 UJ	4.37 U	17.6 U	0.875 U	0.883 U	8.79 U	0.894 U	0.874 U	0.928 U	0.886 U	8.83 UJ	0.862 U
4,6-DINITRO-2-METHLYPHENOL	MG/KG			0.927 U	90.9 U	0.878 U	0.884 U	0.903 U	0.937 U	0.95 U	0.939 U	0.926 UJ	4.37 U	17.6 U	0.875 U	0.883 U	8.79 U	0.894 U	0.874 U	0.928 U	0.886 U	8.83 UJ	0.862 U
4-BROMOPHENOL PHENYL ETHER	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
4-CHLORO-3-METHYLPHENOL	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
4-CHLOROANILINE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
4-CHLOROPHENYL PHENYL ETHER	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
4-METHYLPHENOL	MG/KG	1,000	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NIRTOANILINE	MG/KG			0.927 U	90.9 U	0.878 U	0.884 U	0.903 U	0.937 U	0.95 U	0.939 U	0.926 UJ	4.37 U	17.6 U	0.875 U	0.883 U	8.79 U	0.894 U	0.874 U	0.928 U	0.886 U	8.83 UJ	0.862 U
4-NITROPHENOL	MG/KG			0.927 U	90.9 U	0.878 U	0.884 U	0.903 U	0.937 U	0.95 U	0.939 U	0.926 UJ	4.37 U	17.6 U	0.875 U	0.883 U	8.79 U	0.894 U	0.874 U	0.928 U	0.886 U	8.83 UJ	0.862 U
ACENAPHTHENE	MG/KG	1,000	500	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
ACENAPHTHYLENE	MG/KG	1,000	500	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
ACETOPHENONE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANILINE	MG/KG	1,000		0.371 U	36.4 U	0.351 U	0.354 U	0.182 J	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
ANTHRACENE	MG/KG	1,000	500	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
BENZIDINE	MG/KG			0.927 U	90.9 U	0.878 U	0.884 U	0.903 U	0.937 UJ	0.95 U	0.939 U	0.926 UJ	4.37 UJ	17.6 UJ	0.875 UJ	0.883 U	8.79 U	0.894 U	0.874 U	0.928 U	0.886 U	8.83 UJ	0.862 U
BENZO(A)ANTHRACENE	MG/KG	11	5.6	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
BENZO(A)PYRENE	MG/KG	1.1	1	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
BENZO(B)FLUORANTHENE	MG/KG	11	5.6	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
BENZO(G,H,I)PERYLENE	MG/KG	1,000	500	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
BENZO(K)FLUORANTHENE	MG/KG	110	56	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
BENZOIC ACID	MG/KG			0.927 U	90.9 U	0.878 U	0.884 U	0.903 U	0.937 UJ	0.95 U	0.939 U	0.926 UJ	4.37 UJ	17.6 UJ	0.875 UJ	0.883 U	8.79 U	0.894 U	0.874 U	0.928 U	0.886 U	8.83 UJ	0.862 U
BENZYL ALCOHOL	MG/KG			0.927 U	90.9 U	0.878 U	0.884 U	0.903 U	0.937 U	0.95 U	0.939 U	0.926 UJ	4.37 U	17.6 U	0.875 U	0.883 U	8.79 U	0.894 U	0.874 U	0.928 U	0.886 U	8.83 UJ	0.862 U
BIPHENYL	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
BIS(2-CHLOROETHYL)ETHER	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
BIS(2-ETHYLHEXYL)PHTHALATE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
BUTYLBENZYL PHTHALATE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
CAPROLACTAM	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	MG/KG	110	56	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
DI-N-BUTYL PHTHALATE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
DI-N-OCTYL PHTHALATE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 UJ	0.38 U	0.376 U	0.371 UJ	1.75 UJ	7.05 UJ	0.35 UJ	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
DIBENZO(A,H)ANTHRACENE	MG/KG	1.1	0.56	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
DIBENZOFURAN	MG/KG	1,000	350	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
DIETHYL PHTHALATE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
DIMETHYL PHTHALATE	MG/KG			0.927 U	90.9 U	0.878 U	0.884 U	0.903 U	0.937 U	0.95 U	0.939 U	0.926 UJ	4.37 U	17.6 U	0.875 U	0.883 U	8.79 U	0.894 U	0.874 U	0.928 U	0.886 U	8.83 UJ	0.862 U
FLUORANTHENE	MG/KG	1,000	500	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
FLUORENE	MG/KG	1,000	500	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
HEXACHLOROBENZENE	MG/KG	12	6	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
HEXACHLOROBUTADIENE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
HEXACHLOROCYCLOPENTADIENE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
HEXACHLOROETHANE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
INDENO(1,2,3-CD)PYRENE	MG/KG	11	5.6	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
ISOPHORONE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
N-NITROSOI-N-PROPYLAMINE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
N-NITROSODIMETHYLAMINE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
N-NITROSODIPHENYLAMINE	MG/KG			0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
NAPHTHALENE	MG/KG	1,000	500	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
NITROBENZENE	MG/KG	455		0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
O-NITROANANILINE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	MG/KG			0.927 U	90.9 U	0.878 U	0.884 U	0.903 U	0.937 U	0.95 U	0.939 U	0.926 UJ	4.37 U	17.6 U	0.875 U	0.883 U	8.79 U	0.894 U	0.874 U	0.928 U	0.886 U	8.83 UJ	0.862 U
PHENANTHRENE	MG/KG	1,000	500	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
PHENOL	MG/KG	1,000	500	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
PYRENE	MG/KG	1,000	500	0.371 U	36.4 U	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	1.75 U	7.05 U	0.35 U	0.353 U	3.52 U	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U

Created by: BCG
Checked by: NF

Table 1
Area C Site Management Plan
Post-Remedial Action Soils Exceeding Applicable SCOs
Former Buffalo Color Facility, Buffalo, NY

			Area	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C	Area C
			Location	C1-RB-1	C1-RS-1	C1-RS-2	C1-RS-3	C1-RS-4	C2-RB-1	C2-RB-2	C2-RB-3	C2-RB-4	C2-RS-1	C2-RS-2	C2-RS-3	C2-RS-4	C2-RS-5	C2-RS-6	C2-RS-7	C2-RS-8	C2-RS-9	C2-RS-10	C2-RS-11
			Sample Date	10/20/10	10/20/10	10/20/10	10/20/10	10/20/10	11/01/10	11/03/10	11/11/10	11/12/10	11/01/10	11/01/10	11/01/10	11/09/10	11/09/10	11/09/10	11/10/10	11/09/10	11/10/10	11/11/10	11/12/10	11/13/10
			Sample ID	C1-RB1-1213	C1-RS1-0709	C1-RS2-0811	C1-RS3-0912	C1-RS4-0507	C2-RB1-1314	C2-RB2-1213	C2-RB3-1213	C2-RB4-1213	C2-RS1-0911	C2-RS2-1012	C2-RS3-0911	C2-RS4-0607	C2-RS5-0911	C2-RS6-0810	C2-RS7-0911	C2-RS8-0911	C2-RS9-0608	C2-RS10-0911	C2-RS11-0810
Parameter	**Units**	**Industrial**	**Commercial**																				
VOCS																							
1,1,1-TRICHLOROETHANE	MG/KG	1,000	500	4.66 UJ	0.971 U	0.00475 U	0.00447 U	2.98 UJ	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
1,1,2,2-TETRACHLOROETHANE	MG/KG			4.66 U	0.971 U	0.00475 U	0.00447 UJ	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
1,1,2-TRICHLOROETHANE	MG/KG			4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
1,1,2-TRICHLOROTRIFLUOROETHANE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	MG/KG			4.66 U	0.971 U	0.00475 U	0.00532 J	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
1,1-DICHLOROETHENE	MG/KG			4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
1,2,4-TRICHLOROBENZENE	MG/KG			0.319 J	447	0.351 U	0.354 U	0.361 U	0.375 U	0.38 U	0.376 U	0.371 UJ	7.9	79.9	1.23	0.353 U	33	0.358 U	0.35 U	0.371 U	0.354 U	3.53 UJ	0.345 U
1,2-DICHLOROBENZENE	MG/KG	1,000	500	17.2	0.971 U	0.00475 U	0.00447 UJ	2.98 U	22.3	0.34	0.00495 U	0.00729 UJ	193	451	24.6	6.09	94.6	0.00492 U	1.49 U	2.37 U	0.936 U	0.175 J	0.00665
1,2-DICHLOROETHANE	MG/KG	60	30	4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
1,2-DICHLOROPROPANE	MG/KG			4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
1,3-DICHLOROBENZENE	MG/KG	560	280	4.66 U	0.611 J	0.00475 U	0.00447 UJ	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	1.54 J	3.82 J	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
1,4-DICHLOROBENZENE	MG/KG	250	130	4.66 U	0.835 J	0.00475 U	0.00447 UJ	2.98 U	6.88	0.25 U	0.00495 U	0.00729 UJ	50	127	8.21	2.96	22	0.00492 U	1.49 U	2.37 U	0.936 U	0.0412 J	0.00466 U
2-BUTANONE	MG/KG	1,000	500	23.3 UJ	4.86 UJ	0.0237 UJ	0.0224 UJ	14.9 UJ	4.44 UJ	1.25 U	0.0248 U	0.0364 UJ	10.3 UJ	22.4 UJ	5.48 UJ	9.07 U	9.88 U	0.0246 U	7.44 U	11.9 U	4.68 U	0.171 UJ	0.0233 U
2-CHLOROETHYL VINYL ETHER	MG/KG			23.3 UJ	4.86 U	0.0237 U	0.0224 U	14.9 UJ	4.44 U	1.25 U	0.0248 U	0.0364 UJ	10.3 U	22.4 U	5.48 U	9.07 U	9.88 U	0.0246 U	7.44 U	11.9 U	4.68 U	0.171 UJ	0.0233 U
2-HEXANON	MG/KG			11.7 UJ	2.43 U	0.0119 U	0.0112 UJ	7.46 UJ	2.22 U	0.626 U	0.0124 U	0.0182 UJ	5.17 U	11.2 U	2.74 U	4.53 U	4.94 U	0.0123 U	3.72 U	5.93 U	2.34 U	0.0856 UJ	0.0117 U
4-METHYL-2-PENTANONE	MG/KG			11.7 UJ	2.43 U	0.0119 U	0.0112 UJ	7.46 UJ	2.22 U	0.626 U	0.0124 U	0.0182 UJ	5.17 U	11.2 U	2.74 U	4.53 U	4.94 U	0.0123 U	3.72 U	5.93 U	2.34 U	0.0856 UJ	0.0117 U
ACETONE	MG/KG	1,000	500	23.3 UJ	4.86 UJ	0.0137 J	0.0164 J	14.9 UJ	4.44 UJ	1.25 U	0.0459	0.0364 UJ	10.3 UJ	22.4 UJ	5.48 UJ	9.07 U	9.88 U	0.0278	7.44 U	11.9 U	4.68 U	0.171 UJ	0.0669
BENZENE	MG/KG	89	44	4.66 UJ	0.971 U	0.00475 U	0.00447 U	2.98 UJ	0.888 U	0.25 U	0.0442	0.00908 J	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	1.69 J	0.00466 U
BROMODICHLOROMETHANE	MG/KG			4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
BROMOFORM	MG/KG			11.7 UJ	2.43 U	0.0119 U	0.0112 UJ	7.46 UJ	2.22 UJ	0.626 U	0.0124 U	0.0182 UJ	5.17 UJ	11.2 UJ	2.74 UJ	4.53 U	4.94 U	0.0123 U	3.72 U	5.93 U	2.34 U	0.0856 UJ	0.0117 U
BROMOMETHANE	MG/KG			4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
CARBON DISULFIDE	MG/KG			4.66 UJ	0.971 U	0.00926	0.00447 U	2.98 UJ	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
CARBON TETRACHLORIDE	MG/KG	44	22	4.66 UJ	0.971 U	0.00475 U	0.00447 U	2.98 UJ	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
CHLOROBENZENE	MG/KG	1,000	500	5.88	3.23	0.00475 U	0.00574 J	5.27	45.9	10.1	0.00495 U	0.345 J	59	98.9	14.9	10.2	28.8	0.00492 U	15.3	3.49	6.91	2.78 J	0.00466 U
CHLORODIBROMOMETHANE	MG/KG			4.66 UJ	0.971 U	0.00475 U	0.00447 UJ	2.98 UJ	0.888 UJ	0.25 U	0.00495 U	0.00729 UJ	2.07 UJ	4.47 UJ	1.1 UJ	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
CHLOROETHANE	MG/KG			4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
CHLOROFORM	MG/KG	700	350	4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
CHLOROMETHANE	MG/KG			4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 UJ	0.25 U	0.00495 U	0.00729 UJ	2.07 UJ	4.47 UJ	1.1 UJ	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
CIS-1,2-DICHLOROETHENE	MG/KG	1,000	500	4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
CIS-1,3-DICHLOROPROPENE	MG/KG			4.66 UJ	0.971 U	0.00475 U	0.00447 U	2.98 UJ	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
CYCLOHEXANE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	MG/KG	780	390	4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.456 J	0.00466 U
ISOPROPYLBENZENE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL ACETATE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLCYCLOHEXANE	MG/KG			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	MG/KG	1,000	500	11.7 UJ	2.43 UJ	0.0119 UJ	0.0112 UJ	7.46 UJ	2.22 UJ	0.626 U	0.0124 U	0.0182 UJ	5.17 UJ	11.2 UJ	2.74 UJ	4.53 U	4.94 U	0.0123 U	3.72 U	5.93 U	2.34 U	0.0856 UJ	0.0117 U
STYRENE	MG/KG			11.7 U	2.43 U	0.0119 U	0.0112 UJ	7.46 U	2.22 U	0.626 U	0.0124 U	0.0182 UJ	5.17 U	11.2 U	2.74 U	4.53 U	4.94 U	0.0123 U	3.72 U	5.93 U	2.34 U	0.0856 UJ	0.0117 U
TETRACHLOROETHENE	MG/KG	300	150	4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 UJ	0.25 U	0.00495 U	0.00729 UJ	2.07 UJ	4.47 UJ	1.1 UJ	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
TOLUENE	MG/KG	1,000	500	4.66 U	0.971 U	0.00475 U	0.00233 J	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.41 J	0.00466 U
TRANS-1,2-DICHLOROETHENE	MG/KG			4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
TRANS-1,3-DICHLOROPROPENE	MG/KG			4.66 UJ	0.971 U	0.00475 U	0.00447 U	2.98 UJ	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
TRICHLOROETHENE	MG/KG	400	200	4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
TRICHLOROFLUOROMETHANE	MG/KG			4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
VINYL ACETATE	MG/KG			11.7 U	2.43 U	0.0119 U	0.0112 R	7.46 U	2.22 UJ	0.626 U	0.0124 U	0.0182 UJ	5.17 UJ	11.2 UJ	2.74 UJ	4.53 U	4.94 U	0.0123 U	3.72 U	5.93 U	2.34 U	0.0856 UJ	0.0117 U
VINYL CHLORIDE	MG/KG	27	13	4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	0.0342 UJ	0.00466 U
XYLENES, TOTAL	MG/KG	1,000	500	4.66 U	0.971 U	0.00475 U	0.00447 U	2.98 U	0.888 U	0.25 U	0.00495 U	0.00729 UJ	2.07 U	4.47 U	1.1 U	1.81 U	1.98 U	0.00492 U	1.49 U	2.37 U	0.936 U	8.64 J	0.00466 U

Created by: BCG
Checked by: NF

Table 2
Area C Site Management Plan
Post-Remedial Action Groundwater Exceeding NY Class GA Standards
Former Buffalo Color Facility, Buffalo, NY

Parameter	Units [4]	NYSDEC Values [5]	PS-04-1109 PS-04 11/19/2009	PS-05-1109 PS-05 11/17/2009	PS-06-1109 PS-06 11/17/2009	RFI-20-1109 RFI-20 11/19/2009	RFI-31-1109 RFI-31 11/19/2009	MW-C01-1109 MW-C01 11/18/2009	PDI-C02-0909 PDI-C02 09/08/09	PDI-C03-0909 PDI-C03 09/08/09	PDI-C04-0909 PDI-C04 09/14/09	PDI-C05-0909 PDI-C05 09/14/09	PDI-C07-0909 PDI-C07 09/09/09	PDI-C08-0909 PDI-C08 09/15/09	PDI-C09-0909 PDI-C09 09/11/09	PDI-C10-0909 PDI-C10 09/08/09	PDI-C11-0909 PDI-C11 09/08/09	PDI-C12-0909 PDI-C12 09/08/09	PDI-C13-0909 PDI-C13 09/08/09	PDI-C14-0909 PDI-C14 09/15/09	PDI-C15-0909 PDI-C15 09/14/09	PDI-C16-0909 PDI-C16 09/14/09
VOCs																						
1,1,1-TRICHLOROETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	**15**
1,1,2,2-TETRACHLOROETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 UJ	1 UJ	1 U	1 U	5 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	4 U	1 U	1 U
1,1,2-TRICHLOROETHANE	ug/L	1	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
1,1,2-TRICHLOROTRIFLUOROETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
1,1-DICHLOROETHANE	ug/L	5	1 U	1 U	0.8 J	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	**53**
1,1-DICHLOROETHENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	2.1
1,2,4-TRICHLOROBENZENE	ug/L	5	1 U	1 U	1 U	**130**	**1200**	**24**	1 U	1 U	**79**	2	3.1 J	0.98 J	1 U	1 U	1 U	1 U	1 U	4 U	0.9 J	0.66 J
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	0.04	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
1,2-DIBROMOETHANE	ug/L	0.0006	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
1,2-DICHLOROBENZENE	ug/L	3	1 U	**5**	1 U	**11**	**8.6** J	5 U	1 U	1 U	**6.9**	1.1	5 U	**10**	1 U	1 U	1 U	1 U	1 U	4 U	1 U	**68**
1,2-DICHLOROETHANE	ug/L	0.6	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
1,2-DICHOLORETHENE, TOTAL	ug/L	5																				
1,2-DICHLOROPROPANE	ug/L	1	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
1,3-DICHLOROBENZENE	ug/L	3	1 U	1 U	1 U	1 U	**1600**	**6.8**	1 U	1 U	0.57 J	1 U	5 U	0.51 J	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1.8
1,4-DICHLOROBENZENE	ug/L	3	1 U	0.76 J	1 U	2	**110**	2.8 J	1 U	1 U	2.2	0.54 J	5 U	2.6	1 U	1 U	1 U	1 U	1 U	4 U	1 U	**9.4**
2-BUTANONE	ug/L	50	5 U	5 U	5 U	5 U	100 U	25 U	5 U	5 U	3.1 J	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U	5 U	5 U
2-HEXANONE	ug/L	50	5 U	5 U	5 U	5 U	100 U	25 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U	5 U	5 U
4-METHYL-2-PENTANONE	ug/L		5 U	5 U	5 U	5 U	100 U	25 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	20 U	5 U	5 U
ACETONE	ug/L	50	5 U	5 U	5 U	5 UJ	100 U	25 UJ	6.3	5 U	22	3.7 J	31	2.5 J	2.2 J	3.6 J	5 U	5 U	12	27	17	3.9 J
BENZENE	ug/L	1	1 U	0.97 J	0.61 J	**7.6**	**9.6** J	5 U	1 U	1 U	**1.6**	**9.6**	5 U	**3.5**	1 U	1 U	1 U	1 U	1 U	**2.9** J	1 U	**13**
BROMODICHLOROMETHANE	ug/L	50	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
BROMOFORM	ug/L	50	1 UJ	1 U	1 U	1 U	20 UJ	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
BROMOMETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 UJ	1 U	1 U	1 U	1 U	1 U	4 UJ	1 U	1 U
CARBON DISULFIDE	ug/L	60	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	0.54 J	0.96 J	5 U	1 U	1 U	1 U	1 U	1 U	2.3	4 U	0.93 J	1 U
CARBON TETRACHLORIDE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
CHLOROBENZENE	ug/L	5	0.81 J	**700**	1 U	**5900**	**830**	5 U	4.6	1 U	2.3	**6.5**	5 U	**5.8**	**19**	1 U	1 U	1 U	1 U	**93**	**7.6**	**99**
CHLORODIBROMOMETHANE	ug/L	50	1 U	1 U	1 U	1 U	20 U	5 U														
CHLOROETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 UJ	1 U	1 U	1 U	1 U	1 U	4 UJ	1 U	**10**
CHLOROFORM	ug/L	7	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
CHLOROMETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
CIS-1,3-DICHLOROPROPENE [1]	ug/L	0.4	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
CYCLOHEXANE	ug/L		1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
DIBROMOCHLOROMETHANE	ug/L	50							1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
DICHLORODIFLUOROMETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
ETHYLBENZENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	0.69 J	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
ISOPROPYLBENZENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
METHYL ACETATE	ug/L		1 UJ	1 U	1 U	1 UJ	20 UJ	5 UJ	1 UJ	1 UJ	1 U	1 U	5 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	4 U	1 U	1 U
METHYL TERT-BUTYL ETHER	ug/L	10	1 U	1 U	0.52 J	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
METHYLCYCLOHEXANE	ug/L		1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
METHYLENE CHLORIDE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
STYRENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
TETRACHLOROETHENE	ug/l	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
TOLUENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	0.63 J	1 U	1.2	4.7	2.8 J	1.5	1 U	1 U	1 U	1 U	1 U	4.6	**8.4**	0.96 J
TRANS-1,2-DICHLOROETHENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE [1]	ug/L	0.4	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
TRICHLOROETHENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
TRICHLOROFLUOROMETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	1 UJ	1 UJ	1 U	1 U	5 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	4 U	1 U	1 U
VINYL ACETATE	ug/L													5 U						20 U		
VINYL CHLORIDE	ug/L	2	1 U	1 U	1 U	1 U	20 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
XYLENES, TOTAL	ug/L	5	2 U	2 U	2 U	2 U	40 U	10 U	2 U	2 U	2 U	2 U	10 U	1.9 J	2 U	2 U	2 U	2 U	2 U	8 U	2 U	2 U

See notes at end of table

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Checked by: NCF 05/05/10

Table 2
Area C Site Management Plan
Post-Remedial Action Groundwater Exceeding NY Class GA Standards
Former Buffalo Color Facility, Buffalo, NY

Parameter	Units [4]	NYSDEC Values [5]	Sample ID: / Location: / Date: PS-04-1109 PS-04 11/19/2009	PS-05-1109 PS-05 11/17/2009	PS-06-1109 PS-06 11/17/2009	RFI-20-1109 RFI-20 11/19/2009	RFI-31-1109 RFI-31 11/19/2009	MW-C01-1109 MW-C01 11/18/2009	PDI-C02-0909 PDI-C02 09/08/09	PDI-C03-0909 PDI-C03 09/08/09	PDI-C04-0909 PDI-C04 09/14/09	PDI-C05-0909 PDI-C05 09/14/09	PDI-C07-0909 PDI-C07 09/09/09	PDI-C08-0909 PDI-C08 09/15/09	PDI-C09-0909 PDI-C09 09/11/09	PDI-C10-0909 PDI-C10 09/08/09	PDI-C11-0909 PDI-C11 09/08/09	PDI-C12-0909 PDI-C12 09/08/09	PDI-C13-0909 PDI-C13 09/08/09	PDI-C14-0909 PDI-C14 09/15/09	PDI-C15-0909 PDI-C15 09/14/09	PDI-C16-0909 PDI-C16 09/14/09
SVOCs																						
1,1'-BIPHENYL	ug/L	5	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U														
2,2'-OXYBIS(1-CHLOROPROPANE)	ug/L	5	5 U	3.9 U	20 U	4 U	4.4 U	4 U	21 U	4.2 U	4 UJ	4 UJ	21 U	3.9 UJ	4.2 U	4.2 U	4 U	4.4 U	6.6 U	44 UJ	13 UJ	21 UJ
2,4,5-TRICHLOROPHENOL	ug/L		6.2 U	4.9 UJ	25 U	5 U	1.5 J	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
2,4,6-TRICHLOROPHENOL	ug/L		6.2 U	4.9 UJ	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
2,4-DICHLOROPHENOL	ug/L	5	6.2 U	4.9 UJ	25 U	5 U	**7.9**	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
2,4-DIMETHYLPHENOL	ug/L	1	6.2 U	4.9 UJ	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
2,4-DINITROPHENOL	ug/L	1	12 U	9.8 UJ	50 U	9.9 U	11 U	10 U	52 U	11 U	10 U	10 U	53 U	9.8 U	11 U	11 U	10 U	11 U	16 U	110 U	32 U	52 U
2,4-DINITROTOLUENE	ug/L	5	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
2,6-DINITROTOLUENE	ug/L	5	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
2-CHLORONAPHTHALENE	ug/L	10	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	0.21 J	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
2-CHLOROPHENOL	ug/L		6.2 U	2.9 J	25 U	5.4	1.6 J	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
2-METHYLNAPHTHALENE	ug/L		6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	1.1 J	5.3 U	5.1 U	5.1 U	26 U	4.9 U	0.45 J	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
2-METHYLPHENOL	ug/L		6.2 U	4.9 UJ	25 U	5 U	5.5 U	5 U	26 U	5.3 U	0.77 J	5.1 U	26 U	4.9 U	0.48 J	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
2-NITROANILINE	ug/L	5	12 U	9.8 U	50 U	9.9 U	11 U	10 U	52 U	11 U	10 U	10 U	53 U	9.8 U	11 U	11 U	10 U	11 U	16 U	110 U	32 U	52 U
2-NITROPHENOL	ug/L		6.2 U	4.9 UJ	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
3,3'-DICHLOROBENZIDINE	ug/L	5	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
3-NITROANILINE	ug/L	5	12 U	9.8 U	50 U	9.9 U	11 U	10 U	52 U	11 U	10 U	10 U	53 U	9.8 U	11 U	11 U	10 U	11 U	16 U	110 U	32 U	52 U
4,6-DINITRO-2-METHYLPHENOL	ug/L		12 U	9.8 UJ	50 U	9.9 UJ	11 UJ	10 UJ	52 U	11 U	10 U	10 U	53 U	9.8 U	11 U	11 U	10 U	11 U	16 U	110 U	32 U	52 U
4-BROMOPHENYL PHENYL ETHER	ug/L		6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
4-CHLORO-3-METHYLPHENOL	ug/L		6.2 U	4.9 UJ	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
4-CHLOROANILINE	ug/L	5	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
4-CHLOROPHENYL PHENYL ETHER	ug/L		6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
4-METHYLPHENOL	ug/L		12 UJ	9.8 UJ	50 U	9.9 UJ	11 UJ	10 UJ	52 U	11 U	10 U	10 U	53 U	9.8 U	11 U	11 U	10 U	11 U	16 U	110 U	32 U	52 U
4-NITROANILINE	ug/L	5	12 U	9.8 U	50 U	9.9 U	11 U	10 U	52 U	11 U	10 U	10 U	53 U	9.8 U	11 U	11 U	10 U	11 U	16 U	110 U	32 U	52 U
4-NITROPHENOL	ug/L		12 UJ	9.8 UJ	50 UJ	9.9 UJ	11 UJ	10 UJ	52 U	11 U	10 U	10 U	53 U	9.8 UJ	11 UJ	11 U	10 U	11 U	16 U	110 UJ	32 U	52 U
ACENAPHTHENE	ug/L	20	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	0.75 J	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
ACENAPHTHYLENE	ug/L		6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
ACETOPHENONE	ug/L		6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
ANILINE	ug/L	5	12 U	9.8 U	50 U	9.9 U	11 U	10 U	52 U	11 U	**39**	10 U	53 U	**61**	11 U	11 U	10 U	11 U	16 U	110 U	32 U	52 U
ANTHRACENE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	0.41 J	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
ATRAZINE	ug/L	7.5	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 UJ	5.3 UJ	5.1 UJ	5.1 UJ	26 UJ	4.9 UJ	5.3 UJ	5.3 UJ	5.1 UJ	5.5 UJ	8.2 UJ	56 UJ	16 UJ	26 UJ
BENZALDEHYDE	ug/L								26 U	5.3 U	0.69 J	5.1 U	26 U	4.9 U	5.3 U	0.32 J	5.1 U	1.2 J	0.67 J	56 U	2.3 J	26 U
BENZO(A)ANTHRACENE	ug/L	0.002	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	**1.8** J	5.3 U	**0.39** J	5.1 U	26 U	4.9 U	**0.45** J	5.3 U	5.1 U	5.5 U	**0.56** J	**3.2** J	16 U	26 U
BENZO(A)PYRENE [2]	ug/L	0	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	**1.6** J	**0.32** J	**0.46** J	5.1 U	26 U	4.9 U	5.3 U	**0.31** J	**0.34** J	**0.51** J	**0.95** J	56 U	16 U	26 U
BENZO(B)FLUORANTHENE	ug/L	0.002	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	**1.3** J	5.3 U	**0.51** J	5.1 U	26 U	4.9 U	**0.38** J	5.3 U	5.1 U	**0.41** J	**0.52** J	56 U	16 U	26 U
BENZO(G,H,I)PERYLENE	ug/L		6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	2.3 J	0.4 J	0.48 J	5.1 U	26 U	4.9 U	0.48 J	0.47 J	0.56 J	0.69 J	1.4 J	56 U	16 U	26 U
BENZO(K)FLUORANTHENE	ug/L	0.002	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	**1.4** J	5.3 U	**0.35** J	5.1 U	26 U	4.9 U	**0.31** J	**0.26** J	5.1 U	**0.42** J	**0.89** J	56 U	16 U	26 U
BIPHENYL	ug/L	5							26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
BIS(2-CHLOROETHOXY)METHANE	ug/L	5	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
BIS(2-CHLOROETHYL)ETHER	ug/L	1	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
BIS(2-ETHYLHEXYL)PHTHALATE	ug/L	5	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
BUTYLBENZYL PHTHALATE	ug/L	50	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
CAPROLACTAM	ug/L		6.2 UJ	4.9 UJ	25 UJ	5 UJ	5.5 UJ	5 UJ	26 UJ	10 J	5.1 UJ	5.1 UJ	26 UJ	4.9 UJ	5.3 UJ	40 J	5.1 UJ	5.5 UJ	8.2 UJ	56 UJ	23 J	26 UJ
CARBAZOLE	ug/L		6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
CHRYSENE	ug/L	0.002	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	**0.32** J	5.1 U	26 U	4.9 U	**0.47** J	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
DI-N-BUTYL PHTHALATE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	0.34 J	5.3 U	5.1 U	0.37 J	8.2 U	56 U	16 U	26 U
DI-N-OCTYL PHTHALATE	ug/L	50	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	26 U	1.2 J	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
DIBENZO(A,H)ANTHRACENE	ug/L		6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	2.3 J	0.58 J	0.31 J	5.1 U	26 U	4.9 U	0.45 J	0.71 J	0.65 J	0.98 J	1.7 J	56 U	16 U	26 U
DIBENZOFURAN	ug/L		12 U	9.8 U	50 U	9.9 U	11 U	10 U	52 U	11 U	10 U	10 U	53 U	9.8 U	11 U	11 U	10 U	11 U	16 U	110 U	32 U	52 U
DIETHYL PHTHALATE	ug/L	50	6.2 U	4.9 U	25 U	5 U	4 J	5 U	5 J	5.3 U	2.8 U	1.3 U	11 J	0.67 U	1.4 J	1 J	3 J	7.8	7.7 J	23 U	3 U	26 U
DIMETHYL PHTHALATE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	0.51 J	0.37 J	2.4 J	4.9 U	5.3 U	5.3 U	0.67 J	1.4 J	2.1 J	56 U	16 U	26 U
ENDRIN ALDEHYDE	ug/L	5	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U														
FLUORANTHENE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	3 J	5.3 U	5.1 U	5.1 U	26 U	4.9 U	0.82 J	5.3 U	5.1 U	5.5 U	8.2 U	3 J	16 U	26 U
FLUORENE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
HEXACHLOROBENZENE	ug/L	0.04	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
HEXACHLOROBUTADIENE	ug/L	0.5	6.2 U	4.9 UJ	25 UJ	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
HEXACHLOROCYCLOPENTADIENE	ug/L	5	6.2 U	4.9 UJ	25 UJ	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 UJ	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 UJ	16 U	26 U
HEXACHLOROETHANE	ug/L	5	6.2 U	4.9 UJ	25 UJ	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
INDENO(1,2,3-CD)PYRENE	ug/L	0.002	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	**2.2** J	**0.51** J	**0.41** J	5.1 U	26 U	4.9 U	**0.48** J	**0.64** J	**0.64** J	**0.96** J	**1.6** J	56 U	16 U	26 U
ISOPHORONE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
N-NITROSO-DI-N-PROPYLAMINE	ug/L		6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
N-NITROSODIPHENYLAMINE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	1.2	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
NAPHTHALENE	ug/L	10	6.2 U	2 J	25 U	5	1.5 J	5 U	4.9 J	5.3 U	2.1 J	0.22 J	26 U	1.1 J	4.9 J	5.3 U	3.8 J	0.48 J	8.2 U	56 U	1 J	26 U
NITROBENZENE	ug/L	0.4	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 U	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
PENTACHLOROPHENOL [3]	ug/L	1	12 U	9.8 UJ	50 U	9.9 U	11 U	10 U	52 U	11 U	10 U	10 U	53 U	9.8 U	11 U	11 U	10 U	11 U	16 U	110 U	32 U	52 U
PHENANTHRENE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	2.5 J	5.3 U	0.51 J	5.1 U	26 U	4.9 U	0.32 J	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
PHENOL [3]	ug/L	1	6.2 UJ	4.9 UJ	25 UJ	5 UJ	0.47 J	5 UJ	26 U	5.3 U	5.1 U	5.1 U	26 U	4.9 U	5.3 UJ	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U
PYRENE	ug/L	50	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	2.8 J	5.3 U	0.43 J	5.1 U	26 U	4.9 U	0.82 J	5.3 U	5.1 U	5.5 U	8.2 U	56 U	16 U	26 U

See notes at end of table

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Table 2
Area C Site Management Plan
Post-Remedial Action Groundwater Exceeding NY Class GA Standards
Former Buffalo Color Facility, Buffalo, NY

Parameter	Units [4]	NYSDEC Values [5]	Sample ID: PS-04-1109 Location: PS-04 Date: 11/19/2009	PS-05-1109 PS-05 11/17/2009	PS-06-1109 PS-06 11/17/2009	RFI-20-1109 RFI-20 11/19/2009	RFI-31-1109 RFI-31 11/19/2009	MW-C01-1109 MW-C01 11/18/2009	PDI-C02-0909 PDI-C02 09/08/09	PDI-C03-0909 PDI-C03 09/08/09	PDI-C04-0909 PDI-C04 09/14/09	PDI-C05-0909 PDI-C05 09/14/09	PDI-C07-0909 PDI-C07 09/09/09	PDI-C08-0909 PDI-C08 09/15/09	PDI-C09-0909 PDI-C09 09/11/09	PDI-C10-0909 PDI-C10 09/08/09	PDI-C11-0909 PDI-C11 09/08/09	PDI-C12-0909 PDI-C12 09/08/09	PDI-C13-0909 PDI-C13 09/08/09	PDI-C14-0909 PDI-C14 09/15/09	PDI-C15-0909 PDI-C15 09/14/09	PDI-C16-0909 PDI-C16 09/14/09
Total Metals																						
ARSENIC	ug/L	25	14	10 U	**983**	10 U	10 U	10 U														
BARIUM	ug/l	1000	24.8	75.1	927	16.7	28.3	123														
CADMIUM	ug/L	5	1 U	1 U	**30.8**	1 U	1 U	1 U														
CHROMIUM	ug/L	50	4 U	4 U	**262**	4 U	5.4	4.8														
LEAD	ug/L	25	5 U	5 U	**848**	5 U	5 U	5 U														
MERCURY	ug/l	0.7	0.4	0.2 U	**9.4**	0.2 U	0.2 U	0.2 U														
SELENIUM	ug/l	10	15 U	15 U	**35.3**	15 U	15 U	15 U														
SILVER	ug/l	50	3 U	3 U	3 U	3 U	3 U	3 U														
Dissolved Metals																						
ARSENIC	ug/L		13.1		106																	
BARIUM	ug/l		23.6		19.2																	
CADMIUM	ug/L		1 U		1 U																	
CHROMIUM	ug/L		4 U		4 U																	
LEAD	ug/L		5 U		5 U																	
MERCURY	ug/l		0.2 U		0.2 U																	
SELENIUM	ug/l		15 U		15 U																	
SILVER	ug/l		3 U		3 U																	
Additional Analyses																						
AMMONIA (AS N)	mg/L	2	0.199			0.241	1.24	**2.32**														
DISSOLVED OXYGEN	mg/L		2.71 J			2.37 J	4.08 J	6.97 J														
NITRATE-NITRITE	mg/L	10	0.102			0.05 U	0.05 U	1.43														
NITROGEN, KJELDAHL, TOTAL	mg/L		0.57			0.79	3.1	2.7														
pH	S.U.		7.09 J			7.36 J	7.36 J	7.93 J														
PHOSPHORUS	mg/L		0.0255			0.01 U	0.01 U	0.01 U														
TOTAL ALKALINITY	mg/L		170 J			484 J	540 J	183 J														
CHEMICAL OXYGEN DEMAND	mg/L																	42.4 J				90.4
BIOCHEMICAL OXYGEN DEMAND	mg/L																	19				29.6
DIESEL RANGE ORGANICS	mg/L																	0.51 UJ				0.54
OIL RANGE ORGANICS	mg/L																	0.51 UJ				0.52 U
GASOLINE RANGE ORGANICS	mg/L																	4.3 J				210

Notes:
(1) NYSDEC value of 0.4 ug/L is the standard for the sum of these substances
(2) The NYSDEC standard for benzo(a)pyrene is actually "ND" (non-detect),
0 is used for table compatibility
(3) NYSDEC value of 1 ug/L is the standard for the sum of these substances
(4) Units: ug/L = micrograms per liter; mg/L = milligrams per liter;
S.U. = standard units
(5) New York State Department of Environmental Conservation,
Technical and Operational Guidance Series
- Ambient Water Quality Standards, Class GA, Table 1
- Ambient Water Quality Guidance Values, Class GA, Table 1
Qualifiers: U = not detected; J = estimated value;
UJ = non-detect reported, reporting limit qualified as estimated
Shaded value = exceedance of standard or guidance value

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Table 2
Area C Site Management Plan
Post-Remedial Action Groundwater Exceeding NY Class GA Standards
Former Buffalo Color Facility, Buffalo, NY

Parameter	Units [4]	NYSDEC Values [5]	Sample ID: PDI-C17-0909 Location: PDI-C17 Date: 09/15/09	PDI-C18-0909 PDI-C18 09/11/09	PDI-C19-0909 PDI-C19 09/08/09	PDI-C20-0909 PDI-C20 09/15/09	PDI-C21-0909 PDI-C21 09/14/09	PDI-C22-0909 PDI-C22 09/14/09	PDI-C23-0909 PDI-C23 09/15/09	PDI-C27-0909 PDI-C27 09/11/09	PDI-C28-0909 PDI-C28 09/14/09	PDI-C29-0909 PDI-C29 09/15/09
VOCs												
1,1,1-TRICHLOROETHANE	ug/L	5	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
1,1,2,2-TETRACHLOROETHANE	ug/L	5	20 U	1 UJ	1 UJ	1 U	5 U	1 U	40 U	1 U	1 U	100 U
1,1,2-TRICHLOROETHANE	ug/L	1	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
1,1,2-TRICHLOROTRIFLUOROETHANE	ug/L	5	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
1,1-DICHLOROETHANE	ug/L	5	20 U	1 U	1 U	1 U	5 U	0.67 J	40 U	1 U	1 U	100 U
1,1-DICHLOROETHENE	ug/L	5	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
1,2,4-TRICHLOROBENZENE	ug/L	5	20 U	2.2	1 U	1 U	5 U	0.75 J	**150**	1 U	1 U	100 U
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	0.04	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
1,2-DIBROMOETHANE	ug/L	0.0006	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
1,2-DICHLOROBENZENE	ug/L	3	**90**	**16**	1 U	1 U	5 U	1.7	**1500**	1 U	1 U	100 U
1,2-DICHLOROETHANE	ug/L	0.6	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
1,2-DICHOLORETHENE, TOTAL	ug/L	5	40 U									
1,2-DICHLOROPROPANE	ug/L	1	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
1,3-DICHLOROBENZENE	ug/L	3	20 U	**24**	1 U	1 U	5 U	1 U	**29** J	1 U	1 U	**65** J
1,4-DICHLOROBENZENE	ug/L	3	20 U	**36**	1 U	1 U	5 U	1 U	**420**	1 U	1 U	**59** J
2-BUTANONE	ug/L	50	100 U	5 U	5 U	5 U	25 U	5 U	200 U	5 U	5 U	500 U
2-HEXANONE	ug/L	50	100 U	5 U	5 U	5 U	25 U	5 U	200 U	5 U	5 U	500 U
4-METHYL-2-PENTANONE	ug/L		100 U	5 U	5 U	5 U	25 U	5 U	200 U	5 U	5 U	500 U
ACETONE	ug/L	50	100 U	4.8 J	3 J	8.4	13 J	7.8	200 U	5 U	27	500 U
BENZENE	ug/L	1	20 U	**2.6**	1 U	1 U	5 U	**2.1**	**84**	1 U	0.87 J	100 U
BROMODICHLOROMETHANE	ug/L	50	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
BROMOFORM	ug/L	50	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 UJ	1 UJ	100 U
BROMOMETHANE	ug/L	5	20 UJ	1 U	1 U	1 UJ	5 U	1 U	40 U	1 U	1 U	100 U
CARBON DISULFIDE	ug/L	60	20 U	1 U	0.61 J	0.56 J	5 U	1 U	40 U	0.67 J	2.1	100 U
CARBON TETRACHLORIDE	ug/L	5	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
CHLOROBENZENE	ug/L	5	**220**	**520**	1 U	0.51 J	5 U	0.63 J	**2300**	1.6	1 U	**540**
CHLORODIBROMOMETHANE	ug/L	50										
CHLOROETHANE	ug/L	5	20 UJ	1 U	1 U	1 UJ	5 U	1 U	40 U	1 U	0.63 J	100 U
CHLOROFORM	ug/L	7	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
CHLOROMETHANE	ug/L	5	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	0.64 J	100 U
CIS-1,2-DICHLOROETHENE	ug/L	5	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
CIS-1,3-DICHLOROPROPENE [1]	ug/L	0.4	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
CYCLOHEXANE	ug/L		20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
DIBROMOCHLOROMETHANE	ug/L	50	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
DICHLORODIFLUOROMETHANE	ug/L	5	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 UJ	1 UJ	100 U
ETHYLBENZENE	ug/L	5	20 U	1 U	1 U	1 U	5 U	0.56 J	40 U	1 U	1 U	100 U
ISOPROPYLBENZENE	ug/L	5	20 U	1 U	1 U	1 U	5 U	3	40 U	1 U	1 U	100 U
METHYL ACETATE	ug/L		20 U	1 UJ	1 UJ	1 U	5 U	1 U	40 U	1 U	1 U	100 U
METHYL TERT-BUTYL ETHER	ug/L	10	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
METHYLCYCLOHEXANE	ug/L		20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
METHYLENE CHLORIDE	ug/L	5	20 U	1 U	1 U	1 U	2.4 J	1 U	40 U	1 U	1 U	100 U
STYRENE	ug/L	5	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
TETRACHLOROETHENE	ug/l	5	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
TOLUENE	ug/L	5	20 U	1 U	1 U	0.58 J	5 U	1.1	40 U	1 U	0.83 J	100 U
TRANS-1,2-DICHLOROETHENE	ug/L	5	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
TRANS-1,3-DICHLOROPROPENE [1]	ug/L	0.4	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
TRICHLOROETHENE	ug/L	5	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
TRICHLOROFLUOROMETHANE	ug/L	5	20 U	1 UJ	1 UJ	1 U	5 U	1 U	40 U	1 U	1 U	100 U
VINYL ACETATE	ug/L		100 U			5 U			200 U			
VINYL CHLORIDE	ug/L	2	20 U	1 U	1 U	1 U	5 U	1 U	40 U	1 U	1 U	100 U
XYLENES, TOTAL	ug/L	5	40 U	2 U	2 U	2 U	10 U	**40**	80 U	2 U	2 U	200 U

