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Subject:
Former Hooker Chemical/Oxy/Ruco Polymer Site
125 New South Road, Hicksville, New York
NYSDEC Site #130004
Site Management Plan and Final Engineering Report

ENVIRONMENT

Date:
September 25, 2017

Dear Mr. Scharf:

Contact:
Mr. John C. Brussel, P.E.

On behalf of Covestro LLC (Covestro) and as a follow-up to your September 22, 2017 e-mail correspondence and our September 25, 2017 telephone conversation, please find the enclosed Site Management Plan (SMP) and Final Engineering Report (FER) for the Covestro (Former Hooker Chemical/Oxy/Ruco Polymer) site.

Phone:
315.671.9441

Email:
John.Brussel@arcadis.com

The SMP was originally submitted to the New York State Department of Environmental Conservation (NYSDEC) on June 7, 2017 and has been revised to address NYSDEC comments provided in your August 4, 2017 letter and September 15, 2017 e-mail correspondence to Arcadis. The revisions incorporated into the enclosed SMP are consistent with those presented in my August 16, 2017 and September 15, 2017 e-mail correspondence to the NYSDEC. Per your September 22, 2017 e-mail correspondence, Covestro and Arcadis understand that the SMP is acceptable to the NYSDEC and approved with the incorporation of these revisions.

Our ref:
B0032305.1701 #10

The FER was also originally submitted to the NYSDEC on June 7, 2017 (in "draft" format) and has been revised to address NYSDEC comments provided in your August 4, 2017 letter. The revisions incorporated into the enclosed FER are consistent with those presented in my August 17, 2017 e-mail correspondence to the NYSDEC. Per your September 22, 2017 e-mail correspondence, Covestro and Arcadis understand that the FER is also acceptable to the NYSDEC and approved with the incorporation of these revisions.

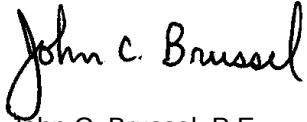
Mr. Steven Scharf, P.E.
September 25, 2017

Electronic copies of the SMP and the FER are being e-mailed to the NYSDEC. The electronic attachments to the FER are included on the "flash drive" included inside the cover of the FER binder.

Please do not hesitate to contact Mr. Troutman of Covestro at 412.413.2236 or the undersigned if you have any questions or need additional information.

Sincerely,

Arcadis of New York, Inc.



John C. Brussel, P.E.
Principal Engineer/
Certified Project Manager

Copies:

Mr. Walter Parish, NYSDEC (email)
Mr. Carl Fritz, NYSDEC (email)
Ms. Renata Ockerby, NYSDOH (email and FER flash drive)
Mr. Timothy Troutman, P.E., Covestro (email and hard-copy)
Mr. David Paule, Covestro (e-mail)
Heidi Minuskin, Esq., Coughlin Duffy (e-mail and hard-copy)
Brian T. Sampson, Esq., D'Agostino, Levine, Landesman & Lederman, LLP (email and hard-copy)
Hicksville Public Library (email and hard-copy)

Enclosures:

Site Management Plan
Final Engineering Report

**Former Hooker Chemical/Oxy/
Ruco Polymer Corporation Site
125 New South Road
HICKSVILLE, NEW YORK**

Site Management Plan

NYSDEC Site Number: 130004

Prepared for:
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Prepared by:
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Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date

SEPTEMBER 2017

CERTIFICATION STATEMENT

I, John C. Brussel P.E., certify that I am currently a New York State registered professional engineer and that this Site Management Plan (dated September 2017) for the Former Hooker Chemical/Oxy/Ruco Polymer Corporation Site (NYSDEC Site Number 130004) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10).



John C. Brussel P.E.
9-25-17 DATE

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LIST OF ACRONYMS

bgs	Below ground surface
BUD	Beneficial Use Determination
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C&D	Construction and Demolition
CFR	Code of Federal Regulation
COC	Certificate of Completion
CY	Cubic yards
EC	Engineering Control
ECL	Environmental Conservation Law
EE	Environmental Easement
EWP	Excavation Work Plan
HASP	Health and Safety Plan
IC	Institutional Control
NAPL	Non-aqueous phase liquid
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OMM	Operation, Maintenance and Monitoring
OU	Operable Unit
PID	Photoionization Detector
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SSD	Sub-Slab Depressurization
SVI	Soil Vapor Intrusion
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank

ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this Site Management Plan (SMP). The responsibilities identified in this SMP for the current Site owner/Remedial Party, and then upon change of title transferred to the subsequent Site owner(s) (referred to hereafter as the Current Site Owner), are summarized in Appendix C:

Site Identification: Former Hooker Chemical/Oxy/Ruco Polymer
Corporation Site

Hicksville, New York

New York State Department of Environmental
Conservation (NYSDEC) Site #130004

Institutional Controls:	1. The Site may only be used for restricted commercial or industrial use provided that the long-term Engineering Controls (ECs) and Institutional Controls (ICs) included in this SMP are employed.
	2. The Site may not be used for a higher level of use, such as unrestricted, residential, or restricted residential use.
	3. The Site may only be used for the allowable land uses listed in Appendix E. Any of the prohibited land uses identified in Appendix E would require additional actions by the then Current Site Owner, including any necessary remediation, and amendment of the Environmental Easement (EE) and Institutional Controls (ICs), as approved by the NYSDEC.
	4. All ECs must be operated and maintained as specified in this SMP.
	5. All ECs must be inspected and monitored at a frequency and in a manner defined in the SMP.
	6. 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.

Site Identification:

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	7. All future activities on the Site that will disturb remaining impacted material must be conducted in accordance with this SMP.
	8. Monitoring to assess the continued performance and effectiveness of the remedy must be performed as defined in this SMP.
	9. Maintenance, monitoring, and reporting of all components of the remedy shall be performed as defined in this SMP.
	10. The use of the groundwater underlying the Site is prohibited without the user conducting the necessary water quality treatment as determined by the New York State Department of Health (NYSDOH) or the Nassau County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the NYSDEC.
	11. In accordance with all applicable laws and regulations, including the Official Compilation of Codes, Rules and Regulations of New York State (NYCRR), access to the Site must be provided to agents, employees, or other representatives by or on behalf of the State of New York to assure compliance with the restrictions identified by the Environmental Easement. The United States Environmental Protection Agency (EPA) is also included as an entity entitled to unrestricted site access for such purposes as carrying out EPA's program for the Site. EPA must be copied on the reporting and notification requirements of this SMP. Once the Site is no longer on the National Priorities List, these EPA requirements will cease.

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	12. The potential for vapor intrusion must be evaluated for any buildings developed at the Site and any potential impacts that are identified must be monitored or mitigated by owners/operators of the Site at time any building development is sought.	
	13. Vegetable gardens and farming on the Site are prohibited.	
Engineering Controls:	1. Cover system	
Inspections:		Frequency
1. Cover inspection		Annually
Reporting:		
1. Periodic Review Report		Annually, or as otherwise determined by the NYSDEC

Further descriptions of the above requirements are provided in detail in this SMP.

SITE MANAGEMENT PLAN

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This Site Management Plan (SMP) is required as an element of the remedial program at the former Hooker Chemical/Oxy/Ruco Polymer Corporation site located at 125 New South Road in Hicksville, New York (“Site”). The Site is currently owned by Covestro LLC (Covestro), which changed its name from Bayer MaterialScience LLC (BMS) on September 1, 2015. This SMP has been prepared to manage remaining impacts associated with soil and soil vapor at the Site.

Final remediation of the Site was performed pursuant to an Order on Consent (Index #A1-0781-11-11, Site #130004) with the New York State Department of Environmental Conservation (NYSDEC) that was executed on June 21, 2012. The final site remediation was performed under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund program) administered by the NYSDEC and addressed remaining impacted soil at the Site via excavation/off-site disposal and capping. Earlier remedial activities were performed at the Site: (1) under state law and the Resource Conservation and Recovery Act (RCRA) Corrective Action program with NYSDEC oversight; and (2) under the federal Superfund program with United States Environmental Protection Agency (USEPA) oversight. Those earlier remedial activities addressed impacted soil, soil vapor, and groundwater at the Site via removal and in-situ treatment.

Over time, the Site has been divided into five operable units (OUs) for investigation and remediation purposes under various federal and State programs, as summarized later in this document. This SMP addresses the remaining impacts associated with OU4 (onsite soil and soil vapor).

1.1.1 General

The Site location, boundaries, and former layout are shown on Figures 1 and 2. The boundaries of the Site are more fully described in the metes and bounds Site description that is part of the Environmental Easement (EE), which incorporates this SMP by reference and is provided in Appendix A.

The final site remediation was performed in accordance with the *Remedial Design* (Arcadis, February 2013) and *Remedial Design Addendum* (RDA) (Arcadis, August 2014), which were approved by NYSDEC. After the remedial work described in these documents was completed, some impacts were left in the subsurface at this Site, which are hereafter referred to as “remaining impacts.” This SMP was prepared to manage remaining impacts at the Site until the EE is extinguished in accordance with Environmental Conservation Law (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 Arcadis of New York, Inc. (Arcadis), on behalf of Covestro, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 3, 2010, and the requirements and guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the EE for the Site. A list of contacts for persons involved with the Site is provided in Appendix B of this SMP.