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Parameter	Units [4]	NYSDEC Values [5]	Sample ID: PDI-C17-0909 Location: PDI-C17 Date: 09/15/09	PDI-C18-0909 PDI-C18 09/11/09	PDI-C19-0909 PDI-C19 09/08/09	PDI-C20-0909 PDI-C20 09/15/09	PDI-C21-0909 PDI-C21 09/14/09	PDI-C22-0909 PDI-C22 09/14/09	PDI-C23-0909 PDI-C23 09/15/09	PDI-C27-0909 PDI-C27 09/11/09	PDI-C28-0909 PDI-C28 09/14/09	PDI-C29-0909 PDI-C29 09/15/09
SVOCs												
1,1'-BIPHENYL	ug/L	5										
2,2'-OXYBIS(1-CHLOROPROPANE)	ug/L	5	200 UJ	4.1 U	4 U	3.9 UJ	4.1 UJ	21 UJ	22 UJ	39 U		3.8 UJ
2,4,5-TRICHLOROPHENOL	ug/L		250 UJ	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
2,4,6-TRICHLOROPHENOL	ug/L		250 UJ	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
2,4-DICHLOROPHENOL	ug/L	5	250 UJ	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
2,4-DIMETHYLPHENOL	ug/L	1	250 UJ	5.1 U	5 U	4.9 U	5.2 U	26 U	**6.6** J	49 U		4.8 U
2,4-DINITROPHENOL	ug/L	1	500 UJ	10 U	10 U	9.8 U	10 U	52 U	55 U	98 U		9.5 U
2,4-DINITROTOLUENE	ug/L	5	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
2,6-DINITROTOLUENE	ug/L	5	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
2-CHLORONAPHTHALENE	ug/L	10	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
2-CHLOROPHENOL	ug/L		250 UJ	1.1 J	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
2-METHYLNAPHTHALENE	ug/L		250 U	5.1 U	5 U	2.2 J	5.2 U	26 U	15 J	49 U		4.8 U
2-METHYLPHENOL	ug/L		250 UJ	5.1 U	5 U	1 J	5.2 U	26 U	7 J	49 U		4.8 U
2-NITROANILINE	ug/L	5	500 U	10 U	10 U	9.8 U	10 U	52 U	55 U	98 U		9.5 U
2-NITROPHENOL	ug/L		250 UJ	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
3,3'-DICHLOROBENZIDINE	ug/L	5	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
3-NITROANILINE	ug/L	5	500 U	10 U	10 U	9.8 U	10 U	52 U	55 U	98 U		9.5 U
4,6-DINITRO-2-METHYLPHENOL	ug/L		500 UJ	10 U	10 U	9.8 U	10 U	52 U	55 U	98 U		9.5 U
4-BROMOPHENYL PHENYL ETHER	ug/L		250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
4-CHLORO-3-METHYLPHENOL	ug/L		250 UJ	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
4-CHLOROANILINE	ug/L	5	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
4-CHLOROPHENYL PHENYL ETHER	ug/L		250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
4-METHYLPHENOL	ug/L		500 UJ	10 U	10 U	9.8 U	10 U	52 U	55 U	98 U		9.5 U
4-NITROANILINE	ug/L	5	500 U	10 U	10 U	9.8 U	10 U	52 U	55 U	98 U		9.5 U
4-NITROPHENOL	ug/L		500 UJ	10 U	10 U	9.8 UJ	10 U	52 UJ	55 UJ	98 U		9.5 UJ
ACENAPHTHENE	ug/L	20	250 U	5.1 U	5 U	3.3 J	5.2 U	26 U	19 J	49 U		4.8 U
ACENAPHTHYLENE	ug/L		250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
ACETOPHENONE	ug/L		250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
ANILINE	ug/L	5	500 U	**90**	10 U	9.8 U	10 U	52 U	**48** J	98 U		**22**
ANTHRACENE	ug/L	50	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	1.9 J	49 U		4.8 U
ATRAZINE	ug/L	7.5	250 UJ	5.1 UJ	5 UJ	4.9 UJ	5.2 UJ	26 UJ	27 UJ	49 UJ		4.8 UJ
BENZALDEHYDE	ug/L		250 U	5.1 U	5 U	4.9 U	5.2 J	26 U	27 U	49 U		0.81 J
BENZO(A)ANTHRACENE	ug/L	0.002	250 U	5.1 U	**0.68** J	4.9 U	5.2 U	**2.1** J	**2.3** J	49 U		4.8 U
BENZO(A)PYRENE [2]	ug/L	0	250 U	5.1 U	**1.2** J	4.9 U	5.2 U	**2** J	**1.7** J	49 U		**0.24** J
BENZO(B)FLUORANTHENE	ug/L	0.002	250 U	5.1 U	**0.79** J	4.9 U	5.2 U	**2** J	27 U	49 U		**0.22** J
BENZO(G,H,I)PERYLENE	ug/L		250 U	5.1 U	1.6 J	4.9 U	5.2 U	1.3 J	27 U	49 U		4.8 U
BENZO(K)FLUORANTHENE	ug/L	0.002	250 U	5.1 U	**1.2** J	4.9 U	5.2 U	**1.2** J	27 U	49 U		**0.27** J
BIPHENYL	ug/L	5	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
BIS(2-CHLOROETHOXY)METHANE	ug/L	5	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
BIS(2-CHLOROETHYL)ETHER	ug/L	1	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
BIS(2-ETHYLHEXYL)PHTHALATE	ug/L	5	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
BUTYLBENZYL PHTHALATE	ug/L	50	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
CAPROLACTAM	ug/L		250 UJ	5.1 UJ	5 UJ	4.9 UJ	5.2 UJ	26 UJ	27 UJ	49 UJ		4.8 UJ
CARBAZOLE	ug/L		250 U	5.1 U	5 U	3.1 J	5.2 U	26 U	20 J	49 U		4.8 U
CHRYSENE	ug/L	0.002	250 U	5.1 U	**0.61** J	4.9 U	5.2 U	**1.6** J	**1.7** J	49 U		4.8 U
DI-N-BUTYL PHTHALATE	ug/L	50	250 U	0.34 J	0.31 J	4.9 U	5.2 U	26 U	27 U	49 U		0.44 J
DI-N-OCTYL PHTHALATE	ug/L	50	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
DIBENZO(A,H)ANTHRACENE	ug/L		250 U	5.1 U	2.1 J	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
DIBENZOFURAN	ug/L		500 U	10 U	10 U	9.8 U	10 U	52 U	55 U	98 U		9.5 U
DIETHYL PHTHALATE	ug/L	50	250 U	0.89 J	5.9	12 U	5.2 U	10 U	3.4 U	49 U		**53**
DIMETHYL PHTHALATE	ug/L	50	250 U	5.1 U	1.2 J	2.1 J	5.2 U	26 U	27 U	49 U		4.8 U
ENDRIN ALDEHYDE	ug/L	5										
FLUORANTHENE	ug/L	50	250 U	5.1 U	5 U	0.39 J	5.2 U	1.7 J	3.9 J	49 U		4.8 U
FLUORENE	ug/L	50	250 U	5.1 U	5 U	1.3 J	5.2 U	26 U	8.4 J	49 U		4.8 U
HEXACHLOROBENZENE	ug/L	0.04	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
HEXACHLOROBUTADIENE	ug/L	0.5	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
HEXACHLOROCYCLOPENTADIENE	ug/L	5	250 UJ	5.1 U	5 U	4.9 UJ	5.2 U	26 U	27 UJ	49 U		4.8 U
HEXACHLOROETHANE	ug/L	5	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
INDENO(1,2,3-CD)PYRENE	ug/L	0.002	250 U	5.1 U	**2** J	4.9 U	5.2 U	**1.2** J	27 U	49 U		4.8 U
ISOPHORONE	ug/L	50	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
N-NITROSO-DI-N-PROPYLAMINE	ug/L		250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
N-NITROSODIPHENYLAMINE	ug/L	50	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
NAPHTHALENE	ug/L	10	**2600**	5.1 U	5 U	**23**	5.2 U	26 U	**160**	49 U		0.27 J
NITROBENZENE	ug/L	0.4	250 U	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
PENTACHLOROPHENOL [3]	ug/L	1	500 UJ	10 U	10 U	9.8 U	10 U	52 U	55 U	98 U		9.5 U
PHENANTHRENE	ug/L	50	250 U	5.1 U	5 U	0.76 J	5.2 U	2.2 J	6 J	49 U		4.8 U
PHENOL [3]	ug/L	1	250 UJ	5.1 U	5 U	4.9 U	5.2 U	26 U	27 U	49 U		4.8 U
PYRENE	ug/L	50	250 U	5.1 U	0.24 J	4.9 U	5.2 U	3.2 J	3.4 J	49 U		4.8 U

See notes at end of table

Table 2
Area C Site Management Plan
Post-Remedial Action Groundwater Exceeding NY Class GA Standards
Former Buffalo Color Facility, Buffalo, NY

Parameter	Units [4]	NYSDEC Values [5]	Sample ID: PDI-C17-0909 Location: PDI-C17 Date: 09/15/09	PDI-C18-0909 PDI-C18 09/11/09	PDI-C19-0909 PDI-C19 09/08/09	PDI-C20-0909 PDI-C20 09/15/09	PDI-C21-0909 PDI-C21 09/14/09	PDI-C22-0909 PDI-C22 09/14/09	PDI-C23-0909 PDI-C23 09/15/09	PDI-C27-0909 PDI-C27 09/11/09	PDI-C28-0909 PDI-C28 09/14/09	PDI-C29-0909 PDI-C29 09/15/09
Total Metals												
ARSENIC	ug/L	25										
BARIUM	ug/l	1000										
CADMIUM	ug/L	5										
CHROMIUM	ug/L	50										
LEAD	ug/L	25										
MERCURY	ug/l	0.7										
SELENIUM	ug/l	10										
SILVER	ug/l	50										
Dissolved Metals												
ARSENIC	ug/L											
BARIUM	ug/l											
CADMIUM	ug/L											
CHROMIUM	ug/L											
LEAD	ug/L											
MERCURY	ug/l											
SELENIUM	ug/l											
SILVER	ug/l											
Additional Analyses												
AMMONIA (AS N)	mg/L	2										
DISSOLVED OXYGEN	mg/L											
NITRATE-NITRITE	mg/L	10										
NITROGEN, KJELDAHL, TOTAL	mg/L											
pH	S.U.											
PHOSPHORUS	mg/L											
TOTAL ALKALINITY	mg/L											
CHEMICAL OXYGEN DEMAND	mg/L		62.8					48.2				
BIOCHEMICAL OXYGEN DEMAND	mg/L		2 UJ					7.7				
DIESEL RANGE ORGANICS	mg/L		3.6					1.4				
OIL RANGE ORGANICS	mg/L		0.52 U					0.52 U				
GASOLINE RANGE ORGANICS	mg/L		5000 U					90				

Notes:
(1) NYSDEC value of 0.4 ug/L is the standard for the sum of these substances
(2) The NYSDEC standard for benzo(a)pyrene is actually "ND" (non-detect),
0 is used for table compatibility
(3) NYSDEC value of 1 ug/L is the standard for the sum of these substances
(4) Units: ug/L = micrograms per liter; mg/L = milligrams per liter;
S.U. = standard units
(5) New York State Department of Environmental Conservation,
Technical and Operational Guidance Series
- Ambient Water Quality Standards, Class GA, Table 1
- Ambient Water Quality Guidance Values, Class GA, Table 1
Qualifiers: U = not detected; J = estimated value;
UJ = non-detect reported, reporting limit qualified as estimated
Shaded value = exceedance of standard or guidance value

Produced by: KJC 02/15/10
Checked by: NCF 05/05/10

Table 3
Area C Site Management Plan
Monitoring Well Construction Data and Monitoring Requirements
Former Buffalo Color Facility, Buffalo, NY

Well Identification	Area	Aquifer	Date Installed	Total Depth	Top of Screen	Bottom of Screen	Screened Zone	Measuring Point Elevation	Monitoring Frequency	Monitoring Parameters
PS-04	C	Shallow	Nov-89	7	-	-	-	587.70	Quarterly (for 8 consecutive qtrs)*	TCL VOCs, TCL SVOCs, TAL metals
PS-05	C	Shallow	Nov-89	8	-	-	-	587.35	Quarterly (for 8 consecutive qtrs)*	TCL VOCs, TCL SVOCs, TAL metals
PS-06	C	Shallow	Nov-89	8	-	-	-	587.67	Quarterly (for 8 consecutive qtrs)*	TCL VOCs, TCL SVOCs, TAL metals
RFI-20	C	Shallow	Apr-96	12.3	5.9	11.9	Clay/Till	587.52	Quarterly (for 8 consecutive qtrs)*	TCL VOCs, TCL SVOCs, TAL metals
RFI-31	C	Shallow	May-96	14	8.5	13.5	Till/Clay	587.86	Quarterly (for 8 consecutive qtrs)*	TCL VOCs, TCL SVOCs, TAL metals
MW-C01	C	Shallow	Oct-09	15	5.0	15.0	Till/Clay	-	Quarterly (for 8 consecutive qtrs)*	TCL VOCs, TCL SVOCs, TAL metals
MW-C04	C	Shallow	Aug-10	14	4.0	14.0	Till/Clay	554.24	Quarterly (for 8 consecutive qtrs)*	TCL VOCs, TCL SVOCs, TAL metals

NOTES:
1) TCL = Target Compound List by EPA Methods (SVOC list includes aniline)
2) TAL = Target Analyte List by EPA Methods
3) VOCs = Volitile Organic Compounds
4) SVOCs = Semivolitile Organic Compounds
5) NAPL = Nonaqueous Phase Liquid
*Monitoring frequency and parameters will be evaluated at end of 8 quarters; future monitoring requirements will be determined at that time (subject to NYSDEC approval)

Table 4
Area C Site Management Plan
Baseline Groundwater Monitoring Data - 2008
Former Buffalo Color Facility, Buffalo, NY

Parameter	Units [4]	NYSDEC Values [5]	Sample ID: RFI-20-0108 Location: RFI-20 Date: 01/31/08	RFI-20-0408 RFI-20 04/24/08	RFI-20-0708 RFI-20 07/28/08	RFI-20-1008 RFI-20 10/15/08	RFI-21D-0108 RFI-21D 01/31/08	RFI-31-0108 RFI-31 02/05/08	RFI-31-0708 RFI-31 07/28/08	RFI-31-1008 RFI-31 10/15/08
VOCs										
1,1,1-Trichloroethane	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
1,1,2,2-Tetrachloroethane	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
1,1,2-Trichloroethane	ug/L	1	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
1,1,2-Trichlorotrifluoroethane	ug/L	5	80 U	250 U	80 U	200 UJ	1 U	8 U	8 U	25 UJ
1,1-Dichloroethane	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
1,1-Dichloroethene	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
1,2,4-Trichlorobenzene	ug/L	5	80 U	250 U	80 U	**110** J	1 U	**62**	8 U	**580**
1,2-Dibromo-3-Chloropropane	ug/L	0.04	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
1,2-Dibromoethane	ug/L	0.0006	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
1,2-Dichlorobenzene	ug/L	3	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
1,2-Dichloroethane	ug/L	0.6	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
1,2-Dichloropropane	ug/L	1	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
1,3-Dichlorobenzene	ug/L	3	80 U	250 U	80 U	200 U	1 U	**34**	**110**	**110**
1,4-Dichlorobenzene	ug/L	3	80 U	250 U	80 U	200 U	0.68 J	**4.7** J	**13**	**14** J
2-Butanone	ug/L	50	400 U	1200 U	400 U	1000 U	5 U	40 U	40 U	120 U
2-Hexanone	ug/L	50	400 U	1200 U	400 U	1000 U	5 U	40 U	40 U	120 U
4-Methyl-2-Pentanone	ug/L		400 U	1200 U	400 U	1000 U	5 U	40 U	40 U	120 U
Acetone	ug/L	50	400 U	1200 U	400 U	1000 U	5 U	40 U	40 U	120 U
Benzene	ug/L	1	**4800**	**1200**	**430**	200 U	**7.4**	8 U	**11**	**9.7** J
Bromodichloromethane	ug/L	50	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Bromoform	ug/L	50	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Bromomethane	ug/L	5	80 U	250 U	80 UJ	200 UJ	1 U	8 U	8 UJ	25 UJ
Carbon Disulfide	ug/L	60	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Carbon Tetrachloride	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Chlorobenzene	ug/L	5	**21000**	**15000**	**9900**	**5300**	**21**	**89**	**660**	**560**
Chlorodibromomethane	ug/L	50	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Chloroethane	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Chloroform	ug/L	7	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Chloromethane	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
cis-1,2-Dichloroethene	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
cis-1,3-Dichloropropene [1]	ug/L	0.4	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Cyclohexane	ug/L		80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Dichlorodifluoromethane	ug/L	5	80 U	250 U	80 UJ	200 U	1 U	8 U	8 UJ	25 U
Ethylbenzene	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Isopropylbenzene	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Methyl Acetate	ug/L		80 U	250 UJ	80 U	200 U	1 U	8 U	8 U	25 U
Methyl Tert-Butyl Ether	ug/L	10	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Methylcyclohexane	ug/L		80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Methylene Chloride	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Styrene	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Tetrachloroethene	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Toluene	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Trans-1,2-Dichloroethene	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Trans-1,3-Dichloropropene [1]	ug/L	0.4	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Trichloroethene	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Trichlorofluoromethane	ug/L	5	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Vinyl Chloride	ug/L	2	80 U	250 U	80 U	200 U	1 U	8 U	8 U	25 U
Xylenes, Total	ug/L	5	240 U	750 U	240 U	600 U	3 U	24 U	24 U	75 U

See notes at end of table

Produced by: WCG 11/20/09
Checked by: TLC 11/23/09

Table 4
Area C Site Management Plan
Baseline Groundwater Monitoring Data - 2008
Former Buffalo Color Facility, Buffalo, NY

Parameter	Units [4]	Sample ID: / Location: / Date: NYSDEC Values [5]	RFI-20-0108 RFI-20 01/31/08	RFI-20-0408 RFI-20 04/24/08	RFI-20-0708 RFI-20 07/28/08	RFI-20-1008 RFI-20 10/15/08	RFI-21D-0108 RFI-21D 01/31/08	RFI-31-0108 RFI-31 02/05/08	RFI-31-0708 RFI-31 07/28/08	RFI-31-1008 RFI-31 10/15/08
SVOCs										
1,1'-Biphenyl	ug/L	5	5 U	5 U	5 U	0.96 U	5 U	5 U	5 U	4.8 UJ
2,2'-Oxybis(1-Chloropropane)	ug/L	5	5 U	5 U	5 U	0.19 U	5 U	5 UJ	5 U	0.95 UJ
2,4,5-Trichlorophenol	ug/L		5 U	5 U	5 U	0.96 U	5 U	5 U	1 J	1.1 J
2,4,6-Trichlorophenol	ug/L		5 U	5 U	5 U	0.96 U	5 U	5 U	5 U	4.8 U
2,4-Dichlorophenol	ug/L	5	5 U	5 U	5 U	0.93	5 U	**6**	**6**	1.7
2,4-Dimethylphenol	ug/L	1	5 U	5 U	5 U	0.96 U	5 U	5 UJ	5 U	4.8 U
2,4-Dinitrophenol	ug/L	1	10 U	10 U	11 U	4.8 U	10 U	10 U	10 U	24 U
2,4-Dinitrotoluene	ug/L	5	5 U	5 U	5 U	0.96 U	5 U	5 U	5 U	4.8 UJ
2,6-Dinitrotoluene	ug/L	5	5 U	5 U	5 U	0.96 U	5 U	5 U	5 U	4.8 UJ
2-Chloronaphthalene	ug/L	10	5 U	5 U	5 U	0.19 U	5 U	5 U	5 U	0.95 UJ
2-Chlorophenol	ug/L		11	10	14	9.4	5 U	2 J	2 J	1.6 J
2-Methylnaphthalene	ug/L		5 U	5 U	5 UJ	0.19 U	5 U	5 U	5 UJ	0.95 UJ
2-Methylphenol	ug/L		5 U	5 U	5 U	0.96 U	5 U	5 UJ	5 U	4.8 U
2-Nitroaniline	ug/L	5	10 U	10 U	11 U	4.8 U	10 U	10 U	10 U	24 UJ
2-Nitrophenol	ug/L		5 U	5 U	5 U	0.96 U	5 U	5 U	5 U	4.8 U
3,3'-Dichlorobenzidine	ug/L	5	5 U	5 U	5 U	0.96 U	5 U	5 U	5 U	4.8 UJ
3-Nitroaniline	ug/L	5	10 U	10 U	11 U	4.8 U	10 U	10 U	10 U	24 UJ
4,6-Dinitro-2-Methylphenol	ug/L		10 U	10 U	11 U	4.8 U	10 U	10 U	10 UJ	24 U
4-Bromophenyl Phenyl Ether	ug/L		5 U	5 U	5 U	0.96 U	5 U	5 U	5 UJ	4.8 UJ
4-Chloro-3-Methylphenol	ug/L		5 U	5 U	5 U	0.96 U	5 U	5 U	5 U	4.8 U
4-Chloroaniline	ug/L	5	5 U	5 U	5 U	0.96 U	5 U	5 U	5 U	4.8 UJ
4-Chlorophenyl Phenyl Ether	ug/L		5 U	5 U	5 U	0.96 U	5 U	5 U	5 U	4.8 UJ
4-Methylphenol	ug/L		5 U	5 U	5 U	0.96 U	5 U	5 UJ	5 U	4.8 U
4-Nitroaniline	ug/L	5	10 U	10 U	11 U	4.8 U	10 U	10 U	10 U	24 UJ
4-Nitrophenol	ug/L		10 U	10 U	11 U	4.8 U	10 U	10 UJ	10 U	24 U
Acenaphthene	ug/L	20	5 U	5 U	5 U	0.19 U	5 U	5 U	5 U	0.95 UJ
Acenaphthylene	ug/L		5 U	5 U	5 U	0.19 U	5 U	5 U	5 U	0.95 UJ
Acetophenone	ug/L		0.2 J	5 U	5 U	0.96 U	5 U	5 U	5 U	4.8 UJ
Aniline	ug/L	5	**30**	2 J	11 U	0.96 U	10 U	10 UJ	10 U	4.8 UJ
Anthracene	ug/L	50	5 U	5 U	5 U	0.057 J	5 U	5 U	5 UJ	1.4 J
Atrazine	ug/L	7.5	5 U	5 U	5 U	0.96 U	5 U	5 U	5 U	4.8 UJ
Benzaldehyde	ug/L		R	5 U	5 U	0.96 U	R	R	5 U	4.8 UJ
Benzo(a)anthracene	ug/L	0.002	5 U	5 U	5 U	0.19 U	5 U	5 U	5 U	0.95 UJ
Benzo(a)pyrene [2]	ug/L	0	5 U	5 U	5 U	0.19 U	5 U	5 U	5 U	0.95 UJ
Benzo(b)fluoranthene	ug/L	0.002	5 U	5 U	5 U	0.19 U	5 U	5 U	5 U	0.95 UJ
Benzo(g,h,i)perylene	ug/L		5 U	5 U	5 U	0.027 J	5 U	5 U	5 U	0.18 J
Benzo(k)fluoranthene	ug/L	0.002	5 U	5 U	5 U	0.19 U	5 U	5 U	5 U	0.95 UJ
Bis(2-chloroethoxy)methane	ug/L	5	5 U	5 U	5 U	0.96 U	5 U	5 UJ	5 U	4.8 UJ
Bis(2-chloroethyl)ether	ug/L	1	5 U	5 U	5 U	0.19 U	5 U	5 UJ	5 U	0.95 UJ
Bis(2-ethylhexyl)phthalate	ug/L	5	5 U	5 U	5 U	0.96 U	5 U	5 U	5 U	4.8 UJ
Butylbenzyl Phthalate	ug/L	50	5 U	5 U	5 U	0.96 U	5 U	5 U	5 U	4.8 UJ
Caprolactam	ug/L		5 UJ	5 UJ	5 UJ	0.36 J	5 UJ	5 UJ	5 UJ	24 UJ
Carbazole	ug/L		5 U	5 U	5 U	0.19 U	5 U	5 U	5 U	0.95 UJ
Chrysene	ug/L	0.002	5 U	5 U	5 U	0.19 U	5 U	5 U	5 U	0.95 UJ
Dibenzo(a,h)anthracene	ug/L		5 U	5 U	5 U	0.053 J	5 U	5 U	5 U	4.8 UJ
Dibenzofuran	ug/L		5 U	5 U	5 U	0.96 U	5 U	5 U	5 U	4.8 UJ
Diethyl Phthalate	ug/L	50	5 U	5 U	5 U	0.19 U	5 U	3 J	4 J	0.95 UJ
Dimethyl Phthalate	ug/L	50	5 U	5 U	5 U	0.051 J	5 U	5 U	0.5 J	4.8 UJ
Di-n-Butyl Phthalate	ug/L	50	5 U	5 U	5 U	0.96 U	5 U	0.3 J	5 UJ	4.8 UJ
Di-n-Octyl Phthalate	ug/L	50	5 U	5 U	6 U	0.96 U	5 U	5 U	5 U	4.8 UJ
Fluoranthene	ug/L	50	5 U	5 U	5 U	0.19 U	5 U	5 U	5 UJ	0.95 UJ
Fluorene	ug/L	50	5 U	5 U	5 U	0.19 U	5 U	5 U	5 U	0.95 UJ
Hexachlorobenzene	ug/L	0.04	5 U	5 U	5 U	0.19 U	5 U	5 U	5 UJ	0.95 UJ
Hexachlorobutadiene	ug/L	0.5	5 U	5 U	5 UJ	0.19 U	5 U	5 U	5 UJ	0.95 UJ
Hexachlorocyclopentadiene	ug/L	5	5 UJ	5 U	5 UJ	0.96 U	5 UJ	5 UJ	5 UJ	4.8 UJ
Hexachloroethane	ug/L	5	5 U	5 U	5 UJ	0.96 U	5 U	5 UJ	5 UJ	4.8 UJ
Indeno(1,2,3-cd)pyrene	ug/L	0.002	5 U	5 U	5 U	0.19 U	5 U	5 U	5 U	0.95 UJ
Isophorone	ug/L	50	5 U	5 U	5 U	0.96 U	5 U	5 UJ	5 U	4.8 UJ
Naphthalene	ug/L	10	6	0.3 J	8 J	0.19 U	5 U	5	5 UJ	0.95 UJ
Nitrobenzene	ug/L	0.4	5 U	5 U	5 U	0.19 U	5 U	5 UJ	5 U	0.95 UJ
N-Nitroso-di-n-Propylamine	ug/L		5 U	5 U	5 U	0.19 U	5 U	5 UJ	5 U	0.95 UJ
N-Nitrosodiphenylamine	ug/L	50	5 U	5 U	5 U	0.19 U	5 U	5 U	5 UJ	0.95 UJ
Pentachlorophenol [3]	ug/L	1	10 U	10 U	11 U	0.96 U	10 U	10 U	10 UJ	4.8 U
Phenanthrene	ug/L	50	5 U	5 U	5 U	0.14 J	5 U	5 U	5 UJ	0.73 J
Phenol [3]	ug/L	1	5 U	**2** J	5 U	0.59	5 U	5 UJ	5 U	**1.6**
Pyrene	ug/L	50	5 U	5 U	5 U	0.19 U	5 U	5 U	5 U	0.95 UJ

See notes at end of table

Produced by: WCG 11/20/09
Checked by: TLC 11/23/09

Table 4
Area C Site Management Plan
Baseline Groundwater Monitoring Data - 2008
Former Buffalo Color Facility, Buffalo, NY

Parameter	Units [4]	NYSDEC Values [5]	Sample ID: RFI-20-0108 Location: RFI-20 Date: 01/31/08	RFI-20-0408 RFI-20 04/24/08	RFI-20-0708 RFI-20 07/28/08	RFI-20-1008 RFI-20 10/15/08	RFI-21D-0108 RFI-21D 01/31/08	RFI-31-0108 RFI-31 02/05/08	RFI-31-0708 RFI-31 07/28/08	RFI-31-1008 RFI-31 10/15/08
Metals										
Aluminum	ug/L		330	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Antimony	ug/L	3	20 U	20 U	20 U	10 U	20 U	20 U	20 U	10 U
Arsenic	ug/L	25	10 U	10 U	10 U	5.1	10 U	10 U	10 U	2.8
Barium	ug/L	1000	18	19	19	19.5	340	38	44	44
Beryllium	ug/L	3	2 U	2 U	2 U	4 U	2 U	2 U	2 U	4 U
Cadmium	ug/L	5	1 U	1 U	1 U	5 U	1 U	1 U	1 U	5 U
Calcium	ug/L		405000	360000	399000	389000	76900	84000	165000	154000
Chromium	ug/L	50	4 U	4 U	4 U	1.6	4 U	12	6.5	3.9
Cobalt	ug/L		4 U	4 U	4 U	1.5	4 U	4 U	4 U	3.5
Copper	ug/L	200	10 U	10 U	10 U	25 U	10 U	10 U	10 U	25 U
Iron	ug/L	300	**2700**	**3400** J	**2600**	**2050**	50 U	**530**	**460**	**747**
Lead	ug/L	25	5 U	5 U	5 U	3 U	5 U	5 U	5 U	3 U
Magnesium	ug/L	35000	**165000**	**120000**	**140000**	**125000**	**59100**	16100	**39300**	**37300**
Manganese	ug/L	300	**1900**	**1600** J	**1700**	**1640**	3 U	**370**	**820**	**841**
Mercury	ug/L	0.7	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.016
Nickel	ug/L	100	10 U	10 U	10 U	3	10 U	23	21	27.6
Potassium	ug/L		3700	5700	6500	7320 J	5000	26800	34800	32500 J
Selenium	ug/L	10	15 U	15 U	15 U	5 U	15 U	15 U	15 U	5 U
Silver	ug/L	50	3 U	3 U	3 U	5 U	3 U	3 U	3 U	5 U
Sodium	ug/L	20000	**157000**	**131000**	**153000**	**144000**	**147000**	**2080000**	**2500000**	**2360000**
Thallium	ug/L	0.5	20 U	20 U	20 U	10 U	20 U	20 U	20 U	10 U
Vanadium	ug/L		5 U	5 U	5 U	4.5	5 U	5 U	5 U	3
Zinc	ug/L	2000	10 U	10 U	10 U	20 U	10 U	22	25	42
Additional Analyses										
Chloride	ug/L	250000	**364000**	216000	**305000** J	214000	225000	**2770000**	**2780000** J	**2960000**
Cyanide	ug/L	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Ferrous Iron	ug/L		2500 J	2300 J			100 R	100 UJ		
Nitrogen, Nitrate-Nitrite	ug/L	10000		50 U	1300				110	
Nitrogen, Nitrate-Nitrite	ug/L	10000	50 U			100 U	50 U	500		280
Sulfate	ug/L	250000		**782000**	**1050000**				**854000**	
Sulfate	ug/L	250000				**1000000**				**851000**
Sulfate	ug/L	250000	**1210000**				154000	**918000**		
Sulfide	ug/L	50	1000 U				**28800** J	1000 U		
Sulfide	ug/L	50		1000 U	1000 U				1000 U	
Sulfide	ug/L	50				3000 U				3000 U
Total Recoverable Phenolics [3]	ug/L	1	10 U				10 U			
Total Recoverable Phenolics [3]	ug/L	1		10 U				**15**		

Notes:
(1) NYSDEC value of 0.4 ug/L is the standard for the sum of these substances
(2) The NYSDEC standard for benzo(a)pyrene is actually "ND" (non-detect), 0 is used for table compatibility
(3) NYSDEC value of 1 ug/L is the standard for the sum of these substances
(4) Units: ug/L = micrograms per liter
(5) New York State Department of Environmental Conservation, Technical and Operational Guidance Series
Ambient Water Quality Standards, Class GA, Table 1
Ambient Water Quality Guidance Values, Class GA, Table 1
Qualifiers: U = not detected; J = estimated value; UJ = non-detect reported, reporting limit qualified as estimated; R = data rejected during validation
Shaded value = exceedance of standard or guidance value

Produced by: WCG 11/20/09
Checked by: TLC 11/23/09

Table 5
Area C Site Management Plan
Baseline Groundwater Monitoring Data - 2009
Former Buffalo Color Facility, Buffalo, NY

Parameter	Units [4]	NYSDEC Values [5]	Sample ID: PS-04-1109 Location: PS-04 Date: 11/19/2009	Sample ID: PS-05-1109 Location: PS-05 Date: 11/17/2009	Sample ID: PS-06-1109 Location: PS-06 Date: 11/17/2009	Sample ID: RFI-20-1109 Location: RFI-20 Date: 11/19/2009	Sample ID: RFI-31-1109 Location: RFI-31 Date: 11/19/2009	Sample ID: MW-C01-1109 Location: TB-C01 Date: 11/18/2009	Sample ID: MW-C02-1109 Location: TB-C02 Date: 11/19/2009	Sample ID: MW-C03-1109 Location: TB-C03 Date: 11/19/2009
VOCs										
1,1,1-TRICHLOROETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
1,1,2,2-TETRACHLOROETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
1,1,2-TRICHLOROETHANE	ug/L	1	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
1,1,2-TRICHLOROTRIFLUOROETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
1,1-DICHLOROETHANE	ug/L	5	1 U	1 U	0.8 J	1 U	20 U	5 U	40 U	40 U
1,1-DICHLOROETHENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
1,2,4-TRICHLOROBENZENE	ug/L	5	1 U	1 U	1 U	**130**	**1200**	**24**	**5600**	**2700**
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	0.04	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
1,2-DIBROMOETHANE	ug/L	0.0006	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
1,2-DICHLOROBENZENE	ug/L	3	1 U	**5**	1 U	**11**	**8.6** J	5 U	**24000**	**26000**
1,2-DICHLOROETHANE	ug/L	0.6	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
1,2-DICHLOROPROPANE	ug/L	1	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
1,3-DICHLOROBENZENE	ug/L	3	1 U	1 U	1 U	1 U	**1600**	**6.8**	**190**	**240**
1,4-DICHLOROBENZENE	ug/L	3	1 U	0.76 J	1 U	2	**110**	2.8 J	**4900**	**5100**
2-BUTANONE	ug/L	50	5 U	5 U	5 U	5 U	100 U	25 U	200 U	200 U
2-HEXANONE	ug/L	50	5 U	5 U	5 U	5 U	100 U	25 U	200 U	200 U
4-METHYL-2-PENTANONE	ug/L		5 U	5 U	5 U	5 U	100 U	25 U	200 U	200 U
ACETONE	ug/L	50	5 U	5 U	5 U	5 UJ	100 U	25 UJ	200 UJ	410 UJ
BENZENE	ug/L	1	1 U	0.97 J	0.61 J	**7.6**	**9.6** J	5 U	**1000**	**860**
BROMODICHLOROMETHANE	ug/L	50	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
BROMOFORM	ug/L	50	1 UJ	1 U	1 U	1 U	20 UJ	5 U	40 U	40 U
BROMOMETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
CARBON DISULFIDE	ug/L	60	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
CARBON TETRACHLORIDE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
CHLOROBENZENE	ug/L	5	0.81 J	**700**	1 U	**5900**	**830**	5 U	**75000**	**94000**
CHLORODIBROMOMETHANE	ug/L	50	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
CHLOROETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
CHLOROFORM	ug/L	7	1 U	1 U	1 U	1 U	20 U	5 U	40 U	**23** J
CHLOROMETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
CIS-1,2-DICHLOROETHENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
CIS-1,3-DICHLOROPROPENE [1]	ug/L	0.4	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
CYCLOHEXANE	ug/L		1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
DICHLORODIFLUOROMETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
ETHYLBENZENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
ISOPROPYLBENZENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
METHYL ACETATE	ug/L		1 UJ	1 U	1 U	1 UJ	20 UJ	5 UJ	40 UJ	40 UJ
METHYL TERT-BUTYL ETHER	ug/L	10	1 U	1 U	0.52 J	1 U	20 U	5 U	40 U	40 U
METHYLCYCLOHEXANE	ug/L		1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
METHYLENE CHLORIDE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
STYRENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
TETRACHLOROETHENE	ug/l	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
TOLUENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	**85**	**130**
TRANS-1,2-DICHLOROETHENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
TRANS-1,3-DICHLOROPROPENE [1]	ug/L	0.4	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
TRICHLOROETHENE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
TRICHLOROFLUOROMETHANE	ug/L	5	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
VINYL CHLORIDE	ug/L	2	1 U	1 U	1 U	1 U	20 U	5 U	40 U	40 U
XYLENES, TOTAL	ug/L	5	2 U	2 U	2 U	2 U	40 U	10 U	80 U	80 U

See notes at end of table

Produced by: KJC 02/15/10
Checked by: NCF 05/05/10

Table 5
Area C Site Management Plan
Baseline Groundwater Monitoring Data - 2009
Former Buffalo Color Facility, Buffalo, NY

Parameter	Units [4]	NYSDEC Values [5]	PS-04-1109 PS-04 11/19/2009	PS-05-1109 PS-05 11/17/2009	PS-06-1109 PS-06 11/17/2009	RFI-20-1109 RFI-20 11/19/2009	RFI-31-1109 RFI-31 11/19/2009	MW-C01-1109 TB-C01 11/18/2009	MW-C02-1109 TB-C02 11/19/2009	MW-C03-1109 TB-C03 11/19/2009
SVOCs										
1,1'-BIPHENYL	ug/L	5	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
2,2'-OXYBIS(1-CHLOROPROPANE)	ug/L	5	5 U	3.9 U	20 U	4 U	4.4 U	4 U	4 U	20 U
2,4,5-TRICHLOROPHENOL	ug/L		6.2 U	4.9 UJ	25 U	5 U	1.5 J	5 U	3.7 J	25 U
2,4,6-TRICHLOROPHENOL	ug/L		6.2 U	4.9 UJ	25 U	5 U	5.5 U	5 U	430	440
2,4-DICHLOROPHENOL	ug/L	5	6.2 U	4.9 UJ	25 U	5 U	**7.9**	5 U	**430**	**1100** J
2,4-DIMETHYLPHENOL	ug/L	1	6.2 U	4.9 UJ	25 U	5 U	5.5 U	5 U	5 U	25 U
2,4-DINITROPHENOL	ug/L	1	12 U	9.8 UJ	50 U	9.9 U	11 U	10 U	10 U	50 U
2,4-DINITROTOLUENE	ug/L	5	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	**190** J	25 U
2,6-DINITROTOLUENE	ug/L	5	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	**73**	25 U
2-CHLORONAPHTHALENE	ug/L	10	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
2-CHLOROPHENOL	ug/L		6.2 U	2.9 J	25 U	5.4	1.6 J	5 U	280	360
2-METHYLNAPHTHALENE	ug/L		6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
2-METHYLPHENOL	ug/L		6.2 U	4.9 UJ	25 U	5 U	5.5 U	5 U	9.1	25 U
2-NITROANILINE	ug/L	5	12 U	9.8 U	50 U	9.9 U	11 U	10 U	**7.2** J	50 U
2-NITROPHENOL	ug/L		6.2 U	4.9 UJ	25 U	5 U	5.5 U	5 U	5 U	25 U
3,3'-DICHLOROBENZIDINE	ug/L	5	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
3-NITROANILINE	ug/L	5	12 U	9.8 U	50 U	9.9 U	11 U	10 U	**7.7** J	**27** J
4,6-DINITRO-2-METHYLPHENOL	ug/L		12 U	9.8 UJ	50 U	9.9 UJ	11 UJ	10 UJ	10 UJ	50 UJ
4-BROMOPHENYL PHENYL ETHER	ug/L		6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
4-CHLORO-3-METHYLPHENOL	ug/L		6.2 U	4.9 UJ	25 U	5 U	5.5 U	5 U	5 U	25 U
4-CHLOROANILINE	ug/L	5	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
4-CHLOROPHENYL PHENYL ETHER	ug/L		6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
4-METHYLPHENOL	ug/L		12 UJ	9.8 UJ	50 U	9.9 UJ	11 UJ	10 UJ	10 UJ	50 UJ
4-NITROANILINE	ug/L	5	12 U	9.8 U	50 U	9.9 U	11 U	10 U	10 U	50 U
4-NITROPHENOL	ug/L		12 UJ	9.8 UJ	50 UJ	9.9 UJ	11 UJ	10 UJ	10 UJ	50 UJ
ACENAPHTHENE	ug/L	20	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	0.74 J	25 U
ACENAPHTHYLENE	ug/L		6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
ACETOPHENONE	ug/L		6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	9.5	17 J
ANILINE	ug/L	5	12 U	9.8 U	50 U	9.9 U	11 U	10 U	**270** J	**13000**
ANTHRACENE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
ATRAZINE	ug/L	7.5	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
BENZO(A)ANTHRACENE	ug/L	0.002	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
BENZO(A)PYRENE [2]	ug/L	0	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
BENZO(B)FLUORANTHENE	ug/L	0.002	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
BENZO(G,H,I)PERYLENE	ug/L		6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
BENZO(K)FLUORANTHENE	ug/L	0.002	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
BIS(2-CHLOROETHOXY)METHANE	ug/L	5	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
BIS(2-CHLOROETHYL)ETHER	ug/L	1	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
BIS(2-ETHYLHEXYL)PHTHALATE	ug/L	5	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
BUTYLBENZYL PHTHALATE	ug/L	50	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
CAPROLACTAM	ug/L		6.2 UJ	4.9 UJ	25 UJ	5 UJ	5.5 UJ	5 UJ	5 UJ	25 UJ
CARBAZOLE	ug/L		6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	0.42 J	25 U
CHRYSENE	ug/L	0.002	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
DI-N-BUTYL PHTHALATE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	0.75 J	25 U
DI-N-OCTYL PHTHALATE	ug/L	50	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
DIBENZO(A,H)ANTHRACENE	ug/L		6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
DIBENZOFURAN	ug/L		12 U	9.8 U	50 U	9.9 U	11 U	10 U	10 U	50 U
DIETHYL PHTHALATE	ug/L	50	6.2 U	4.9 U	25 U	5 U	4 J	5 U	**67**	**83**
DIMETHYL PHTHALATE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5.2	25 U
ENDRIN ALDEHYDE	ug/L	5	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
FLUORANTHENE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
FLUORENE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
HEXACHLOROBENZENE	ug/L	0.04	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
HEXACHLOROBUTADIENE	ug/L	0.5	6.2 U	4.9 UJ	25 UJ	5 U	5.5 U	5 U	5 U	25 U
HEXACHLOROCYCLOPENTADIENE	ug/L	5	6.2 U	4.9 UJ	25 UJ	5 U	5.5 U	5 U	5 U	25 U
HEXACHLOROETHANE	ug/L	5	6.2 U	4.9 UJ	25 UJ	5 U	5.5 U	5 U	5 U	25 U
INDENO(1,2,3-CD)PYRENE	ug/L	0.002	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
ISOPHORONE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
N-NITROSO-DI-N-PROPYLAMINE	ug/L		6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
N-NITROSODIPHENYLAMINE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
NAPHTHALENE	ug/L	10	6.2 U	2 J	25 U	5	1.5 J	5 U	**140** J	**640**
NITROBENZENE	ug/L	0.4	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	**2000**	**2400**
PENTACHLOROPHENOL [3]	ug/L	1	12 U	9.8 UJ	50 U	9.9 U	11 U	10 U	10 U	50 U
PHENANTHRENE	ug/L	50	6.2 U	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U
PHENOL [3]	ug/L	1	6.2 UJ	4.9 UJ	25 UJ	5 UJ	0.47 J	5 UJ	**48** J	**1300** J
PYRENE	ug/L	50	6.2 UJ	4.9 U	25 U	5 U	5.5 U	5 U	5 U	25 U

See notes at end of table

Produced by: KJC 02/15/10
Checked by: NCF 05/05/10

Table 5
Area C Site Management Plan
Baseline Groundwater Monitoring Data - 2009
Former Buffalo Color Facility, Buffalo, NY

Parameter	Units [4]	NYSDEC Values [5]	Sample ID: PS-04-1109 Location: PS-04 Date: 11/19/2009	Sample ID: PS-05-1109 Location: PS-05 Date: 11/17/2009	Sample ID: PS-06-1109 Location: PS-06 Date: 11/17/2009	Sample ID: RFI-20-1109 Location: RFI-20 Date: 11/19/2009	Sample ID: RFI-31-1109 Location: RFI-31 Date: 11/19/2009	Sample ID: MW-C01-1109 Location: TB-C01 Date: 11/18/2009	Sample ID: MW-C02-1109 Location: TB-C02 Date: 11/19/2009	Sample ID: MW-C03-1109 Location: TB-C03 Date: 11/19/2009
Total Metals										
ARSENIC	ug/L	25	14	10 U	**983**	10 U	10 U	10 U	10 U	10 U
BARIUM	ug/l	1000	24.8	75.1	927	16.7	28.3	123	31.6	24.9
CADMIUM	ug/L	5	1 U	1 U	**30.8**	1 U	1 U	1 U	1 U	1 U
CHROMIUM	ug/L	50	4 U	4 U	**262**	4 U	5.4	4.8	4 U	27.7
LEAD	ug/L	25	5 U	5 U	**848**	5 U	5 U	5 U	5 U	5 U
MERCURY	ug/l	0.7	0.4	0.2 U	**9.4**	0.2 U	0.2 U	0.2 U	**7.1**	**1.1**
SELENIUM	ug/l	10	15 U	15 U	**35.3**	15 U	15 U	15 U	15 U	15 U
SILVER	ug/l	50	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Dissolved Metals										
ARSENIC	ug/L		13.1		106					
BARIUM	ug/l		23.6		19.2					
CADMIUM	ug/L		1 U		1 U					
CHROMIUM	ug/L		4 U		4 U					
LEAD	ug/L		5 U		5 U					
MERCURY	ug/l		0.2 U		0.2 U					
SELENIUM	ug/l		15 U		15 U					
SILVER	ug/l		3 U		3 U					
Additional Analyses										
AMMONIA (AS N)	mg/L	2	0.199			0.241	1.24	**2.32**	0.318	1.62
DISSOLVED OXYGEN	mg/L		2.71 J			2.37 J	4.08 J	6.97 J	6.56 J	4.87 J
NITRATE-NITRITE	mg/L	10	0.102			0.05 U	0.05 U	1.43	0.05 U	0.05 U
NITROGEN, KJELDAHL, TOTAL	mg/L		0.57			0.79	3.1	2.7	2.3	7.1
pH	S.U.		7.09 J			7.36 J	7.36 J	7.93 J	7.33 J	7 J
PHOSPHORUS	mg/L		0.0255			0.01 U	0.01 U	0.01 U	0.0386	0.0087 J
TOTAL ALKALINITY	mg/L		170 J			484 J	540 J	183 J	753 J	804 J

Notes:
(1) NYSDEC value of 0.4 ug/L is the standard for the sum of these substances
(2) The NYSDEC standard for benzo(a)pyrene is actually "ND" (non-detect), 0 is used for table compatibility
(3) NYSDEC value of 1 ug/L is the standard for the sum of these substances
(4) Units: ug/L = micrograms per liter; mg/L = milligrams per liter; S.U. = standard units
(5) New York State Department of Environmental Conservation, Technical and Operational Guidance Series
Ambient Water Quality Standards, Class GA, Table 1
Ambient Water Quality Guidance Values, Class GA, Table 1
Qualifiers: U = not detected; J = estimated value; UJ = non-detect reported, reporting limit qualified as estimated
Shaded value = exceedance of standard or guidance value

Produced by: KJC 02/15/10
Checked by: NCF 05/05/10

FIGURES

DRAWN BY: NEL 7-27-2009 APPROVED BY: NF

SCALE 1:24000

1 0.5 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0.5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET

BUFFALO SE QUADRANGLE

SOUTH BUFFALO DEVELOPMENT
BUFFALO, NEW YORK
Project No.: 3410090701

MACTEC
Engineering & Consulting Inc.
800 North Bell Avenue, Suite 200
Pittsburgh, PA 15106

SITE LOCATION MAP
BUFFALO COLOR AREAS ABCE
BUFFALO, NEW YORK

FIGURE: 1

1

P:\PROJECTS\South Buffalo Development\3410090701\CADD\FINAL\Fig 1 Site Loc.dwg Thu, 27 May 2010 - 10:28am nfeczko

DRAWN BY: NEL 4-26-2010 APPROVED BY: ESW 5-17-2010

Area-A

Area-B

Area-C

Buffalo
Research Laboratory

PVS
Chemicals

Area-E

PVS
Chemicals

SOUTH PARK AVE.