1.1.2 Purpose

ECs have been incorporated into the Site remedy to control potential exposure to remaining impacts during the approved use of the Site to ensure protection of public health and the environment. An EE granted to the NYSDEC and recorded with the Nassau County Clerk, requires compliance with this SMP and all ECs and ICs placed on the Site. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring (OMM) and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the EE for

remaining impacts at the Site. This plan has been approved by the NYSDEC, and compliance with this plan is required initially by the grantor of the EE and then thereafter by 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 impacts at the Site after completion of the remedial action, including: (1) implementation and management of all ECs and ICs; (2) media monitoring; and (3) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports.

To address these needs, this SMP includes two plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs (Section 2); and (2) a Site Monitoring Plan (Section 3).

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

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the EE. Failure to properly comply with the SMP is a violation of the EE, which is grounds for revocation of the Certificate of Completion (COC).
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, Title 6 of the Official Compilation of Codes, Rules, and Regulations of the State of New York (6NYCRR) Part 375 and the Order on Consent (Index #A1-0781-11-11) for the Site, and thereby subject to applicable penalties.

1.1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. In accordance with the EE 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 Town of Oyster Bay, Nassau County, New York and consists of two parcels identified as Section 46, Block N, and Lots 30 and 31 on the Nassau County Tax Map. The Site is an approximately 15.1-acre¹ area bounded by Kalda Lane/Commerce Place to the north, Long Island Railroad (LIRR) to the south, commercial businesses to the east, and New South Road to the west (see Figures 1 and 2). The boundaries of the Site are more fully described in the metes and bounds provided in Appendix A. The majority of the Site contains a soil cover system that is at least one foot thick and is covered with grass. Four rainwater runoff sumps are located along the eastern property boundary. A paved parking lot is located in the northwestern corner of the Site near the paved driveway/entrance from New South Road. The Site is enclosed by a chain-link fence and locking gates near the entrance.

1.2.2 Site History

The Site was formerly used as a production facility for polyester resin, polyurethane dispersions, and polyvinyl chloride (PVC). The manufacturing facility was originally constructed in 1945 and operations were expanded in subsequent years. The manufacturing facility was previously owned/operated by the Hooker Chemical and Plastic Corporation/Occidental Chemical Corporation (hereinafter referred to as “Occidental Chemical Corporation” or “Oxy”) from 1966 to 1982. The Site was designated as a Superfund site and placed on the National Priorities List (NPL) established under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1984. Various soil and groundwater investigation/remedial activities have been implemented since that time. Oxy is solely responsible for all actions required to address

¹ The boundary survey completed for the Environmental Easement determined that the Site encompasses 15.1 acres, but the NYSDEC Record of Decision for OU 4 and other historical site documents indicate that the Site is 14 acres.

compliance with certain issues under various Orders on Consent with the USEPA and also an ordered party under the OU5 Consent Order with NYSDEC.

Ruco Polymer Corporation (Ruco) purchased the facility from Oxy in 1982. Ruco operated an onsite RCRA interim status drum storage facility in the early 1980s, which formed the basis for a RCRA Facility Investigation (RFI) implemented by Blasland, Bouck, & Lee, Inc. (formerly BBL, and now Arcadis) in 2004 and subsequent remedial and corrective action activities. Remedial work at the Site was implemented pursuant to an Order on Consent (Index #R1-20011022-212) between Bayer Corporation and the NYSDEC dated December 9, 2002. This Order was superseded and terminated on June 21, 2012 by a new Order on Consent (Index #A1-0781-11-11) between BMS and the NYSDEC for remaining remedial work to be performed under the State Superfund program.

Ruco was acquired by Sybron Chemical Corporation (Sybron) in 1988. Sybron was, in turn, acquired by Bayer Corporation in 2000. In a 2003 corporate restructuring, Bayer Corporation transferred ownership to Bayer Polymers LLC. Bayer Polymers LLC changed its name to “Bayer MaterialScience LLC” in 2004. As a result of a name change, Bayer MaterialScience LLC is now known as Covestro. Covestro is now an independent entity and owns the Site.

Manufacturing operations were discontinued in July 2002. Thereafter, all raw materials, products, and hazardous chemicals were removed from the Site. In addition, equipment was decommissioned and tanks/piping were closed pursuant to applicable regulations. All buildings and aboveground structures formerly used in connection with site operations were demolished down to their floor slabs in 2003, except for the Administration Building located in the northern portion of the Site, which was demolished in 2014. Asbestos-containing materials were removed from the buildings and aboveground structures prior to their demolition.

Most subsurface utilities at the Site were abandoned in-place (refer to Figure 3 for the approximate locations of the utilities prior to remedial activities). Sections of the subsurface utilities were later removed when they were within remedial excavation limits (refer to Figures 5 and 6 for excavation limits). Although subsurface utilities remain at the

Site, the utilities have been disconnected at/near the property boundary, as required by the respective utility owner. Some remaining subsurface utilities contain asbestos (e.g., transite pipe).

After the above-ground portions of the buildings were demolished, pre-demolition characterization sampling was performed as described in the NYSDEC-approved *Demolition Work Plan* (Arcadis BBL, July 2005). The characterization sampling was performed to evaluate handling requirements for the stockpiled construction and demolition (C&D) debris (from the 2003 building demolition) and the concrete building floor slabs in preparation for “foundation” demolition activities. The sampling determined whether the materials could be reused (as onsite or off-site fill material) or required off-site disposal. The concrete floor slabs and other concrete surfaces, including ramps, driveways, and former equipment/tank pads were demolished in 2005 and 2006 in accordance with the *Demolition Work Plan*. As part of the demolition activities, the underlying concrete foundation materials (e.g., frost walls, spread footers) were demolished and removed to a depth of approximately 2 feet below ground surface (bgs) (relative to pre-remediation grades)². Foundations extending deeper than 2 feet were left in-place. Part of the foundation demolition in the Plant 1 area was deferred until 2009 when impacted soil in that area, which had been discovered during the foundation demolition activities in 2006, was removed as an interim corrective measure (ICM). Foundations in selected areas were removed to depths greater than 2 feet during the ICMs and subsequent remedial excavation, as follows:

- Many of the spread footer foundations remaining in the Pilot Plant footprint and in the eastern section of the Plant 1 footprint were completely removed during ICMs in those areas in 2006 and 2009, respectively.
- Additional foundations in the Plant 2 and 3 areas were removed during the final remedial activities from 2013 through 2015 where excavations overlapped the building footprints.

² The referenced depth is relative to the ground surface at the time demolition was performed. The existing ground surface elevation in the southeastern portion of the Site is lower than it was in 2006 because of re-grading performed during final remedial construction in 2015. Some foundations may be encountered closer than 2 feet below existing grade.

- The perimeter foundation below the Administration Building was completely removed in 2014. The concrete sidewalk leading to the front of the building and the ramp alongside the building were left in-place.

After demolition activities were completed, the impacted concrete C&D debris were transported for proper off-site disposal. Remaining concrete and/or C&D debris that could be reused onsite as backfill (considered “exempt C&D debris”) were crushed and placed into stockpiles. Some of the stockpiles containing exempt C&D debris were used as onsite fill during interim remedial and ICM activities later in 2006. Details of the handling of the impacted concrete and other C&D debris are presented in the *Demolition Summary Report* (Arcadis BBL, April 2007) previously submitted to NYSDEC.

All but one of the remaining stockpiles of crushed concrete were used as subsurface fill material during the ICM implemented in 2009 (refer to Section 1.3 for more information on the 2009 ICM and other ICMs). The stockpiled material was used to backfill several of the excavation areas and portions of an onsite sump referred to as Area of Concern (AOC) 30. One of the stockpiles contained polychlorinated biphenyls (PCBs) at concentrations greater than 10 parts per million (ppm) and was therefore removed and transported for off-site disposal during the 2009 ICM.

ICMs were implemented at the Site in 2005, 2006, and 2009 and involved removal of approximately 15,500 tons of soil, most of which contained PCBs at concentrations greater than the 50 ppm disposal threshold for a Toxic Substances Control Act- (TSCA-) regulated PCB waste and New York State Listed Hazardous Waste. The impacted soil excavated as part of the ICMs was transported for proper off-site disposal. Following completion of the 2009 ICM, BMS conducted several delineation/verification sampling programs to support a Corrective Measures Study (CMS) for the Site and to complete the delineation of PCBs, arsenic, and cadmium remaining in soil. Following the soil delineation/verification activities, final remedial actions were completed at the Site between 2013 and 2015 pursuant to the June 21, 2012 Order on Consent (Index #A1-0781-11-11) between BMS and the NYSDEC. The remedial actions, all of which were approved by NYSDEC, included (but were not limited to):

- Removing soil for off-site disposal containing the following: (1) PCBs at concentrations exceeding the NYSDEC required 10 ppm subsurface soil cleanup level for soil within 10 feet bgs (relative to pre-remediation grade); (2) total polycyclic aromatic hydrocarbons (PAHs) at concentrations exceeding 500 ppm; and (3) arsenic and cadmium at concentrations exceeding 16 ppm and 9.3 ppm, respectively. These cleanup levels are consistent with the cleanup levels presented in the NYSDEC policy document titled “CP-51/Soil Cleanup Guidance” dated October 21, 2010 (CP-51/Soil Cleanup Guidance) and the commercial use soil cleanup objectives (SCOs) presented in 6 NYCRR Part 375-6.8(b) and approved for site usage by NYSDEC.
- Backfilling all excavation areas to the pre-remediation ground surface except for locations in the southeastern corner of the Site where grading plans were used to promote site drainage and prevent surface water ponding.
- Installing an above-grade, site-wide, one-foot thick soil cap above a demarcation layer to mitigate potential future exposure to remaining soil containing PCBs, PAHs, and/or metals at concentrations exceeding the NYSDEC restricted commercial use SCOs.
- Performing asbestos abatement and demolishing the last remaining building at the Site (the Administration Building). The abatement was performed in accordance with the recommendations in the Pre-Demolition Survey Report included in a January 29, 2014 letter from Arcadis to the NYSDEC.
- Performing permanent disconnection of the remaining utilities at the Site.