LEE STREET

ELK STREET

OLANDO STREET

BUFFALO RIVER
ELEVATION = 573.19'
FLOW

BCC OUTFALL 006

BCC OUTFALL 006
INV.=567.44', 36"

PVS OUTFALL 004

PVS OUTFALL 003

PVS OUTFALL 002

PVS OUTFALL 001

BCC OUTFALL 011

85 80 84 83 82 81 LSI LOADING FACILITY 54 53 52 51 50 48 47 69 75 150 121 100 315

200 0 200
SCALE: 1"= 200'

SOUTH BUFFALO DEVELOPMENT, LLC BUFFALO, NEW YORK Project No.: 3410090701	MACTEC Engineering & Consulting Inc. 800 North Bell Avenue, Suite 200 Pittsburgh, PA 15106	AREAS ABCE SITE PLAN FIGURE: 2	2

P:\PROJECTS\South Buffalo Development\3410090701\CADD\FINAL\Site Management Plan Figures\SMP - Area ABCE Site Plan.dwg Mon, 29 Nov 2010 - 11:18am esweiler

DRAWN BY: NEL 4-26-2010 APPROVED BY: ESW 5-17-2010

LEGEND

PS-14 Existing Monitoring Well

MW-C03 Destroyed or Abandoned Monitoring Well

PS-05 RFI-21D RFI-20

PS-06

Area-C

RFI-30

-07

RFI-PZ-26

MW-C03

MW-C02

RFI-31

MW-C01

PS-04

MW-C04

RFI-18 RFI-19D

RFI-PZ-25

RFI-29

60 0 60

SCALE: 1"=60'

P:\PROJECTS\South Buffalo Development\3410090701\CADD\FINAL\Site Management Plan Figures\SMP - Area C Site Plan.dwg Wed, 08 Dec 2010 - 2:19pm esweiler

SOUTH BUFFALO DEVELOPMENT, LLC BUFFALO, NEW YORK Project No.: 3410090701	MACTEC Engineering & Consulting Inc. 800 North Bell Avenue, Suite 200 Pittsburgh, PA 15106	AREA C SITE PLAN FIGURE: 3	3

DRAWN BY: NEL 4-8-2010-2009 APPROVED BY: ESW 5-17-2010

LEGEND

RFI-31 MONITORING WELL

MW-E02 ABANDONED OR DESTROYED MONITORING WELL

STORM SEWER LINE (ABANDONED)

PROCESS SEWER LINE

BUFFALO SEWER AUTHORITY SEWER LINE

Area-C

RFI-30 PS-06 PS-05 RFI-21D RFI-20

RFI-PZ-26 MW-C03 MW-C02

RFI-18 RFI-19D RFI-PZ-25 RFI-29 RFI-31 MW-C01 PS-04 MW-C04

LIFT STATION (ABANDONED)
PIPING DISCONNECTED

10" 12" 6" 8" 15" 18" 18" V.T. 24" RCP 12" V.T. 10" V.T. 21' V.T. 18"VT 20'VT 36" 24"

60 0 60
SCALE: 1"= 60'

SOUTH BUFFALO DEVELOPMENT, LLC BUFFALO, NEW YORK Project No.: 3410090701	MACTEC Engineering & Consulting Inc. 800 North Bell Avenue, Suite 200 Pittsburgh, PA 15106	AREA C PROCESS AND STORM SEWER LINES FIGURE: 4	4

P:\PROJECTS\South Buffalo Development\3410090701\CADD\FINAL\Site Management Plan Figures\Figure 4 - Area C Sewer Plan.dwg Mon, 20 Dec 2010 - 3:57pm esweiler

DRAWN BY: NEL 4-8-2010-2009 APPROVED BY: ESW 5-17-2010

LEGEND

- RFI-31 — MONITORING WELL
- MW-E02 — ABANDONED OR DESTROYED MONITORING WELL
- STORM SEWER LINE (ABANDONED)
- PROCESS SEWER LINE
- BUFFALO SEWER AUTHORITY SEWER LINE
- GB-C02 — GEOTECHNICAL BORING LOCATION
- PDI-C17 — PRE_DESIGN INVESTIGATION BORING LOCATION
- DDC-01 — DEPTH DISCRETE BORING LOCATION
- A — A' — CROSS SECTION LOCATIONS

Area-C

Excavation Area C1

Excavation Area C2

LIFT STATION

PS-04 PS-05 PS-06

RFI-20 RFI-21D RFI-31

MW-C01 MW-C02 MW-C03 MW-C04

GB-C01 GB-C02 GB-C03 GB-C04

DDC-01 DDC-02 DDC-03 DDC-04 DDC-05 DDC-06 DDC-07

PDI-C01 PDI-C02 PDI-C03 PDI-C04 PDI-C05 PDI-C06 PDI-C07 PDI-C08 PDI-C09 PDI-C10 PDI-C11 PDI-C12 PDI-C13 PDI-C14 PDI-C15 PDI-C16 PDI-C17 PDI-C18 PDI-C19 PDI-C20 PDI-C21 PDI-C22 PDI-C23 PDI-C24 PDI-C25 PDI-C26 PDI-C27 PDI-C28 PDI-C29 PDI-C30

A A' B B' C C'

50 0 50
SCALE: 1"= 50'

SOUTH BUFFALO DEVELOPMENT, LLC
BUFFALO, NEW YORK
Project No.: 3410090701

MACTEC Engineering & Consulting Inc.
800 North Bell Avenue, Suite 200
Pittsburgh, PA 15106

AREA C CROSS SECTION LOCATIONS

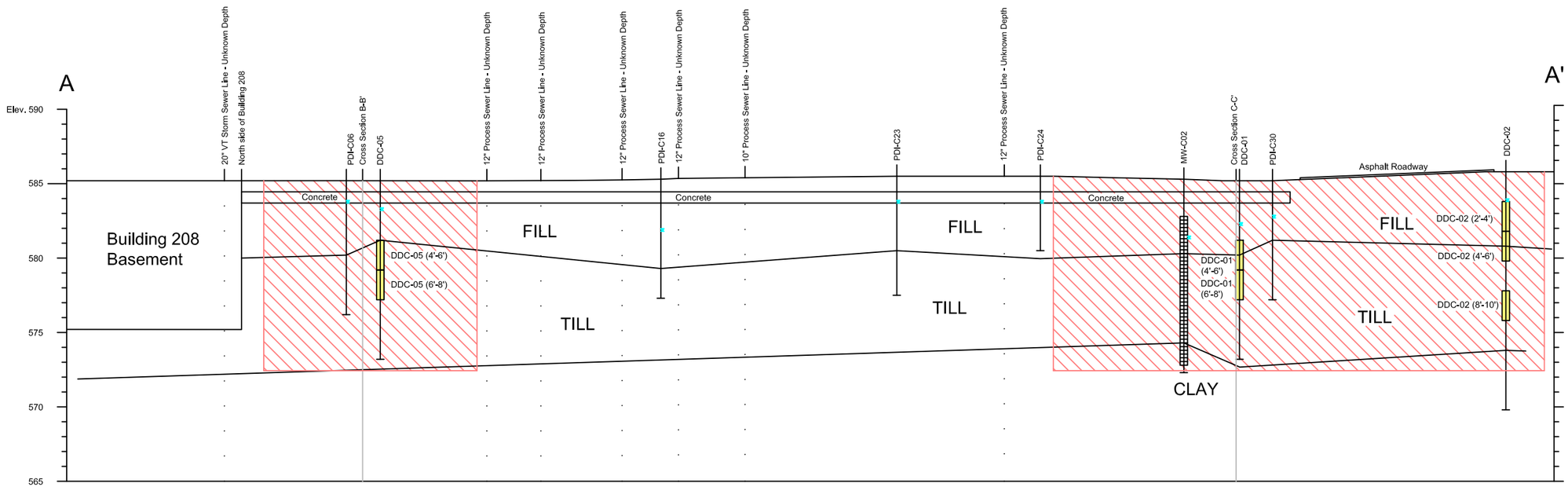
FIGURE: 5

5

P:\PROJECTS\South Buffalo Development\3410090701\CADD\FINAL\Site Management Plan Figures\Figure 5 - Area C Cross Secitons.dwg Wed, 08 Dec 2010 - 2:25pm esweiler

CROSS-SECTION A-A'

HORIZONTZAL SCALE: 1" = 32'
VERTICAL SCALE: 1" = 8'



Legend

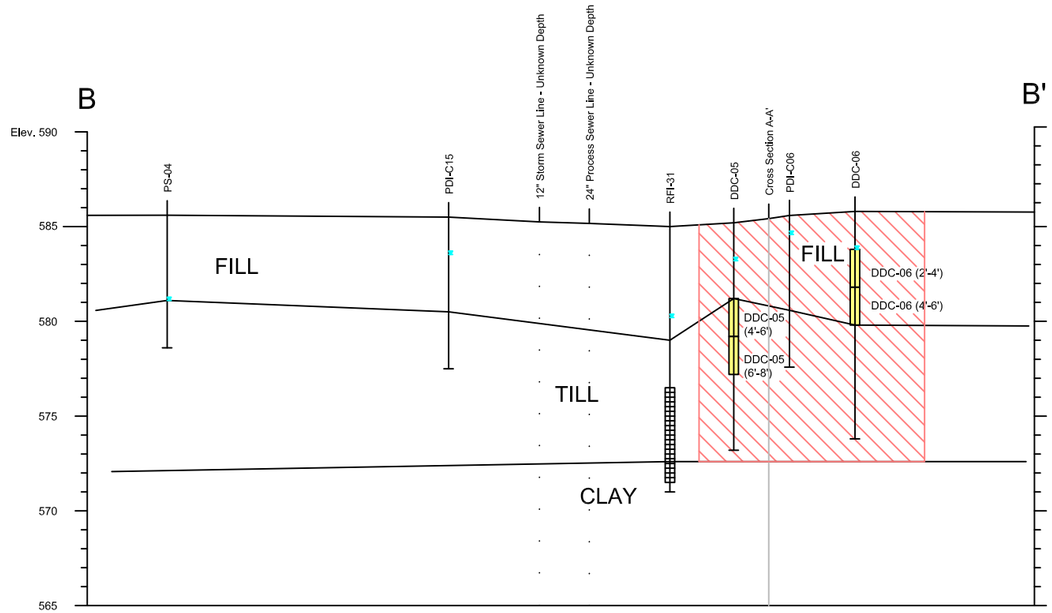
- Groundwater Elevation
- CS-16 (2'-3') Soil Sample Location Interval
- Monitoring Well Screen Interval
- Deep Excavation Area

Fill - Clay, Silt, Crushed Stone, Gravel, Brick, and Miscellaneous Building Demolition Debris
Till - Clay and Silt Tills, with varying amounts of Sand and Sand Seams
Clay - Gray, Soft, Clay with limited occurrence of fine Sand Seams

SOUTH BUFFALO DEVELOPMENT, LLC BUFFALO COLOR AREAS ABCE PROJECT NO.: 3410090701	MACTEC Engineering & Consulting Inc. 800 North Bell Avenue, Suite 200 Pittsburgh, PA 15106	AREA C CROSS-SECTION A-A' FIGURE: 6	6

CROSS-SECTION B-B'

HORIZONTZAL SCALE: 1" = 32'
VERTICAL SCALE: 1" = 8'



Legend

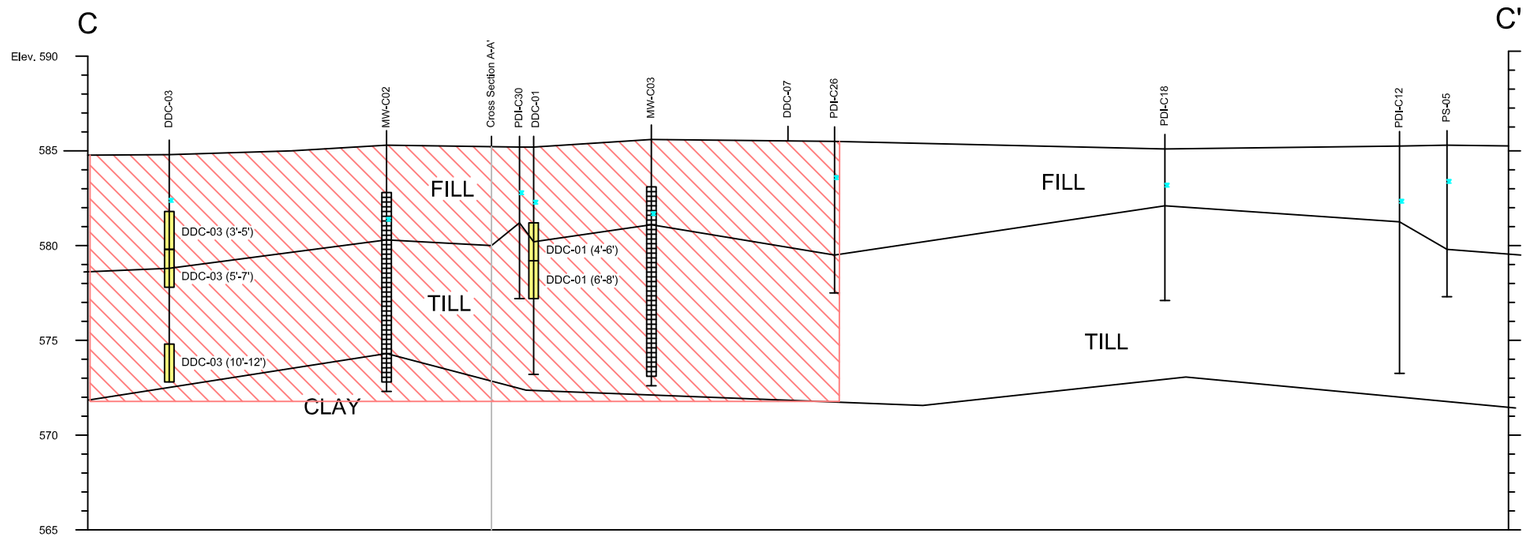
- Groundwater Elevation
- CS-16 (2'-3') Soil Sample Location Interval
- Monitoring Well Screen Interval
- Deep Excavation Area

Fill - Clay, Silt, Crushed Stone, Gravel, Brick, and Miscellaneous Building Demolition Debris
Till - Clay and Silt Tills, with varying amounts of Sand and Sand Seams
Clay - Gray, Soft, Clay with limited occurrence of fine Sand Seams

SOUTH BUFFALO DEVELOPMENT, LLC BUFFALO COLOR AREAS ABCE PROJECT NO.: 3410090701	MACTEC Engineering & Consulting Inc. 800 North Bell Avenue, Suite 200 Pittsburgh, PA 15106	AREA C CROSS-SECTION B-B' FIGURE: 7	7

CROSS-SECTION C-C'

HORIZONTZAL SCALE: 1" = 32'
VERTICAL SCALE: 1" = 8'



Legend

- Groundwater Elevation
- CS-16 (2'-3') Soil Sample Location Interval
- Monitoring Well Screen Interval
- Deep Excavation Area

Fill - Clay, Silt, Crushed Stone, Gravel, Brick, and Miscellaneous Building Demolition Debris
Till - Clay and Silt Tills, with varying amounts of Sand and Sand Seams
Clay - Gray, Soft, Clay with limited occurrence of fine Sand Seams

SOUTH BUFFALO DEVELOPMENT, LLC BUFFALO COLOR AREAS ABCE PROJECT NO.: 3410090701	MACTEC Engineering & Consulting Inc. 800 North Bell Avenue, Suite 200 Pittsburgh, PA 15106	AREA C CROSS-SECTION C-C' FIGURE: 8	8

DRAWN BY: NEL 4-26-2010 APPROVED BY: ESW 5-17-2010

LEGEND

- PS-14 Existing Monitoring Well
- PZ-109 Monitoring Well (PZ)
- MW-C03 Abandoned or Destroyed Monitoring Well
- Chlorobenzene 19 Groundwater Exceedances (ug/L) of the NY Class GA Standards
  J Indicates Estimated Value below Laboratory Reporting Limit

PS-05

Chlorobenzene	700
1,2-Dichlorobenzene	5.0

RFI-20

Chlorobenzene	5,900
1,2,4-Trichlorobenzene	130
1,2-Dichlorobenzene	11
Benzene	7.6

Arsenic 106

MW-C03

Chlorobenzene	94,000
1,2,4-Trichlorobenzene	2,700
1,2-Dichlorobenzene	26,000
1,3-Dichlorobenzene	240
1,4-Dichlorobenzene	5,100
Benzene	860
Chloroform	23 J
Toluene	130
Nitrobenzene	2,400
Phenol	1,300 J
Aniline	13,000
2,4-Dichlorophenol	1,100 J
3-Nitroaniline	27 J
Diethyl Phthalate	83
Naphthalene	640
Mercury	1.1

RFI-31

Chlorobenzene	830
1,2,4-Trichlorobenzene	1,200
1,2-Dichlorobenzene	8.6 J
1,3-Dichlorobenzene	1,600
1,4-Dichlorobenzene	110
Benzene	9.6 J
2,4-Dichlorophenol	7.9

MW-C01

1,2,4-Trichlorobenzene	24
1,3-Dichlorobenzene	6.8
Ammonia	2,320

MW-C02

Chlorobenzene	75,000
1,2,4-Trichlorobenzene	5,600
1,2-Dichlorobenzene	24,000
1,3-Dichlorobenzene	190
1,4-Dichlorobenzene	4,900
Benzene	1,000
Toluene	85
Nitrobenzene	2,000
2,4-Dichlorophenol	430
2,4-Dinitrotoluene	190 J
2,6-Dinitrotoluene	73
2-Nitroaniline	7.2 J
3-Nitroaniline	7.7 J
Aniline	270 J
Diethyl Phthalate	67
Naphthalene	140 J
Phenol	48 J
Mercury	7.1

PS-05 RFI-21D RFI-20 PS-06 RFI-30 Area-C PZ-26 MW-C03 MW-C02 RFI-31 MW-C01 PS-04 MW-C04 19D PZ-25

60 0 60

SCALE: 1"=60'

SOUTH BUFFALO DEVELOPMENT, LLC BUFFALO, NEW YORK Project No.: 3410090701	MACTEC Engineering & Consulting Inc. 800 North Bell Avenue, Suite 200 Pittsburgh, PA 15106	AREA C GROUNDWATER SAMPLE RESULTS NOVEMBER 2009 FIGURE: 9	9

P:\PROJECTS\South Buffalo Development\3410090701\CADD\FINAL\Site Management Plan Figures\Figure 9 - Area C GW Sample Results Nov 2009.dwg Mon, 20 Dec 2010 - 4:34pm esweiler

ENGINEERING AND INSTITUTIONAL CONTROLS

. Integrated cover system consist of 1 foot of soil /asphalt pavement/concrete pavement/building slabs

. Vapor mitigation/vapor intrusion evaluations must be carried out in new or re-occupied structures and or site redevelopment.

. Use of groundwater in the entire Easement Area is restricted without water quality treatment as may be required by the New York State Department of Health.

. Future Intrusive activities must adhere to the Site Management Plan and associated Site Excavation Plan.

. Evaluation for potential vapor intrusion of any buildings is required.

. Agricultural use in the entire Easement Area is prohibited.

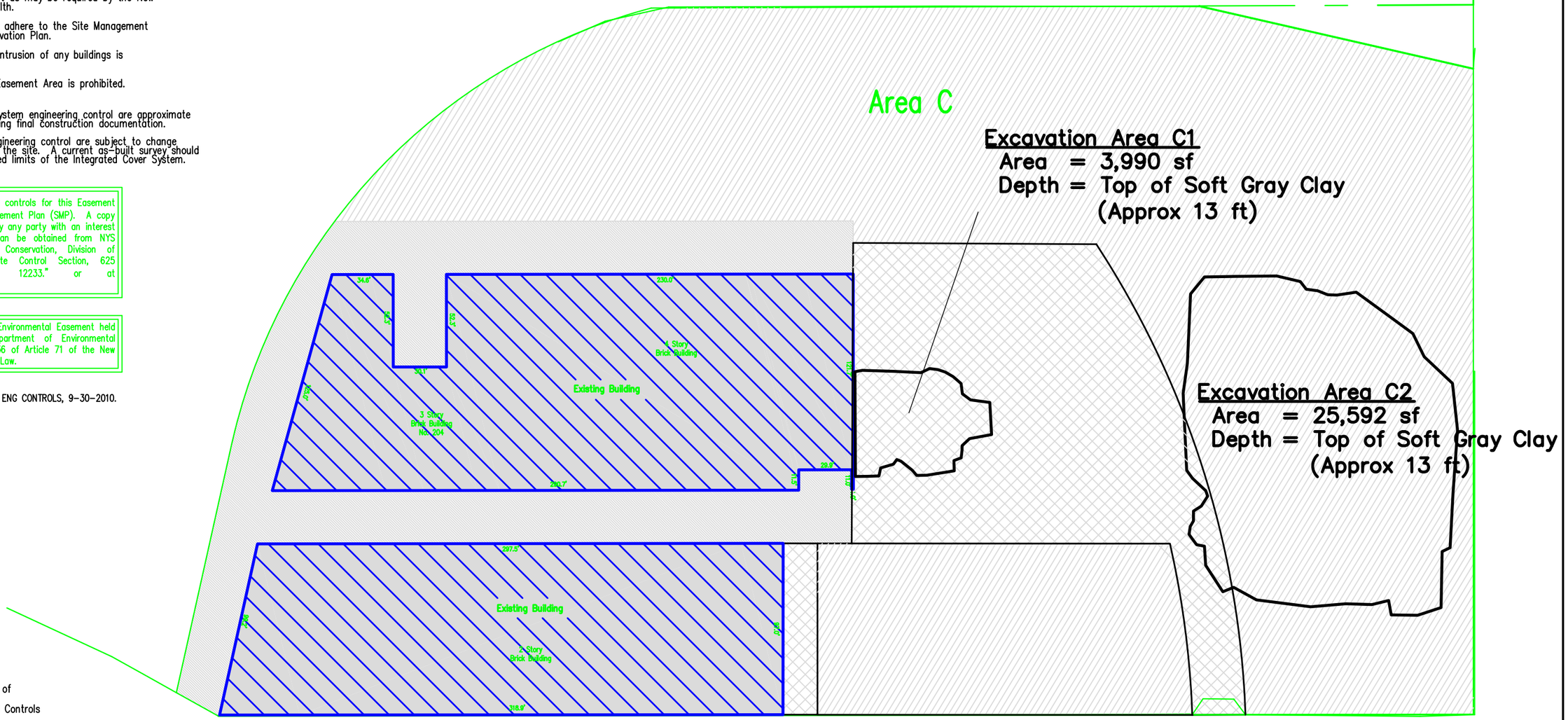
The limits of Integrated Cover System engineering control are approximate and are subject to change pending final construction documentation.

The Integrated Cover System engineering control are subject to change pending future redevelopment of the site. A current as-built survey should be referenced for the documented limits of the Integrated Cover System.

The engineering and institutional controls for this Easement are set forth in the Site Management Plan (SMP). A copy of the SMP must be obtained by any party with an interest in the property. The SMP can be obtained from NYS Department of Environmental Conservation, Division of Environmental Remediation, Site Control Section, 625 Broadway, Albany, NY 12233." or at derweb@gw.dec.state.ny.us

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the New York Environmental Conservation Law.

REF.: NIAGARA BOUNDARY, 6941 ENG CONTROLS, 9-30-2010.



Approximate Limits of
Engineering / Institutional Controls

- Soil Cover With Grass
- Asphalt or Concrete Driveway
- Gravel Cover
- Concrete Pad
- Existing Building

60 0 60
SCALE: 1"= 60'

SOUTH BUFFALO DEVELOPMENT, LLC BUFFALO, NEW YORK Project No.: 3410090701	MACTEC Engineering & Consulting Inc. 800 North Bell Avenue, Suite 200 Pittsburgh, PA 15106	AREA C COVER PLAN FIGURE: 10	10

P:\PROJECTS\South Buffalo Development\3410090701\CADD\FINAL\Site Management Plan Figures\Figure 10 - Area C Cover Plan.dwg Mon, 20 Dec 2010 - 4:01pm esweiler

DRAWN BY: NEL 4-8-2010-2009 APPROVED BY: ESW 5-17-2010

LEGEND:

MONITORING WELL

P:\PROJECTS\South Buffalo Development\3410090701\CADD\FINAL\Site Management Plan Figures\Figure 11 - Area C Remedial Excavation Locations.dwg Wed, 08 Dec 2010 - 2:41pm esweiler

PS-05

RFI-21D

RFI-20

PS-06

-30

Area-C

Excavation Area E1
Depth = Top of Soft Gray Clay (Approx 13 ft)

RFI-31

MW-C01

PS-04

MW-C04

Excavation Area C2
Depth = Top of Soft Gray Clay (Approx 13 ft)

50 0 50
SCALE: 1"=50'

SOUTH BUFFALO DEVELOPMENT, LLC
BUFFALO, NEW YORK

Project No.: 3410090701

MACTEC
Engineering & Consulting Inc.
800 North Bell Avenue, Suite 200
Pittsburgh, PA 15106

AREA C REMEDIAL EXCAVATION LOCATIONS

FIGURE: 11

11

DRAWN BY: NEL 4-8-2010-2009 APPROVED BY: ESW 5-17-2010

LEGEND:

TB-C03 RIFS Test Boring Location

3'-4'
Mercury 3.1 J

Soil Results Exceeding SCOs (mg/kg)
3'-4' Sample Depth Interval
J indicates Estimated Value

50 0 50
SCALE: 1"=50'

Area-C

TB-C01
Surface
Arsenic	25.2
Benzo(a)anthracene	10
Benzo(a)pyrene	8.4
Benzo(b)fluoranthene	11
Dibenzo(a,h)anthracene	1.3 J

3'-4'
Arsenic	239
Mercury	4.3
Benzo(a)pyrene	2.6

TB-C02

TB-C03
Surface
Arsenic	18.6
Mercury	4.4
Benzo(a)pyrene	2.2 J

TB-C04
Surface
Benzo(a)pyrene	2.2 J

3'-4'
Arsenic	50.2
Copper	306
Benzo(a)pyrene	1.1

TB-C04

TB-C13
Surface
Mercury	3.1

3'-4'
Arsenic	21.2

C1-RS2
8'-11'
Arsenic	22.1

TB-C05
1'-2'
Barium	2320

TB-C06

C1-RS3-0912
C1-RS2-0811
C1-RB1-1213
C1-RS4-0507
C1-RS1-0701

Excavation Area C1
Area = 3,990 sf
Depth = Top of Soft Gray Clay (Approx 13 ft)

C2-RS3-0911
C2-RS4-0607
C2-RS11-0810
C2-RS1-0911
C2-RB1-1314
C2-RB4-1213
C2-RS10-0911
C2-RS2-1012
C2-RB2-1314
C2-RS9-0608
C2-RB3-1213
C2-RS5-0911
C2-RS7-0911
C2-RS8-0911
C2-RS6-0810

Excavation Area C2
Area = 25,592 sf
Depth = Top of Soft Gray Clay (Approx 13 ft)

TB-C09
3'-4'
Arsenic	57.3
Mercury	8.5

TB-C10
Surface
Chromium (III)	3420
Benzo(a)pyrene	2.2 J

3'-4'
Arsenic	18.5 J
Mercury	6.3

TB-C08
Surface
Mercury	7.2 J

5'-6'
Mercury	6.2 J

TB-C12
Surface
Arsenic	16.5
Mercury	10.4
Benzo(a)anthracene	7.7 J
Benzo(a)pyrene	5.8 J
Benzo(b)fluoranthene	12
Dibenzo(a,h)anthracene	1.6 J

3'-4'
Arsenic	35.6
Copper	299
Lead	1390 J
Mercury	60.8

SOUTH BUFFALO DEVELOPMENT, LLC
BUFFALO, NEW YORK
Project No.: 3410090701

MACTEC Engineering & Consulting Inc.
800 North Bell Avenue, Suite 200
Pittsburgh, PA 15106

POST-REMEDIAL ACTION SOIL CONCENTRATIONS

FIGURE: 12

12

P:\PROJECTS\South Buffalo Development\3410090701\CADD\FINAL\Site Management Plan Figures\Figure 12 - Post-Remedial Action Soil Concentrations.dwg Mon, 20 Dec 2010 - 4:44pm esweiler

DRAWN BY: NEL 4-8-2010-2009 APPROVED BY: ESW 5-17-2010

LEGEND

PS-14 Existing Monitoring Well

PDI-C20 PDI Boring Location

Chlorobenzene 19 Groundwater Exceedances (ug/L) of the NY Class GA Standards

J Estimated Value

PDI-C13
Benzo(a)anthracene	0.56 J
Benzo(a)pyrene	0.95 J
Benzo(b)fluoranthene	0.52 J
Benzo(k)fluoranthene	0.89 J
Indeno(1,2,3-c,d)pyrene	1.6 J

PS-05
Chlorobenzene	700
1,2-Dichlorobenzene	5.0

PDI-C19
Benzo(a)anthracene	0.68 J
Benzo(a)pyrene	1.2 J
Benzo(b)fluoranthene	0.79 J
Benzo(k)fluoranthene	1.2 J
Chrysene	0.61 J
Indeno(1,2,3-c,d)pyrene	2 J

RFI-20
Chlorobenzene	5,900
1,2,4-Trichlorobenzene	130
1,2-Dichlorobenzene	11
Benzene	7.6

PDI-C11
Benzo(a)pyrene	0.34 J
Indeno(1,2,3-c,d)pyrene	0.64 J

PDI-C12
Benzo(a)pyrene	0.51 J
Benzo(b)fluoranthene	0.41 J
Benzo(k)fluoranthene	0.42 J
Indeno(1,2,3-c,d)pyrene	0.96 J

PDI-C09
Chlorobenzene	19
Benzo(a)anthracene	0.45 J
Benzo(b)fluoranthene	0.38 J
Benzo(k)fluoranthene	0.31 J
Chrysene	0.47 J
Indeno(1,2,3-c,d)pyrene	0.48 J

PDI-C03
Benzo(a)pyrene	0.32 J
Indeno(1,2,3-c,d)pyrene	0.51 J

PDI-C18
Chlorobenzene	520
1,2-Dichlorobenzene	16
1,3-Dichlorobenzene	24
1,4-Dichlorobenzene	36
Benzene	2.6
Aniline	90

PS-06
Arsenic	106

PDI-C02
Benzo(a)anthracene	1.8 J
Benzo(a)pyrene	1.6 J
Benzo(b)fluoranthene	1.3 J
Benzo(k)fluoranthene	1.4 J
Indeno(1,2,3-c,d)pyrene	2.2 J

PDI-C10
Benzo(a)pyrene	0.31 J
Benzo(k)fluoranthene	0.26 J
Indeno(1,2,3-c,d)pyrene	0.64 J

PDI-C17
Chlorobenzene	220
1,2-Dichlorobenzene	90
Naphthalene	2600

PDI-C08
Chlorobenzene	5.8
1,2-Dichlorobenzene	10
Benzene	3.5
Aniline	61

PDI-C16
Chlorobenzene	9
1,2-Dichlorobenzene	66
1,4-Dichlorobenzene	9.4
1,1,1-Trichloroethane	15
1,1-Dichloroethane	53
Benzene	13
Chloroethane	10

PDI-C23
Chlorobenzene	2300
1,2,4-Trichlorobenzene	150
1,2-Dichlorobenzene	1500
1,3-Dichlorobenzene	29 J
1,4-Dichlorobenzene	420
Benzene	84
2,4-Dimethylphenol	6.6 J
Aniline	48 J
Benzo(a)anthracene	2.3 J
Benzo(a)pyrene	1.7 J
Chrysene	1.7 J
Naphthalene	160

RFI-31
Chlorobenzene	830
1,2,4-Trichlorobenzene	1,200
1,2-Dichlorobenzene	8.6 J
1,3-Dichlorobenzene	1,600
1,4-Dichlorobenzene	110
Benzene	9.6 J
2,4-Dichlorophenol	7.9

PDI-C05
Chlorobenzene	6.5
Benzene	9.6

PDI-C29
Chlorobenzene	540
1,3-Dichlorobenzene	65 J
1,4-Dichlorobenzene	59 J
Aniline	22
Benzo(b)pyrene	0.24 J
Benzo(b)fluoranthene	0.22 J
Benzo(k)fluoranthene	0.27 J
Diethyl phthalate	53

MW-C01
1,2,4-Trichlorobenzene	24
1,3-Dichlorobenzene	6.8
Ammonia	2,320

PDI-C15
Chlorobenzene	7.6
Toluene	8.4

PDI-C20
Naphthalene	23

PDI-C04
1,2,4-Trichlorobenzene	79
1,2-Dichlorobenzene	6.9
Benzene	1.6
Aniline	39
Benzo(a)pyrene	0.46 J
Benzo(a)anthracene	0.39 J
Benzo(b)fluoranthene	0.51 J
Benzo(k)fluoranthene	0.35 J
Chrysene	0.32 J
Indeno(1,2,3-c,d)pyrene	0.41 J

PDI-C14
Chlorobenzene	93
Benzene	2.9 J
Benzo(a)anthracene	3.2 J

PDI-C22
Benzene	2.1
Xylenes	40
Benzo(a)anthracene	2.1 J
Benzo(a)pyrene	2 J
Benzo(b)fluoranthene	2 J
Benzo(k)fluoranthene	1.2 J
Chrysene	1.6 J
Indeno(1,2,3-c,d)pyrene	1.2 J

PS-05 PS-06 PS-04 RFI-20 RFI-21D RFI-30 RFI-31 RFI-19D MW-C01 MW-C04

PDI-C01 PDI-C02 PDI-C03 PDI-C04 PDI-C05 PDI-C06 PDI-C07 PDI-C08 PDI-C09 PDI-C10 PDI-C11 PDI-C12 PDI-C13 PDI-C14 PDI-C15 PDI-C16 PDI-C17 PDI-C18 PDI-C19 PDI-C20 PDI-C21 PDI-C22 PDI-C23 PDI-C24 PDI-C25 PDI-C26 PDI-C27 PDI-C28 PDI-C29 PDI-C30

Area-C

Excavation Area C1
Area = 3,990 sf
Depth = Top of Soft Gray Clay (Approx 13 ft)

Excavation Area C2
Area = 25,592 sf
Depth = Top of Soft Gray Clay (Approx 13 ft)

60 0 60
SCALE: 1"=60'

SOUTH BUFFALO DEVELOPMENT, LLC
BUFFALO, NEW YORK
Project No.: 3410090701

MACTEC Engineering & Consulting Inc.
800 North Bell Avenue, Suite 200
Pittsburgh, PA 15106

POST-REMEDIAL ACTION GROUNDWATER CONCENTRATIONS
FIGURE: 13

13

P:\PROJECTS\South Buffalo Development\3410090701\CADD\FINAL\Site Management Plan Figures\Figure 13 - Post-Remedial Action GW Concentrations.dwg Mon, 20 Dec 2010 - 4:48pm esweiler

APPENDIX A

METES AND BOUNDS DESCRIPTION AND

SURVEY SITE PLAN

BUFFALO COLOR SITE
LEGAL DESCRIPTION

AREA C:

ALL THAT TRACT OR PARCEL OF LAND, situate in the City of Buffalo, County of Erie, State of New York, being part of Lot Nos. 134 and 137, Township 10, Range 8 of the Buffalo Creek Reservation, bounded and described as follows:

BEGINNING at a point of intersection of the southerly line of Elk Street with the westerly line of Lee Street;

Thence southerly along the westerly line of Lee Street, S13^{o} 45' 01"W a distance of 709.59 feet more or less to the northerly line of the former Prenatt Street, said point being the north east corner of the former Prenatt Street as closed on September 9, 1955 and recorded in Liber 5836 of deeds at page 182, parcel B;

Thence southerly, along the east line of the former Prenatt Street as closed, S42^{o} 59' 37"W a distance of 27.15 feet to a point, which point is the north east corner of lands conveyed to The Buffalo Creek Railroad Company by deed recorded in the Erie County Clerk's Office in Liber 6040 of deeds at page 437;

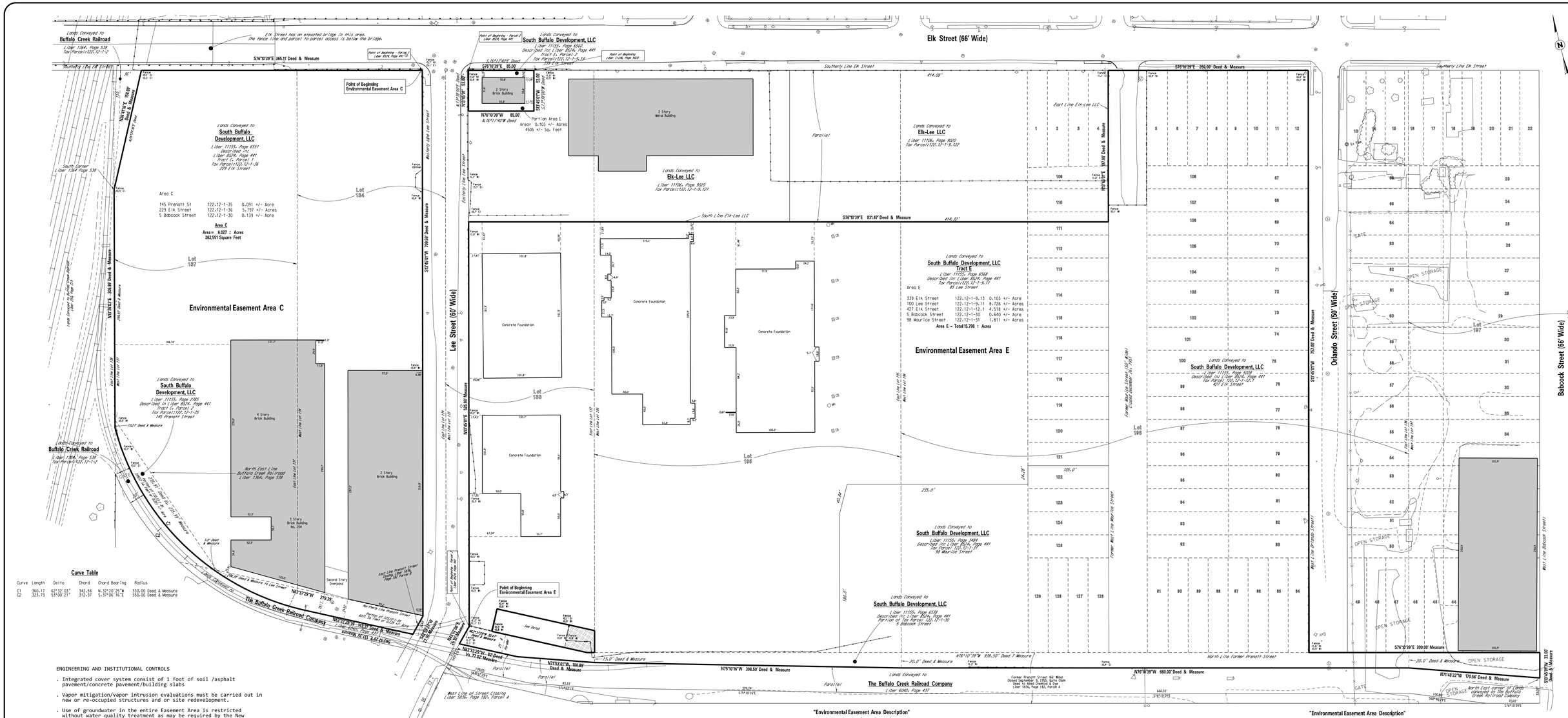
Thence westerly along the north line of lands conveyed to The Buffalo Creek Railroad Company N63^{o} 37' 29"W a distance of 143.31 feet to a point of curvature;

Thence continuing along the north line of lands conveyed to The Buffalo Creek Railroad Company by deed recorded in the Erie County Clerk's Office in Liber 6040 of deeds at page 437 and Liber 1364 of deeds at page 538, along a curve to the right with a radius of 330.00 feet, a delta of 62^{o} 32' 03", an Arc Length of 360.17 feet and a chord bearing of N32^{o} 20' 25"W a chord distance of 342.56 feet to a point on the east line of lands conveyed to said Buffalo Creek Railroad Company by deed recorded in the Erie County Clerk's Office in Liber 250 of deeds at page 319, and the west line of Lot 137;

Thence northerly along said east line of Buffalo Creek Railroad Company's land as conveyed by deed recorded in the Erie County Clerk's Office in Liber 250 of deeds at page 319, and the west line of Lot 137 N13^{o} 36' 03"E a distance of 309.89 feet to a point, which point is the south corner of lands conveyed to The Buffalo Creek Railroad Company by deed recorded in the Erie County Clerk's Office in Liber 1364 of deeds at page 538;

Thence northeasterly along The Buffalo Creek Railroad Company lands on a record deed bearing of N26^{o} 34' 36"E, and measured bearing of N26^{o} 41' 16"E a distance of 158.99 feet to the southerly line of Elk Street;

Thence easterly along the southerly line of Elk Street, S76^{o} 10' 39"E a distance of 365.11 feet more or less to the Point or Place of Beginning.