Following the remedial activities in 2015, the Site was seeded and mulched to establish a vegetative cover onsite while site closure was granted by the NYSDEC.

1.2.3 Geologic Conditions

The Site is located in northeastern Nassau County, which is underlain by unconsolidated coastal plain deposits of Cretaceous (60 to 140 million years ago [mya]), Tertiary (2 to 60 mya), and Quaternary age (thousands to 2 mya), overlying metamorphic rocks of Precambrian age (570 mya and greater). The City of Hicksville is located on a

generally featureless glacial outwash plain of well-sorted and stratified sand and gravel that slopes gently to the south.

The upper aquifer in the area is identified as the Harbor Drift Quaternary glacial unit, which is composed of sand, gravel, and till deposited by two advances of ice during the Wisconsin Glaciation (Isbister, 1966). Two formations lie below the Harbor Drift Unit, including the Magothy Formation and the underlying Raritan Formation. The Magothy Formation is composed of sand inter-bedded with silt and clay. The Raritan Formation includes the upper clay member and lower Lloyd Sand Member, which lies unconformably on bedrock. The upper clay member is composed primarily of clay and silty clay and lenses of sand and gravel. The Lloyd Sand Member is a stratified deposit, comprising discontinuous layers of sand, gravel, sandy clay, silt, and clay.

The bedrock of the region is Precambrian biotite schist, which is a metamorphic rock of igneous origin. The bedrock surface is relatively smooth and dips to the southeast. The bedrock forms the virtually impermeable base of the groundwater reservoir (Isbister, 1966).

The Site sits on the Harbor Drift Unit, which is composed primarily of glacial outwash sand and gravel. The Magothy aquifer, immediately below the Harbor Drift Unit, is the principal aquifer in the region. It is bounded at the top by the water table and at the bottom by the relatively impermeable Clay Member of the Raritan Formation. The upper part of the Magothy aquifer, consisting of a range glacial outwash sand, gravel, and till, contains water under unconfined conditions. In areas underlain by till of relatively low permeability, the downward movement of water is retarded. Perched and semi-perched water occurs in many places (Isbister, 1966). The lower part of the Magothy aquifer, consisting of heterogeneous sands and gravels, becomes increasingly confined with depth due to numerous discontinuous lenses of silt and clay in the Magothy Formation. Individually, these units do not constitute a distinct confining unit. However, their combined influence through a considerable thickness of the formation acts to impede vertical movement of groundwater. The Magothy aquifer is the primary source of water for municipal and industrial use in the vicinity of the Site. The aquifer is recharged by

infiltration of precipitation, industrial discharges, and stormwater runoff collected via recharge basins.

The deep confined aquifer is the lowermost aquifer in the area. It consists mainly of Lloyd Sand. The clay member of the Raritan Formation confines the Lloyd in most of the area. Bedrock forms the lower boundary of the deep confined aquifer.

Based on available information, groundwater at the Site is located at depths greater than 50 feet bgs. The general groundwater flow direction in the vicinity of the Site is north to south. Locally, the flow direction is influenced by the range in lithology of the Pleistocene deposits and by municipal and industrial pumping centers and recharge basins.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

The Remedial Investigation findings are summarized in the subsections that follow. For additional information related to historical site characterization and the nature and extent of the impacts at the Site, refer to the following documents:

- *RCRA Facility Investigation Report* (BBL, June 2004)
- *Phase II RFI Report* (BBL, January 2005)
- *Pre-Demolition Characterization Sampling Report* (BBL, September 2005)
- *Phase I Soil Sampling Report* (contained in a January 20, 2006 letter from BBL to the NYSDEC)
- *Phase II Soil Sampling Report* (contained in a March 16, 2006 letter from BBL to the NYSDEC)
- *Phase III Soil Sampling Report* (contained in a July 6, 2006 letter from BBL to the NYSDEC)
- *Phase IV Soil Sampling Report* (contained in a October 6, 2006 letter from BBL to the NYSDEC)
- *Phase V Soil Sampling Report* (contained in a March 5, 2007 letter from Arcadis to the NYSDEC)

- *Corrective Measures Study Work Plan* (includes Phase VI Soil Sampling Results) (Arcadis, May 2008)
- *Interim Corrective Measure Additional PCB Soil Removal Work Plan* (includes Phase VII Soil Sampling Results) (Arcadis, November 2008)
- *Vapor Intrusion Investigation Report* (Arcadis, June 2011)
- *Corrective Measures Study Report* (Arcadis, February 2012)
- *Remedial Design* (Arcadis, February 2013)
- *Additional PCB and Metals Soil Delineation Work Plan for Potential Soil Remediation* (contained in a May 9, 2013 letter from Arcadis to the NYSDEC)
- *2013 Phase 2 PCB and Metals Soil Delineation Work Plan for Soil Remediation* (contained in a July 22, 2013 letter from Arcadis to the NYSDEC)
- *2013 Phase 2 Delineation Soil Sampling Summary, Proposed PCB Delineation Refinement and Verification for Soil Remediation, and Proposed Arsenic Soil Cleanup Modification* (contained in a November 7, 2013 letter from Arcadis to the NYSDEC)
- *2014 Arsenic and PCB Soil Delineation Work Plan* (contained in a February 11, 2014 letter from Arcadis to the NYSDEC)
- *2014 Remedial Design Addendum* (Arcadis, August 2014)
- *Remedial Investigation Report – Operable Unit 5* (GHD, April 2016) (presents results of the off-site soil vapor investigation)

The nature and extent of potential impacts associated with the Site were assessed by multiple soil and soil vapor investigations under USEPA and/or NYSDEC oversight. Site investigations reportedly began in the mid-1980s. The primary environmental concerns evaluated by the initial investigations included:

- Former discharge of plant wastewater containing volatile organic compounds (VOCs) and heavy metals into onsite sumps/recharge basins by Oxy/Ruco.
- Past release of heat transfer fluids containing PCBs by Oxy/Ruco.

Over time, the Site has been divided into five OUs (OU1 through OU5) for investigation and remediation purposes under various programs. Oxy executed Administrative Consent Orders with the USEPA for the investigation and remediation under OU1, OU2, and OU3. BMS executed an Order on Consent with the NYSDEC for the investigation and remediation under OU4, and both Oxy and BMS executed the order for the implementation of the actions required under OU5. An overview of these five OUs and related investigations is presented below, followed by details of the investigations associated with OU4, which represent most of the work related to this SMP.

- OU1 – Onsite Soil and Groundwater: This OU consists of groundwater beneath the Site and soil in four areas, including two sumps/recharge basin areas referred to as AOC Nos. 28 and 29, a former drum storage area north of the sumps, and an area around a nearby groundwater monitoring well. A ROD for this OU was issued by the USEPA in January 1994. The ROD required additional investigation in certain areas, OMM of a groundwater extraction and treatment system, soil flushing within the two sumps (via discharge of treated groundwater and recapture by extraction wells), treatability studies, excavation/off-site disposal of soils within the drum storage area and near an existing monitoring well, and institutional controls.
- OU2 – PCB Soil Removal: This OU consists of soil/debris within four areas, including a “direct-spill area” in the vicinity of the Pilot Plant where heat transfer fluid containing PCBs was released, nearby areas where the fluid was tracked, a sump/recharge basin that received surface water runoff from the vicinity of the Pilot Plant (AOC 30), and former soil stockpile areas east and south of the Pilot Plant. A Remedial Investigation/Feasibility Study (RI/FS) was completed and a ROD was issued by USEPA in September 1990. PCBs and organic constituents were the primary constituents of interest for this OU. The ROD required excavation and off-site treatment and disposal of soil with PCBs at concentrations greater than 10 ppm.
- OU3 – Off-site Groundwater: The pump and treat system under OU1 was eliminated and the off-site groundwater impacts element was transferred to OU3 as an off-site component of the OU3 remedy. The USEPA issued the OU3 ROD in September 2000. Oxy is responsible for site impacts under OU3 with oversight provided by USEPA. The

remedial design for OU3 includes biosparging for VOCs, groundwater monitoring and participating in the downgradient Northrop Grumman and Naval Weapons Industrial Reserve Plant (NWIRP) groundwater containment system. Oxy is performing the VOC biosparging program which also includes groundwater and vadose zone monitoring. The USEPA lead action ongoing at the Site under OU3 is preserved and otherwise not negatively impacted from any future site uses.