ENGINEERING AND INSTITUTIONAL CONTROLS

. Integrated cover system consist of 1 foot of soil /asphalt pavement/concrete pavement/building slabs

. Vapor mitigation/vapor intrusion evaluations must be carried out in new or re-occupied structures and or site redevelopment.

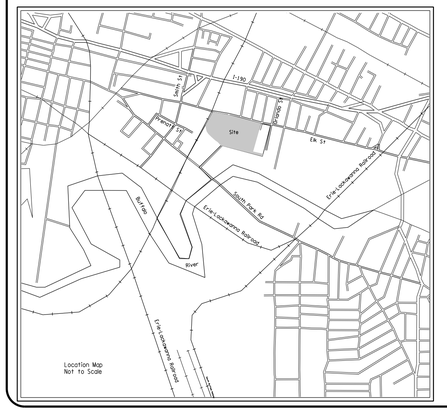
. Use of groundwater in the entire Easement Area is restricted without water quality treatment as may be required by the New York State Department of Health.

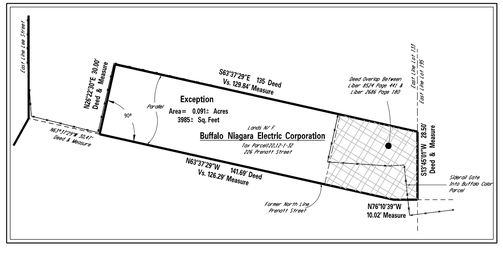
. Future Intrusive activities must adhere to the Site Management Plan and associated Site Excavation Plan.

. Evaluation for potential vapor intrusion of any buildings is required.

. Agricultural use in the entire Easement Area is prohibited.

Location Sketch





Notes

1. Lots 133, 134, 137, 195, 196 & 197 Buffalo Creek Reservation

2. North as shown on this map is True North at 75°35' Meridian of West Longitude, as established by GPS Static survey by Niagara Boundary & Mapping Services. Coordinates and bearings referenced are based on the New York State Plane Coordinate System, NAD83 (CORS96) West Zone 3103. All distances shown on this map are ground distances. Combined scale factor for this site is 0.9999204.

3. This survey has been prepared based on information contained in listed deed and map references shown on this Map of Survey. No abstract of title has been reviewed.

4. Utilities as shown on this map are plotted from Aerial survey by Land & Mapping Services LLC. December 2008 in conjunction with field locations of visible utility evidence by Niagara Boundary. Niagara Boundary & Mapping Services LS PC. Niagara Boundary & Mapping Services along with the undersigned Land Surveyor assumes no responsibility as to the accuracy of underground or otherwise non-visible utility locations. Contractors must call UFPO at 1-800-962-7962 two working days prior to any excavation prior to any excavation or construction activities.

5. Flood Zone:
The Buffalo River area of the survey is in Flood Zone AE "Base Flood hazard factors are determined.
The upland portion of the site is in Flood Zone X. "Areas of 500 year floods areas of 100 year flood with average depths of less than 1-foot or with drainage areas less than 1 square miles and areas protected by levees from 100-year flood. Flood Insurance Rate Map (FIRM) 360230 0020 D dated September 26, 2008

6. Site features other than Building Footprints and Fences as shown on this Map of Survey are plotted from aerial mapping survey prepared by Land & Mapping Services LLC March 2009. Location precision +/- 1 foot.

The engineering and institutional controls for this Easement are set forth in the Site Management Plan (SMP). A copy of the SMP must be obtained from any party with an interest in the property. The SMP can be obtained from NYS Department of Environmental Conservation, Division of Environmental Remediation, Site Control Section, 625 Broadway, Albany, NY 12233," or at derweb gw.dec.state.ny.us

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the New York Environmental Conservation Law.

Legend

Abbreviations
Ex = Existing
E = East
N = North
W = West
S = South
R.O.W. = Right of Way
A.K.A. = also known as

Symbols
Sanitary Manhole
Catch Basin
Storm Manhole
Power Pole
Fire Hydrant
Measured Bearing
Recorded Bearing

Line Styles
Crown of Pavement
Centerline of Road
Right of Way Line
Building Setback Line
Easement Line
Property Line
Fence Line
Record Lot Line

"Environmental Easement Area Description" Intended to be the Same Parcel Conveyed in Deed Recorded at Liber 11155, Page 6551 Liber 11155, Page 6538 & Liber 11155, Page 2785

Area C

ALL THAT TRACT OR PARCEL OF LAND, situate in the City of Buffalo, County of Erie, State of New York, being part of Lot Nos. 134 and 137, Township 10, Range 8 of the Buffalo Creek Reservation, bounded and described as follows:

BEGINNING at a point of intersection of the southerly line of Elk Street with the westerly line of Lee Street;

Thence southerly along the westerly line of Lee Street, S13°45' 01" W a distance of 709.59 feet more or less to the northerly line of Prenatt Street, said point being the north east corner of Prenatt Street as closed on September 9, 1955 and recorded in Liber 5836 of deeds at page 182, parcel B;

Thence southerly, along the east line of Prenatt Street as closed, S42°59'33"W a distance of 27.15 to a point, which point is the northeast corner of lands conveyed to the Buffalo Creek Railroad Company by deed filed in the Erie County Clerks Office in Liber 6040 of deeds at page 4371;

Thence westerly along the north line of lands conveyed to the Buffalo Creek Railroad Company N83°37'29"W a distance of 143.31 feet to a point of curvature;

Thence continuing along the north line of lands conveyed to the Buffalo Creek Railroad Company by deed in Liber 6040 of deeds at Page 437 and Liber 1364 of deeds at Page 538, along a curve to the right with a radius of 330.00 feet, a delta of 62°32'05", an Arc Length of 360.17 feet and a chord bearing of N32°20'25"W a chord distance of 342.56 feet to a point on the east line of lands conveyed to said Buffalo Creek Railroad Company by deed recorded in Liber 250 of Deeds at Page 319, and the west line of Lot 137;

Thence northerly along said east line of Buffalo Creek Railroad Company's land as conveyed by deed recorded in Liber 250 of Deeds at Page 319, and the west line of Lot 137 N13°36'03"E a distance of 309.89 feet to a point, which point is the south corner of lands conveyed to the Buffalo Creek Railroad Company by deed filed in the Erie County Clerk's Office in Liber 1364 of Deeds at page 538;

Thence northeasterly along the Buffalo Creek Railroad Company lands on a record deed bearing of N26°34'36"E, and measured bearing of N 26°41'16"E a distance of 158.99 feet to the southerly line of Elk Street;

Thence easterly along the southerly line of Elk Street, S76°10'39"E a distance of 365.11 feet more or less to the point or place of beginning. Containing 6.027 acres more or less.

"Environmental Easement Area Description" Intended to be the Same Parcel Conveyed in Deed Recorded at Liber 11155, Page 6560

Portion of Area E

ALL THAT TRACT OR PARCEL OF LAND, situate in the City of Buffalo, County of Erie, State of New York, being part of Lot No. 133, 195 & 196 of the Buffalo Creek Reservation, and more particularly bounded and described as follows:

BEGINNING at the intersection of the easterly line of Lee Street with the Southerly line of Elk street;

Thence easterly along the south line of Elk Street on a record deed bearing of S76°17'40"E and a measured bearing of S76°10'39"E a distance of 85.00 feet to a point;

Thence southerly on a record deed bearing of S13°38'00"W and measured bearing of S13°45'01"W a distance of 53.00 feet to a point;

Thence westerly on a record deed bearing N76°17'40"W and measured bearing of N76°10'39"W a distance of 85.00 feet to a point on the east line of Lee Street;

Thence northerly along the east line of Lee Street on a record bearing of N13°38'00"E and measured bearing of N13°45'01"E a distance of 53.00 feet to the Point or Place of Beginning. Containing 0.103 Acre more or less.

"Environmental Easement Area Description" Intended to be the Same Parcel Conveyed in Deed Recorded at Liber 11155, Page 6568; Liber 11155, Page 5028; Liber 11155, Page 3484 & Liber 11155, Page 6538

Area E

ALL THAT TRACT OR PARCEL OF LAND, situate in the City of Buffalo, County of Erie, State of New York, being part of Lot Nos. 133, 195 and 196 of the Buffalo Creek Reservation, and more particularly bounded and described as follows:

BEGINNING at the intersection of the easterly line of Lee Street with the northerly line of former Prenatt Street

Thence along the easterly line of Lee Street a record bearing of N13°38'00"E and measured bearing of N13°45'01"E a distance of 525.93 feet to the southerly line of lands conveyed to Elk-Lee LLC by deed filed in the Erie County Clerk's Office in Liber 11106 of deeds at page 9020;

Thence parallel with the south line of Elk Street S76°10'39"E east and along the southerly line of Elk-Lee LLC, a distance of 831.47 feet to the westerly line of the former Maurice Street;

Thence N13°45'01"E along the former west line of Maurice Street and along the east line of Elk-Lee, LLC a distance of 197.00 to the south line of Elk Street;

Thence S76°10'39"E along the south line of Elk Street a distance of 260.00 feet to the westerly line of Orlando Street;

Thence S13°45'01"W along the westerly line of Orlando street a distance of 757.00 feet to a point on the North line of the former Prenatt Streets

Thence S76°10'39"E along the former north line of Prenatt Street a distance of 300.00 feet to the west line of Babcock Streets;

Thence S13°45'01"W along the west line of Babcock street a distance of 33.00 feet to the north east corner of lands conveyed to the Buffalo Creek Railroad Company by deed filed in the Erie County Clerks Office in Liber 6040 of deeds at page 4371;

Thence N71°48'22"W along the north line of lands conveyed to The Buffalo Creek Railroad Company a distance of 170.56 feet to a point in the west line lot 197 distant 20 feet southerly, measured along the west line of Lot 197 from the north line of the former Prenatt Streets;

Thence N76°10'39"W parallel with the north line of the former Prenatt Street, along the north line of lands conveyed to the Buffalo Creek Railroad Company a distance of 660.00 feet to a point in the west line Lot 196 distant 20 feet southerly, measured along the west line of Lot 196 from the north line of the former Prenatt Streets;

Thence N75°10'16"W along the north line of lands conveyed to The Buffalo Creek Railroad Company a distance of 398.50 feet to a point in the west line lot 195 distant 13 feet southerly, measured along the west line of Lot 195 from the north line of the former Prenatt Streets;

Thence N71°53'01"W along the north line of lands conveyed to The Buffalo Creek Railroad Company a distance of 100.89 feet to a point in a line drawn parallel with and 25 feet southerly measured at right angles from the north line of the former Prenatt Streets;

Thence N63°37'29"W along the north line of lands conveyed to The Buffalo Creek Railroad Company a distance of 17.02 feet to a point in the west line of the street closing (Prenatt Street as described in deed filed in the Erie County Clerks Office in Liber 5836 of deeds at page 182, parcel A;

Thence N13°02'06"E along the west line of the street closing (Prenatt Street as described in deed filed in the Erie County Clerks Office in Liber 5836 of deeds at page 182, parcel A a distance of 26.10 feet to the point or place of beginning.

EXCEPTING

ALL THAT TRACT OR PARCEL OF LAND situate in the City of Buffalo, County of Erie and State of New York, being part of Lot No. 135, according to a map and survey of a part of the Buffalo Creek Reservation adjoining the City of Buffalo, made by Lovejoy & Emilie, said lot being in Township 10, Range 8 of the Holland Land Company's Survey, more particularly described as follows:

Beginning at a point in the north line of Prenatt Street, said point being 30.47 feet, measured easterly from the point of intersection of the northerly line of Prenatt Street with the easterly line of Lee Streets;

Thence northerly at right angles to the northerly line of Prenatt Street N26°22'30"E a distance of 30 feet to a point;

Thence easterly in a straight line parallel with and distant 30 feet at right angles from the north line of Prenatt Street S63°37'29"E a distance of 135 feet deed, 129.84 feet measure more or less to a point in the east line of Lot 133;

Thence southerly along the east line of Lot 133 S13°45'01" W a distance of 28.50 feet to a point in the north line of Prenatt Streets

Thence westerly along the north line of Prenatt Street N76°10'39"W a distance of 10.02 feet to an angle point in the north line of Prenatt Street;

Thence continuing along the north line of Prenatt street N63°37'29"W a distance of 126.29 feet more or less to the Point or Place of Beginning.

Land Area Report

Environmental Easement Area C	6.027 +/- Acres
Environmental Easement Area E	15.798 +/- Acres
Environmental Easement Area E Portion	0.103 +/- Acres

Environment Easement Area Covers Entire Parcel of: 21.928 ± Acres

1. The People of New York acting through its Commissioner of the Department of Environmental Conservation.

This is to certify that this map or plat and the survey on which it is based were made in accordance with the "Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys," jointly established and adopted by ALTA and NSPS in 2005, and includes Items 2,3,4,6a,7(a), 8,9,10,11(a),13,14, and 16 of Table A thereof. Pursuant to the Accuracy Standards as adopted by ALTA and NSPS and in effect on the date of this certification, undersigned further certifies that in my professional opinion as a land surveyor registered in the State of New York, the relative positional accuracy of this survey does not exceed that which is specified therein. (See Note 6. on Sheet 1 of 3.)

Map Showing ALTA /ACSM Land Title Survey of South Buffalo Development, LLC

Sheet 1 of 2

Niagara Boundary And Mapping Services

2475 Military Road
Niagara Falls NY, 14304
(716) 297-9584
Fax (716) 297-9586
E-Mail KLSNBMS@ADL.COM

Niagara Boundary Mapping Services L.S.P.C.

Serving Western New York for over 30 years.

LOT	See Note One	SECTION	TOWNSHIP 10 / RANGE 8
City	Buffalo		
COUNTY	Erie		
STATE	New York		
DATE	September 18, 2010		
SCALE	1" = 60'		
JOB NO.	6941-08		
RESURVEYED		DATE	

UNAUTHORIZED ALTERATION OR ADDITION TO THIS SURVEY MAP IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

THIS SURVEY WAS PREPARED BY THE PARTIES AND PURPOSE INDICATED HEREON. ANY EXTENSION OF THE USE BEYOND THE PARTIES OR PURPOSE INDICATED IS EXPRESSLY FORBIDDEN WITHOUT WRITTEN RELEASE OR PERMISSION OF THE UNDERSIGNED.

THIS SURVEY MAP IS NOT VALID UNLESS IT BEARS THE ORIGINAL SEAL AND SIGNATURE OF THE LAND SURVEYOR. ADDITIONAL COPIES CERTIFIED TO BE ORIGINAL OR NOT, ARE NOT VALID.

"ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S EMBOSSED SEAL SHALL BE CONSIDERED TO BE VALID TRUE COPIES."

Kenneth L. Slaugenhoupt Llc. No. 50349

APPENDIX B

EXCAVATION WORK PLAN

APPENDIX B – EXCAVATION WORK PLAN

This Excavation Work Plan (EWP) specifies requirements for excavation and grading activities, stockpiling and soil staging areas, onsite reuse criteria, waste characterization sampling, soil loading and transportation, and requirements for offsite disposal. The plan also addresses steps that will be taken in the event that buried drums, underground storage tanks, pipes or sewers are encountered during future construction activities.

B-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the Department. Currently, this notification will be made to:

Mr. Martin Doster
Regional Hazardous Waste Remediation Engineer
NYSDEC Region 9
Division of Environmental Remediation
270 Michigan Avenue
Buffalo, NY 14203

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control,
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work,
- A summary of the applicable components of this EWP,
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120,

- A copy of the contractor's health and safety plan, in electronic format, if it differs from the HASP provided in Appendix D of this SMP,
- Identification of disposal facilities for potential waste streams, and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

B-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the Certificate of Completion COC.

Where possible, soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

Additional discussion pertaining to soil screening for on-site reuse or off-site disposal is contained in Section B-7 of this EWP.

B-3 STOCKPILE METHODS

Excavated soils associated with remaining contamination will be stockpiled on the property for characterization when direct loadout of soil for off-site disposal is not appropriate. Specific locations for the stockpile areas will be determined during construction. Stockpile areas will be lined with poly sheeting having a thickness of at least 10 mils.

Soil stockpiles will be continuously encircled with a berm consisting of poly covered earth, hay bales, wooden frames, and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points. Existing concrete curbs and slabs may also be used as part of the stockpile system provided that they are covered with the 10-mil poly sheeting.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected, and damaged tarp covers will be promptly replaced. Spray-on dust suppression agents may be applied when soil is not being added or removed to reduce the infiltration of precipitation and the migration of dust. When a temporary stockpile area is no longer needed, all used plastic liners and berm construction materials will be properly disposed.

As an alternative to temporary stockpiles, rolloff boxes (tarped and lined as necessary) may be used for on-site accumulation of excavated materials.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC.

A daily record of the accumulation date(s), origination point, estimated volume (in cubic yards), date/location of on-Site reuse, sampling and characterization details, and date of off-Site transportation, as appropriate, for each separate soil stockpile will be maintained by the owner.

Soils that require off-Site disposal will not be stockpiled for more than 90 days after completion of the specific excavation. Characterization samples of the stockpiled material will be collected within two weeks (14 calendar days) after completion of an excavation; standard laboratory turnaround (approximately 3 weeks) will be used for all laboratory testing unless an expedited turnaround time is required. Soils ide1ntified for on-Site reuse beneath the cover system, as determined via the process described below, will not be stockpiled on-Site for more than 180 days without NYSDEC approval.

B-4 MATERIALS EXCAVATION AND LOAD OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

For excavation work below the cover system, a Professional Engineer's (P.E.'s) representative with construction/remediation experience, representing the property owner or developer, will monitor excavations or disturbances that will extend below the site cover system. The site owner at the time of intrusive work must provide a P.E. stamped/signed

certification that excavation work below the cover system and subsequent repair/replacement of the cover system was conducted in a manner consistent with this Plan.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site when determined necessary by the qualified environmental professional. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

B-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be inspected and, if determined necessary by the qualified environmental professional, washed prior to leaving the site. Truck wash waters will be collected and disposed of in an appropriate manner.

Truck transport routes will be developed to take into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport; (g) community input [where necessary].

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

B-6 MATERIALS DISPOSAL OFF-SITE

All soil/fill/solid waste excavated and removed from beneath the site cover system will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this site is proposed for unregulated off-site disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate (i.e., hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc). Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

B-7 ON-SITE MATERIALS REUSE

Chemical criteria for on-site reuse of material have been approved by NYSDEC and are discussed in the following paragraphs. The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable excavated material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for re-use on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

B-7.1 Site-Specific Action Levels

To evaluate soils for potential reuse on-Site as fill beneath the site cover system, the following process will be used.

Step 1 - Determine if Excavated Material is “Grossly Contaminated”: For the purposes of this project, “grossly contaminated” soil exhibits one or more of the following characteristics:

- Visual indication of non-aqueous phase liquid (NAPL);
- Visual indication of other separate phase materials of concern, such as elemental mercury; and/or

- Sustained or repeated periodic photoionization detector (PID) readings, as obtained in ambient air at the surface of the excavated material, of greater than 10 ppm above background levels over a 1-minute interval.

Discolored soil will not be considered "grossly contaminated" if it does not exhibit any of the above characteristics.

If excavated material is identified as "grossly contaminated", it will be characterized for off-Site disposal. Any excavated material that does not meet the definition of "grossly contaminated" will be evaluated as defined in Step 2 below.

Step 2 – Compare to Site-Specific Action Levels (SSALs): Samples of the excavated material will be sampled and characterized at a NYSDEC-approved off-Site laboratory using the procedures described in this document. The results of the characterization testing will then be screened against the SSALs. The soils will be considered to meet the SSALs if concentrations of tested constituents meet the following parameters:

- Individual VOCs < Commercial SCOs
- Total SVOCs < 500 ppm
- Individual PCB Aroclors < Commercial SCOs
- Metals < 10x Commercial SCOs

It should be noted that the SSALs are not remedial action levels or cleanup goals for the Site remedy. It is further understood that the SSALs will not be used as triggers for additional remediation beyond that specified in the AAR, except as follows: If concentrations of any analyzed metal exceeds the SSAL, then TCLP testing will be completed on that sample for that metal. If the TCLP result exceeds the TCLP limit for that metal, then additional sampling in the area of excavation from which the soil originated will be proposed to determine if additional remediation is warranted. The determination of whether additional action is warranted will be made by assessing the TCLP data, as well as Site specific information. If it is determined that additional investigation is warranted, that investigation should focus on the potential for those metals to have an impact on groundwater.

If discolored soils are encountered during the field work, special attention will be given to that area to assess possible impacts upon groundwater.

If the excavated material is not “grossly contaminated” and all sample results meet the SSALs, then the excavated material can be reused on Site as structural fill placed beneath the cover system. If the excavated material does not meet the requirements of either Step 1 or Step 2, or if for any reason the material is not suitable for reuse on site, it will be taken off-Site for proper disposal

B-7.2 Sampling And Characterization Of Stockpiled Soil

For stockpiled soil that may be reused as fill and is not “grossly contaminated” as determined based on Step 1 above, one composite sample will be collected for every 100 cubic yards (or portion thereof) of stockpiled soil. The composite sample will be collected from five locations from each 100 cubic yard volume. Photoionization detector (PID) measurements will be recorded for each of the five individual locations. One grab sample will be collected from the individual location with the highest PID measurement. If none of the five individual sample locations exhibit PID readings, one location will be selected at random. The composite sample will be analyzed by a NYSDOH ELAP-certified laboratory for Target Compound List (TCL) SVOCs (plus aniline), PCBs, and Target Analyte List (TAL) metals plus cyanide. The grab sample will be analyzed for TCL VOCs. The full list of TCL VOCs and SVOCs is provided as Attachment A of this EWP. If off-Site disposal is expected, an additional composite sample will be collected for TCLP analysis and other characterization tests, as specified by the disposal facility.

Soil samples will be composited by placing equal portions of soil from each of the five individual sample locations into a pre-cleaned, stainless steel (or Pyrex glass) mixing bowl. The soil will be thoroughly homogenized using a stainless steel or disposable plastic scoop or trowel and transferred to pre-cleaned jars provided by the laboratory. Sample jars will then be labeled and a chain-of-custody form will be prepared.

Any stockpiled soil with TCLP/characterization results that indicate the material is hazardous waste (as defined under RCRA) will be subject to the applicable hazardous waste storage, labeling, handling, transportation and disposal regulations.

B-8 FLUIDS MANAGEMENT

Pumping of water (i.e., ground water and/or storm water) that has accumulated in an excavation, if necessary, will be done in such a manner as to prevent the migration of particulates, soil, or unsolidified concrete materials and prevent damage to the existing subgrade. Water pumped from the excavations may be discharged to the BSA sewer system, after BSA approval has been obtained. If the water quality is such that the BSA will not approve the discharge to a sewer, or if the water cannot be sufficiently treated so that BSA approval is obtained, it will be stored in temporary storage tanks, characterized, and transported off-Site for proper disposal. Runoff from the surface will be controlled to prevent discharges to storm sewers or the Buffalo River.

All liquids to be removed from the site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site unless otherwise approved.

Any discharge of water generated during large-scale construction activities to surface waters (i.e., the Buffalo River) will be performed under a SPDES permit.

B-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities, the cover system will be restored in a manner that complies with the RAWP and cover system design details. The demarcation layer, consisting of black woven geotextile, will be replaced to provide a visual reference of the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this Site Management Plan. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the ‘Remaining Contamination’. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the SMP.

B-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Backfill and cover soil must not exceed the lower of the Commercial or Protection of Groundwater SCOs as discussed in B-10.1 and B-10.2 Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site without a Beneficial Use Determination and a prior NYSDEC approval.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

B-10.1 Structural Fill Beneath The Cover System

Excavated material, crushed asphalt or concrete from building demolition, and clean fill/borrow material brought on Site for use as structural fill beneath the Site cover system must meet the following criteria:

All materials from on-Site sources must be shown through testing to have concentrations of constituents that are less than or equal to the SSALs.

Material from off-Site sources intended for use as site backfill shall meet the Commercial SCOs (Protection of Public Health) or Protection of Groundwater SCOs established in 6NYCRR 375-6.7(d), whichever is more stringent, except as follows:

The following material may be imported for use as backfill, without chemical testing, for use beneath pavement, buildings, or below the cover system, provided it contains less than 10% by weight of material which would pass through a size 200 sieve and consists of:

- Rock or stone, consisting of virgin material from a permitted mine or quarry; or
- Recycled concrete or brick from a Department registered construction and demolition debris processing facility which conforms to Section 304 of the New York Department of Transportation Standard Specifications Construction and Materials Volume I (2002).

Off-Site borrow materials intended for use on the Site which require chemical testing will be tested via collection of one composite sample per 500 cubic yards of material from each source area. The sample will be analyzed for TCL VOCs, TCL SVOCs, PCBs, and TAL metals plus cyanide. If more than 1,000 cubic yards of material are borrowed from a given off-Site source area and both samples of the first 1,000 cubic yards meet the SSALs, the sample collection frequency will be reduced to one composite for every 2,500 cubic yards of additional material from the same source, up to 5,000 cubic yards. For borrow sources greater than 5,000 cubic yards, sampling frequency will be reduced to one sample per 5,000 cubic yards, provided all earlier samples met the SSALs.

B-10.2 Cover System Soils

The cover soil material will meet the following criteria:

- Off-Site borrow soils will be documented as having originated from locations having no evidence of disposal or release of hazardous, toxic or radioactive substances, wastes or petroleum products.
- Off-Site soils intended for use as site cover will not be defined as a solid waste in accordance with 6NYCRR Part 360-1.2(a).

If off-Site soil intended for use as cover material is considered “virgin”, it will be further documented in writing to be native soil material from areas not having supported any known prior industrial or commercial development or agricultural use.

Off-Site soils to be used as cover soils must not exceed the lower of the Commercial or Protection of Groundwater SCOs.

Non-virgin soils will be tested via collection of one composite sample per 500 cubic yards of material from each source area. The sample will be analyzed for TCL VOCs, TCL SVOCs, PCBs, and TAL metals plus cyanide. If more than 1,000 cubic yards of soil are borrowed from a given off-site non-virgin soil source area and both samples of the first 1,000 cubic yards meet the specified SCOs, the sample collection frequency will be reduced to one composite for every 2,500 cubic yards of additional soils from the same source, up to 5,000 cubic yards. For borrow sources greater than 5,000 cubic yards, sampling frequency will be reduced to one sample per 5,000 cubic yards, provided all earlier samples met the specified SCOs.

The topsoil used for the final cover will be fertile, friable, natural loam surface soil, capable of sustaining plant growth, and free of clods or hard earth, plants or roots, sticks or other extraneous material harmful to plant growth.

Grassed areas will be seeded with a sustainable perennial mixture with appropriate erosion control measures taken until the perennial grasses are established, as specified by the local soil conservation district.

To reduce the disturbance of the surface cover material, clean soil berms will be constructed in areas where shallow-rooted trees and shrubs will be planted. The berms will be of sufficient thickness to allow the excavation of only clean fill deep enough to plant the tree or shrub root ball. The berm material will contain sufficient organic material to allow tree and/or shrub growth, and will be of sufficient strength to support trees and/or shrubs at their maximum height.

B-11 STORMWATER POLLUTION PREVENTION

For excavations that will exceed 1-acre in surface area, coverage will be obtained under the NYSDEC SPDES General Permit for Storm Water Discharges from Construction Activities that are classified as "Associated with Industrial Activity", Permit #GP-93-06 (Construction Storm Water General Permit). Requirements for coverage under the Construction Storm Water General Permit include the submittal of a Notice of Intent (NOI)

form and the development of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP will fulfill all permit requirements and will be prepared in accordance with the latest NYSDEC guidance for preparing SWPPP and with latest version of the New York State Stormwater Management Design Manual. This SWPPP, in accordance with permit requirements, will provide the following information:

- A background discussion of the scope of the construction project.
- A statement of the storm water management objectives.
- An evaluation of post-development runoff conditions.
- A description of proposed storm water control measures.
- A description of the type and frequency of maintenance activities required to support the control measure.

The SWPPP will address issues such as erosion prevention, sedimentation control, hydraulic loading, pollutant loading, ecological protection, physical site characteristics that impact design, and site management planning. All descriptions of proposed features and structures at the Site will include a description of structure placement, supporting engineering data and calculations, construction scheduling, and references to established detailed design criteria. The SWPPP will conform to all requirements as established by applicable regulatory agencies.

Proven soil conservation practices, including Best Management Practices such as those described in the latest version of the New York State Stormwater Management Design Manual, will be incorporated in construction and development plans to mitigate soil erosion, off-site sediment migration, and water pollution from erosion. Temporary erosion control measures such as silt fencing and/or hay bales will be placed around soil stockpiles and bare surface soil during demolition activities, as specified by the local soil conservation district. Stockpiles will be graded and compacted as necessary for positive surface water runoff and dust control. Stockpiles of soil will be placed a minimum of 50 feet from the property boundaries.

Temporary erosion and sedimentation control measures will be used during active demolition/construction stages. Prior to any demolition/construction activity, temporary

erosion and sediment control measures will be installed and maintained until such time that permanent erosion control measures are installed and effective. The following temporary measures will be incorporated into demolition/construction activities:

Silt fences will be placed around active demolition/construction areas that result in soil disturbance.

Hay bales will be placed and staked around stockpiled soil under the plastic to create a berm.

Plastic covers will be placed on stockpiled soil to reduce rain water infiltration and dust.

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

Removed sediment will be stockpiled and characterized as specified for excavated soil. The perimeter silt fences will remain in place until demolition/construction activities in the area are completed and vegetative cover or other erosion control measures are adequately

established. Silt fences will be provided and installed in accordance with the New York Guidelines for Urban Erosion and Sediment Control.

Permanent erosion control measures will be incorporated into the construction plans for the site-wide cover system and will include limiting steep slopes, routing runoff to surface water collection channels, limiting flow velocities in the collection channels to the extent practical, and lining collection channels, where appropriate. In areas where flow will be concentrated (i.e., collection channels) the channel slopes and configuration will be designed to maintain channel stability. Permanent measures and facilities will be installed as early as possible during construction phases.

Any final slopes greater than 33 percent will be reinforced, and will have a demarcation layer under the clean cover to indicate if erosion has extended to the subgrade. Following the placement of final cover soils over regraded areas, a revegetation program will be implemented to establish permanent vegetation. The areas to be grassed will be seeded in stages as construction is completed with 100 lbs/acre of seed with a sustainable perennial mixture.

In addition to the above seed mixture, mulch, mulch blankets, or synthetic fabric will be placed to prevent erosion during turf establishment. Mulch will be placed on all slopes less than 15% and a mulch blanket on all slopes greater than 15%. Synthetic erosion control fabric will be placed in drainage ditches and swales.

B-12 CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment, and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (TAL metals, TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the periodic reports prepared pursuant to Section 5 of the SMP.

If "grossly contaminated" soil is encountered in an excavation, the owner may choose to expand the excavation until no further "grossly contaminated" material remains visible within the excavation, or the owner may develop a plan for the characterization and remediation of the material for NYSDEC approval. The plan will be based on the type and extent of material encountered.

B-12.1 Buried Drums Or Underground Storage Tanks

If buried drums or underground storage tanks (USTs) are encountered during excavation activities, NYSDEC will be notified. USTs will be registered with NYSDEC as required per 6 NYCRR Part 375-1.8. Any buried drums and/or USTs encountered will be evaluated within the excavation via visual assessment and PID readings, provided that worker health and safety is protected. Subsequently, a Removal Plan will be prepared for NYSDEC approval. Drums and/or USTs will be excavated and removed in accordance with a site-specific Health and Safety Plan while following all applicable Federal, State, and local regulations. Removed drums and underground storage tanks will be properly characterized and disposed off-site. The soil surrounding the buried drums or underground storage tanks will be considered as potentially contaminated and will be characterized in accordance with methods prescribed in this Plan.

B-12.2 Underground Pipes And Sewers

Inactive storm or sanitary sewer pipes that will not be reused and are encountered within the limits of an excavation will be removed and any exposed ends will be plugged/capped at the walls of the excavation. If pipes are large, the use of flowable fill may be considered. Based on Site knowledge, no underground chemical/process pipes are expected; if any are encountered during grading or excavation activities, they will be cut, drained, and removed from within the excavation limits. Drained materials will be collected

and properly disposed off-Site. Pipe sections left in the ground (if any) which will not be reused will be capped/plugged after draining and the potential for migration of contaminants along the pipe bedding will be assessed and mitigated via placement of impermeable collars or other barriers, as appropriate.

B-13 COMMUNITY AIR MONITORING PLAN

A Community Air Monitoring Plan (CAMP) prepared following the guidance in Appendix 1A of DER-10, Generic Community Air Monitoring Plan, will be provided as part of the project Health and Safety Plan for activities involving subgrade excavation, grading, and soil handling activities. Particulate and VOC monitoring will be performed along the downwind occupied perimeter in accordance with the CAMP. The CAMP will include:

- Details of the perimeter air monitoring program
- Action levels to be used
- Methods for air monitoring
- Analytes measured and instrumentation to be used
- A figure showing the location of air sampling stations based on generally prevailing wind conditions. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

B-14 ODOR CONTROL PLAN

An Odor Control Plan may not be required. However if nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work,

is the responsibility of the property owner's qualified environmental professional, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods. Trucks or rolloff containers used to contain odor-producing soils prior to off-site disposal will be covered or tarped.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

B-15 DUST CONTROL PLAN

Dust suppression techniques will be used at the Site in accordance with applicable NYSDEC guidance to control fugitive dust. The surface of unvegetated earthen or disturbed soil/fill areas will be wetted with water or other dust suppressive agents to control dust during demolition/construction. Any subgrade material left exposed during extended interim periods (greater than 90 days) prior to placement of a final cover will be covered with a temporary cover system (i.e., tarps, spray type cover system, etc.) or planted with vegetation to control fugitive dust to the extent practicable. Particulate and VOC monitoring will be performed along the downwind occupied perimeter during subgrade excavation, grading, and handling activities in accordance with the CAMP to be provided as part of the project Health and Safety Plan.

Dust suppression techniques that may be used at the Site include applying water on roadways, wetting equipment, spraying water on buckets during excavation and dumping, hauling materials in properly covered or watertight containers, covering excavated areas and

material after excavation activity ceases, establishing vegetative cover immediately after placement of cover soil, and reducing the excavation size and/or number of excavations. The use of atomizing sprays is recommended where practical so that excessively wet areas will not be created, but fugitive dust will be suppressed.

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved though the use of dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

B-16 OTHER NUISANCES

A plan will be developed and utilized by the contractor for all work to ensure compliance with local noise control ordinances.

ATTACHMENT B-1

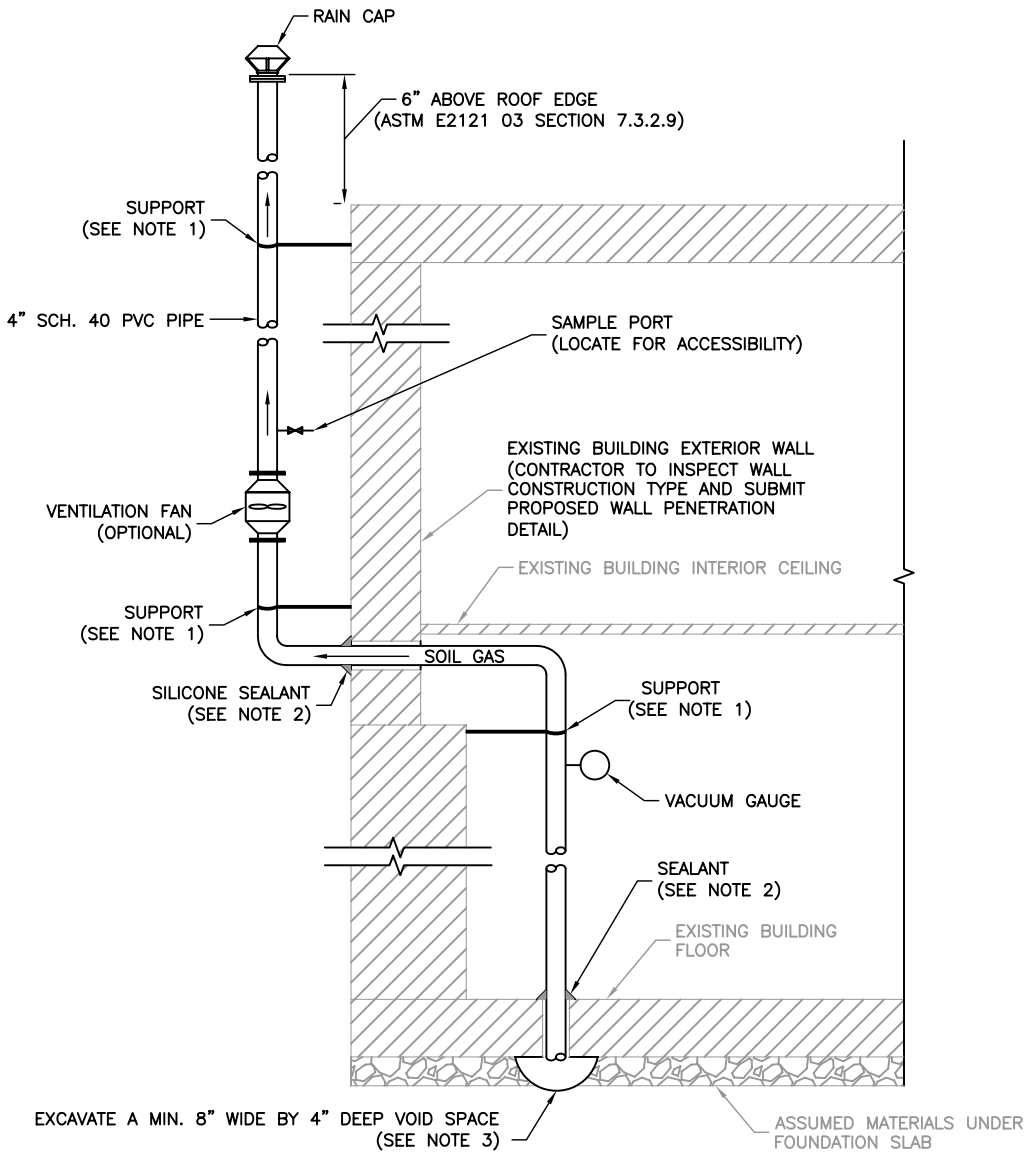
TARGET COMPOUND LIST OF SEMI-VOLATILE AND VOLATILE ORGANIC COMPOUNDS

SVOCS
1-METHYL-2,4-DINITROBENZENE
2,2'-DICHLORODIISOPROPYLETHER
2,4,5-TRICHLOROPHENOL
2,4,6-TRICHOLORPHENOL
2,4-DICHLOROPHENOL
2,4-DIMETHYLPHENOL
2,4-DINITROPHENOL
2,4-DINITROTOLUENE
2,6-DINITROPHENOL
2,6-DINITROTOLUENE
2-CHLORONAPHTHALENE
2-CHLOROPHENOL
2-METHYLNAPHTHALENE
2-METHYLPHENOL
2-NITROANILINE
2-NITROPHENOL
3,3'-DICHLOROBENZIDINE
3-METHYLPHENOL
3-NITROANILINE
4,6-DINITRO-2-METHLYPHENOL
4-BROMOPHENOL PHENYL ETHER
4-CHLORO-3-METHYLPHENOL
4-CHLOROANILINE
4-CHLOROPHENYL PHENYL ETHER
4-METHYLPHENOL
4-NIRTOANILINE
4-NITROPHENOL
ACENAPHTHENE
ACENAPHTHYLENE
ACETOPHENONE
ANILINE
ANTHRACENE
BENZIDINE
BENZO(A)ANTHRACENE
BENZO(A)PYRENE
BENZO(B)FLUORANTHENE
BENZO(G,H,I)PERYLENE
BENZO(K)FLUORANTHENE
BENZOIC ACID
BENZYL ALCOHOL
BIPHENYL
BIS(2-CHLOROETHOXY)METHANE
BIS(2-CHLOROETHYL)ETHER
BIS(2-ETHYLHEXYL)PHTHALATE
BUTYLBENZYL PHTHALATE
CAPROLACTAM
CARBAZOLE
CHRYSENE
DI-N-BUTYL PHTHALATE
DI-N-OCTYL PHTHALATE
DIBENZO(A,H)ANTHRACENE
DIBENZOFURAN
DIETHYL PHTHALATE
DIMETHYL PHTHALATE
FLUORANTHENE
FLUORENE
HEXACHLOROBENZENE
HEXACHLOROBUTADIENE
HEXACHLOROCYCLOPENTADIENE
HEXACHLOROETHANE
INDENO(1,2,3-CD)PYRENE
ISOPHORONE
N-NITROSOI-N-PROPYLAMINE
N-NITROSODIMETHYLAMINE
N-NITROSODIPHENYLAMINE
NAPHTHALENE
NITROBENZENE
O-NITROANANILINE
PENTACHLOROPHENOL
PHENANTHRENE
PHENOL
PYRENE

VOCS
1,1,1-TRICHLOROETHANE
1,1,2,2-TETRALCHLOROETHANE
1,1,2-TRICHLOROETHANE
1,1,2-TRICHLOROTRIFLUOROETHANE
1,1-DICHOLROETHANE
1,1-DICHLOROETHENE
1,2,4-TRICHLOROBENZENE
1,2-DICHLOROBENZENE
1,2-DICHLOROETHANE
1,2-DICHLOROPROPANE
1,3-DICHLOROBENZENE
1,4-DICHLOROBENZENE
2-BUTANONE
2-CHLOROETHYL VINYL ETHER
2-HEXANON
4-METHYL-2-PENTANONE
ACETONE
BENZENE
BROMODICHLOROMETHANE
BROMOFORM
BROMOMETHANE
CARBON DISULFIDE
CARBON TETRACHLORIDE
CHLOROBENZENE
CHLORODIBROMOMETHANE
CHLOROETHANE
CHLOROFORM
CHLOROMETHANE
CIS-1,2-DICHLOROETHENE
CIS-1,3-DICHLOROPROPENE
CYCLOHEXANE
ETHYLBENZENE
ISOPROPYLBENZENE
METHYL ACETATE
METHYLCYCLOHEXANE
METHYLENE CHLORIDE
STYRENE
TETRACHLOROETHENE
TOLUENE
TRANS-1,2-DICHLOROETHENE
TRANS-1,3-DICHLOROPROPENE
TRICHLOROETHENE
TRICHLOROFLUOROMETHANE
VINYL ACETATE
VINYL CHLORIDE
XYLENES, TOTAL

APPENDIX C

VAPOR INTRUSION MITIGATION INFORMATION



NOTES:

1. SUPPORTS SHALL BE INSTALLED AT LEAST EVERY 6 FEET ON HORIZONTAL RUNS. VERTICAL RUNS SHALL BE SECURED EITHER ABOVE OR BELOW THE POINTS OF PENETRATION THROUGH FLOORS, CEILINGS AND ROOFS, OR AT LEAST EVERY 8 FEET ON RUNS THAT DO NOT PENETRATE FLOORS, CEILINGS OR ROOFS (ASTM E2121 03 SECTION 7.3.2.5).