- OU4 – Onsite Soil and Onsite Soil Vapor: The OU4 ROD was issued by the NYSDEC in December 2012. OU4 includes all onsite soil and onsite soil vapor not previously addressed by the EPA OU2 ROD. The OU4 ROD was issued pursuant to the State Superfund program and also addresses the outstanding RCRA corrective action issues. The ROD required excavation and off-site disposal of soil with PCBs at concentrations greater than 10 ppm and installation of a 1-foot thick soil cover system to achieve a PCB level of 1 ppm in surface soil (0- to 1-foot) and 10 ppm in subsurface soil. The OU4 remedy also includes all aspects of Site closure, including demolition of the onsite buildings and associated foundations. The OU4 remedy has been implemented, as described in more detail below.
- OU5 – Off-site Soil Vapor Intrusion: OU5 addresses the potential for soil vapor intrusion (SVI) at a commercial building immediately east of the Site. The off-site SVI pathway has been evaluated (as described below) by Oxy and Covestro, and a ROD for mitigating the soil vapor pathway was issued by the NYSDEC on March 31, 2017.

A total of 76 solid waste management units (SWMUs)/Areas of Concern (AOCs) were identified based on review of former facility operations. SWMUs/AOCs were first identified in the Comprehensive Site Closure Plan for the Site prepared by BMS and submitted to the NYSDEC in October 2002. The SWMUs/AOCs were identified during Site visits by the NYSDEC conducted in December 2002 and May 2003. Based on an evaluation of existing information and the potential for environmental releases, 58 of the 76 AOCs were designated for additional evaluation as part of the RFI and 7 AOCs were eliminated from further consideration. An approach for evaluating conditions within the SWMUs/AOCs retained for further evaluation was developed and presented in the NYSDEC-approved *RCRA Facility Assessment/RCRA Facility Investigation Work Plan*

(ENSR, December 2003), which also complies with requirements for Inactive Hazardous Waste Sites.

Environmental conditions related to soil at the Site were further evaluated by the sampling and analysis performed in connection with the RFI, which was completed in two phases in 2004. The primary concerns identified by the RFI were PCBs and SVOCs in the following: (1) soil within several AOCs; and (2) accumulated debris within subsurface structures (i.e., silt, sand, and gravel from manholes/catch basins, sumps, and floor trenches at the Site). VOCs and metals were also identified at certain sampling locations. The results of the Phase I and II RFI are summarized in the NYSDEC-approved *RCRA Facility Investigation Report* (BBL, June 2004) and letter from BBL to the NYSDEC dated January 5, 2005, respectively.

Soil in two areas of the Site that was found during the RFI to contain PCBs at concentrations greater than 50 ppm was addressed by two previous ICMs, one in 2005 and one in 2006. The ICM performed in 2005 included: (1) the removal of soil containing PCBs at concentrations greater than 50 ppm from a former electrical transformer area identified as AOC 39; and (2) the delineation of PCB-impacted soil in and around two former Pilot Plant sumps identified as AOC 45. The ICM performed in 2006 included the removal of soil containing PCBs at concentrations greater than 50 ppm from AOC 45. The ICMs complied with requirements for Inactive Hazardous Waste Disposal Sites.

Additional soil at the Site exhibiting PCBs at concentrations greater than 50 ppm was identified by soil sampling performed in connection with the foundation demolition activities (beginning with the “Phase I” sampling in early 2006). Additional phases of sampling were performed to further delineate the extent of PCB-impacted soil at the Site, culminating with Phase VII in June 2008. As a result of the phased sampling, additional PCB-impacted soils were discovered within the former Plant 1 and Pilot Plant footprints and from various nearby areas (collectively referred to as “the eastern plant area”) exhibiting PCB concentrations greater than 50 ppm. Further PCB soil sampling (“ICM pre-excavation verification sampling”) was performed in February 2009. These sampling programs have also included additional soil sampling for VOCs and SVOCs. A third ICM

was implemented in 2009 to address the PCB-impacted soil delineated by the phased sampling program (further details of the remedial programs are provided in Section 1.4).

After the 2009 ICM was completed, BMS started evaluating final remedial actions for the Site. One of the NYSDEC conditions for approval of the “draft” *Corrective Measures Study Report* (CMS Report) was that BMS further delineate metals in soil where data from previous due diligence sampling performed by Impact Environmental (Impact) suggested the potential presence of arsenic and cadmium at concentrations exceeding the NYSDEC restricted commercial use SCOs as set forth in 6 NYCRR Part 375-6.8(b). The metals delineation was requested by the NYSDEC to address concerns over: (1) the slightly elevated concentrations in Impact’s samples; (2) the wide intervals represented by the samples (e.g., 0 to 5 feet or 0 to 20 feet bgs); and (3) data quality because Impact’s analytical data was not validated.