2. OPENINGS AROUND THE SUCTION POINT PIPE SHALL BE SEALED USING METHODS AND MATERIALS THAT ARE DURABLE AND PERMANENT. (ASTM E2121 03 SECTION 7.3.4.1). SEALANTS AND ADHESIVES SHALL BE COMPATIBLE WITH PIPING MATERIALS AS SPECIFIED BY THE PIPING MANUFACTURER. ALL SEALANTS SHALL BE APPROVED BY NYSDEC PRIOR TO CONSTRUCTION.

3. THE APPROACH FOR SUB-SLAB DEPRESSURIZATION OF AN EXISTING STRUCTURE WOULD CONSIST OF ACTIVE EXTRACTION FROM ONE OR MORE OF THE FOLLOWING:

   a. CRUSHED ROCK OR SOIL BENEATH THE STRUCTURE
   b. AN EXISTING SUB-SLAB DRAIN TILE SYSTEM
   c. AN EXISTING FOUNDATION SUMP SYSTEM
   d. AN EXISTING FOUNDATION BLOCK WALL
   e. A NEW SUB-SLAB DRAIN TILE/HORIZONTAL PIPING SYSTEM
   f. A NEW A MANUFACTURED SOIL GAS MAT SYSTEM

NOT TO SCALE

Prepared/Date: DEL 05/06/2010
Checked/Date: RTB 05/06/2010

MACTEC

SSV System Details

Project 3410-0907-01

APPENDIX D

HEALTH AND SAFETY PLAN

SITE-SPECIFIC HEALTH & SAFETY PLAN (HASP)

for the

Project Name: Former Buffalo Color Areas C & E
Project Location: Buffalo, NY
Project No.:

This HASP, which must be kept on site, addresses the health and safety hazards of each task conducted by employees for this project, including the requirements and procedures for worker protection (per 29 CFR 1910.120). The HASP was developed based on the hazards know or suspected to be present at the site, specifically as they relate to the work to be conducted by employees. The hazards and controls within this HASP do not necessarily address all the hazards associated with subcontractor personnel. Subcontractors may adopt this HASP; however they will be responsible for reviewing and revising/amending the HASP to ensure that it addresses hazards unique to their operations.

The Site Health and Safety Officer (SHSO) can change or amend this document only with agreement from the Division Environmental Health and Safety Manager (DEHSM). The SHSO must initial any change made to the HASP at the relevant section and document the amendment date below.

Prepared by: _____ _____

Approved by: _____
SHSO Date

_____
Field Lead Date

_____
Project Manager Date

Date(s) of Amendment(s): _____

_____

_____

All site workers shall read this HASP. A pre-entry briefing conducted by the SHSO shall be held prior to initiating this project. Items to be covered during the briefing can be found on the Site Safety Orientation form (Appendix G). All applicable sections of this HASP shall be reviewed during this briefing. The SHSO shall review the information covered in the pre-entry briefing meeting with any worker not in attendance at the initial meeting prior to commencing work. Brief meetings will be held at the beginning of each work day to discuss important safety and health issues concerning tasks performed on that day and documented on the Daily Safety Meeting checklist (Appendix H). After reading the HASP and attending a pre-entry briefing, workers shall sign the following acknowledgment statement:

Field Team Review: I acknowledge that I have read the requirements of this HASP, and agree to abide by the procedures and limitations specified herein. I also acknowledge that I have been given an opportunity to have my questions regarding the HASP and its requirements answered prior to performing field activities. Health and safety training and medical surveillance requirements applicable to my field activities at this site are current and will not expire during on-site activities.

NAME	DATE	NAME	DATE

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Appendix

1.0 SITE DESCRIPTION

The Site is located on the south side of the City of Buffalo, Erie County, New York, in an area of heavy industrial development that dates to the mid-1800s. The Site occupies approximately 47 acres near and adjacent to the Buffalo River and consists of four distinct areas (Areas A, B, C, and E). The Site layout is shown on Figure 1-1. The work addressed by the plan will occur on Areas C and E. These areas are described below.

Area C is located on the northwestern corner of the Site. It is fenced and accessible by vehicle from gated entrances along Lee Street. Area C covers approximately six acres and includes the former powerhouse building and former ice house. The northern half of the property, where the remedial excavation work will occur, is vacant and open. Area C is bounded by Elk Street to the north, Lee Street to the east, a rail spur and Area B to the south, and railroad tracks to the west.

Area E covers approximately 25.5 acres and is located on the northeastern side of the Site. Former BCC Building 322 and surrounding property totaling about 9.1 acres is under new ownership and is not part of the BCA. The remaining 16.4 acres of Area E is owned and under redevelopment by SBD under the BCA. The western side of Area E presently includes various former production buildings, maintenance sheds, a former laboratory, the former wastewater treatment plant (which at one time included several surface impoundments) and a large AST farm. The eastern half of Area E is vacant, with much of it grass-covered. Area E is bounded by Elk Street to the north, Orlando Street to the east (across which is the Exxon Mobil bulk petroleum terminal), and Prenatt Street to the south.

1.1 SITE HISTORY

Originally founded as the Schoellkopf Aniline and Dye Company in 1879, the plant produced dyes and organic chemicals based primarily on aniline and various aniline derivatives. Beginning in 1977 until manufacturing operations ceased in 2003, the operations at BCC mainly involved production of Indigo dye, alkylanilines, anhydrides, and dye intermediates.

The plant was reorganized into the National Aniline Chemical Company in 1916. It became one of the five companies that merged to create Allied Chemical Corporation (Allied Chemical) in 1920. The existing dye-making facility and the right to produce certain dyes and intermediates were sold by Allied Chemical to Buffalo Color Corporation (BCC) on July 1, 1977. At the time of the sale, the plant was divided into eight areas designated with the letters A, B, C, D, E, F, G, and H. BCC purchased the manufacturing areas A through E, while Allied Chemical retained the acid plant (sold to PVS in 1981), the research and development facility on Area F, and the parking lots on Areas G (Elk Street) and H (Smith Street).

In 2005, BCC filed for bankruptcy. During the bankruptcy proceedings, some of the facility's production equipment was sold and removed from the site. In conjunction with the bankruptcy, the office building and former plant hospital located at 100 Lee Street on Area B and the warehouse building (Building 322) located near Elk Street on Area E, along with some of the land under and around those buildings, were sold to other parties. Agreements are in place to preserve access rights to the land for the purposes of any required environmental investigation and remediation activities. The remaining buildings and property on Areas A, B, C and E were purchased by SBD in 2008. Since June of 2009, SBD has been performing demolition of the former chemical dye plan. As of the date of this HASP, all buildings, storage tanks and ancillary structures have been removed from Area E. Structures on Area C will be preserved for future rehabilitation and redevelopment; the majority of chemicals and asbestos materials have been removed from the Area C structures (the remedial excavation work described herein will not require Mactec personnel to enter any Area C structures).

The following tasks are to be performed at the site (check the box if task is to be performed by employees):

	Tasks	**Initial Level of PPE**
☒	▪ Work with Soils	Level D or Modified Level D
☒	▪ Work with Groundwater	Level D
☒	▪ General Construction Activities	Level D
☐	▪	
☐	▪	
☐	▪	
☐	▪	
☐	▪	

2.0 KEY PERSONNEL AND HEALTH AND SAFETY RESPONSIBILITIES

Figure 2-1 shows the project organizational chart. Table 2-1 describes health and safety responsibilities for key project personnel.

Figure 1-1

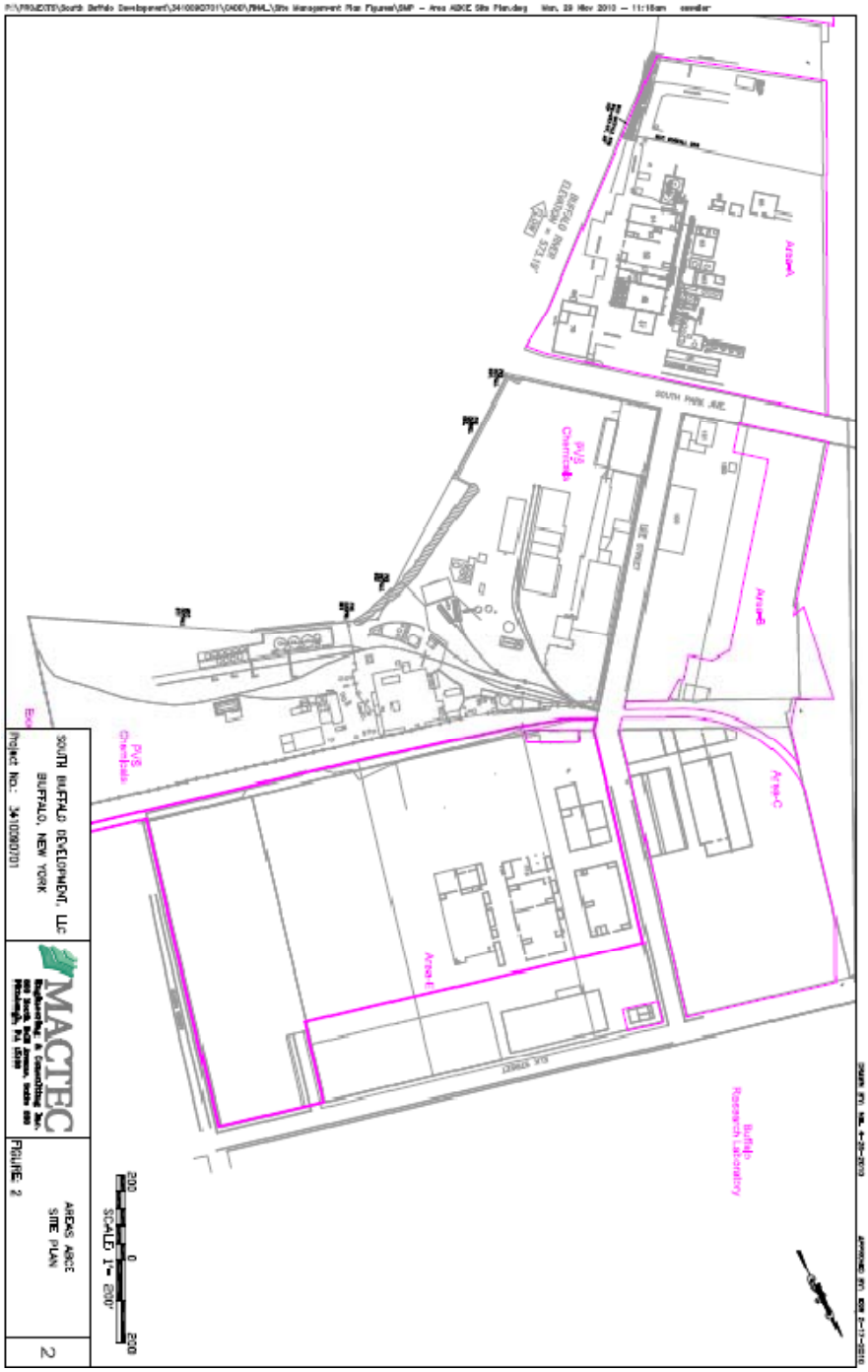
Area A
Area B
Area C
Area D
SOUTH PARK AVE.
PVS Chemicals
Buffalo Research Laboratory
SCALED 1" = 200'
SOUTH BUFFALO DEVELOPMENT, LLC
BUFFALO, NEW YORK
Project No.: 341009701
MACTEC
FIGURE 2
AREAS ABCE
SITE PLAN

Figure 2-1 - Project Organization Chart

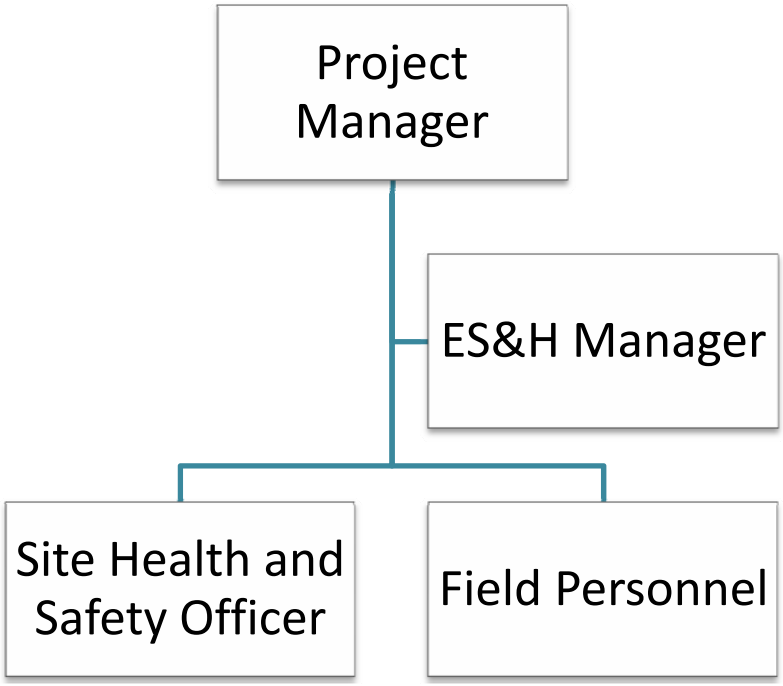

TABLE 2-1

KEY PERSONNEL HEALTH AND SAFETY RESPONSIBILITIES

ENVIRONMENTAL HEALTH AND SAFETY MANAGER	FIELD LEAD (FL)	SITE HEALTH & SAFETY OFFICER (SHSO)	PROJECT PERSONNEL
• Implement appropriate corporate health and safety policies, or environmental projects • Approve HASP and Amendments • Maintain exposure monitoring records • Notify Corporate ES&H Manager in the event of an emergency situation • Verify that corrective actions recommended on Incident Analysis Forms have been implemented	• See that personnel receive this plan, are aware of its provisions, and are aware of the potential hazards associated with site operations, are instructed in safe work practices, and are familiar with emergency procedures, and these actions are documented • Determine that appropriate monitoring and personnel protective equipment are available • Monitor the Field Logbooks to ensure the health and safety work practices are employed • Coordinate with SHSO so that emergency response procedures are implemented • Ensure corrective actions recommended on Incident Analysis Forms are implemented	• Implement project HASP; report to the Project Manager for action if any deviations from the anticipated conditions exist; and authorize the cessation of work at site investigations if necessary • Confirm that prior to a hazardous waste site visit, site personnel meet the proper medical requirements and have the health and safety training to qualify them to perform their assigned tasks. Identify all site personnel with special medical conditions. • Conduct pre-entry briefing and tailgate safety meetings. Document meetings on Daily Tailgate Safety Meeting Checklist (See Appendix H) • Verify that all monitoring equipment and personal protective equipment is operating correctly according to manufacturer's instructions and such equipment is utilized by on-site personnel. Calibrate or verify calibration of all monitoring equipment and record results. • Conduct daily inspections of jobsite using the Daily Site Safety And Health Checklist (See Appendix I) • Implement site emergency and follow-up procedures	• Be familiar with and abide by the HASP • Notify the SHSO of any special medical conditions (e.g., allergies) • Immediately report any accidents and/or unsafe conditions to the SHSO • No individual shall go on site where he/she does not have the required safety training

3.0 WORKER TRAINING

Upon designation of a specific project team, Table 3.1 will be completed to summarize the training experience of the project team with respect to 29 CFR 1910.120(e), 29 CFR 1910.38, and 29 CFR 1910.1200.

4.0 MEDICAL SURVEILLANCE

Upon designation of a specific project team, Table 3.1 will be completed to indicate the workers who participate in the company's Medical Surveillance Program [29 CFR 1910.120(f)]. All workers who could potentially be exposed to concentrations of contaminants above the OSHA Permissible Exposure Limits (PELs) for 30 days per year or more must be included in the Medical Surveillance Program. Any site specific medical surveillance conducted for site workers will also be listed on the table

5.0 SITE CONTROL

Site control procedures, as required by 29 CFR 1910.120(d) and MACTEC ESH 2.9.A - Hazardous Waste Operations and Emergency Response Program, will be implemented before the start of site tasks to control worker exposures to contaminants.

5.1 WORK ZONES

The specific locations and dimension of work zones will be determined at the site by the OSC Safety Officer based on field conditions and relative to the location of the work activity. The Exclusion Zone (EZ) is considered the area immediately surrounding the excavation locations. The Contamination Reduction Zone (CRZ) is considered to be the area surrounding the EZ. The decontamination zone will be established by OSC, preferably at a location upwind of the work area. Work zones will be maintained through the use of:

☒ Warning Tape

☒ Visual Observations

5.2 BUDDY SYSTEM

When required by contract or when conditions exist that could be dangerous to life and health, a buddy system shall be implemented. The buddy system requires that at least 2 individuals (regardless of employer) must be working at the site and in contact with each other.

Yes	No	
☒	☐	Buddy System required?

TABLE 3.1

TRAINING/MEDICAL SURVEILLANCE/RESPIRATORY PROTECTION RECORDS

	Required?	Names of Field Team Members					
Training/Medical		**Dates**	**Dates**	**Dates**	**Dates**	**Dates**	**Dates**
Medical Surveillance							
Site Specific Medical Testing:_____							
40-Hour Initial							
8-Hour Supervisor [1]							
8-Hour Refresher							
First Aid/CPR [1, 2]							
Respirator Fit Test [1]							
Respirator Brand [1]							
Hazard Communication							
Confined Space Entry [1]							
Fall Protection [1]							
Ladder Safety[1]							
Biological Hazards[1]							
Excavation Safety[1]							
Client Required [1]							

[1] If Applicable

[2] At least one worker must be trained in First Aid/CPR and have received Bloodborne Pathogen training.

[3] Required if acting as LF or SSHO

5.3 SITE ACCESS

Access to the site will be controlled using the following method(s):

☐ Sign in/sign out log ☐ Guard
☐ Identification badges ☐ Other: _____

5.4 GENERAL SAFE WORK PRACTICES

General safe work practices to be implemented during work activities at this site are included in Table 5.1.

TABLE 5.1

GENERAL SAFE WORK PRACTICES

- Minimize contact with excavated or contaminated materials. Plan work areas, decontamination areas, and procedures accordingly. Do not place equipment or drums on the ground. Do not sit on drums or other materials. Do not sit or kneel on the ground in the Exclusion Zone or CRZ. Avoid standing in or walking through puddles or stained soil.
- Smoking, eating, or drinking after entering the work zone and before decontamination will not be allowed. Use of illegal drugs and alcohol are prohibited.
- Practice good housekeeping. Keep everything orderly and out of potentially harmful situations.
- In an unknown situation, always assume the worst conditions.
- Be observant of your immediate surroundings and the surroundings of others. It is a team effort to notice and warn of impending dangerous situations. Withdrawal from a hazardous situation to reassess procedures is the preferred course of action.
- Conflicting situations may arise concerning safety requirements and working conditions and must be addressed and resolved rapidly by the SHSO, Field Lead and Project Manager to relieve any motivations or pressures to circumvent established safety policies.
- Unauthorized breaches of specified safety protocol will not be allowed. Workers unwilling or unable to comply with the established procedures will be discharged.

6.0 HAZARD ANALYSIS

6.1 CONTAMINANTS OF CONCERN

Pertinent site information (e.g. records of chemicals used, records of disposal) and previous sampling data (e.g. groundwater, soil, sediment) have been reviewed to determine the contaminants of concern for this project. The primary known or suspected contaminants for the site within the work areas are:

- VOCs (chlorobenzene, benzene, dichlorobenzene, trichlorobenzene)
- SVOCs (aniline, nitrobenzene)
- Metals (arsenic and mercury)

Appendix A contains Contaminant Fact Sheets for each of these contaminants of concern.

Health hazards shall be evaluated using air monitoring equipment (Section 7.0) and controlled by implementing personal protective equipment (Section 8.0).

6.2 JOB HAZARD ANALYSIS

Job Hazard Analyses will be conducted for each task associated with this project. The following JHAs can be found in Appendix B.

Activity Specific JHAs:		**Hazard Specific JHAs:**	
☐		☐	
☐		☐	
☐		☐	
☐		☐	
☐		☐	
☐		☐	
☐		☐	
☐		☐	
☐		☐	
☐		☐	
☐		☐	
☐		☐	

7.0 AIR MONITORING

NOTE: Section 6.1 lists the known and suspected contaminant of concern at the site. Table 7-1 table lists the monitoring instruments and upgrade/action limits that will be used by at the site:

Table 7-1
Action Levels per Monitoring Instrument

			Upgrade/Action Levels			
	Meter		**Level D**	**Level C**	**Level B**	**Action**
☒	Photoionization Detector [1]					
	☒	10.0-10.6 eV	< 4 ppm	≥ 4 ppm	≥ 75 ppm	
	☐	11.0-11.7 eV		≥	≥	
☐	Flame Ionization Detector [1]			≥	≥	
☐	Detector Tubes [1]					
	☐	Benzene	< 0.5 ppm	≥ 0.5 ppm	≥ 5 ppm	
	☐	Vinyl Chloride	< 0.5 ppm	< 0.5 ppm	> 0.5 ppm	
☐	Dust Meter [1]					
	☐	Respirable	< 1.5 mg/m^3	≥ 1.5 mg/m^3	≥ 15 mg/m^3	
	☐	Total	< 5 mg/m^3	≥ 5 mg/m^3	≥ 50 mg/m^3	
☐	LEL/O_2 Meter					
	☐	LEL [2]				> 10% back off
	☐	Oxygen [1]	19.5% - 23.5%	19.5% - 23.5%	< 19.5% or > 23.5%	
☐	Hydrogen Sulfide Meter [1]		< 5 ppm	< 5 ppm	≥ 5 ppm	
☐	Carbon Monoxide [1]		< 12 ppm	< 12 ppm	≥ 12 ppm	
☐						

[1] Monitor breathing zone
[2] Monitor source (e.g., well, cuttings, borehole, etc.)

The work area and breathing zone will be monitored regularly for site workers.

Periodic monitoring shall be conducted when the possibility of an IDLH condition or flammable atmosphere has developed or when there is indication that exposures may have risen over permissible exposure limits or published exposure levels since prior monitoring. Situations where it shall be considered whether the possibility that exposures have risen are as follows:

- When work begins on a different portion of the site.
- When contaminants other than those previously identified are being handled.
- When a different type of operation is initiated (e.g., drum opening as opposed to exploratory well drilling.)
- When employees are handling leaking drums or containers or working in areas with obvious liquid contamination (e.g., a spill or lagoon.)

The breathing zone will be screened at regular intervals using the PID to give an indication of the potential for the presence of organic vapors. Detector tubes (DTs) for benzene and other compounds may also be used

to monitor the breathing zone upon the detection of PID readings above background levels in the immediate vicinity of the borehole excavation.

If sustained PID readings exceed 5 ppm or benzene readings exceed 4 ppm, work will be stopped, the area evacuated, and the Site Health and Safety Officer notified. If work is stopped due to elevated levels of benzene or organic vapors, then consideration will be given to proceedings with the work using Level B PPE.

All monitoring equipment will be calibrated before each day of use. Results will be documented in the Field Logbook.

Areas of airborne dust and odor should be avoided. Skin contact with soil, sediment, surface water and ground water should be avoided.

8.0 PERSONAL PROTECTIVE EQUIPMENT

The initial level of protection required for each task is provided in Section 1.0 and Table 8-1. The individual PPE required for each task is listed in the JHAs. Table 8-1 summarizes the PPE required for all tasks to be conducted by workers. The level of protection may be upgraded or downgraded according to the action guidelines provided in Section 7.0. Level of PPE used each day shall be indicated in the Field Logbook. When using PPE, workers must adhere to OSHA regulations (29 CFR 1910.120[g] and 29 CFR 1910 Subpart I).

If respirators are worn, workers must adhere to OSHA regulations (29 CFR 1910.134). Table 3.1 provides a record of the site workers' last annual fit test. Beards (e.g., facial hair interfering with the respirator seal) are not allowed when respirators are worn. Fit testing will be completed prior to any use of respirators at the Buffalo Color site.

9.0 DECONTAMINATION

PPE shall be decontaminated as per 29 CFR 1910.120(k). The decontamination procedures, equipment, and decontamination solution required for each task are provided in Appendix C.

Re-usable safety gear will be washed with soap and water prior to re-use or removing from the work zone. Sampling tools, etc. will be decontaminated as described in the design documents, or as directed by the SHSO. All decontamination fluids and other decontamination-related wastes will be handled in accordance with the design documents. The disposition of this material and disposable safety gear will be the responsibility of the site owner. Safety gear that cannot be decontaminated will be disposed of as an investigative derived waste (IDW) in accordance with the design documents.

Table 7-2
Air Monitoring Action Level Summary

PID/FID Reading[1,2]	Detector Tube[1] Benzene	Detector Tube[1] Vinyl Chloride	Dust Meter[1]	LEL[2]/O_2[1]	Action	Level of PPE
< 0.5 ppm[2]	--	--	--	--	Continue to monitor with PID	Level D / Modified Level D
≥ 0.5 ppm[1]	--	--		--	Begin monitoring breathing zone with PID.	Level D / Modified Level D
0.5 – 4 ppm[1]	--	--	--	--	Continue to monitor with PID	Level D / Modified Level D
≥ 4 ppm[1] to 75 ppm	--	--	--	--	Continue to monitor with PID	Level C
≥ 75 ppm[1]	--	--	--	--	Stop work and evacuate area, Notify SSHO	Level B
				> 10% LEL[2] (as monitored by OSC)	Stop work. Evacuate area. If action levels continue to be exceeded, contact SHSO, consider return with ventilation system and spark proof/intrinsically safe equipment.	Back Off
				< 19.5% O2[1] > 25.5% O2[1] (as monitored by OSC)	Stop work and evacuate area, Notify SSHO	Level B

[1] Monitor breathing zone
[2] Monitor source (e.g., excavation, borehole, etc.)

Table 8-1
PPE and Monitoring Requirements Summary

Initial Level of PPE *				
☒ Level D	☒ Modified Level D	☐ Level C	☐ Level B	☐ Level A

Standard PPE						
☒ Hard Hat	☒ Safety shoes	☒ Safety glasses	☐ Boot Covers	☐ Rubber Boots	☐ Aprons	☒ High Visibility Vest

Eye and Face Protection				
☐ Welding glasses	☐ Welding helmet	☐ Face shield	☐ Chemical goggles	☐ Welding screens

Hearing Protection			
☒ Ear plugs	☐ Ear Muffs	☐ Ear plugs and muffs	☐ Other _____

Respiratory Protection					
☐ None	☒ Upgrade Only	☒ Full Face APR	☐ Half Face APR	Cart. Type: MSA GMC or Equivalent	☐ PAPR
☐ Airline respirator	☐ SCBA	☐ Dust mask	☐ _____		

Protective Clothing			
☒ Tyvek® coveralls	☐ Poly-coated Tyvek®	☐ Saranex® Coveralls	☐ Fully encapsulating suit
☐ Cotton coveralls	☐ Modesty Clothing	☐ Fire resistant clothing	☐ Other _____

Hand Protection				
☐ None	☐ Cotton gloves	☒ Leather gloves	☐ Cut-resistant gloves	☐ Glove liners
Outer Gloves				
☒ Nitrile	☐ Viton®	☐ Butyl	☐ Neoprene	☐ Other _____
Inner Gloves				
☒ Nitrile	☐ Vinyl	☐ Latex	☐ Other _____	

Monitoring Requirements				
☐ Oxygen	☐ Flammable gases/vapors	☐ Toxic Gas/vapors	☐ Hydrogen Sulfide	Carbon Monoxide
☐ Asbestos	☐ Full time IH coverage	☐ Part time IH coverage	☐ Be, Hg, Cr, Pb	
☐ Metals Specify: _____				
☒ Organic Vapors Specify: Benzene, Chlorobenzene (PID for total VOCs, detector tubes may be used for specific compounds)				
☐ None	☐ TLD required	☐ CAM	☐ Radon	
☐ Full time RCT coverage	☐ Part time RCT coverage	☐ Radioactive air particulates	☐ Other _____	
☐ Other _____		☐ Other _____		

10.0 EMERGENCY RESPONSE

The following emergency response information is provided as per 29 CFR 1910.120(j).

10.1 HOSPITAL ROUTE MAP

A Hospital Route Map is included as Figure 10-1.

10.2 EMERGENCY CONTACTS

A list of contacts and telephone numbers for the applicable local off-site emergency responders is provided in Table 10-1. The nature of the site work and contaminants of concern should be reviewed and the ability of off-site responders to respond to reasonably anticipated emergencies should be confirmed. If there are any concerns with off-site responsibilities they should be contacted directly.

10.3 EMERGENCY RESPONSE EQUIPMENT

The following emergency response equipment is required for this project, will be provided by the Contractor, and shall be readily available.

- ☒ Field First Aid Kit
- ☒ Fire Extinguisher
  - ☐ Type A (Combustible materials)
  - ☐ Type B (Flammable liquids and gases)
  - ☐ Type C (Doesn't conduct electricity – to be used on electrical equipment)
  - ☒ Type ABC
- ☒ Eyewash (Note: 15 minutes of free-flowing fresh water)
- ☐ SCBA
- ☐ Shower
- ☐ Other:

FIGURE 10-1

HOSPITAL ROUTE MAP

Directions	Distance
START **1:** Start out going SOUTHWEST on LEE ST toward S PARK AVE.	0.1 miles
2: Turn LEFT onto S PARK AVE.	0.9 miles
3: Stay STRAIGHT to go onto ABBOTT RD/CR-4.	1.1 miles
END **4:** End at **565 Abbott Rd** Buffalo, NY 14220-2039, US	

Total Est. Time: 6 minutes **Total Est. Distance: 2.16 miles**

Start: **End:**

TABLE 10.1

EMERGENCY CONTACTS

NAME	TELEPHONE NUMBERS		DATE OF PRE-EMERGENCY NOTIFICATION (if applicable)
Fire Department / Ambulance: City of Buffalo	911		
Hospital: Mercy Hospital	716-826-7000		
Police Department: City of Buffalo	911		
Site Health And Safety Officer:	Office:	Cell:	
Client Contact:	Office:	Cell:	
Site Representative:		Cell:	
Project Manager:	Office:	Cell:	
ES&H Manager:	Office:	Home: Cell:	
NYSDEC Region 9: Eugene Melnyk (or current designee)	Office: 716-851-7220		
Client Site Rep.:		Cell:	
Resident Inspector:		Cell:	
Lead Design Engineer:	Office:		

10.4 COMMUNICATIONS

On-site communications will be conducted through the use of:

- ☒ Verbal
- ☒ Two-way radio
- ☒ Cellular telephone
- ☒ Hand signals
  - Hand gripping throat ---------- Out of air, can't breathe
  - Grip partner's wrist or both hands around waist ---------- Leave area immediately
  - Hands on top of head ---------- Need assistance
  - Thumbs up ---------- OK, I am all right, I understand
  - Thumbs down ---------- No, negative
- ☒ Horn
- ☐ Siren
- ☐ Other: _____

Off-site communications will be conducted through the use of:

- ☒ Cellular phone
- ☐ Pay phone - location: _____
- ☐ Other: _____

10.5 EMERGENCY RESPONSE PROCEDURES

In the event that an on-site emergency develops, the procedures delineated in Table 11.2 are to be followed immediately.

Within 24 hours after any emergency response, the Incident Analysis Forms provided in Appendix D shall be completed and returned to the ES&H Manager.

TABLE 10.2

EMERGENCY PROCEDURES

- The SHSO (or alternate) should be immediately notified via the on-site communication system. The SHSO assumes control of the emergency response.
- If applicable, the SHSO shall notify off-site emergency responders (e.g. fire department, hospital, police department, etc.) and shall inform the response team as to the nature and location of the emergency on-site.
- If applicable, the SHSO evacuates the site. Site workers should move to the predetermined evacuation point (See Site Map).
- For small fires, flames should be extinguished using the fire extinguisher. Large fires should be handled by the local fire department.
- In an unknown situation or if responding to toxic gas emergencies, appropriate PPE, including SCBAs, should be donned.
- If chemicals are accidentally spilled or splashed into eyes or on skin, use eyewash and/or shower.
- If a worker is injured, first aid shall be administered by certified first aid provider.
- Before continuing site operations after emergency involving toxic gases, the SHSO shall don a SCBA and utilize appropriate air monitoring equipment to verify that the site is safe.
- An injured worker shall be decontaminated appropriately.
- After the response, the SHSO shall follow-up with the required company reporting procedures, including the Incident Analysis Forms (Appendix D).

11.0 CONFINED SPACE ENTRY

Yes	No	
☐	☐	The task(s) for this project involve confined space entry.

If yes, see applicable JHA in Appendix B.

12.0 SPILL CONTAINMENT

Yes	No	
☐	☐	The task(s) for this project involve drum/tank/container sampling, excavation, transportation, etc.

If yes, see Appendix J for spill containment procedures.

13.0 HAZARD COMMUNICATION

The following procedures shall be followed for all chemicals brought on site (e.g., decontamination solution, sample preservatives, etc.): **Chemical containers (primary and secondary) shall be correctly and clearly labeled with the name of the chemical and the hazard(s) associated with that chemical (e.g. flammable, corrosive, etc.).**

- Workers have received training on the hazards of these chemicals as indicated in Table 3.1.
- A Material Safety Data Sheet for each chemical listed below is included in Appendix E.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	

When chemicals are used on site, workers must adhere to the OSHA regulation (29 CFR 1910.1200).

14.0 RECORD KEEPING

At the end of the project, the following items shall be maintained in the project file:

- ☒ HASP
- ☒ Incident Analysis Forms (if applicable)
- ☒ SHSO Summary (Appendix I)

APPENDIX A

CONTAMINANT FACT SHEETS

ATTACHMENT A

CONTAMINANT FACT SHEET

CONTAMINANT FACT SHEET

Chemical Name:
1,4-Dichlorobenzene
CAS Number: 106-46-7
Synonyms:
para-Dichlorobenzene
Dichlorocide

HEALTH HAZARD DATA

Color: colorless or white

Physical State: Solid X; Liquid; Gas

Odor: mothball-like

Odor Threshold: 0.12 ppm

Vapor Density: 5.08 g/L

Ionization Potential (IP): 8.98 eV

IDLH: 150 ppm

Carcinogen: OSHA; IARC X; NTP X; ACGIH X; NIOSH X

Skin absorbable: yes __ no X

Skin corrosive: yes __ no X

Signs/Symptoms of Acute Exposure:
Headache, eye irritation and swelling, profuse rhinitis, nausea, vomiting, jaundice, cirrhosis, anorexia, and low weight.

Source	TWA (units)	STEL (units)	C (units)
OSHA PEL	75 ppm		
ACGIH TLVs	10 ppm		
NIOSH RELs	Lowest Feasible		

AIR MONITORING

Type	Brand/Model No.	Calibrations Method/Media	Relative Response or Conversion Factor	Meter Specific Action Level
PID	HNu w/ 10.2 eV	Isobutylene 100 ppm	1.19	11.9

Checked by: Emmet F. Curtis Date: 12/5/03

PERSONAL PROTECTIVE EQUIPMENT

Recommended Protective Clothing Materials:

Suits: Viton, Nitrile, Rubber

Gloves: Viton, Nitrile, Rubber

Boots: Rubber, Viton, Nitrile

Service Limit Concentration (ppm): 1000

MUC 1/2 Mask APR=TWA x 10= 50 ppm

MUC Full-Face APR=TWA x 10= 50 ppm

FIRE/REACTIVITY DATA

Flash Point: 150°F

LEL/UEL: 2.5%/Unknown

Fire Extinguishing Media:

Dry Chemical X; Foam X

Water Spray X; CO_2 X

Incompatibilities:
Strong oxidizers

Note: The recommended protective clothing materials assumes that potential for direct contact (by splashing, dust inhalation, or other means) with the contaminants exists. Professional judgment and knowledge of on-site hazards should be used in selecting PPE appropriate to the concentration of the contaminant (trace vs percentage) to which the individual is likely to be exposed.

ATTACHMENT A

CONTAMINANT FACT SHEET

CONTAMINANT FACT SHEET

Chemical Name: 1,3-Dichlorobenzene
CAS Number: 541-73-1
Synonyms: m-Dichlorobenzene, m-dichlorobenzol meta-dichlorobenzene, m-phenylenedichloride

HEALTH HAZARD DATA

Color: colorless or white

Physical State: Solid ___ Liquid X Gas ___

Odor: mothball-like

Odor Threshold: Unk

Vapor Density: 5.08 g/L
Vapor Pressure 5 mm Hg
Ionization Potential (IP): 8.98 eV

IDLH: N/A

Carcinogen: OSHA ___ IARC X NTP ___ ACGIH ___ NIOSH ___

Skin absorbable: yes __ no X
Skin corrosive: yes __ no X

Signs/Symptoms of Acute Exposure: Headache, eye irritation and swelling, profuse rhinitis, nausea, vomiting, jaundice, cirrhosis, anorexia, and low weight.

Source	TWA (units)	STEL (units)	C (units)
OSHA PEL	75* ppm		
ACGIH TLVs	10* ppm		
NIOSH RELs			

* based on the Limits for 1,4 dichlorobenzene

AIR MONITORING

Type	Brand/Model No.	Calibrations Method/Media	Relative Response or Conversion Factor	Meter Specific Action Level
PID	HNu w/ 10.2-10.6 eV	Isobutylene 100 ppm	2.25	11 ppm

Checked by: Emmet F. Curtis Date: 12/5/03

PERSONAL PROTECTIVE EQUIPMENT

Recommended Protective Clothing Materials:

Suits: Viton, Nitrile, Rubber

Gloves: Viton, Nitrile, Rubber

Boots: Rubber, Viton, Nitrile

Service Limit Concentration (ppm): 1000

MUC 1/2 Mask APR=TWA x 10= 50 ppm
MUC Full-Face APR=TWA x 10= 50 ppm

FIRE/REACTIVITY DATA

Flash Point: 145.4 ºF

LEL/UEL: Unknown

Fire Extinguishing Media:
Dry Chemical X Foam X
Water Spray X CO_2 X

Incompatibilities: Strong oxidizing agents, aluminium, aluminium alloys. Moisture-sensitive

Note: The recommended protective clothing materials assumes that potential for direct contact (by splashing, dust inhalation, or other means) with the contaminants exists. Professional judgment and knowledge of on-site hazards should be used in selecting PPE appropriate to the concentration of the contaminant (trace vs percentage) to which the individual is likely to be exposed.

ATTACHMENT A

CONTAMINANT FACT SHEET

CONTAMINANT FACT SHEET

Chemical Name:
1,2- Dichlorobenzene
CAS Number: 95-50-1
Synonyms:
ortho-dichlorobenzene
o-dichlorobenzol

HEALTH HAZARD DATA

Color: Colorless to pale yellow

Physical State: Solid ___ Liquid X Gas ___

Odor: aromatic

Odor Threshold: 0.70 ppm

Vapor Density: 5.07 g/L

Ionization Potential (IP): 9.06 eV

IDLH: 200 ppm

Carcinogen: OSHA ___ IARC ___ NTP ___ ACGIH ___ NIOSH ___

Skin absorbable: yes ___ no X

Skin corrosive: yes ___ no X

Signs/Symptoms of Acute Exposure:
Irritation of nose and eyes, liver and kidney damage, skin blisters.

Source	TWA (units)	STEL (units)	C (units)
OSHA PEL			50 ppm
ACGIH TLVs	25 ppm	50 ppm	
NIOSH RELs			50 ppm

AIR MONITORING

Type	Brand/Model No.	Calibrations Method/Media	Relative Response or Conversion Factor	Meter Specific Action Level
PID	HNu 10.2 eV	Isobutylene 100 ppm	1.19	29.8

Checked by: Lynne W. Clem Date: 12/5/03

PERSONAL PROTECTIVE EQUIPMENT

Recommended Protective Clothing Materials:

Suits: Viton, PE/EVAL

Gloves: Viton

Boots: Viton

Service Limit Concentration (ppm): 1000

MUC 1/2 Mask APR=TWA x 10= 125 ppm
MUC Full-Face APR=TWA x 10= 125 ppm

FIRE/REACTIVITY DATA

Flash Point: 151^0 F

LEL/UEL: 2.2% / 9.2%

Fire Extinguishing Media:

Dry Chemical	X	Foam	X
Water Spray	X	CO_2	X

Incompatibilities:
Strong oxidizers, aluminum, chlorides, acids and acid fumes.

Note: The recommended protective clothing materials assumes that potential for direct contact (by splashing, dust inhalation, or other means) with the contaminants exists. Professional judgment and knowledge of on-site hazards should be used in selecting PPE appropriate to the concentration of the contaminant (trace vs percentage) to which the individual is likely to be exposed.

ATTACHMENT A

CONTAMINANT FACT SHEET

CONTAMINANT FACT SHEET

Chemical Name:
1,2,4-Trichlorobenzene
CAS Number: 120-82-1
Synonyms:
Unsym-Trichlorobenzene,
1,2,4-Trichlorobenzene

HEALTH HAZARD DATA

Color: Colorless

Physical State: Solid X <63 ºF
Liquid X >63 ºF
Gas

Odor: Aromatic odor

Odor Threshold:

Vapor Density: 6.26
Vapor Pressure 1 mmHg
Ionization Potential (IP) Unk

IDLH: N.D.

Carcinogen: OSHA
IARC
NTP
ACGIH
NIOSH

Skin absorbabl Yes No
Skin corrosive: Yes No

Signs/Symptoms of Acute Exposure:
Irritates eyes, skin, mucous membranes
Liver, kidney damage, possible
teratogenic effects.

Source	TWA (units) ppm	STEL (units) ppm	C (units) ppm
OSHA PELs			
ACGIH TLVs			C5 ppm
NIOSH RELs			C5 ppm

AIR MONITORING

Type	Brand/Model No.	Calibrations Method/Media	Relative Response or Conversion Factor	Meter Specific Action Level
PID with 10.2 - 10.6 eV lamp	Any	100 ppm isobutyle	2.17	5.4 ppm
Dust Meter		Factory		**
**Action limit will be based on soil concentrations. Contact C. Sundquist for action limits				

Checked by: Cindy Sundquist Date:

PERSONAL PROTECTIVE EQUIPMENT

Recommended Protective Clothing Materials:
Suits Saranex = low ppm
Tychem 9400 and
Barricade = high conc.
Gloves Viton, PVC

Boots PVC

Service Limit Concentration (ppm): 54 ppm

MUC 1/2 Mask APR = TWA x 10 = 54 ppm
MUC Full-Face APR = TWA x 10 = 54 ppm

FIRE/REACTIVITY DATA

Flash Point: 222 ^{0}F

LEL/UEL: 2.5% - 6.6% @ 302 ^{0}F

Fire Extinguishing Media:
Dry Chemical Foam
Water Spray CO_2

Incompatibilities:
Acids, acid fumes, oxidizers, steam

Note: The recommended protective clothing materials assumes that potential for direct contact (by splashing, dust inhalation, or other means) with the contaminants exists. Professional judgment and knowledge of on-site hazards should be used in selecting PPE appropriate to the concentration of the contaminant (trace vs percentage) to which the individual is likely to be exposed.

ATTACHMENT A

CONTAMINANT FACT SHEET

CONTAMINANT FACT SHEET

Chemical Name:
Chlorobenzene

CAS Number: 108-90-7

Synonyms:
Monochlorobenzene

HEALTH HAZARD DATA

Color: colorless

Physical State: Solid ___ Liquid X Gas ___

Odor: Almond

Odor Threshold: 1.3 ppm

Vapor Density: 3.88 g/L

Ionization Potential (IP): 9.07 eV

IDLH: 1000 ppm

Carcinogen: OSHA ___ IARC ___ NTP ___ ACGIH X NIOSH ___

Skin absorbable: yes ___ no X

Skin corrosive: yes ___ no X

Signs/Symptoms of Acute Exposure:
Irritant to eyes, skin, nose, dizziness
CNS depressant, drowsiness

Source	TWA (units)	STEL (units)	C (units)
OSHA PEL	75 ppm		
ACGIH TLVs	10 ppm		
NIOSH RELs			

AIR MONITORING

Type	Brand/Model No.	Calibrations Method/Media	Relative Response or Conversion Factor	Meter Specific Action Level
PID	Micro tip 10.6 eV	Isobutylene 100 ppm	2.63	26.3
PID	Hnu 10.2 eV	Isobutylene 100 ppm	1.3	13
FID	Century OVA	Methane	2.0	20

Checked by: Emmet F. Curtis Date: 12/5/03

PERSONAL PROTECTIVE EQUIPMENT

Recommended Protective Clothing Materials:

Suits: Viton, Barricade, Tychem, Responder, Trellchem

Gloves: PVA, Teflon, Viton, Barricade, Responder

Boots: Teflon, Viton

Service Limit Concentration (ppm): 1000

MUC 1/2 Mask APR=TWA x 10= 50 ppm

MUC Full-Face APR=TWA x 10= 50 ppm

FIRE/REACTIVITY DATA

Flash Point: 82ºF

LEL/UEL: 1.3/9.6%

Fire Extinguishing Media:

Dry Chemical X Foam X

Water Spray X CO_2 X

Incompatibilities:
Strong oxidizers

Note: The recommended protective clothing materials assumes that potential for direct contact (by splashing, dust inhalation, or other means) with the contaminants exists. Professional judgment and knowledge of on-site hazards should be used in selecting PPE appropriate to the concentration of the contaminant (trace vs percentage) to which the individual is likely to be exposed.

APPENDIX A

CONTAMINANT FACT SHEET

CONTAMINANT FACT SHEET

Chemical Name:
Benzene
CAS Number: 71-43-2
Synonyms:
Phenyl hydride Benzol

HEALTH HAZARD DATA

Color: Colorless
Physical State: Solid ____ Liquid X Gas ____
Odor: Aromatic
Odor Threshold 4.68 ppm
Vapor Density: 2.7 g/L
Ionization Potential (IP): 9.24 eV
IDLH: 500 ppm

Carcinogen: OSHA X IARC X NTP ____ ACGIH X NIOSH X
Skin absorbable: YES
Skin corrosive: No
Signs/Symptoms of Acute Exposure:
Eye, skin and nose irritation; headache, nausea, staggered gait, drowsiness, dizziness, headaches, vomiting, convulsions and unconsciousness

Source	TWA (units)	STEL (units)	C (units)
OSHA PELs	1 ppm	5 ppm	
ACGIH TLVs	0.5 ppm	2.5 ppm	
NIOSH RELs	0.1 ppm	1 ppm	

AIR MONITORING

Type	Brand/Model No.	Calibrations Method/Media	Relative Response or Conversion Factor	Meter Specific Action Level
PID	Micro tip 10.6 eV	Isobutylene 100 ppm	1.80	0.4

Checked by: Joanne Bacchus Date: 06/04/08

PERSONAL PROTECTIVE EQUIPMENT

Recommended Protective Clothing Materials:
Suits Viton, Teflon, Barricade, CPF3, Responder Tychem
Gloves Viton, Teflon, Polyvinyl Alcohol (PVA) - do not use in water
Boots Teflon
Service Limit Concentration (ppm): 1000
MUC 1/2 Mask APR = TWA x 10 = 4 ppm
MUC Full-Face APR = TWA x 50 = 20 ppm

FIRE/REACTIVITY DATA

Flash Point: 12 °F
LEL/UEL: 1.2/ 7.8%
Fire Extinguishing Media:
Dry Chemical X Foam X
Water Spray X CO_2 X

Incompatibilities:
Reacts violently with oxidizers, halogens, sulfuric acid, nitric acid
Attacks plastic and rubber.

ATTACHMENT A

CONTAMINANT FACT SHEET

CONTAMINANT FACT SHEET

Chemical Name:
Aniline
CAS Number: 62-53-3
Synonyms:
Aminobenzene, Aniline oil,
Benzenamine, Phenylamine

HEALTH HAZARD DATA

Color: Colorless to brown

Physical State: Solid ___ Liquid X Oily ___ Gas ___

Odor: Amine-like odor

Odor Threshold: 0.5 ppm

Vapor Density: 3.22
Vapor Pressure 0.6 mmHg
Ionization Potential (IP) 7.70 eV

IDLH: Ca [100 ppm]

Carcinogen: OSHA X; IARC X; NTP ___; ACGIH X; NIOSH X

Skin absorbable: Yes X No ___
Skin corrosive: Yes ___ No ___

Signs/Symptoms of Acute Exposure:
Headache, lassitude, dizziness, cyanosis, ataxia, dyspenea on effort, irritate eyes, Tachycardia, Methhemoglobinemin, Cirrhosis, Carcinogen

Source	TWA (units) ppm	STEL (units) ppm	C (units) ppm
OSHA PELs	5 ppm Skin		
ACGIH TLVs	2 ppm Skin		
NIOSH RELs	*LFC		

*LFC = Lowest Feasible Concentration

AIR MONITORING

Type	Brand/Model No.	Calibrations Method/Media	Relative Response or Conversion Factor	Meter Specific Action Level
PID with 10.2 - 10.6 eV lamp	Any	100 ppm isobutyle	0.2	0.4 ppm* *Level B
Dräger tube - Aniline 0.5/a				Only

Checked by: Cindy Sundquist Date: 9/2/2009

PERSONAL PROTECTIVE EQUIPMENT

Recommended Protective Clothing Materials:
Suits: Saranex
Gloves: Best = Butyl, Viton,
Boots: Butyl

Service Limit Concentration (ppm): N/A

MUC 1/2 Mask APR = TWA x 10 = N/A
MUC Full-Face APR = TWA x 10 = N/A

Cannot use Level C PPE

FIRE/REACTIVITY DATA

Flash Point: 158 °F

LEL/UEL: 1.3% - 11%

Fire Extinguishing Media:
Dry Chemical X; Foam X; Water Spray X; CO_2 X

Incompatibilities:
Strong Oxidizers, Strong Acids, toluene diisocyanate, alkalis

Note: The recommended protective clothing materials assumes that potential for direct contact (by splashing, dust inhalation, or other means) with the contaminants exists. Professional judgment and knowledge of on-site hazards should be used in selecting PPE appropriate to the concentration of the contaminant (trace vs percentage) to which the individual is likely to be exposed.

APPENDIX A

CONTAMINANT FACT SHEET

Chemical Name: _____

CAS Number: _____

Synonyms: _____

HEALTH HAZARD DATA

Color: _____

Physical State: Solid _____

Liquid _____

Gas _____

Odor: _____

Odor Threshold _____

Vapor Density: _____

Ionization Potential (IP): _____

IDLH: _____

Carcinogen: OSHA _____

IARC _____

NTP _____

ACGIH _____

NIOSH _____

Skin absorbable: _____

Skin corrosive: _____

Signs/Symptoms of Acute Exposure: _____

Source	TWA (units)	STEL (units)	C (units)
OSHA PELs			
ACGIH TLVs			
NIOSH RELs			

AIR MONITORING

Type	Brand/Model No.	Calibrations Method/Media	Relative Resonse or Conversion Factor	Meter Specific Action Level

Checked by: Date:

PERSONAL PROTECTIVE EQUIPMENT

Recommended Protective Clothing Materials:

Suits _____

_____

_____

Gloves _____

_____

Boots _____

_____

_____

Service Limit Concentration (ppm): _____

MUC 1/2 Mask APR = TWA x 10 = _____

MUC Full-Face APR = TWA x 50 =

FIRE/REACTIVITY DATA

Flash Point: _____

LEL/UEL: _____/_____

Fire Extinguishing Media:

Dry Chemical _____ Foam _____

Water Spray _____ CO_2 _____

Incompatibilities:

_____

_____

_____

_____

APPENDIX B

JOB HAZARD ANALYSIS PER TASK(S)

MACTEC

Job Hazard Analysis – HASP Format

Job Title: Mobilization/Demobilization and Site Preparation **Date of Analysis:** 8/15/06

Minimum Recommended PPE*: High visibility vest, hard hat, steel-toed boots, safety glasses, hearing protection
*See HASP for all required PPE

Key Work Steps	Hazards/Potential Hazards	Safe Practices
1. Prepare for Site Visit	1A) N/A	1A) Prior to leaving for site ▪ Obtain and review HASP prior to site visit, if possible ▪ Determine PPE needs – bring required PPE to the site, if not otherwise being provided at the site (e.g., steel toed boots) ▪ Determine training and medical monitoring needs and ensure all required Health and Safety training and medical monitoring has been received and is current ▪ Ensure all workers are fit for duty (alert, well rested, and mentally and physically fit to perform work assignment) ▪ If respiratory protection is required/potentially required, ensure that training and fit-testing has occurred within the past year. ▪ Familiarize yourself with route to the site
	1B) Vehicle defects	1B) Inspect company owned/leased vehicle for defects such as: ▪ Flat tires ▪ Windshield wipers worn or torn ▪ Oil puddles under vehicle ▪ Headlights, brake lights, turn signals not working
	1C) Insufficient emergency equipment, unsecured loads	1C) Insufficient emergency equipment, unsecured loads ▪ Ensure vehicle has first aid kit and that all medications are current (if first aid kits are not provided at the site) ▪ Ensure vehicle is equpped with warning flashers and/or flares and that the warning flashers work ▪ Cell phones are recommended to call for help in the event of an emergency ▪ Vehicles carrying tools must have a safety cage in place. All tools must be properly secured ▪ Vehicles must be equipped with chocks if the vehicle is to be left running, unattended. ▪ Ensure sufficient gasoline is in the tank
2. Operating vehicles – general	2A) Collisions, unsafe driving conditions	2A) Drive Defensively! ▪ Seat belts must be used at all times when operating any vehicle on company business. ▪ Drive at safe speed for road conditions ▪ Maintain adequate following distance ▪ Pull over and stop if you have to look at a map ▪ Try to park so that you don't have to back up to leave. ▪ If backing in required, walk around vehicle to identify any hazards (especially low level hazards that may be difficult to see when in the vehicle) that might be present. Use a spotter if necessary
3. Driving to the jobsite	3A) Dusty, winding, narrow roads	3A) Dusty, winding, narrow roads ▪ Drive confidently and defensively at all times. ▪ Go slow around corners, occasionally clearing the windshield.
	3B) Rocky or one-lane roads	3B) Rocky or one-lane roads ▪ Stay clear of gullies and trenches, drive slowly over rocks. ▪ Yield right-of-way to oncoming vehicles---find a safe place to pull over.
	3C) Stormy weather, near confused tourists	3C) Stormy weather, near confused tourists ▪ Inquire about conditions before leaving the office. ▪ Be aware of oncoming storms. ▪ Drive to avoid accident situations created by the mistakes of others.

MACTEC

Job Hazard Analysis – HASP Format

Job Title: Mobilization/Demobilization and Site Preparation **Date of Analysis:** 8/15/06

Key Work Steps	Hazards/Potential Hazards	Safe Practices
	3D) When angry or irritated	3D) When angry or irritated ▪ Attitude adjustment; change the subject or work out the problem before driving the vehicle. Let someone else drive.
	3E) Turning around on narrow roads	3E) Turning around on narrow roads ▪ Safely turn out with as much room as possible. ▪ Know what is ahead and behind the vehicle. ▪ Use a backer if available.
	3F) Sick or medicated	3F) Sick or medicated ▪ Let others on the crew know you do not feel well. ▪ Let someone else drive.
	3G) On wet or slimy roads	3G) On wet or slimy roads ▪ Drive slow and safe, wear seatbelts.
	3H) Animals on road	3H) Animals on road ▪ Drive slowly, watch for other animals nearby. ▪ Be alert for animals darting out of wooded areas
4. Gain permission to enter site	4A) Hostile landowner, livestock, pets	4A) Hostile landowner, livestock, pets ▪ Talk to land owner, be courteous and diplomatic ▪ Ensure all animals have been secured away from work area
5. Mobilization/ Demobilization of Equipment and Supplies	5A) Struck by Heavy Equipment/Vehicles	5A) Struck by heavy equipment ▪ Be aware of heavy equipment operations. ▪ Keep out of the swing radius of heavy equipment. ▪ Ground personnel in the vicinity of heavy equipment operations will be within the view of the operator at all times ▪ Employees shall wear a high visibility vest or T-shirt (reflective vest required if working at night). ▪ Ground personnel will be aware of the counterweight swing and maintain an adequate buffer zone. ▪ Ground personnel will not stand directly behind heavy equipment when it is in operation.
	5B) Struck by Equipment/Supplies	5B) Struck by Equipment/Supplies ▪ Workers will maintain proper space around their work area, if someone enters it, stop work. ▪ When entering another worker's work space, give a verbal warning so they know you are there.
	5C) Overexertion Unloading/Loading Supplies	5C) Overexertion Unloading/Loading Supplies ▪ Train workers on proper body mechanics, do not bend or twist at the waist while exerting force or lifting. ▪ Tightly secure all loads to the truck bed to avoid load shifting while in transit.
	5D) Caught in/on/between	5D) Caught in/on/between ▪ Do not place yourself between two vehicles or between a vehicle and a fixed object.
	5E) Slip/Trip/Fall	5E) 1E). Slip/Trip/Fall ▪ Mark all holes and low spots in area with banner tape. Instruct personnel to avoid these areas. ▪ Drivers will maintain 3 point contact when mounting/dismounting vehicles/equipment. ▪ Drivers will check surface before stepping, not jumping down.

MACTEC

Job Hazard Analysis – HASP Format

Job Title: Mobilization/Demobilization and Site Preparation **Date of Analysis:** 8/15/06

Key Work Steps	Hazards/Potential Hazards	Safe Practices
	5F) Vehicle accident	5F) Vehicle accident ▪ Employees should follow MACTEC vehicle operation policy and be aware of all stationary and mobile vehicles.
6. Site Preparation	6A) Slip/Trip/Fall	6A) Slip/Trip/Fall ▪ Mark all holes and low spots in area with banner tape. Instruct personnel to avoid these areas
7. Installation of soil erosion and sediment controls	7A) Overexertion	7A) Overexertion ▪ Workers will be trained in the proper method of placing erosion controls. ▪ Do not bend and twist at the waist while lifting or exerting force.
	7B) Struck by Equipment/Supplies	7C) Struck by Equipment/Supplies ▪ Workers will maintain proper space around their work area, if someone enters it, stop work. ▪ When entering another worker's work space, give a verbal warning so they know you are there.
8. Driving back from the jobsite	8A) See hazards listed under item #3	8A) See safe work practices under item #3

MACTEC

Job Hazard Analysis – HASP Format

Job Title: Field Work - General **Date of Analysis:** 8/15/06

Minimum Recommended PPE*: hard hat, steel-toed boots, safety glasses
*See HASP for all required PPE

Key Work Steps	Hazards/Potential Hazards	Safe Practices
1. Mobilization/ Demobilization and Site Preparation	1A) See Mobilization/Demobilization and Site Preparation JHA	1A) See Mobilization/Demobilization and Site Preparation JHA
2. Communication	2A) Safety, crew unity	2A) Talk to each other. ▪ Log all workers and visitor on and off the site. ▪ Let other crewmembers know when you see a hazard. ▪ Avoid working near known hazards. ▪ Always know the wherabouts of fellow crewmembers. ▪ Carry a radio and spare batteries or cell phone ▪ Review Emergency Evacuation Procedures (see below).
3. Walking and working in the field	3A) Falling down, twisted ankles and knees, poor footing	3A) Always watch your footing. ▪ Horseplay is strictly prohibited ▪ Slow down and use extra caution around logs, rocks, and animal holes. ▪ Extremely steep slopes (>50%) can be hazardous under wet or dry conditions; consider an alternate route. ▪ Wear laced boots with a minimum 8" high upper and non-skid Vibram-type soles for ankle support and traction.
	3B) Falling objects	3B) Protect head agains falling objects. ▪ Wear your hardhat for protection from falling limbs and pinecones, and from tools and equipment carried by other crewmembers. ▪ Stay out of the woods during extremely high winds.
	3C) Chemical/Toxicological Hazards	3C) Chemical/Toxicological Hazards ▪ See HASP for appropriate level of PPE ▪ Use monitoring equipment, as outlined in HASP, to monitor breathing zone ▪ Read MSDSs for all chemicals brought to the site ▪ Be familiar with hazards associated with site contaminants. ▪ Ensure that all containers are properly labelled ▪ Decon thoroughly prior to consumption of food, beverage or tobacco.
	3D) Damage to eyes	3D) Protect eyes: ▪ Watch where you walk, ecpecially around trees and brush with limbs sticking out. ▪ Exercise caution when clearing limbs from tree trunks. Advise wearing eye protection. ▪ Ultraviolet light from the sun can be damaging to the eyes; look for sunglasses that specify significant protection from UV-A and UV-B radiation. If safety glasses require, use one's with tinted lenses
	3E) Bee and wasp stings	3E) See JHA for Insect Stings and Bites
	3F) Ticks and infected mosquitos	3F) See JHA for Insect Stings and Bites
	3G) Wild Animals	3G) Wild Animals ▪ Avoid phyisical contact with wild animals ▪ Do not threaten and/or conrner animals ▪ Make noise to get the animal to retreat. ▪ Stay in or return to vehicle/equipment if in danger

MACTEC

Job Hazard Analysis – HASP Format

Job Title: Field Work - General **Date of Analysis:** 8/15/06

Key Work Steps	Hazards/Potential Hazards	Safe Practices
	3H) Contact with poisonous plants or the oil from those plants:	3H) Contact with poisonous plants or the oil from those plants: ▪ Look for signs of poisonous plants and avoid. ▪ Ensure all field workers can identify the plants. Mark identified poisonous plants with spray paint if working at a fixed location. ▪ Do not allow plant to touch any part of your body/clothing. ▪ Wear PPE as described in the HASP and wear Tyveks, gloves and boot covers if contact with plant is likely ▪ Always wash gloves before removing them. ▪ Discard PPE in accordance with the HASP. ▪ Use commercially available products such as Ivy Block or Ivy Wash as appropriate.
		 POISON IVY (Rhus toxicondendron L.) POISON OAK (Rhus diversiloba) POISON SUMAC (Rhus toxicondendron vernix)
	3I) Back Injuries	3I) Back Injuries ▪ Site personnel will be instructed on proper lifting techniques. ▪ Mechanical devices should be used to reduce manual handling of materials. ▪ Split heavy loads in to smaller loads ▪ Team lifting should be utilized if mechanical devices are not available. ▪ Make sure that path is clear prior to lift.
	3J) Shoveling	3J) Shoveling ▪ Select the proper shovel for the task. A long handled, flat bladed shovel is recommend for loose material ▪ Inspect the handle for splinters and/or cracks ▪ Ensure that the blade is securely attached to the handle ▪ Never be more than 15 inches from the material you are shoveling ▪ Stand with your feet about hip width for balance and keep the shovel close to your body. ▪ Bend from the knees (not the back) and tighten your stomach muscles as you lift. ▪ Avoid twisting movements. If you need to move the snow to one side reposition your feet to face the direction the snow will be going. ▪ Avoid lifting large shoveling too much at once. When lifting heavy material, pick up less to reduce the weight lifted. ▪ Pace yourself to avoid getting out of breath and becoming fatigued too soon. ▪ Be alert for signs of stress such as pain, numbness, burning and tingling. Stop immediately if you feel any of these symptoms.
	3K) Slips/Trips/Falls	3K) Slips/Trips/Falls ▪ Maintain work areas safe and orderly; unloading areas should be on even terrain; mark or repair possible tripping hazards. ▪ Site SHSO inspect the entire work area to identify and mark hazards. ▪ Maintain three points of contact when climbing ladders or onto/off of equipment

MACTEC

Job Hazard Analysis – HASP Format

Job Title: Field Work - General **Date of Analysis:** 8/15/06

Key Work Steps	Hazards/Potential Hazards	Safe Practices
	3L) Overhead Hazards	3L) Overhead Hazards ▪ Personnel will be required to wear hard hats that meet ANSI Standard Z89.1. ▪ All ground personnel will stay clear of suspended loads. ▪ All equipment will be provided with guards, canopies or grills to protect the operator from falling or flying objects. ▪ All overhead hazards will be identified prior to commencing work operations.
	3M) Dropped Objects	3M) Dropped Objects ▪ Steel toe boots meeting ANSI Standard Z41 will be worn.
	3N) Noise	3N) Noise ▪ Hearing protection will be worn with a noise reduction rating capable of maintaining personal exposure below 85 dBA (ear muffs or plugs); all equipment will be equipped with manufacturer's required mufflers. Hearing protection shall be worn by all personnel working in or near heavy equipment.
	3O) Eye Injuries	3O) Eye Injuries ▪ Safety glasses meeting ANSI Standard Z87 will be worn.
	3P) Heavy Equipment (overhead hazards, spills, struck by or against)	3P) Heavy Equipment ▪ All operators will be trained and qualified to operate equipment ▪ Equipment will have seat belts. ▪ Operators will wear seat belts when operating equipment. ▪ Do not operate equipment on grades that exceed manufacturer's recommendations. ▪ Equipment will have guards, canopies or grills to protect from flying objects. ▪ Ground personnel will stay clear of all suspended loads. ▪ Personel are prohibited from riding on the buckets, or elsewhere on the equipment except for designated seats with proper seat belts or lifts specifically designed to carry workers. ▪ Ground personnel will wear high visibility vests ▪ Spill and absorbent materials will be readily available. ▪ Drip pans, polyethylene sheeting or other means will be used for secondary containment. ▪ Ground personnel will stay out of the swing radius of excavators. ▪ Eye contact with operators will be made before approaching equipment. ▪ Operator will acknowledge eye contact by removing his hands from the controls. ▪ Equipment will not be approached on blind sides. ▪ All equipment will be equipped with backup alarms and use spotters when significant physical movement of equipment occurs on-site, (i.e., other than in place excavation or truck loading). ▪ Inspect rigging prior to each use.

MACTEC

Job Hazard Analysis – HASP Format

Job Title: Field Work - General **Date of Analysis:** 8/15/06

Key Work Steps	Hazards/Potential Hazards	Safe Practices
	3Q) Struck by vehicle/equipment	3Q) Struck by vehicle/equipment ▪ Be aware of heavy equipment operations. ▪ Keep out of the swing radius of heavy equipment. ▪ Ground personnel in the vicinity of vehicles or heavy equipment operations will be within the view of the operator at all times. ▪ Ground personnel will be aware of the counterweight swing and maintain an adequate buffer zone. ▪ Ground personnel will not stand directly behind heavy equipment when it is in operation. ▪ Drivers will keep workers on foot in their vision at all times, if you lose sight of someone, Stop! ▪ Spotters will be used when backing up trucks and heavy equipment and when moving equipment. ▪ High visibility vests will be worn when workers are exposed to vehicular traffic at the site or on public roads.
	3R) Struck/cut by tools	3R) Struck/cut by tools ▪ Cut resistant work gloves will be worn when dealing with sharp objects. ▪ All hand and power tools will be maintained in safe condition. ▪ Do not drop or throw tools. Tools shall be placed on the ground or worksurface or handed to another employee in a safe manner. ▪ Guards will be kept in place while using hand and power tools**.**
	3S) Caught in/on/between	3S) Caught in/on/between ▪ Workers will not position themselves between equipment and a stationary object. ▪ Workers will not wear long hair down (place in pony-tail and tuck into shirt) or jewelry if working with tools/machinery.
	3T) Contact with Electricity/Lightning	3T) Contact with Electricity/Lighting ▪ All electrical tools and equipment will be equipped with GFCI. ▪ Electrical extension cords will be of the “Hard” or “Extra Hard” service type. ▪ All extension cords shall have a three-blade grounding plug. ▪ Personnel shall not use extension cords with damaged outer covers, exposed inner wires, or splices. ▪ Electrical cords shall not be laid across roads where vehicular traffic may damage the cord without appropriate guarding. ▪ All electrical work will be conducted by a licensed electrician. ▪ All equipment will be locked out and tagged out and rendered in a zero energy state prior to commencing any operation that may exposed workers to electrical, mechanical, hydraulic, etc. hazards. ▪ All utilities will be marked prior to excavation activities. ▪ All equipment will stay a minimum of 10 feet from overhead energized electrical lines (50 kV). This distance will increase by 4 inches for each 10 kV above 50 kV. Rule of Thumb: Stay 10 feet away from all overhead powerlines known to be 50 kV or less and 35 feet from all others.) ▪ The SHSO shall halt outdoor site operations whenever lightning is visible, outdoor work will not resume until 30 minutes after the last sighting of lightning.
	3U) Equipment failure	3U) Equipment failure ▪ All equipment will be inspected before use. If any safety problems are noted, the equipment should be tagged and removed from service until repaired or replaced.

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Job Hazard Analysis – HASP Format

Job Title: Field Work - General **Date of Analysis:** 8/15/06

Key Work Steps	Hazards/Potential Hazards	Safe Practices
	3V) Hand & power tool usage.	3V) Hand & power tool usage ▪ Daily inspections will be performed. ▪ Ensure guards are in place and are in good condition. ▪ Remove broken or damaged tools from service. ▪ Use the tool for its intended purpose. ▪ Use in accordance with manufacturers instructions. ▪ No tampering with electrical equipment is allowed (e.g., splicing cords, cutting the grounding prong off plug, etc.) ▪ See JHA for Power Tool Use - Electrical and Power Tool Use - Gasoline
	3W) Fire Protection	3W) Fire Protection ▪ Ensure that adequate number and type of fire extinguishers are present at the site ▪ Inspect fire extinguishers on a monthly basis – document ▪ All employees who are expected to use fire exinguishers will have received training on an annual basis. ▪ Obey no-smoking policy ▪ Open fires are prohibited ▪ Maintain good housekeeping. Keep rubbish and combustibles to a minimum. ▪ Keep flammable liquids in small containers with lids closed or a safety can. ▪ When dispensing flammable liquids, do in well vented area and bond and ground containers.
	3X) Confined Space Entry	3X) Confined Space Entry ▪ See JHA for Confined Space Entry
4. Environmental health considerations	4A) Heat Stress	4A) Take precautions to prevent heat stress ▪ Remain constantly aware of the four basic factors that determine the degree of heat stress (air temperature, humidity, air movement, and heat radiation) relative to the surrounding work environmental heat load. ▪ Know the signs and symptoms of heat exhaustion, heat cramps, and heat stroke. Heat stroke is a true medical emergency requiring immediate emergency response action. NOTE: The severity of the effects of a given environmental heat stress is decreased by reducing the work load, increasing the frequency and/or duration of rest periods, and by introducing measures which will protect employees from hot environments. ▪ Maintain adequate water intake by drinking water periodically in small amounts throughout the day (flavoring water with citrus flavors or extracts enhances palatability). ▪ Allow approximately 2 weeks with progressive degrees of heat exposure and physical exertion for substantial acclimatization. ▪ Acclimatization is necessary regardless of an employee's physical condition (the better one's physical condition, the quicker the acclimatization). Tailor the work schedule to fit the climate, the physical condition of employees, and mission requirements. ▪ A reduction of work load markedly decreases total heat stress. ▪ Lessen work load and/or duration of physical exertion the first days of heat exposure to allow gradual acclimatization. ▪ Alternate work and rest periods. More severe conditions may require longer rest periods and electrolyte fluid replacement.

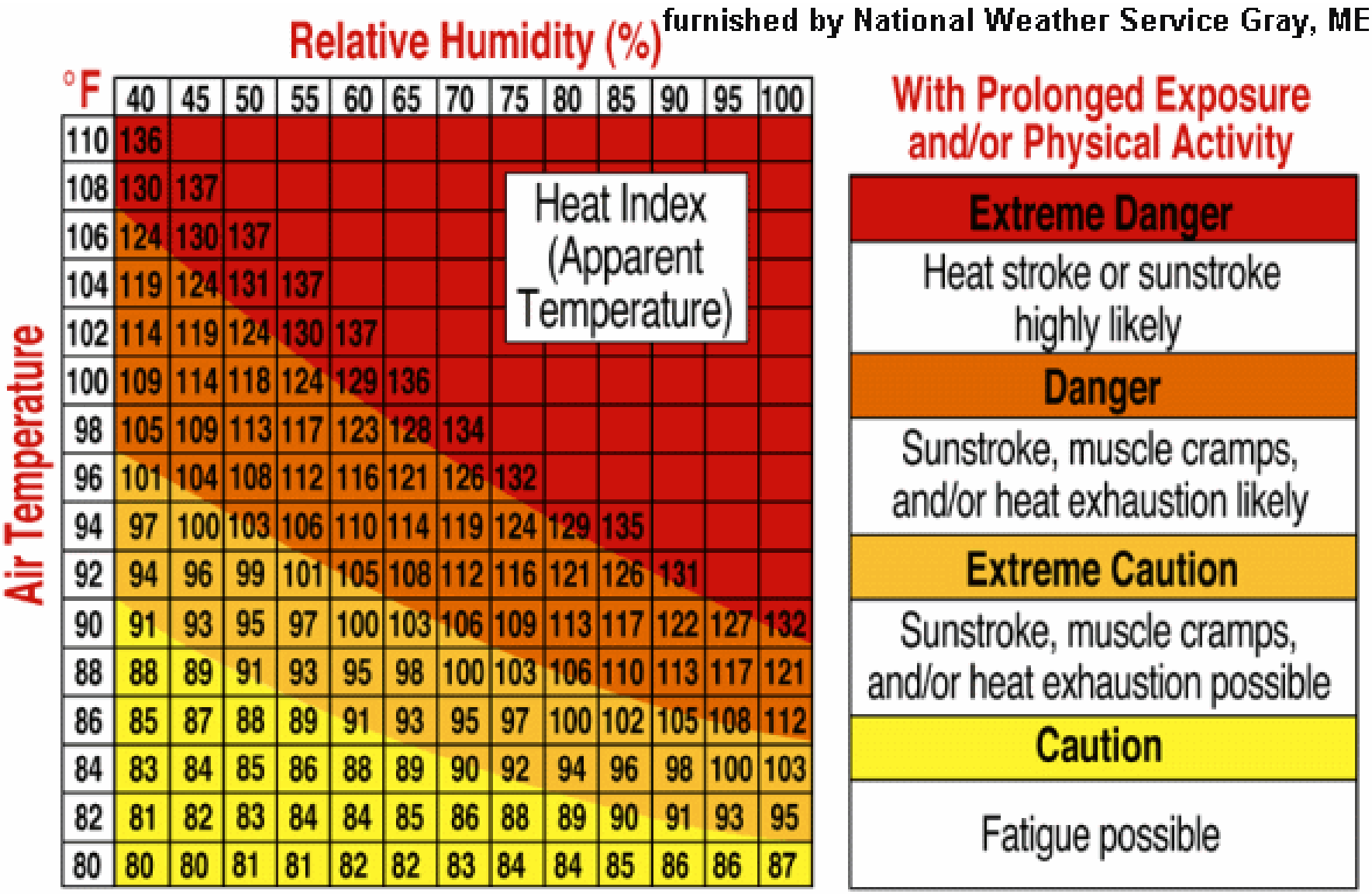
MACTEC

Job Hazard Analysis – HASP Format

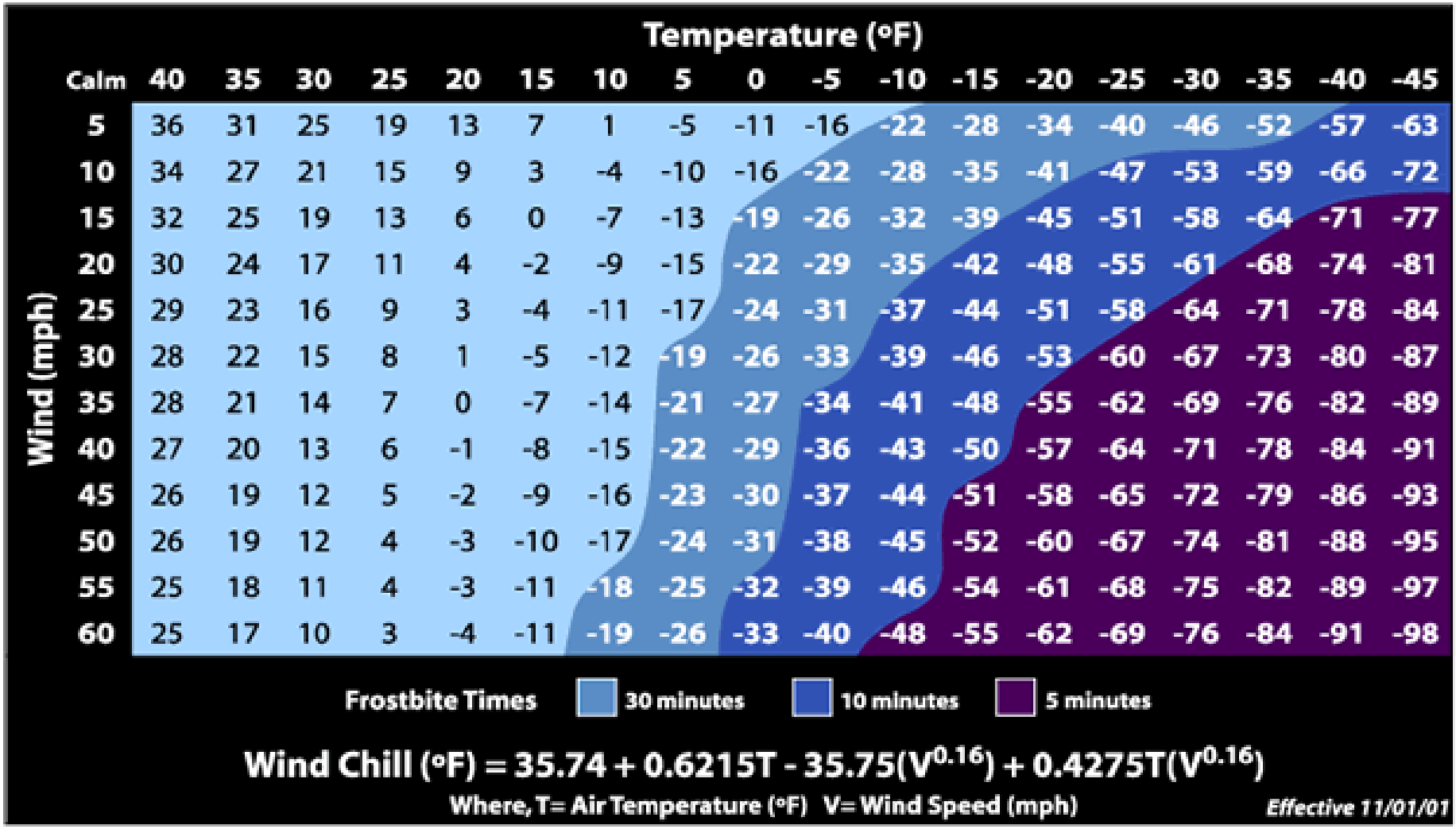
Job Title: Field Work - General **Date of Analysis:** 8/15/06

Key Work Steps	Hazards/Potential Hazards	Safe Practices
	4B) Wet Bulb Globe Temperature (WBGT) Index	4B) WBGT ▪ Curtail or suspend physical work when conditions are extremely severe (see attached Heat Stress Index). ▪ Compute a Wet Bulb Globe Temperature Index to determine the level of physical activity (take WBGT index measurements in a location that is similar or closely approximates the environment to which employees will be exposed). WBGT THRESHOLD VALUES FOR INSTITUTING PREVENTIVE MEASURES 80-90 degrees F — Fatigue possible with prolonged exposure and physical activity. 90-105 degrees F — Heat exhaustion and heat stroke possible with prolonged exposure and physical activity. 105-130 degrees F — Heat exhaustion and heat stroke are likely with prolonged heat exposure and physical activity.
	4C) Cold Extremes	4C) Take precautions to prevent cold stress injuries ▪ Cover all exposed skin and be aware of frostbite. While cold air will not freeze the tissues of the lungs, slow down and use a mask or scarf to minimize the effect of cold air on air passages. ▪ Dress in layers with wicking garments (those that carry moisture away from the body – e.g., cotton) and a weatherproof slicker. A wool outer garment is recommended. ▪ Take layers off as you heat up; put them on as you cool down. ▪ Wear head protection that provides adequate insulation and protects the ears. ▪ Maintain your energy level. Avoid exhaustion and over-exertion which causes sweating, dampens clothing, and accelerates loss of body heat and increases the potential for hypothermia. ▪ Acclimate to the cold climate to minimize discomfort. ▪ Maintain adequate water/fluid intake to avoid dehydration.
	4D) Wind	4D) Effects of the wind ▪ Wind chill greatly affects heat loss (see attached Wind Chill Index). ▪ Avoid marking in old, defective timber, especially hardwoods, during periods of high winds due to snag hazards.
	4E) Thunderstorms	4E) Thunderstorms ▪ Monitor weather channels to determine if electrical storms are forcased. ▪ Plan ahead and identify safe locations to be in the event of a storm. (e.g., sturdy building, vehicle, etc.) ▪ Suspend all field work at the first sound of thurnder. You should be in a safe place when the time between the lightning and thunder is less than 30 seconds. ▪ Only return to work 30 minutes after the after the last strike or sound of thunder

furnished by National Weather Service Gray, ME



Wind Chill Chart



Wind (mph) \ Temperature (°F)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times — 30 minutes — 10 minutes — 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

MACTEC

Job Hazard Analysis - HASP Format

Job Title: Excavation and Backfilling **Date of Analysis:** 8/20/07

Minimum Recommended PPE*: High visibility vest, hard hat, steel-toed boots, safety glasses, hearing protection
*See HASP for all required PPE

Key Work Steps	Hazards/Potential Hazards	Safe Practices
1. Identify location of underground utilities	1A) Encountering electrical, gas, communications, water, or other underground utility lines	1A) Identify utility locations prior to mobilizing: ▪ Contact "Dig Safe" and obtain a permit (or one call center) to have underground utilities located and marked prior to any subsurface work on site. ▪ Use facility engineers and/or employ a private utility locator for utilities on private property
2. Excavation of soils	2A) Underground utilities	2A) Underground utilities ▪ Work at adequate offsets from utility locations ▪ For areas where utility locations cannot be verified, workers must hand dig for the first 3 feet ▪ Immediately cease work if unknown utility markings are discovered. ▪ Conform to utility clearances based on voltage of lines. For powerlines of 50 KV or less stay at least 10 feet away. For powerlines of > 50 KV, add an additional 0.4 inches per KV over 50 KV. Rule of thumb: Stay 10 feet away if powerline known to be 50 KV or less. Stay 35 feet away for lines > 50 KV or if voltage is unknown.
	2B) Vapor/Dust Exposure	2B) Vapor/Dust Exposure ▪ Conduct breathing zone air monitoring as described in the HASP. ▪ Implement dust control measures as applicable. ▪ Wear proper PPE (see HASP).
	2C) Odors	2C) Odors ▪ Implement odor control mitigation in accordance with the Site Management Plan.
	2D) Heavy Equipment	2D) Heavy Equipment ▪ See General Site Hazards
	2E) Cave-ins	2E) Cave-ins Excavation work must be conduct in accordance with OSHA 1926 Subpart P (650-652) Excavations including but not limited to: ▪ Designate a competent person to inspect, decide soil classification, proper sloping, the correct shoring, or sheeting for the excavation ▪ Walls and faces of trenches 5 feet or more deep, and all excavations in which employees may be exposed to danger from moving ground or cave-in shall be guarded by a shoring system, sloping of the ground, or some other equivalent means. ▪ Cordon-off the perimeter of the excavation to delineate cave-in hazard area. ▪ Construct diversion ditches or dikes to prevent surface water from entering excavation and provide good drainage of the areas surrounding the excavation. ▪ Collect ground water/rain water from excavation and dispose of properly ▪ Store spoils, materials and equipment at least 2 feet from the edge of the excavation; prevent excessive loading of the excavation face. ▪ Inspect excavations (when personnel entry is required) daily, any time conditions change and document the inspection.
	2F) Slips/Trips/Falls	2F) Slips/Trips/Falls ▪ Provide sufficient egress (stairs, ladders, or ramps) when workers enter excavations over 4 feet in depth, and place these structures so that workers travel no more than 25 feet to reach ladders. Provide at least two means of exit for personnel working in excavations. ▪ Maintain minimum safe distance from the excavation and only approach the excavation on the short side.

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Job Hazard Analysis - HASP Format

Job Title: Excavation and Backfilling **Date of Analysis:** 8/20/07

Key Work Steps	Hazards/Potential Hazards	Safe Practices
	2G) Site Security	2G) Site Security ▪ Fill in excavation prior to leaving the site or provide barricades or fencing (able to withstand 200 lbs. of vertical pressure) to protect the excavation from the public and place warning signs on fence/barricade. ▪ Consider hiring a security guard ▪ If cover excavation with plywood or other material, ensure cover is labeled with the words “cover” or “hole.”
3). Backfilling of Soils	3A) Heavy Equipment	3A) Heavy Equipment ▪ See General Site Hazards (Heavy Equipment)
	3B) Cave-ins	3B) Cave-ins ▪ See 2E above.

MACTEC

Job Hazard Analysis - HASP Format

Job Title: Drilling Operation **Date of Analysis:** 4/21/06

Minimum Recommended PPE*: High visibility vest, hard hat, steel-toed boots, safety glasses, hearing protection, leather gloves

*See HASP for all required PPE

Key Work Steps	Hazards/Potential Hazards	Safe Practices
1. Drive drilling rig onto site	1A) Malfunction of vehicle/equipment	1A) Drivers shall perform a pre-operational check of equipment, read and be familiar with any operator's manual. ▪ Report all needed repairs promptly. ▪ Operators shall not use defective/unsafe equipment.
	1B) Wreck of drill rig while being driven	1B) Wreck of drill rig while being driven ▪ All drivers shall be properly licensed. ▪ Supervisors shall verify that drivers are capable and qualified on each type of equipment before allowing the equipment to be used unsupervised. ▪ Keep wind shields, windshield wipers, side mirrors and side windows clean ▪ Drivers shall conduct a pre-operation vehicle safety check ▪ Drivers shall plan ahead to minimize or eliminate the need for backing. Always check to the rear before backing and use an observer when available. If an observer is not available, the driver shall walk around the vehicle to make sure rear is clear prior to backing. ▪ Seat belts shall be worn when driving by driver and passengers. ▪ Choose the safest location possible to park equipment. Avoid parking in blind spots of other equipment. ▪ Driver is to be sure the back-up alarm is working ▪ Adjust vehicle speed for load and weather. Tire chains should be utilized as dictated by weather conditions. ▪ Operators should always check and be sure of load height. ▪ When operating a vehicle off the roadway, be aware of possible hidden objects in the grass and unstable terrain. ▪ The mast shall always be in a lowered position when moving the drill rig. ▪ Never allow anyone between truck and trailer when backing to hook trailer ▪ Make sure tilt beds or ramps are secured before putting trailer in use ▪ Perform periodic checks of equipment on long trips to assure the load is secure. ▪ Do not leave equipment unattended with the engine running. Shut off engine and set the parking brake when equipment is not in use.
2. Mounting and dismounting equipment	2A) Fall while mounting and dismounting equipment	2A) When mounting and dismounting equipment, use steps and handhold. Do not jump from vehicle.
3. Loading/unloading of equipment	3A) Crush and pinch points created when loading/unloading equipment	3A) Crush and pinch points created when loading/unloading equipment ▪ Be aware of crushing and pinching hazards when loading, unloading and fastening down equipment. ▪ Make sure cargo is properly loaded, secured and covered using only approved chain and load binders. Check for loose material on bed and trailer. Secure loose material. ▪ Wear protective equipment consistent with the hazard (hard hats, safety glasses, leather gloves, safety shoes, etc.) ▪ Hook/unhook on stable ground with the trailer secure.
4. Rig equipment operation.	4A) Crushing injuries, slip trips and falls, material under stress, power equipment operations, utility lines, overhead loads, flying particles, rope or cable blocks, equipment limitations, lifting and pinch points	4A) Rig equipment operation. ▪ Before use, inspect cable, chain or wire for wear and replace if necessary. ▪ Observe OSHA guidelines for use of cable clamps, safety latches, chains and slings. ▪ Know rated capacity of chain, cable or wire rope being used and never

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Job Hazard Analysis - HASP Format

Job Title: Drilling Operation **Date of Analysis:** 4/21/06

Key Work Steps	Hazards/Potential Hazards	Safe Practices
		exceed the rating. ▪ Avoid overloading and sudden jerks. ▪ Wear appropriate personal protective equipment with the hazard, including hard hats, safety glasses, leather gloves and safety shoes. ▪ Check loads to be lifted for balance and have the rigging inspected to ensure a safe and balanced condition exists. ▪ Do not allow employees to stand or work under suspended loads. ▪ Awkward loads shall have taglines attached to control the load. ▪ Review signals and operator communications with crew. Only one person shall direct the operator. ▪ Review the area for utility lines, tree limbs and other overhead hazards. Work no closer than 10 feet to active overhead power lines. Follow OSHA guidelines. ▪ Personnel working tag lines shall review the area for slipping, tripping and falling hazards. If not possible to eliminate the hazards, take precautions to avoid them.
5. Stabilize rig with hydraulic jack/pads	5A) Crushing injuries, slip, trip, fall hazards and potential back injuries.	5A) Crushing injuries, slip, trip, fall hazards and potential back injuries. ▪ Use proper lifting techniques. ▪ Ensure jack is rated for weight/operation with safe limits ▪ Assure that area is clear of personnel and obstacles. ▪ Place pads under jacks to prevent them from sinking into the ground.
6. Start/operate drill rig	6A) Moving machinery parts, buried and overhead utilities, drill rod stacking, lifting, winching, cathead operations, moving equipment, noise, adverse weather conditions, animals, slippery surfaces, uneven terrain, poisonous plants/snakes/insects and overhead hazards	6A) Moving machinery parts, buried and overhead utilities, drill rod stacking, lifting, winching, cathead operations, moving equipment, noise, adverse weather conditions, animals, slippery surfaces, uneven terrain, poisonous plants/snakes/insects and overhead hazards ▪ Wear appropriate personal protective equipment consistent with the hazard (hard hat, safety glasses, leather gloves, safety shoes, etc.) ▪ Avoid contact with rotating equipment ▪ When cathead is in use, assure a safe travel path for the rope by using proper techniques. Avoid standing on the rope. ▪ Observe and stay clear (minimum of 10 feet for nominal system voltage, utility lines, rated 50kV and an additional 0.4 inch for each kV over 50kV or twice the length of the line insulator, but never less than 10 feet) of overhead utility lines. - In transit with no load and boom lowered, the equipment clearance shall be a minimum of 4 feet for voltage less than 50kV and 10 feet for voltages over 50kV up to and including 345kV and 16 feet for voltages up to and including 750kV. - A person shall be designated to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means. - Have underground utility lines properly located and marked prior to drilling. ▪ Employees on foot must use extreme caution to stay clear of operating equipment. Always establish eye contact with the operator before approaching the equipment. ▪ Be aware of drop-offs, uneven ground and potential hidden objects which may cause loss of control when maneuvering drill rigs or create unstable drill set-ups. In heavily wooded area, scout to locate hidden objects. ▪ Drill rod stacking must not exceed a length of 1.5 times the height of the tower. ▪ Be aware of poisonous plants, insects, snakes, animals and animal waste products and carcasses. Wear long sleeve shirts, gloves, and high top boots when hazards cannot be avoided. Proper first aid supplies, insect repellents shall accompany field crews. ▪ Be alert to conditions that can lead to slippery surfaces. Examples:

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Job Hazard Analysis - HASP Format

Job Title: Drilling Operation **Date of Analysis:** 4/21/06

Key Work Steps	Hazards/Potential Hazards	Safe Practices
		high groundwater resulting in muddy soils brought to the surface by augers and the utilization of bentonite drilling fluid. ▪ Inspect all cables and clamps prior to winching operation. Stand clear of winching operations. ▪ Use proper lifting techniques. Get help or use lifting equipment. ▪ Suspend drilling operations during electrical storms ▪ Be aware of overhead hazards which may come in contact with the drill rig, when moving or setting up equipment. ▪ Complete a daily operations checklist to ensure that equipment is working properly. Make special note of emergency kill switches.
	6B) Contaminated soils, buried power or gas lines, landfills and containment of spills	6A) Contaminated soils, buried power or gas lines, landfills and containment of spills ▪ During drilling operations, always be aware of the possibility of encountering potentially hazardous materials, such as petroleum hydrocarbons, herbicides, pesticides, chemical manufacturing by-products or solid waste materials. ▪ In the event that any unknown or questionable materials are encountered, then the drilling operations are to be suspended immediately until further instructions are received from supervision. ▪ Do not handle any suspected contaminated materials unless trained to do so and proper protective methods are followed. ▪ During drilling operations, always be aware of the possibility of striking an unlocated or improperly located gas or power line. ▪ In the event a buried utility line is struck, drilling operations are to be suspended **immediately**. - If the utility line is electric, keep personnel at least 10 feet from all metal surfaces connected with the drill rig. - If the utility is gas, then the area is to be evacuated and secured. Immediate notification to the utility company is MANDATORY. ▪ In the event of a gas or oil spill, the proper authorities are to be contacted immediately so that containment operations can be implemented.
7. Attach auger to drill	7A) Auger coming loose from drill	7A) Auger coming loose from drill Insert a holding pin in auger ▪ Insert a holding pin in auger ▪ Use personal protective equipment such as leather gloves, safety glasses, hard hat and safety shoes. ▪ Be aware of hand and finger positions when inserting holding pin
8. Start drill by lever operations	8A) Operation of wrong lever	8A) Label levers as to their operation and review equipment manual.
9. Maintain proper auger drill speed with down hole pressure speed.	9A) Unstable rig from improper speed of auger	9A) Use of trained drill rig personnel and follow equipment manual specification.
10. When auger has dug into ground unhook pin and insert another auger on top of the previous auger	10A) Auger coming loose (reference item #7)	10A) Insert another catch pin into newly installed auger (reference item #7)
11. Insert PVC pipe into hollow stem auger in 10 foot sections	11A) Reference Hazard item #6a	11A) Reference Control item #6A
12. Install filter pack (50 pound bags of sand) into hole (by pouring) to filter water into screen	12A) Back injuries, slips and falls	12A) Proper lifting procedures, team lifting and use of mechanical devices. Wear proper foot wear and maintain area in good housekeeping condition.

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Job Hazard Analysis - HASP Format

Job Title: Drilling Operation **Date of Analysis:** 4/21/06

Key Work Steps	Hazards/Potential Hazards	Safe Practices
13. Reverse auger after each five foot section of sand is installed	13A) Reference hazard item #4	14A) Reference Control item #4
14. Install Betonies on top of sand (3 foot) to seal up area above sand.	14A) Reference hazard item #12	14B) Reference control item #12
15. Remove auger	15A) Auger falling	15A) Insert auger- maintain auger at ground surface to prevent auger from falling into hole.
16. Release auger tension and remove pins. Remove auger from hole.	16A) Reference hazard item #4	16A) Reference control item #4
17. Lower drill head attached to auger remaining in bore hole attach with a pin	17A) Reference hazard in item #4	17A) Reference control in item #4
18. Decontamination of drill equipment- usually pressure water	18A) Contamination of personnel and environment	18A) Follow health and safety plan, dress to proper EPA level, contain material washed from contaminated equipment with proper containment materials. Trained/authorized personnel to use pressure washer and assure area is clean of personnel prior to operation of pressure water device.
19. Mix grout on site and fill/place in hole between the well pipe and bore hole wall	19A) Reference hazard item #12	19A) Reference control item #12
20. Cut PVC pipe off at determined height with a hand saw	20A) cutting of hand with hand saw	20A) Be aware of where hands are placed prior and during cutting with hand saw
21. Install a protective cover and fill with grout.	21A) Reference hazard item #12	21A) Reference control item #12
22. Driving drilling rig offsite.	22A) Reference item # 1	22A) Reference item #1.

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Job Hazard Analysis - HASP Format

Job Title: Soil Sampling **Date of Analysis:** 5/1/07

Minimum Recommended PPE*: High visibility vest, hard hat, steel-toed boots, safety glasses, hearing protection
*See HASP for all required PPE

Key Work Steps	Hazards/Potential Hazards	Safe Practices
1. Prepare for sampling event	1A) Chemical exposure	1A) Chemical Exposure ▪ Read HASP and determine air monitoring and PPE needs.
2. Mobilization	4A) See JHA Mobilization/Demobilization/Site Preparation	2A) See JHA Mobilization/Demobilization/Site Preparation
3. General Site Hazards	3A) See JHA Field Work - General	3A) See JHA Field Work - General
4. Carrying equipment to site location	4B) Back or muscle strain	4A) Back or muscle strain ▪ Use proper lifting techniques when lifting pumps or generators ▪ Use mechanical aids if available ▪ Use 2 person lift for heavy items
5. Calibrate monitoring equipment	5A) Exposure to calibration gases	5A) Exposure to calibration gases ▪ Review equipment manuals ▪ Calibrate in a clean, well ventilated area
6. Preparing sampling location	6A) Contact with poisonous plants or the oil from poisonous plants	6A) Contact with poisonous plants or the oil from those plants: ▪ Look for signs of poisonous plants and avoid. ▪ Wear PPE as described in the HASP. ▪ Do not touch anything part of your body/clothing. ▪ Always wash gloves before removing them. ▪ Discard PPE in accordance with the HASP.
	6B) Contact with biting insects (i.e., spiders, bees, etc.)	6B) Contact with stinging/biting insects ▪ Discuss the types of insects expected at the Site and be able to identify them. ▪ Look for signs of insects in and around the well. ▪ Wear Level of PPE as described in the HASP. At a minimum, follow guidelines in the JHA "Insects Stings and Bites." ▪ If necessary, wear protective netting over your head/face. ▪ Avoid contact with the insects if possible. ▪ Inform your supervisor and the Site Health and Safety Supervisor if you have any allergies to insects and insect bites. Make sure you have identification of your allergies with you at all times and appropriate response kits if applicable. ▪ Get medical help immediately if you are bitten by a black widow or brown recluse, or if you have a severe reaction to any spider bite or bee sting.
	6C) Exposure to hazardous Inhalation and contact with hazardous substances (VOC contaminated soil); flammable atmospheres.	6C) Exposure to hazardous substances ▪ Wear PPE as identified in HASP. ▪ Review hazardous properties of site contaminants with workers before sampling operations begin ▪ Monitor breathing zone air in accordance with HASP to determine levels of contaminants present. ▪ When decontaminating equipment wear additional eye/face protection over the safety glasses such as a face shield.
	6D) Back strain due to lifting or moving equipment to sampling locations	6D) Back strain ▪ Use mechanical aids when possible, if mechanical aids are not available, use two person lifts for heavy items. ▪ Use proper lifting techniques

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Job Hazard Analysis - HASP Format

Job Title: Soil Sampling **Date of Analysis:** 5/1/07

Key Work Steps	Hazards/Potential Hazards	Safe Practices
	6E) Foot injuries from dropped equipment	6E) Foot Injuries ▪ Be aware when moving objects, ensure you have a good grip when lifting and carrying objects. ▪ Do not carry more than you can handle safely ▪ Wear steel toed boots
7. Collecting soil samples	7A) Working around drill rigs	7A) See JHA - Drilling
	7B) Encountering underground or overhead utilities	7B) Have all utilities located.
	7C) Fire/Explosion/Contamination hazard from refueling generators	7C) Fire/Explosion/Contamination hazard from refueling generators ▪ Turn the generator off and let it cool down before refueling ▪ Segregate fuel and other hydrocarbons from samples to minimize contamination potential ▪ Transport fuels in approved safety containers. The use of containers other than those specifically designed to carry fuel is prohibited ▪ See JHA for Gasoline use
	7D) Electrocution	7D) Electrocution ▪ A ground fault circuit interrupter (GFCI) device must protect all AC electrical circuits. ▪ Use only correctly grounded equipment. Never use three-pronged cords which have had the third prong broken off. ▪ Make sure that the electrical cords from generators and power tools are not allowed to be in contact with water ▪ Do not stand in wet areas while operating power equipment ▪ Always make sure all electrically-powered sampling equipment is in good repair. Report any problems so the equipment can be repaired or replaced. ▪ When unplugging a cord, pull on the plug rather than the cord. ▪ Never do repairs on electrical equipment unless you are both authorized and qualified to do so.
	7E) Exposure to contaminants	7E) Exposure to Contaminants ▪ Stand up wind when sampling ▪ Monitor breathing zone with appropriate monitoring equipment (see HASP) ▪ Wear chemical resistant PPE as identified in HASP ▪ See section 4C) under Safe Practices above
	7F) Exposure to preservatives	7F) Exposure to preservatives ▪ Work in a well ventilated area, upwind of samples ▪ Wear chemical resistant PPE as identified in HASP ▪ Review MSDSs
	7G) Slips/trips/falls	7G) Slips/trips/falls ▪ Ground can become wet/muddy ▪ Wear good slip resistant footwear
	7H) Lifting Injury	7H) Lifting injury ▪ Use proper lifting techniques when carrying quantities of samples ▪ Use proper ergonomics when hand digging for samples
	7I) Eye injury	7I) Eye Injury ▪ Wear eye protection when using picks or similar devices to loosen soil
	7J) Fire	7J) Fire ▪ When using gas powered auger, maintain fire watch whenever fueling or otherwise handling gasoline ▪ See JHA - Gasoline

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Job Hazard Analysis - HASP Format

Job Title: Soil Sampling **Date of Analysis:** 5/1/07

Key Work Steps	Hazards/Potential Hazards	Safe Practices
8. Soil sampling using floor corer	8A) Back injury	8A) Back Injury ▪ Use proper lifting techniques when moving floor corer and generator ▪ Use mechanincal aids if available ▪ Use two person lift for heavy items.
	8B) Electric Shock	8B) Electric Shock ▪ Use electric cords free from defects ▪ Keep cords out of water ▪ Ensure all electrical equipment is properly grounded ▪ Use GFCI
	8C) Hearing	8C) Hearing ▪ Wear hearing protection
	8D) Fire	8D) Fire ▪ When using generator, maintain fire watch whenever refueling or otherwise handling gasoline ▪ See JHA - Gasoline
	8E) Contamination	8E) Contamination ▪ Use appropriate PPE for the contaminants of concern (see HASP). ▪ Minimize sample contact ▪ Label sample in accordance with procedures ▪ Monitor breathing zone levels.

MACTEC

Job Hazard Analysis - HASP Format

Job Title: Groundwater Sampling **Date of Analysis:** 9/21/06

Minimum Recommended PPE*: steel-toed boots, safety glasses, chemical resistant gloves
*See HASP for all required PPE

Key Work Steps	Hazards/Potential Hazards	Safe Practices
1. Mobilization	1A) See JHA Mobilization/Demobilization/Site Preparation	1A) See JHA Mobilization/Demobilization/Site Preparation
2. General Site Hazards	2A) See JHA Field Work - General	2A) See JHA Field Work - General
	2B) Chemical exposure	2B) Chemical Exposure ▪ Read HASP and determine air monitoring and PPE needs.
3. Calibrate monitoring equipment	3A) Exposure to calibration gases	3A) Exposure to calibration gases ▪ Review equipment manuals ▪ Calibrate in a clean, well ventilated area
4. Opening the well cap, taking water level readings	4A) Contact with poisonous plants or the oil from poisonous plants	4A) Contact with poisonous plants or the oil from those plants: ▪ Look for signs of poisonous plants and avoid. ▪ Ensure all field workers can identify the plants. Mark identified poisonous plants with spray paint if working at a fixed location. ▪ Wear PPE as described in the HASP. ▪ Do not touch any part of your body/clothing. ▪ Always wash gloves before removing them. ▪ Discard PPE in accordance with the HASP. ▪ Use commercially available products such as Ivy Block or Ivy Wash as appropriate.
	4B) Contact with biting insects (i.e., spiders, bees, etc.) which may have constructed a nest in the well cap/well.	4B) Contact with stinging/biting insects ▪ Discuss the types of insects expected at the Site and be able to identify them. ▪ Look for signs of insects in and around the well. ▪ Wear Level of PPE as described in the HASP. At a minimum, follow guidelines in the JHA "Insects Stings and Bites." ▪ If necessary, wear protective netting over your head/face. ▪ Avoid contact with the insects if possible. ▪ Inform your supervisor and the Site Health and Safety Supervisor if you have any allergies to insects and insect bites. Make sure you have identification of your allergies with you at all times and appropriate response kits if applicable. ▪ Get medical help immediately if you are bitten by a black widow or brown recluse, or if you have a severe reaction to any spider bite or bee sting.
	4C) Exposure to hazardous Inhalation and contact with hazardous substances (VOC contaminated groundwater/ soil); liquid splash; flammable atmospheres.	4C) Exposure to hazardous substances ▪ Wear PPE as identified in HASP. ▪ Review hazardous properties of site contaminants with workers before sampling operations begin ▪ Immediately monitor breathing zone after opening well to determine exposure and verify that level of PPE is adequate – see Action Levels in HASP ▪ Monitor headspace in well. After the initial headspace reading (if required by the Work Plan), allow the well to vent for several minutes before obtaining water level and before sampling. ▪ When decontaminating equipment wear additional eye/face protection over the safety glasses such as a face shield.
	4D) Back strain due to lifting bailers or pumps and from moving equipment to well locations	4D) Back strain ▪ Use mechanical aids when possible, if mechanical aids are not available, use two person lifts for heavy items. ▪ Use proper lifting techniques

MACTEC

Job Hazard Analysis - HASP Format

Job Title: Groundwater Sampling **Date of Analysis:** 9/21/06

Key Work Steps	Hazards/Potential Hazards	Safe Practices
	4E) Foot injuries from dropped equipment	4E) Foot Injuries ▪ Be aware when moving objects, ensure you have a good grip when lifting and carrying objects. ▪ Do not carry more than you can handle safely ▪ Wear Steel toed boots
5. Collecting water samples	5A) Fire/Explosion/Contamination hazard from refueling generators	5A) Fire/Explosion/Contamination hazard from refueling generators ▪ Turn the generator off and let it cool down before refueling ▪ Segregate fuel and other hydrocarbons from samples to minimize contamination potential ▪ Transport fuels in approved safety containers. The use of containers other than those specifically designed to carry fuel is prohibited ▪ See JHA for Gasoline use
	5B) Electrocution	5B) Electrocution ▪ A ground fault circuit interrupter (GFCI) device must protect all AC electrical circuits. ▪ Use only correctly grounded equipment. Never use three-pronged cords which have had the third prong broken off. ▪ Make sure that the electrical cords from generators and power tools are not allowed to be in contact with water ▪ Do not stand in wet areas while operating power equipment ▪ Always make sure all electrically-powered sampling equipment is in good repair. Report any problems so the equipment can be repaired or replaced. ▪ When unplugging a cord, pull on the plug rather than the cord. ▪ Never do repairs on electrical equipment unless you are both authorized and qualified to do so.
	5C) Exposure to contaminants	5C) Exposure to Contaminants ▪ Stand up wind when sampling ▪ Monitor breathing zone with appropriate monitoring equipment (see HASP) ▪ Wear chemical resistant PPE as identified in HASP ▪ See section 4C) under Safe Practices above
	5D) Infectious water born diseases	5D) Infectious water born diseases ▪ Wear chemical resistant gloves and other PPE – as identified in HASP ▪ Prevent water from contacting skin ▪ Wash exposed skin with soap and water ASAP after sampling event ▪ Ensure that all equipment is adequately decontaminated using a 10% bleach solution
	5E) Exposure to water preservatives	5E) Exposure to water preservatives ▪ Work in a well ventilated area, upwind of samples ▪ Wear chemical resistant PPE as identified in HASP ▪ When preserving samples always add acid to water, avoid the opposite. ▪ See JHA Working with Preservatives
	5F) Slips/trips/falls	5F) Slips/trips/falls ▪ Ground can become wet/muddy, created by spilled water ▪ Place all purged water in drums for removal ▪ Wear good slip resistant footwear
	5G) Repetitive Motion and other Ergonomic Issues	5G) Ergonomic Issues ▪ Use mechanical means where possible to raise and lower equipment into well. ▪ Alternate raising and lowering equipment between field sampling team members, and alternate bailing the well. ▪ Use safe lifting techniques.

MACTEC

Job Hazard Analysis - HASP Format

Job Title: Groundwater Sampling **Date of Analysis:** 9/21/06

Key Work Steps	Hazards/Potential Hazards	Safe Practices
6. Sample Processing	6A) Contaminated water	6A) Contaminated water ▪ Wear appropriate PPE as identified in HASP ▪ Decontaminate outside of bottles ▪ Prevent water from contacting skin ▪ Work in well ventilated area – upwind of samples ▪ Waste will be returned to the operation office for storage and disposal
7. Shipping Samples	7A) Freeze burns, back strain, hazardous chemical exposure, sample leakage	7A) Freeze burns, back strain, hazardous chemical exposure, sample leakage ▪ Wear appropriate chemical resistant gloves as identified in HASP. ▪ Wear leather or insulated gloves when handling dry ice. ▪ Follow safe lifting techniques – get help lifting heavy coolers. ▪ Samples that contain hazardous materials under the DOT definition, must be packaged, manifested and shipped by personnel that have the appropriate DOT HAZMAT training.

APPENDIX C

DECONTAMINATION PROCEDURES & EQUIPMENT PER TASK(S)

APPENDIX C1

DECONTAMINATION PROCEDURES & EQUIPMENT

Task(s) _All Tasks_____
Decontamination Solution: Detergent and Water

MODIFIED LEVEL D & LEVEL C		
Station 1:	Equipment Drop	Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, etc. on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, a cool-down station may be set up within this area.
Station 2:	Outer Garment, Boots, and Gloves Wash and Rinse	Scrub outer boots, outer gloves, and splash suit with decon solution or detergent water. Rinse off using copious amounts of water.
Station 3:	Outer Boot and Glove Removal	Remove outer boots and gloves. Deposit in container with plastic liner.
Station 4: (Level C only)	Canister or Mask Change	If worker leaves exclusion zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot covers are donned, joints are taped, and worker returns to duty.
Station 5:	Boot, Gloves and Outer Garment Removal	Boots, chemical resistant splash suit, and inner gloves are removed and deposited in separate containers lined with plastic.
Station 6: (Level C only)	Face Piece Removal	Facepiece is removed. Avoid touching face with fingers. Facepiece is deposited on plastic sheet.
Station 7:	Field Wash	Hands and face are thoroughly washed. Shower as soon as possible.

APPENDIX D

INCIDENT ANALYSIS FORMS

Check one
Initial Report: ☐
Update: ☐
Final Report: ☐

INCIDENT ANALYSIS REPORT

Attorney-Client Work Product Prepared in Anticipation of Litigation

Category C: ☐
Category B: ☐
Category A: ☐

Local Office ID Number: _
Number: _____

Division ES&H Manager Tracking

Report Date: _____

Section 1 – General Information

Incident Date: _____

Employee Name: _____ Sex: ☐ M ☐ F Time of incident: _____

Job Title: _____ Hire Date: _____ Time employee began work: _____

Department: _____ Project Manager: _____ Client: _____

Office where employee works from: _____ Immediate Supervisor: _____ Hours employee worked during last 7 days: ____ hr

Location where incident occurred: _____ Is this a Company controlled work site: ☐ Yes ☐ No

Section 2 – Incident Type (mark all that apply)

A. Type of incident being reported:

☐ Near Miss ☐ First-aid Case ☐ Medical Treatment ☐ Hospitalization Required ☐ Fatality

☐ Day Away Case ☐ Restricted/Transfer Case ☐ Environmental Release ☐ Regulatory Inspection ☐ Notice of Violation

☐ Vehicle Incident ☐ Other (please describe): _____

B. If an **injury or illness** - describe the part of the body that was affected and how it was affected:

C. If an **environmental release** - describe the quantity and name and CAS# of material released into the environment:

D. If an **inspection by a regulatory agency** - what agency, who were the inspectors, and supply inspector contact information:

~~Section 3 – Incident Description~~ ~~(Attach and number additional pages, as needed, to ensure all details related to the incident are captured.)~~

A. List the names of all persons involved in the incident, and employer information:

B. List the names of any witnesses, their employer, and a local/company telephone number or address:

C. What was the employee(s) doing just prior to the incident?

D. What happened?

E. What object or substance directly harmed the employee?

F. List any damaged equipment or property (other than motor vehicles) model and serial number **and** estimated costs to repair/replace damaged equipment or property, if applicable:

Section 4 - Incident Analysis

A. Was a Job Hazard Analysis (JHA) completed for the work being performed? YES ☐ NO ☐ Who prepared the JHA?

B. When and who was the last safety officer (i.e. LHSR, supervisor, ES&H Manager, etc.) at your work site?

C. When and what safety training **directly related** to the incident has the person(s) involved had?

Section 5 - Incident Investigation Results

#	**Causal Factors** (Attach and number any additional pages as needed to completely address this section)
1	
2	
3	
4	
5	

(The below items represent major root cause categories which have been determined to be Less Than Adequate (LTA). A more detailed determination of the root cause will be facilitated, if needed, by your Division's ES&H Manager.)

1. Equipment Reliability Program Implementation
2. Administrative / Management Systems
3. Immediate Supervision
4. Training
5. Human Factors Engineering
6. Communications
7. Personal Performance

Root Cause#	**Corrective Actions to be taken** (Attach additional pages as needed to completely address this section)	**Responsible Person**	**Proposed Completion Date**	**Closed on Date**	**Verified by and Date Verified**

Section 6 – Approvals

Incident investigated by (signatures):			
Employee(s):	Date:	Employee's Supervisor:	Date:
LHSR/Project/Office Manager:	Date:	ES&H Manager:	Date:

VEHICLE INCIDENT REPORT

Revision 1

Attorney-Client Work Product Prepared in Anticipation of Litigation

Section 1 - General Information

Time incident occurred: _____ ☐ AM ☐ PM | ☐ Dark ☐ Light | Road Condition: ☐ Dry ☐ Wet | Date of incident: _____

Were police summoned to scene? ☐ Yes ☐ No Police Department and Location: _____

Report #: _____ Officer's Name and Badge Number: _____

Section 2 - Company Driver and Vehicle

Driver's name: _____ D/L # _____ State: _____

Driver's home office address: _____ Driver's Phone # _____

Company Vehicle # _____ Year _____ Model _____ License # _____ State _____

Company car? ☐ Yes ☐ No Owned by employee? ☐ Yes ☐ No

Leased/rented from _____

Passenger/Witness Name(s) _____ Address: _____ Phone: _____

Passenger/Witness Name(s) _____ Address: _____ Phone: _____

Passenger/Witness Name(s) _____ Address: _____ Phone: _____

Damage to vehicle: _____

Injuries to employee(s): _____

Injuries to others: _____

Vehicle was being used for: Company business ☐ Yes ☐ No Personal business ☐ Yes ☐ No

Towed: ☐ Yes ☐ No By Whom: _____ To Where: _____

Section 3 - Other Driver and Vehicle Information

Driver's Name: _____ D/L # _____ State _____

Current Address _____ City _____ State _____

Telephone Home: _____ Work: _____ Cell: _____

Reg. Owner's Name: _____ Address: _____ City: _____ State: _____

(verify registration document)

The Other Vehicle: Make _____ Model _____ Year _____ License # _____ State _____

Insurance company name: _____ Address: _____ Phone # _____

Policy No. _____ Contact Person _____ Phone # _____

Passenger/Witness Name(s) _____ Address: _____ Phone: _____

Passenger/Witness Name(s) _____ Address: _____ Phone: _____

Damage: (*Make note of pre-existing damage and take pictures if possible.* ***Attach additional pages as needed****)*

Injuries to other driver/passengers:

Section 4 – Approvals (signatures required)

Form completed by: _____ Signature: _____ Date: _____

Please Print/Type

Things to Do First In The Event Of a Motor Vehicle Incident

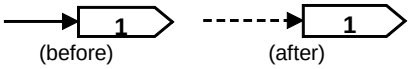
1. Most important: **STOP.**
2. **Call 911 if there are injuries.**
3. Call for an officer if the incident occurred on public property (streets, highways or roads). Disputes often arise between the parties involved as to who was at fault; therefore, a police report is important. If an officer is unable to attend the scene of the accident, a counter police report may be filed at most stations. Insurance companies rely on police reports to determine liability.
4. Complete the Incident Investigation Report and the Vehicle Incident Report forms. It is important that both these forms are completed in detail. Include a diagram of the incident on the back of the report. Incomplete information may lead to delays in processing associated claims and in helping to prevent this type of incident from occurring again.
5. Express no opinion as to who was at fault. This is for the insurance companies to determine.
6. Give only information that is required by the authorities or as directed by contractual requirements.
7. Sign only those statements required by the authorities or as directed by contractual requirements. Do not sign away your rights or the company's rights.
8. If you are injured or think you were injured, tell your supervisor and see a physician. Your supervisor will notify your Worker's Compensation insurance carrier, your Division's ES&H Manager and the Corporate Director of ES&H by phone, email or fax.
9. Your supervisor will forward both completed incident reports immediately to your Division's ES&H Manager.

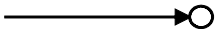
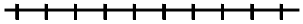
Vehicle Crash Diagram

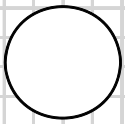
Instructions:

1. Number each vehicle and show directions 

2. Use a solid line to show path before incident and use a dotted line to show path after incient



3. Show pedestrian/non-motorist by: 
4. Show railroad by: 
5. Indicate north by arrow as: 
6. Show street or highway names or numbers
7. Show signs, signals, warning and traffic controls.



Prepared by: _____ Date: _____

APPENDIX E

MATERIAL SAFETY DATA SHEETS

NOTE:

The Material Safety Data Sheets which apply to this field activity are provided as a separate document and are to be kept with this HASP in the field support vehicle/office.

APPENDIX F

SHSO SUMMARY

APPENDIX F

SHSO SUMMARY

To be completed by SHSO following completion of each phase of field work.

During the work covered by this Site Specific Health and Safety Plan, there were:

(check one)

____ No violations of the Safety Plan provisions and no incidents involving injury, illness or personnel contamination.

____ The following violations of the Safety plan provisions or incidents involving injury, illness or personnel contamination occurred. (Provide details of type of violation or incident, who was involved, circumstances, and first aid or medical treatment required.)

_____

_____

_____

_____

If violation or incident occurred, describe corrective actions taken to prevent reoccurrence.

_____

_____

_____

_____

Project/Task Name: _____

Project/Task Number: _____

Dates in Field: _____

Signature: _____

(SHSO)

Date: _____

APPENDIX G

SITE SAFETY ORIENTATION FORM

SITE SAFETY ORIENTATION

Project:_____ Site:_____

Project Number:_____ Date:_____

All applicable items listed below are to be reviewed on the first day of site activities and when new workers arrive on site. Training provider, please initial each item covered in the training, or note "NA" as applicable.

General Supervisor: ..... _____

Site Health and Safety Supervisor (SHSS): ..... _____

Employees' direct supervisor:..... _____

Location of HASP and MSDS on site:..... _____

Review of Contents of HASP ..... _____

HazCom labeling system if different from Local Operation: ..... _____

Site-specific medical surveillance requirements:..... _____

Site control measures (location of exclusion zone, etc.):..... _____

Safety and health hazards on site: ..... _____

The Level of Protection and specific PPE to be used: ..... _____

Work practices to be used on site to minimize exposure:..... _____

Decontamination procedures: ..... _____

How to effectively use site/task engineering controls: ..... _____

Applicable elements of the site emergency response plan:..... _____

Any other site-specific health and safety related requirements: ..... _____

Participating employees must print and sign their name in the spaces provided below:

_____ _____

_____ _____

_____ _____

_____ _____

APPENDIX H

DAILY TAILGATE SAFETY MEETING CHECKLIST

DAILY TAILGATE SAFETY MEETING CHECKLIST

Project:	Site:
Date:	Location:

To be reviewed on the first day of site activities and when new workers arrive on site:

Alternate for Health & Safety:	
Location of on-site HASP:	
Site training requirements:	See HASP
Specific medical surveillance requirements:	See HASP

Agenda:

During the project, one or more of the agenda items could be selected for the required daily site training.

		Check-off: Date				
		___	___	___	___	___
1.	Planned work for this day (discuss)	☐	☐	☐	☐	☐
2.	Physical hazards and controls (discuss/review)	☐	☐	☐	☐	☐
3.	Chemical hazards and controls (discuss/review)	☐	☐	☐	☐	☐
4.	Biological hazards and controls (discuss/review)	☐	☐	☐	☐	☐
5.	Personal protective equipment Modified D	☐	☐	☐	☐	☐
6.	Personal protective equipment required per the hazard assessment:	☐	☐	☐	☐	☐

SPECIFY TYPE	
Protective coveralls	
Safety glasses/goggles	ANSI approved
Hard hat	ANSI approved
Foot protection	Safety toe boots & overboots
Work gloves	
Chemical gloves	Neoproene outer, nitrile inner
Hearing protection	
Other	

7.	Review inspection, decontamination, and maintenance procedures and the limitations of the above stated PPE.	☐	☐	☐	☐	☐
8.	Decontamination procedure (discuss/review)	☐	☐	☐	☐	☐
9.	Exclusion zone maintained	☐	☐	☐	☐	☐
10.	Site emergency response plan (discuss/review)	☐	☐	☐	☐	☐
11.	Signs and symptoms of overexposure to chemicals anticipated on site	☐	☐	☐	☐	☐
12.	General health and safety rules	☐	☐	☐	☐	☐
13.	Specific health and safety requirements relating to site activities including: (discuss/review)	☐	☐	☐	☐	☐
14.	Drilling/boring	☐	☐	☐	☐	☐
15.	UST	☐	☐	☐	☐	☐
16.	Excavations (including UG utility locations)	☐	☐	☐	☐	☐
17.	Heavy equipment	☐	☐	☐	☐	☐
18.	Slips, trips, and falls	☐	☐	☐	☐	☐
19.	Lockout/tagout	☐	☐	☐	☐	☐
20.	Working in temperature extremes	☐	☐	☐	☐	☐
21.	Rain or other weather advisories	☐	☐	☐	☐	☐
22.	Other health & safety issues (discuss/note)	☐	☐	☐	☐	☐

DAILY TAILGATE SAFETY MEETING CHECKLIST

I have participated in the daily safety meeting discussing the topics indicated on the reverse and fully understand my responsibility for complying with all health and safety requirements. I have had the opportunity to have my questions on site health and safety issues and procedures answered.

Employee Name	Employee Signature	Date

Name and Signature of person conducting training

Date

APPENDIX I

WEEKLY HEALTH AND SAFETY CHECKLIST

WEEKLY SITE SAFETY AND HEALTH CHECKLIST

Site: _____ **Date:** _____

Project Number: _____ **Project Manager:** _____

Conducted by: _____

Names of employee's onsite: _____

	Y	N	NA
HASP, Training and Documentation:			
1. Are emergency phone numbers posted?	☐	☐	☐
2. Are directions to the nearest emergency medical care posted?	☐	☐	☐
3. Is the OSHA Poster posted?	☐	☐	☐
4. Is there a SSHP at the site?	☐	☐	☐
a. Is it current and address all tasks?	☐	☐	☐
b. Does it address all know/suspected hazards?	☐	☐	☐
c. Are JHAs included for all tasks?	☐	☐	☐
d. Are employees following the procedures as outlined in the JHAs?	☐	☐	☐
e. Is it approved?	☐	☐	☐
f. Have all field members signed off that they have read it?	☐	☐	☐
5. Are there MSDSs for required materials/chemicals brought to the site?	☐	☐	☐
6. Are all containers properly labeled, as to content, hazard?	☐	☐	☐
7. Is there list of chemicals brought to the site? Do the names on the list match the name on the label and MSDS?	☐	☐	☐
8. Do applicable workers have their 40-hour initial training and are current in their refreshers?	☐	☐	☐
9. Do the Field Lead and Health and Safety Officer have Supervisory training?	☐	☐	☐
10. Are all applicable workers current in their physicals?	☐	☐	☐
11. Are Tailgate Safety Meetings taking place and documented?	☐	☐	☐
12. Are there means to minimize heat or cold stress on-site?	☐	☐	☐
13. Is eating, drinking, smoking, etc. only done in areas free from toxic materials?	☐	☐	☐
14. Are two people used to lift equipment or materials weighting more than 50 lbs.?	☐	☐	☐
15. Are the locations of electrical power lines and other utilities identified prior to digging or drilling?	☐	☐	☐
PPE and Monitoring Instruments:			
16. Does the PPE being worn match what is required in the HASP and JHAs?	☐	☐	☐
17. Is hearing protection worn when noise makes conversation difficult at a distance of 2 feet?	☐	☐	☐
18. Are approved respirators and cartridges worn when needed?	☐	☐	☐
a. Are cartridges changed daily, unless specified otherwise in the HASP?	☐	☐	☐
b. Are cartridges appropriate for the contaminants at the site?	☐	☐	☐
19. Are all air monitoring instruments identified in the HASP being used and calibrated daily, as required?	☐	☐	☐
a. Do employees know upgrade/downgrade action levels?	☐	☐	☐
First Aid:			
20. Are there eyewash bottles on-site? Solution not expired?	☐	☐	☐
21. Are first aid kits on-site and adequately stocked (including blood borne pathogen equipment)?	☐	☐	☐
22. Is there always at least one person on site current in their first aid/CPR training?	☐	☐	☐
Fire Safety:			
23. Is there a charged fire extinguisher on-site?	☐	☐	☐
a. Have workers, who would use extinguishers, received fire extinguisher training in past year?	☐	☐	☐
b. Are fire extinguishers visually inspected monthly and are the inspections documented?	☐	☐	☐
c. Have fire extinguishers been professionally inspected within the past year?	☐	☐	☐
24. Are flammable liquids (e.g., gasoline) being stored safety (e.g., in safety cans and 20 feet from combustibles)?	☐	☐	☐
25. Are flammable liquid dispensing systems bonded (metal to metal)?	☐	☐	☐
Compressed Gas:			
26. Are cylinders stored in a secure manner, with caps on, upright and protected from damage?	☐	☐	☐
27. Are cylinders protected from snow, rain, etc.?	☐	☐	☐
28. Are cylinder caps in place before cylinders are moved?	☐	☐	☐
29. Are fuel gas and oxygen cylinders stored a minimum of 20 feet apart?	☐	☐	☐
30. Are propane cylinders stored and used only outside of buildings?	☐	☐	☐
Vehicles:			
31. Are employees wearing their seat belts and not talking on cell phones while car is in motion?	☐	☐	☐
32. Do Company vehicles have the "How's my Driving" decals?	☐	☐	☐

	Y	N	NA
33. Are vehicles parked in a safe manner? Are traffic cones used, if required?	☐	☐	☐
34. Are company vehicle inspected weekly and the inspections documented?	☐	☐	☐
35. Are materials stored in vehicles in a neat, orderly and secure manner so that they won't become a distraction to the driver, become a projectile hazard in the event of a sudden stop or crash or fall from the vehicle when in transport?	☐	☐	☐
Electrical:			
36. Is at least a 10 foot clearance maintained between equipment and power lines?	☐	☐	☐
37. Are all electrically operated tools grounded?	☐	☐	☐
38. Are GFCI's used?	☐	☐	☐
39. Are exposed wiring and cords in good condition (not frayed or deteriorated)?	☐	☐	☐
40. Do extension cords have a grounding conductor?	☐	☐	☐
41. Are extension cords only used in one continuous length (not daisy chained)?	☐	☐	☐
42. Are extension cords kept out of wet areas?	☐	☐	☐
43. Has a lockout/tagout system been established, if required?	☐	☐	☐
Hand and Power Tools:			
44. Are tools and equipment used by employees in good condition or tagged out of service?	☐	☐	☐
45. Are guards and safety devices in place on power tools?	☐	☐	☐
Walking and Working Surfaces:			
46. Do stairways into trailers/buildings that have 4 steps or more, have hand rails?	☐	☐	☐
47. Is good housekeeping being maintained at the site?	☐	☐	☐
48. Are all ladders in good condition, stored against damage and properly secured when in use?	☐	☐	☐
49. Are approved manlifts provided for the lifting of personnel (e.g., cherry pickers, scissor lifts, etc.)?	☐	☐	☐
50. Are personnel in manlifts wearing approved fall protection devices when required?	☐	☐	☐
51. Is fall protection used when working at elevations greater than 6 feet?	☐	☐	☐
52. Are ladders inspected prior to use?	☐	☐	☐
53. Are all ladders in good condition and defective ladders tagged out of service?	☐	☐	☐
Scaffolding:			
54. Is scaffolding placed on a flat, firm surface?	☐	☐	☐
55. Are scaffold planks free of mud, ice, grease, etc.?	☐	☐	☐
56. On scaffolds where platforms are overlapped, is planking overlapped a minimum of 12 inches?	☐	☐	☐
57. Does scaffold planking extend over end supports between 6 to 18 inches (dependent upon platform length)?	☐	☐	☐
58. Are employees restricted from working on scaffolds during storms and high winds?	☐	☐	☐
59. Is required perimeter guarding (top rail, mid rail, and toe board) present?	☐	☐	☐
60. Has a competent person been designated to oversee scaffold construction and inspect daily?	☐	☐	☐
Excavations:			
61. Has entrance into excavations greater than 4 feet deep prohibited unless the following precautions are taken?	☐	☐	☐
a. The sides of excavations sloped or shored to prevent cave ins if over 5 feet deep?	☐	☐	☐
b. Excavations greater than 4 feet deep been monitored for hazardous atmospheres (i.e., LEL/O2)?	☐	☐	☐
c. Ladders or ramps used in excavations over 4 feet deep?	☐	☐	☐
d. Means of egress available so as to require no more than 25 feet of lateral travel?	☐	☐	☐
e. Excavation inspected daily by competent persons and documented?	☐	☐	☐
62. Is excavated material placed a minimum of 24 inches from the excavation?	☐	☐	☐
Heavy Equipment:			
63. Is heavy equipment shut down for fueling and maintenance?	☐	☐	☐
64. Are backup alarms installed and working on mobile equipment?	☐	☐	☐
65. Are riders prohibited on heavy equipment?	☐	☐	☐
66. Are guards and safety appliances in place and used?	☐	☐	☐
67. Are operators using the "three point" system when mounting/dismounting equipment?	☐	☐	☐
Confined Space Entry:			
68. Are there confined spaces at the site that will be entered? If yes:	☐	☐	☐
a. Is the permit completely filled out and approved prior to entry?	☐	☐	☐
b. Are confined spaces thoroughly emptied of the hazardous substances prior to entry?	☐	☐	☐
c. Is ventilation provided prior to entry?	☐	☐	☐
d. Is air within the confined space tested for oxygen deficiency, LEL and toxic substances in that order?	☐	☐	☐
e. Is there an assigned safety standby outside the space who is adequately trained?	☐	☐	☐
f. Has a rescue plan been established?	☐	☐	☐
g. Is an entry supervisor present at each permit-required entry?	☐	☐	☐

	Y	N	NA
h. Are required extraction/fall protection devices being used?	☐	☐	☐
Decontamination:			
69. Are decontamination stations set up on site?	☐	☐	☐
70. Is decontamination water properly contained and disposed of?	☐	☐	☐
71. Are all pieces of equipment inspected for proper decontamination before leaving the site?	☐	☐	☐
Working on or Near Water:			
72. Has a float plan been filed if working from a boat?	☐	☐	☐
73. Are personal floatation devices available and being used?	☐	☐	☐
74. Are Coast Guard requirements being followed when boating on navigable waters?	☐	☐	☐

Notes

Findings	Corrected on
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	

APPENDIX E

SOIL COVER INSPECTION CHECKLIST

SOIL COVER INSPECTION CHECKLIST
Former Buffalo Color Facility, Area C, Buffalo, NY

Date: _____

Weather: _____

Personnel (Organization): _____

Instructions: Complete the checklist of evaluation items and then complete specific data items. Field measurements should be made with a cloth tape and noted on a Site plan. Estimated measurements shall be so noted. All field notes and documentation, including hand sketches, photographs, and notes made on the Site plan, should be attached to the completed checklist to further define conditions or problems.

EVALUATION ITEMS
CONDITION: (Check)

(Write NA if not applicable)	Acceptable	Not Acceptable	Action Required: Yes	Action Required: No	Remarks
1. Integrity of Soil Cover					
a. Runoff/Erosion Damage					
b. Settlement					
c. Missing/Insufficient grass/vegetation					
d. Animal Burrows					
2. Surface Pavement					
a. Condition					
3. At-Grade/Basement Concrete Slabs (occupied structures)					
a. Condition					

SPECIFIC DATA ITEMS (Write NA if not applicable)

Area(s): _____

1. **Approximate size in feet area(s) (List separately)**
   a) _____ feet by _____
   b) _____ feet by _____
   c) _____ feet by _____
2. **Deepest point of area(s) (e.g. erosion/damage) measured from the adjacent surface (List separately)**
   a) _____ feet
   b) _____ feet
   c) _____ feet

SOIL COVER INSPECTION CHECKLIST (CONTINUED)
Former Buffalo Color Facility, Area C, Buffalo, NY

3. **Attach a hand sketch or photograph to the attached Site plan showing the location(s) of the area(s). Identify each area by using the letter a, b, c, etc. from Question 1.**

4. **Approximate size in feet of any settlement area within the area(s). (List separately.)**
   a) _____ feet by _____
   b) _____ feet by _____
   c) _____ feet by _____

5. **Approximate size and location of animal burrows. (Attach a sketch showing approximate locations.)**

6. **Approximate depth of settlement area(s) measured from the adjacent surface. (List separately.)**
   a) _____ feet
   b) _____ feet
   c) _____ feet

7. **Attach a hand sketch or photograph to the attached Site plan showing the location of the settlement area(s). Identify each area by using the letter a, b, or c, etc. from Question 6.**

   NA

8. **Approximate size and depth of eroded area(s).**
   a) _____ feet
   b) _____ feet
   c) _____ feet

9. **Attach a sketch or photograph to the attached Site plan showing location of any eroded area(s).**

   None

_____

_____

Signature of Inspector(s)

Attachments

_____ Yes _____ No

Other Comments:

APPENDIX F

MONITORING WELL CONSTRUCTION LOGS

MACTEC

PROJECT:	Former Buffalo Color	**BORING:**	MW-C01
LOCATION:	Buffalo, NY	**WELL:**	MW-C01
JOB NUMBER:	3410090701	**START:**	10/27/2009
CLIENT:	South Buffalo Development	**DATE:**	10/27/2009

Driller:	SJB Drillers	**Drilling Method:**	Hallow Stem Auger		
Field Scientist:	Greg Oslosky	**Bore Hole Diameter:**	6.5 inch		
Surveyor:	NA	**Auger Size:**	4 inch		
Ground Elevation:	NA	**Sampling Device:**	Split Spoon		
Northing:	NA	**Total Depth:**			
Easting:	NA	**Depth to Water:**		**Date:**	
Ref. Elevation:	NA	**GW Elevation:**	NA	**Date:**	

DEPTH (ft-bgs)	ANALYTICAL SAMPLE	PID READING	SPLIT SPOON BLOWS PER 6 INCHES	% RECOVERY	SOIL DESCRIPTION	SOIL CLASSIFICATION	WELL DIAGRAM:
1				0	Asphalt and Concrete		Concrete 0-1'
2					No Recovery		Bentonite Seal 1-3'
3		0.1	2	100	Brown, Moist, silty fine SAND some GRAVEL		
			2				
4			2				
			2				
5			7	0			2" Dia. PVC Riser
			2				
6			4		Becomes Wet		
			1				
7			2	10	Brown, Wet, silty SAND, trace GRAVEL		Sand Pack 3-15'
			2				
8			2				
			1				
9							
10							10 feet of 0.01" Slot Size PVC
11							
12							
13							
14							
15							
16					Bottom of Boring at 15 Feet		
17							
18							
19							
20							

CREATED BY: ESW
CHECKED BY: GSO

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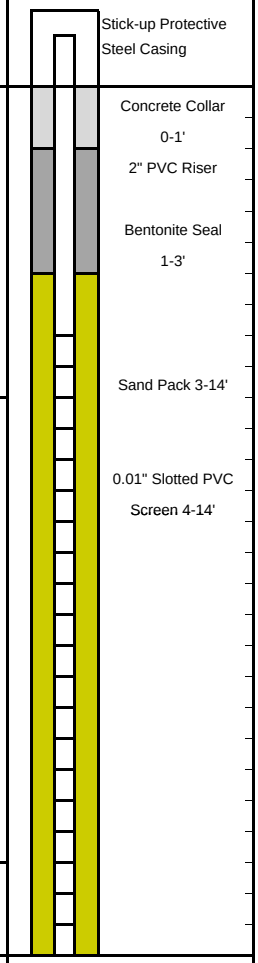
MACTEC

PROJECT:	Former Buffalo Color	**BORING:**	MW-C04
LOCATION:	Buffalo, NY	**WELL:**	MW-C04
JOB NUMBER:	3410090701	**START:**	0915
CLIENT:	South Buffalo Development	**DATE:**	8/24/2010

Driller:	SJB Drilling	**Drilling Method:**	Auger Rotary		
Field Scientist:	Eric Weiler	**Bore Hole Diameter:**	6.5 inch		
Surveyor:	Niagara Boundary	**Auger Size:**	4.25 inch		
Ground Elevation:	551.84	**Sampling Device:**	Split Spoon		
Northing:	1044766.18	**Total Depth:**	14 feet		
Easting:	1078974.27	**Depth to Water:**	5.96	**Date:**	8/25/2010
Ref. Elevation:	554.24	**GW Elevation:**	548.28	**Date:**	8/25/2010

DEPTH (ft-bgs)	ANALYTICAL SAMPLE	PID READING	SPLIT SPOON BLOWS PER 6 INCHES	% RECOVERY	SOIL DESCRIPTION	SOIL CLASSIFICATION
1		0	x	20	Brown, Moist, SILT and SAND	
			x		Concrete	
2			3		Gray, Brown, Dry, GRAVEL, and fine SAND	
			49		Brown and Black, Moist, SAND, SILT, and GRAVEL	
3		0	8	60		FILL
			3			
4			5			
			8			
5		0	3	50	Dark purple, Wet, Coarse SAND, trace fine gravel	
			2			
6			1		Black, Some purple, Wet, Sandy CLAY	
			2			
7		0	5	85	Black, Purple stains, Wet, SAND and CLAY, Sheen observed on water	
			2			
8			2			
			5			
9		0	3	90	Brown and Gray, Mottled, Stiff CLAY, Some fine Sand seams, Moist	CL
			4			
10			7			
			11			
11		0	4	80	Fine Sand partings	
			6			
12			7			
			10			
13		0	9	100		
			8		Gray, Moist, Soft CLAY, trace fine sand partings	CL
14			5			
			4			
15					Boring Completed at 14 feet BGS	
16						
17						
18						
19						
20						

WELL DIAGRAM:



CREATED BY: SCC
CHECKED BY: ESW

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EARTH DIMENSIONS, INC.

Soil Investigations and Monitoring Well Installations

1091 Jamison Road • Elma, NY 14059 • (716) 655-1717

MONITORING WELL
HOLE NO. PS 4-89 SURF. ELV. _____

PROJECT Hydrology investigation LOCATION Area C, towards Elk Street

8K89 Lee Street, South Buffalo, NY

CLIENT BUFFALO COLOR CORPORATION DATE STARTED 11/22/89 COMPLETED 11/22/89
EARTH INVESTIGATIONS LTD.

DEPTH FEET	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N
	1	8	50/1"			
	2	2	1	4	8	5
5	3	4	7	7		14
10						
15						
20						

DESCRIPTION & CLASSIFICATION

Extremely moist black gravelly (SILTY-SAND) fill with 15 to 40% mostly concrete chunks and slag, fine to coarse size sand, some silt, loose, (SM) 0.5

Concrete 2.5

Wet black (SANDY-SILT) fill with some very fine size sand, noticed wood fragments, loose, (SM) 4.5

Extremely moist highly mottled grayish brown (CLAYEY-SILT), stiff, thinly laminated with very thin coarse silt lenses and very thin fine sand lenses, (CL)

- - - - grades downward to- - - - 6.0

Extremely moist distinctly mottled brown (CLAYEY-SILT), stiff, thinly laminated with very thin coarse silt lenses, (CL) 7.0

Boring completed at 7.0 feet.

WELL

1" PVC riser pipe (1) 2.0
(2) 2.5
#10 slotted PVC 1" screen
#2 size sand 7.0

WATER TABLE & REMARKS

Assorted fill to 0.5 feet over concrete to 2.5 feet over mostly coarse silty soil fill with some very fine size sand to 6.0 feet over clayey lake sediment to end of boring.
(1) Cement-bentonite grout.
(2) Bentonite seal.

No water at completion.

OVM Readings

Sample	Depth	ppm
1	0.0 - 0.6	0
2	3.5 - 5.5	0.5
3	5.5 - 7.0	0

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW.

LOGGED BY Donald W. Owens/Soil Scientist SHEET 1 OF 1

EARTH DIMENSIONS, INC.

Soil Investigations and Monitoring Well Installations

1091 Jamison Road • Elma, NY 14059 • (716) 655-1717

MONITORING WELL

HOLE NO. PS 5-89 SURF. ELV. _____

PROJECT Hydrology investigation LOCATION Near railroad tracks and Elk Street

8K89 Lee Street, South Buffalo, NY

CLIENT BUFFALO COLOR CORPORATION DATE STARTED 11/22/89 COMPLETED 11/22/89

EARTH INVESTIGATIONS LTD.

DEPTH FEET	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	DESCRIPTION & CLASSIFICATION	WELL	WATER TABLE & REMARKS
	1	4	6	5	6	11	Extremely moist mixed black and brown cinders, broken bricks, slag and concrete chunks 0.5	1" PVC riser pipe (1)	Assorted fill to 0.5 feet over clayey soil to 1.0 foot over assorted fill to 5.5 feet over clayey lake sediment to end of boring.
	2	6	12	13	7	25	Extremely moist distinctly mottled olive brown (CLAYEY-SILT) fill, stiff, (CL) 1.0	2.5 (2) 3.0	(1) Cement-bentonite grout.
5	3	3	5	5	6	10	Extremely moist becoming wet below 2.0 feet, olive black cinders, ash, slag and wood fragments, compact in place 5.5	#10 slotted PVC screen #2 size sand	(2) Bentonite seal.
	4	4	10	10	14	20	Extremely moist distinctly mottled brown (CLAYEY-SILT), very stiff with nearly vertical gray desiccation cracks, (CL) 8.0	8.0	
10							Boring completed at 8.0 feet.		No water at completion.
15									
20									

OVM Readings

Sample #	Depth	ppm
1	0.0 - 2.0	0
2	2.0 - 4.0	0
3	4.0 - 6.0	0
4	6.0 - 8.0	0

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW.

mn LOGGED BY Donald W. Owens/Soil Scientist SHEET 1 OF 1

EARTH DIMENSIONS, INC.

Soil Investigations and Monitoring Well Installations

1091 Jamison Road • Elma, NY 14059 • (716) 655-1717

MONITORING WELL HOLE NO. PS-6-89

SURF. ELV. _____

PROJECT Hydrology investigation

LOCATION Near railroad spur that passes guard house

8K89 Lee Street, South Buffalo, NY

CLIENT BUFFALO COLOR CORPORATION
EARTH INVESTIGATIONS LTD.

DATE STARTED 11/22/89 COMPLETED 11/22/89

DEPTH FEET	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N
	1	3	6	9	10	15
	2	4	5	3	10	8
5	3	4	5	4	3	9
	4	3	5	6	12	11
10						
15						
20						

DESCRIPTION & CLASSIFICATION

Extremely moist black cinders, ash, and slag, compact in place
- - - - grades downward to - - - 2.0
Wet black cinders, ash, coal and wood fragments, loose
7.0

Extremely moist distinctly mottled grayish brown (CLAYEY-SILT), stiff, with nearly vertical gray desiccation cracks, (CL)
8.0

Boring completed at 8.0 feet.

WELL

1" PVC riser pipe (1) 2.5
(2) 3.0
#10 slotted 1" PVC screen
#2 size sand
8.0

WATER TABLE & REMARKS

Assorted fill to 7.0 feet over clayey lake sediment to end of boring.

(1) Cement bentonite grout.
(2) Bentonite seal.

Water level at 6.3 feet below ground surface at completion.

OVM Readings

Sample	Depth	ppm
1	0.0 - 2.0	0
2	2.0 - 4.0	0
3	4.0 - 6.0	0
4	6.0 - 8.0	0

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW.

mn LOGGED BY Donald W. Owens/Soil Scientist SHEET 1 OF 1

FIELD BORING LOG

DEPTH HOLE 12.3'	JOB NO. 963-9117	PROJECT BCC/RFI/NY			BORING NO. RFI-20
DEPTH SOIL DRILL 12.3'	GA INSP. D. WEHN	DRILLING METHOD 4-1/4-INCH I.D. HOLLOW STEM AUGER			SHEET 1 of 1
DEPTH ROCK CORE 0	WEATHER RAIN	DRILLING CO. SJB SERVICES			SURFACE EL. 585.80
NO. DIST. SA. 0 US. SA.	TEMP. 40° F	DRILL RIG CME-85	DRILLER A. MILLER		DATUM MSL
DEPTH WL. NA	HRS. PROD. NA	WT. SAMPLER HAMMER 140#	DROP 30"		STARTED 1415 4/22/96
TIME WL. NA	HRS. DELAYED NA	WT. CASING HAMMER NA	DROP NA		COMPLETED 1600 4/23/96

SAMPLE TYPES

A.S.	AUGER SAMPLE
C.S.	CHUNK SAMPLE
D.O.	DRIVE OPEN
D.S.	DENISON SAMPLE
P.S.	PITCHER SAMPLE
R.C.	ROCK CORE
S.T.	SLOTTED TUBE
T.O.	THIN-WALLED, OPEN
T.P.	THIN-WALLED, PISTON
W.S.	WASH SAMPLE

ABBREVIATIONS

BL	BLACK	M	MEDIUM	SA	SAMPLE
BR	BROWN	MIC	MICACEOUS	SAT	SATURATED
C	COARSE	MOT	MOTTLED	SD	SAND
CA	CASING	NP	NON-PLASTIC	SI	SILT
CL	CLAY	OG	ORANGE	SIY	SILTY
CLY	CLAYEY	ORG	ORGANIC	SM	SOME
F	FINE	PH	PRESSURE-HYDRAULIC	TR	TRACE
FRAG	FRAGMENTS	PM	PRESSURE-MANUAL	WL	WATER LEVEL
GL	GRAVEL	R	RED	WH	WEIGHT OF HAMMER
LYD	LAYERED	RES	RESIDUAL	Y	YELLOW
LI	LITTLE	RX	ROCK		

SOIL DESCRIPTION – RANGE OF PROPORTION

"TRACE" – 0–5%
"LITTLE" – 5–12%
"SOME" – 12–30%
"AND" – 30–50%

CONSISTENCY

LS	LOOSE	S	SOFT
CP	COMPACT	FM	FIRM
DN	DENSE	ST	STIFF
V	VERY	H	HARD

ELEV. DEPTH	DESCRIPTION	BLOWS/FT.	SAMPLES NO.	TYPE	HAMM. BLOWS PER 6 IN. (FORCE)	REC/ATT	Q" (Tons/ft²)	SAMPLE DESCRIPTION AND BORING NOTES
2	FILL FOR COMPLETE SOIL DESCRIPTION SEE FIELD BORING LOG FOR ADJACENT WELL RFI-21D							1. 0–2 ft.– No sample – Augered through gravel fill and concrete.
			1	SS	2-3-3-3	1.5/2.0	0.5	2. 2–4 ft.– Loose, black, crushed stone to 2.5 ft. then compact, dark gray–brown SILT and fine SAND with some clay. Sample RFI20S2F and RFI20C2F collected.
4	4.0 – UPPER TILLS							3. 10–12 ft.– Very soft, gray–brown with faint varving CLAY with trace silt and some silt to fine sand seams or partings.
			2	SS	2-4-6-8	1.8/2.0	0.5	Sample RFI20SWT collected.
6								Auger to 12.3 ft. BGS.
8								
10			3	SS	WH-WH-2-2	2.0/2.0	NR	
12	11.5 – GLACIOLACUSTRINE CLAY							
	12.3 – END OF BOREHOLE							
14								
16								
18								
20								
22								

FIELD BORING LOG

DEPTH HOLE 40.75' JOB NO. 963-9117 PROJECT BCC/RFI/NY BORING NO. RFI-21D
DEPTH SOIL DRILL 40.75' GA INSP. D. WEHN DRILLING METHOD 6 1/4-4 1/4-INCH I.D. HOLLOW STEM AUGER SHEET 1 of 2
DEPTH ROCK CORE 0 WEATHER RAIN DRILLING CO. SJB SERVICES SURFACE EL. 585.76
NO. DIST. SA. 0 US. SA. 21 TEMP. 40° F DRILL RIG CME-85 DRILLER A. MILLER DATUM MSL
DEPTH WL. NA HRS. PROD. NA WT. SAMPLER HAMMER 140# DROP 30" STARTED 0930 4/23/96
TIME WL. NA HRS. DELAYED NA WT. CASING HAMMER NA DROP NA COMPLETED 1300 4/24/96

SAMPLE TYPES

A.S.	AUGER SAMPLE
C.S.	CHUNK SAMPLE
D.O.	DRIVE OPEN
D.S.	DENISON SAMPLE
P.S.	PITCHER SAMPLE
R.C.	ROCK CORE
S.T.	SLOTTED TUBE
T.O.	THIN-WALLED, OPEN
T.P.	THIN-WALLED, PISTON
W.S.	WASH SAMPLE

ABBREVIATIONS

BL	BLACK
BR	BROWN
C	COARSE
CA	CASING
CL	CLAY
CLY	CLAYEY
F	FINE
FRAG	FRAGMENTS
GL	GRAVEL
LYD	LAYERED
LI	LITTLE
M	MEDIUM
MIC	MICACEOUS
MOT	MOTTLED
NP	NON-PLASTIC
OC	ORANGE
ORG	ORGANIC
PH	PRESSURE-HYDRAULIC
PN	PRESSURE-MANUAL
R	RED
RES	RESIDUAL
RX	ROCK
SA	SAMPLE
SAT	SATURATED
SD	SAND
SI	SILT
SLY	SILTY
SM	SOME
TR	TRACE
WL	WATER LEVEL
WH	WEIGHT OF HAMMER
Y	YELLOW

SOIL DESCRIPTION - RANGE OF PROPORTION

"TRACE" - 0-5%
"LITTLE" - 5-12%
"SOME" - 12-30%
"AND" - 30-50%

CONSISTENCY

LS	LOOSE	S	SOFT
CP	COMPACT	FM	FIRM
DN	DENSE	ST	STIFF
V	VERY	H	HARD

ELEV. DEPTH	DESCRIPTION	BLOWS/FT.	SAMPLES NO.	TYPE	MANUAL BLOWS PER 6 IN. (FORCE)	REC/ATT	q" (Tons/ft²)	SAMPLE DESCRIPTION AND BORING NOTES
2	FILL		1	SS	4-12	0.2/1.0	NR	1. 0-2.0 ft.- Gray to black crushed stone, building debris. (fill). Concrete from 1-2 ft.
			2	SS	8-8-1-3	1.5/2.0	0.8	2. 2-4 ft.- Dark red to black SILT, CLAY AND SAND. FILL. Strong organic odor - 34 ppm on PID. Sample RFI21DSBF collected.
4								3. 4-6 ft.- Soft, Gray to black SILTY CLAY with silt and fine sand partings.
6	4.0 - UPPER TILLS		3	SS	WH-WH-1-2	1.2/2.0	0.2	4. 6-8 ft.- As above to 6.4 ft. then stiff light brown with gray mottling. SILTY CLAY.
8			4	SS	WH-1-4-5	1.6/2.0	2.0	5. 8-10 ft.- As above with faint varving instead of mottling. Trace of sand and silt parting. Sample RFI21DGBA collected.
			5	SS	2-2-4-8	2.0/2.0	2.2	6. 10-12 ft.- As above, grading at 10.6 ft. to a soft, light brown with faint varving CLAY with some silt and little sand and silt parting.
10								7. 12-14 ft.- Same as above.
12	10.6 - GLACIOLACUSTRINE CLAY		6	SS	1-2-1-2	2.0/2.0	0.2	8. 14-16 ft. - As above to 14.8 ft. then more slightly reddish-brown in color. Sample RFI21DSBA and RFI21DCBA collected.
								9. 16-18 ft.- As above grading to light brown in color. Sample RFIDB5-7C collected.
14			7	SS	WH-WH-WH-WH	2.0/2.0	0.2	10. 18-20 ft.- As above color varies from light brown to slightly reddish-brown
			8	SS	WH-WH-WH-WH	2.0/2.0	0.1	11. 20-22 ft.- Same as above.
16								
			9	SS	WH-WH-WH-WH	2.0/2.0	0.1	
18								
			10	SS	WH-WH-WH-WH	2.0/2.0	0.2	
20								
			11	SS	WH-WH-WH-WH	2.0/2.0	0.2	
22								

FIELD BORING LOG

DEPTH HOLE 40.75' JOB NO. 953-9117 PROJECT BCC/RFI/NY BORING NO. RFI-210
DEPTH SOIL DRILL 40.75' GA INSP. D. WEHN DRILLING METHOD 6 1/4-4 1/4-INCH I.D. HOLLOW STEM AUGER SHEET 2 of 2
DEPTH ROCK CORE 0 WEATHER RAIN DRILLING CO. SJB SERVICES SURFACE EL. 585.76
NO. DIST. SA. 0 US. SA. 21 TEMP. 40° F DRILL RIG CME-550X DRILLER D. BUTZER DATUM MSL
DEPTH WL. NA HRS. PROD. NA WT. SAMPLER HAMMER 140# DROP 30" STARTED 0930 4/23/96
TIME WL. NA HRS. DELAYED NA WT. CASING HAMMER NA DROP NA COMPLETED 1300 4/24/96

SAMPLE TYPES

A.S.	AUGER SAMPLE
C.S.	CHUNK SAMPLE
D.O.	DRIVE OPEN
D.S.	DENISON SAMPLE
P.S.	PITCHER SAMPLE
R.C.	ROCK CORE
S.T.	SLOTTED TUBE
T.O.	THIN-WALLED, OPEN
T.P.	THIN-WALLED, PISTON
W.S.	WASH SAMPLE

ABBREVIATIONS

BL	BLACK
BR	BROWN
C	COARSE
CA	CASING
CL	CLAY
CLY	CLAYEY
F	FINE
FRAG	FRAGMENTS
GL	GRAVEL
LYD	LAYERED
LI	LITTLE
M	MEDIUM
MC	MICACEOUS
MOT	MOTTLED
NP	NON-PLASTIC
OG	ORANGE
ORG	ORGANIC
PH	PRESSURE-HYDRAULIC
PM	PRESSURE-MANUAL
R	RED
RES	RESIDUAL
RX	ROCK
SA	SAMPLE
SAT	SATURATED
SD	SAND
SI	SILT
SLY	SILTY
SM	SOME
TR	TRACE
WL	WATER LEVEL
WH	WEIGHT OF HAMMER
Y	YELLOW

SOIL DESCRIPTION - RANGE OF PROPORTION

"TRACE" - 0-5%
"LITTLE" - 5-12%
"SOME" - 12-30%
"AND" - 30-50%

CONSISTENCY

LS	LOOSE	S	SOFT
CP	COMPACT	FM	FIRM
DN	DENSE	ST	STIFF
V	VERY	H	HARD

ELEV. DEPTH	DESCRIPTION	BLOWS/FT.	SAMPLES NO.	TYPE	HAMM. BLOWS PER 6 IN. (FORCE)	REC/ATT	q* (Tons/ft²)	SAMPLE DESCRIPTION AND BORING NOTES
24	GLACIOLACUSTRINE CLAY		12	SS	WH-WH-WH-WH	2.0/2.0	0.2	12. 22-24 ft.- As above with contorted flow structures.
								13. 24-26 ft.- As sample 10 above.
26			13	SS	WH-WH-WH-WH	2.0/2.0	0.1	14. 26-28 ft.- Same as above.
28			14	SS	WH-WH-WH-WH	2.0/2.0	0.1	15. 28-30 ft.- Same as above.
30			15	SS	WH-WH-WH-WH	2.0/2.0	0.1	16. 30-32 ft.- Same as above.
32			16	SS	WR-WH-WH-WH	2.0/2.0	0.2	17. 32-34 ft.- Same as above but very soft.
34			17	SS	WH-WH-WH-WH	2.0/2.0	NR	18. 34-36 ft.- As above to 35.0 then soft reddish-brown CLAY with trace subrounded gravel, little sand.
			18	SS	WH-1-4-16	1.3/2.0	0.2	19. 36-38 ft.- Compact, gray, saturated FINE SAND AND SILT with some fine to coarse gravel (limestone).
36	36.0 - BASAL TILLS							20. 38-40 ft.- As above with some silt grading to weathered dark gray limestone with some silty zones. Sample RFI21DSBG collected.
			19	SS	3-6-6-12	1.0/2.0	0.7	21. 40-42 ft.- Weathered dark gray limestone. at 40.8 ft.
38			20	SS	17-38-54-50/0.4	1.2/1.9	0.2	
40			21	SS	22-50/0.3	1.3/0.8	N/A	
42	40.8 - BEDROCK END OF BOREHOLE							
44								

FIELD BORING LOG

DEPTH HOLE 15.0'	JOB NO. 963-9117	PROJECT BCC/RFI/NY			BORING NO. RFI-30
DEPTH SOIL DRILL 15.0'	GA INSP. D. WEHN	DRILLING METHOD 4-1/4-INCH I.D. HOLLOW STEM AUGER			SHEET 1 of 1
DEPTH ROCK CORE 0	WEATHER CLOUDY	DRILLING CO. SJB SERVICES			SURFACE EL. 585.56
NO. DIST. SA. 0 US. SA. 8	TEMP. 55° F	DRILL RIG CME-85	DRILLER A. MILLER		DATUM MSL
DEPTH WL. NA	HRS. PROD. NA	WT. SAMPLER HAMMER 140#	DROP 30"		STARTED 1030 4/25/96
TIME WL. NA	HRS. DELAYED NA	WT. CASING HAMMER NA	DROP NA		COMPLETED 1145 4/25/96

SAMPLE TYPES

A.S.	AUGER SAMPLE
C.S.	CHUNK SAMPLE
D.O.	DRIVE OPEN
D.S.	DENISON SAMPLE
P.S.	PITCHER SAMPLE
R.C.	ROCK CORE
S.T.	SLOTTED TUBE
T.O.	THIN-WALLED, OPEN
T.P.	THIN-WALLED, PISTON
W.S.	WASH SAMPLE

ABBREVIATIONS

BL	BLACK	M	MEDIUM	SA	SAMPLE
BR	BROWN	MIC	MICACEOUS	SAT	SATURATED
C	COARSE	MOT	MOTTLED	SD	SAND
CA	CASING	NP	NON-PLASTIC	SI	SILT
CL	CLAY	OC	ORANGE	SLY	SILTY
CLY	CLAYEY	ORG	ORGANIC	SM	SOME
F	FINE	PH	PRESSURE-HYDRAULIC	TR	TRACE
FRAG	FRAGMENTS	PM	PRESSURE-MANUAL	WL	WATER LEVEL
GL	GRAVEL	R	RED	WH	WEIGHT OF HAMMER
LYD	LAYERED	RES	RESIDUAL	Y	YELLOW
U	LITTLE	RX	ROCK		

SOIL DESCRIPTION - RANGE OF PROPORTION

"TRACE" - 0-5%
"LITTLE" - 5-12%
"SOME" - 12-30%
"AND" - 30-50%

CONSISTENCY

LS	LOOSE	S	SOFT
CP	COMPACT	FM	FIRM
DN	DENSE	ST	STIFF
V	VERY	H	HARD

ELEV. DEPTH	DESCRIPTION	BLOWS/FT.	SAMPLES NO.	TYPE	MANN. BLOWS PER 6 IN. (FORCE)	REC/ATT	q" (Tons/ft²)	SAMPLE DESCRIPTION AND BORING NOTES
0	FILL		1	SS	4-4-7-7	1.5/2.0	NR	1. 0.0-2.0 ft.- Black to gray brown, crushed stone, concrete, and silty clay. FILL
2			2	SS	6-8-8-10	1.6/2.0	NR	2. 2-4 ft.- Black to dark gray, silty clay, coal, brick. FILL Saturated. Sample RFI30S3F collected.
4								3. 4-6 ft.- Brick blocked off spoon
6			3	SS	5-5-2-3	0.1/2.0	NR	4. 6-8 ft.- Stiff, dark gray to yellow-brown, SILTY CLAY with trace of limonite staining, trace of sand (in a lens). Sample RFI30S6F collected.
	6.0 - UPPER TILLS		4	SS	WH-3-6-5	1.2/2.0	2.5	5. 8-10 ft.- Stiff to very stiff, med. brown, SILTY CLAY with gray mottling, little sand/silt partings.
8								6. 10-12 ft.- As above.
10			5	SS	3-6-9-13	2.0/2.0	3.0	7. 12-14 ft.- As above grading to soft, med. brown CLAY with trace silt and faint varving by 13.8 ft. Samples RFI30SWT and RFI30CWT collected.
12			6	SS	4-7-9-9	2.0/2.0	2.5	8. 14-16 ft.- Soft, med. brown with faint reddish varving, CLAY with trace silt partings.
14	13.8 - GLACIOLACUSTRINE CLAY		7	SS	3-3-3-3	2.0/2.0	1.0	
16	16.0 - END OF SAMPLING		8	SS	WH-WH-1-2	2.0/2.0	0.2	
18								
20								
22								

FIELD BORING LOG

DEPTH HOLE 14.0'	JOB NO. 963-9117	PROJECT BCC/RFI/NY			BORING NO. RFI-31
DEPTH SOIL DRILL 14.0'	GA INSP. D. WEHN	DRILLING METHOD 4-1/4-INCH I.D. HOLLOW STEM AUGER			SHEET 1 of 1
DEPTH ROCK CORE 0	WEATHER CLOUDY	DRILLING CO. SJB SERVICES			SURFACE EL. 585.76
NO. DIST. SA. 0 US. SA. 7	TEMP. 65° F	DRILL RIG ACKER SOILMAX	DRILLER R. STEINER		DATUM MSL
DEPTH WL. NA	HRS. PROD. NA	WT. SAMPLER HAMMER 140#	DROP 30"		STARTED 1500 5/16/96
TIME WL. NA	HRS. DELAYED NA	WT. CASING HAMMER NA	DROP NA		COMPLETED 1620 5/16/96

SAMPLE TYPES

A.S. AUGER SAMPLE
C.S. CHUNK SAMPLE
D.O. DRIVE OPEN
D.S. DENISON SAMPLE
P.S. PITCHER SAMPLE
R.C. ROCK CORE
S.T. SLOTTED TUBE
T.O. THIN-WALLED, OPEN
T.P. THIN-WALLED, PISTON
W.S. WASH SAMPLE

ABBREVIATIONS

BL	BLACK	M	MEDIUM	SA	SAMPLE
BR	BROWN	MIC	MICACEOUS	SAT	SATURATED
C	COARSE	MOT	MOTTLED	SD	SAND
CA	CASING	NP	NON-PLASTIC	SI	SILT
CL	CLAY	OG	ORANGE	SLY	SILTY
CLY	CLAYEY	ORG	ORGANIC	SM	SOME
F	FINE	PH	PRESSURE-HYDRAULIC	TR	TRACE
FRAG	FRAGMENTS	PM	PRESSURE-MANUAL	WL	WATER LEVEL
GL	GRAVEL	R	RED	WH	WEIGHT OF HAMMER
LYD	LAYERED	RES	RESIDUAL	Y	YELLOW
U	LITTLE	RX	ROCK		

SOIL DESCRIPTION - RANGE OF PROPORTION

"TRACE" - 0-5%
"LITTLE" - 5-12%
"SOME" - 12-30%
"AND" - 30-50%

CONSISTENCY

LS	LOOSE	S	SOFT
CP	COMPACT	FM	FIRM
DN	DENSE	ST	STIFF
V	VERY	H	HARD

ELEV. DEPTH	DESCRIPTION	BLOWS/FT.	SAMPLES NO.	TYPE	MANUAL BLOWS PER 6 IN. (FORCE)	REC/ATT	q* (Tons/ft²)	SAMPLE DESCRIPTION AND BORING NOTES
	TOPSOIL		1	SS	50	0.3/0.5	1.0	1. 0.0-0.5 ft.- Loose, brown, CLAYEY SILT TOPSOIL, concrete floor beneath to 1.5 ft. Auger to 2.0 ft.
	0.5 - CONCRETE							
2	1.5 - FILL		2	SS	8-5-20-50	1.7/2.0	NR	2. 2-4 ft.- Loose, brown, rust-red, yellow and black SAND AND GRAVEL. ASH. FILL Samples RFI31C2F and RFI31S2F collected.
								3. 4-6 ft.- Loose, black, GRAVEL AND SAND grading to loose, black fine to med. SAND.
4			3	SS	18-10-10-8	1.4/2.0	NR	Oily sheen. Sample RFI31S5F collected. FILL
								4. 6-8 ft.- Compact, brown with gray mottling, CLAYEY SILT with little silt partings.
6	6.0 - UPPER TILLS		4	SS	1-5-5-6	1.6/2.0	2.5	Sample RFI31SWT collected.
								5. 8-10 ft.- As above.
8			5	SS	5-6-11-12	1.8/2.0	2.5	6. 10-12 ft.- As above.
								7. 12-14 ft.- As above to 12.4 ft. then soft, gray-brown, faintly varved CLAY with trace silt partings.
10			6	SS	5-9-12-14	1.9/2.0	2.2	
12								
	12.4 - GLACIOLACUSTRINE CLAY		7	SS	1-2-2-2	2.0/2.0	0.2	
14	14.0 - END OF BOREHOLE							
16								
18								
20								
22								

APPENDIX G

GROUNDWATER SAMPLING LOG

FIELD DATA RECORD - GROUNDWATER SAMPLING

MACTEC

PROJECT		SAMPLE I.D. NUMBER			
WELL ID:		SAMPLING EVENT		DATE	
TIME	START END	JOB NUMBER		SAMPLERS	

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
- ☐ TOP OF WELL RISER
- ☐ TOP OF PROTECTIVE CASING
- ☐ OTHER _____

INITIAL DEPTH TO WATER	FT	SCREEN LENGTH	FT
WELL DEPTH	FT		
WELL DIAMETER	IN		
TOTAL VOL. PURGED	GAL		

PURGE DATA

GALLONS	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	COMMENTS

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING
☐ WAILER	☐ LOW DENSITY POLYETHYLENE
☐ SIMCO BLADDER	☐ HIGH DENSITY POLYETHYLENE
☐ GEOPUMP	☐ OTHER _____

ANALYTICAL PARAMETERS

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☐ VOC- ON-SITE LAB	MOD-8021	HCL / 4 DEG. C	2 X 40 mL	☐ VOC- ON-SITE LAB
☐ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☐ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ CYANIDE	335.4	_____	_____	☐ CYANIDE
☐ Maine DRO	MEDEP	HCL / 4 DEG. C	2 X 1 L AG	☐ Maine DRO
☐ TOC	USEPA 415.1	H2SO4 to pH <2	2 X 40 ML	☐ TOC
☐ TSS	USEPA 160.2	4 DEG. C	1 X 250 mL P	☐ TSS
☐ TKN	USEPA 351.2	H2SO4 to pH <2	1 X 1 L P	☐ TKN
☐ Other_____	_____	_____	_____	☐
☐ Other_____	_____	_____	_____	☐
☐ Other_____	_____	_____	_____	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES NO

NUMBER OF GALLONS GENERATED _____

NOTES

All Equipment used either dedicated or deconned prior to arrival on site. No rinseate/ field blank required

SIGNATURE: _____

LOCATION SKETCH

APPENDIX H

SITE-WIDE INSPECTION FORM

SITE-WIDE INSPECTION FORM

Former Buffalo Color Facility, Area C, Buffalo, NY

Date: _____

Weather: _____

Personnel (Organization): _____

Instructions: Complete the checklist of evaluation items and then complete specific data items. Field measurements should be made with a cloth tape and noted on a Site plan. Estimated measurements shall be so noted. All field notes and documentation, including hand sketches, photographs, and notes made on the Site plan, should be attached to the completed checklist to further define conditions or problems.

EVALUATION ITEMS

(Write NA if not applicable)	CONDITION: (Check) Acceptable	Not Acceptable	Action Required: Yes	No	Remarks
1. Institutional Controls					
a. Site Use					
2. Engineering Controls					
a. Soil Cover					
b. Surface Pavement					
c. At-Grade/Basement Slabs					
3. Site Management Activities					
a. Confirmation Sampling					
b. Health & Safety Inspection					
c. Other (specify)					
4. Permits					
a. Compliant?					
5. O&M					
a. Schedule being followed?					
6. Site Records					
a. Up to date?					

SITE-WIDE INSPECTION FORM (CONTINUED)
Former Buffalo Color Facility, Area C, Buffalo, NY

7. **General Site Conditions** _____

_____

_____

_____

_____

_____

_____

_____

_____

Signature of Inspector(s)

Attachments

_____ Yes _____ No

Other Comments:

APPENDIX I

QUALITY ASSURANCE PROJECT PLAN

APPENDIX I – EXAMPLE PLAN - QUALITY ASSURANCE/QUALITY CONTROL

Quality assurance/quality control (QA/QC) procedures will be utilized throughout the project as described in the following sections. The project QA/QC protocol will be consistent with NYSDEC's Draft Technical Guidance for Site Investigation and Remediation (DER-10, December 2002).

1. LABORATORY ANALYSES

The primary goal of this section is to provide a description of the laboratory analytical program and the analytical methods used to analyze soil and water samples collected during field investigation activities. The majority of the analytical data will be generated using USEPA analytical procedures. Analyses will be completed using USEPA SW-846 methods (USEPA, 1996). Samples will be analyzed by a subcontract laboratory with NYSDOH ELAP Certification.

At this time, the analytical laboratory has not been selected for the RI/FS. Laboratory information and contacts will be included provided to NYSDEC when a laboratory is selected.

Analytical methods and parameters for are described in Sections 5.1 and 5.2 and are summarized below:

- Volatile Organic Compounds (VOCs) by Method 8260B
- Semivolatile Organic Compounds (SVOCs) by Method 8270C
- Polychlorinated biphenyls (PCBs) by Method 8082
- Metals by Methods 6000/7000 including mercury by Methods 7470A and 7471A
- Cyanide by Method 9012A
- Alcohols by Method 8015
- Hydrocarbons (diesel fuel compounds) by methods specified in the STARS #1 Memo
- Other inorganics in groundwater by various EPA Methods
- VOCs by EPA Method TO-15 (soil gas/air samples only)

The laboratory testing will be performed in accordance with procedures specified in the NYSDEC Analytical Services Protocol (ASP) [NYSDEC, 2000] and the published EPA SW-846 methods.

2. RECORDKEEPING

Notes regarding field activities, observations, and measurements will be documented in ink in a bound project logbook. Information to be recorded will include the following:

- The names of personnel on site and their organizations
- A time log that records the events that occur during each day on site
- A list of equipment used
- A description of sampling methods and procedures
- Sample types, locations, collection times and required laboratory analyses
- Weather conditions
- Instrument calibration results
- Water levels
- Well purging data
- Other information as necessary

3. EQUIPMENT DECONTAMINATION

In order to minimize the potential for cross contamination during sampling, disposable sampling equipment will be used when possible. Decontamination of non-disposable equipment will be performed prior to use at a new location or for sample collection. Decontamination of non-disposable sampling equipment will include a soap/water wash, potable water rinse, distilled water rinse, and wipe-drying with a clean cloth or air drying. During groundwater sampling, new pump tubing will be used at each well location. The submersible pump, if used, will be cleaned with a soap/water wash and distilled water rinse prior to purging/sampling each well.

4. QUALITY CONTROL SAMPLES

Quality control samples will be collected and analyzed as follows:

- An aqueous trip blank prepared by the laboratory will accompany each sample shipment. The trip blanks will be analyzed for the same VOC parameters as the soil and groundwater samples.

- Aqueous field blank samples will be collected during the soil and groundwater sampling events. One aqueous field blank will be collected during the RI/FS soil sampling and one aqueous field blank will be collected for each groundwater monitoring event. The field blanks will be collected by pouring analyte-free water (provided by the laboratory) over the sampling equipment and containerizing the rinsate in the appropriate laboratory bottles. The field blanks will be analyzed for the same parameters as the soil and groundwater samples.

- One duplicate groundwater sample will be collected from a specific monitoring well during each groundwater sampling event. The duplicate will be collected at the same time, using the same procedures, and analyzed for the same parameters as the original groundwater sample.

- A matrix spike/matrix spike duplicate (MS/MSD) sample will be collected from a specific well during each groundwater monitoring event. MS/MSDs are known amounts of specific chemical constituents added by the laboratory to selected samples to evaluate the effect of the sample matrix on the preparation and analytical procedures. Matrix spikes are performed in duplicate and are referred to as MS/MSDs.

- One blank sample will be collected for analysis by EPA Method TO-15 during each sub-slab vapor and indoor/outdoor air sampling event completed at the Area B office building.

5. DATA REVIEW AND VALIDATION

Category B deliverables as defined in the NYSDEC ASP will be reported for all samples collected during remedial investigation activities. Analytical data will be validated by a MACTEC project chemist in accordance with NYSDEC Data Usability Summary Report (DUSR) guidelines (NYSDEC, 2002) and Honeywell Remediation program data validation procedures. Validation will be completed prior to use as final data in investigation reports. Three levels of validation are established for Honeywell projects. A data validation scope will be selected for each sample set based on the data quality goals and needs of that task.

5.1 Project Accuracy and Precision Goals

Accuracy and precision limits have been identified for the analytical quality control measurements that will be performed in association with the collection and analysis of field samples. A summary of project limits are summarized in Table 8-1. These limits were determined based on USEPA Region 2 data validation guidelines and the professional judgment of the project QAO. They represent QA/QC goals for the project to ensure that data meet a minimum quality standard for evaluation of site contamination and data use in remedial investigation reports. These limits will be used to review and evaluate data quality and data usability during data validation.

5.2 Data Validation Levels

Data validation will be completed for all remedial investigation samples and the data validation observations and actions will be summarized in a DUSR. Three general levels of data validation are described for data collected under the Honeywell Remediation Program. Validation Levels II, III, and IV have been established to provide standards for analytical data review and to allow projects to determine validation procedures that are appropriate for the data quality goals for each investigation task. Level II validation includes a review of basic QA/QC procedures and measurements that are associated with environmental laboratory analyses, and it represents a generic minimum review of data quality. Level II and Level IV are completed for investigation data that need more intensive validation to support additional data quality objectives or regulatory guidelines and to provide calculation and transcription. Remedial investigation samples will have Level II validation with 10 percent Level IV.

Level II includes the following data checks and evaluations:

- A review of the data set narrative to identify and issues that the lab reported in the data deliverable;
- A check of sample integrity (sample collection, preservation, and holding times);
- An evaluation of basic QC measurements used to assess the accuracy and precision of data including QC blanks, laboratory control samples (LCS), matrix spikes/matrix spike duplicates (MS/MSD), surrogate recovery when applicable, and field or lab duplicate results; and,
- A review of sample results, target compounds, and detection limits to verify that project analytical requirements are met.

Level III would include all of Level II plus some additional method-specific QC checks including instrument calibration, internal standard response for gas chromatography/mass spectrometry (GC/MS), and interference checks and serial dilutions data for inorganics.

Level IV would include all Level II and Level III checks with additional calculation and raw data checks to verify that no reporting errors have occurred. Data validation actions will be based on general USEPA National guidance documents (USEPA; 1999; USEPA, 2004) and the professional judgment of the project chemist and QAO.

MACTEC may use the EIM system to complete a computerized Level II validation of each data package to check that the project quality control requirements specified in subsections 4.2 and subsection 8.1. Data qualifiers will be applied to results that do not meet project goals. EIM will produce a summary of data validation actions for each sample set. The summaries will be reviewed and approved by the project chemist prior to finalization of the validated data. The data will be evaluated/qualified based on the following parameters (if available/applicable) and specified criteria:

A DUSR will be prepared for data sets reported from each distinct sample collection effort. The validation report will include a summary of analytical methods performed, listings of samples included in the review, and summaries of data validation actions or observations.