Pursuant to the NYSDEC’s request, metals soil delineation sampling activities were implemented during July 2011 and the findings were validated and summarized in the *Metals Soil Delineation Summary Letter Report* (Arcadis, October 2011). Based on the analytical results, arsenic was identified at concentrations exceeding the NYSDEC restricted commercial use SCOs at seven sampling locations near the northern fence line and one location more interior to the Site. The arsenic exceedances were limited to depths of 0 to 0.5 feet bgs at all but two of the locations (the exceedances at the two locations were at 0.5 to 2.0 feet bgs). Cadmium was detected at a concentration exceeding the commercial use SCO at only one sampling location (a location where arsenic also exceeded the corresponding SCO). The NYSDEC provided comments on the summary report for the metals delineation and approved the recommendations for removing areas found to be impacted by arsenic and cadmium.

After the NYSDEC approved the CMS Report and issued a ROD for OU4 (to address all remaining onsite soil impacts not addressed by the previous OUs) under the NYS Inactive Hazardous Waste Disposal Site Program in 2012, Arcadis prepared the Remedial Design (RD) in 2013. Because additional PCB and metals impacts were found during implementation of the final remedial action in 2013 (Phase 1 OU4 remedial activities), site-wide PCB and metals delineation/verification soil sampling programs were

implemented between May 2013 and April 2014. The 2013/2014 sampling programs provided PCB and arsenic data to facilitate delineation of the excavation limits for preparing the RDA and pre-verification to allow expedited completion of the final phase of removal activities (Phase 2 OU4). The 2013/2014 sampling program also provided site-wide data to determine the design limits for the site-wide soil cover system.

Site-Related Soil Vapor Intrusion

Four phases of onsite SVIs were completed from 2007 to 2009 (further investigations were performed as described below). Sampling locations were selected to provide coverage across the Site, including within/near footprints of the former plant buildings; near areas where TCE was identified in a 1989 soil vapor assessment; and in various paved areas. Results were compared to the New York State Department of Health (NYSDOH) soil vapor matrix guidance values. Constituents detected at the highest concentrations included tetrachloroethene (PCE), TCE, cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride.

The highest concentrations were at locations within the footprints of the former onsite buildings and along the eastern property boundary as follows:

- Along the eastern boundary, TCE concentrations ranged from 1.2 to 190 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) (5-5.5 feet bgs). PCE concentrations ranged from 2.5 to 8,100 $\mu\text{g}/\text{m}^3$ (5-5.5 feet bgs) [PCE concentrations generally decreased in subsequent monitoring, but PCE was identified in one later (December 2013) sample southeast of Plant 1, near the property boundary at a concentration of 54,000 $\mu\text{g}/\text{m}^3$ (15-15.5 feet bgs)]. Cis-1,2-DCE was detected at a maximum concentration of 2,400 $\mu\text{g}/\text{m}^3$ (5-5.5 feet bgs).
- At the southeastern corner of the Site, TCE concentrations ranged from 1.4 to 32 $\mu\text{g}/\text{m}^3$ (5-5.5 feet bgs). PCE concentrations ranged from 64 to 3,700 $\mu\text{g}/\text{m}^3$ (5-5.5 feet bgs).
- Under the Plant 1 Building Area, TCE concentrations ranged from 390 $\mu\text{g}/\text{m}^3$ (5-5.5 feet bgs) to 36,000 $\mu\text{g}/\text{m}^3$ (15-15.5 feet bgs). PCE concentrations ranged from 9,500 $\mu\text{g}/\text{m}^3$ (5-5.5 feet bgs) to 150,000 $\mu\text{g}/\text{m}^3$ (15-15.5 feet bgs). Vinyl chloride was detected in one sample at 10,000 $\mu\text{g}/\text{m}^3$ (5-5.5 feet bgs).
- Under the Plant 3 Area, PCE was detected at one sampling location ranging from 2,200 to 4,500 $\mu\text{g}/\text{m}^3$ (5-5.5 feet bgs).

- Under the Plant 2 building area, PCE was detected at one sample location ranging from 4,600 to 5,800 $\mu\text{g}/\text{m}^3$ (5-5.5 feet bgs).

An off-site SVI was completed in May 2011 at the off-site commercial building located just east of the Site. The investigation consisted of a building reconnaissance, product inventory, and sub-slab vapor and indoor air sampling. PCE was detected in several sub-slab samples, ranging from 11 to 32,000 $\mu\text{g}/\text{m}^3$. PCE in indoor air ranged from 0.34 to 6.5 $\mu\text{g}/\text{m}^3$. TCE was detected in several sub-slab samples ranging from 1.1 to 66 $\mu\text{g}/\text{m}^3$. TCE was not detected above the laboratory detection limit of 0.21 $\mu\text{g}/\text{m}^3$ in six of the eight indoor air samples and was identified at a concentration of 0.25 $\mu\text{g}/\text{m}^3$ in the two remaining samples. VOC concentrations detected in the indoor air samples were all well-below the available air guideline values presented in Table 3.1 of the NYSDOH document titled “Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York”, dated October 2006.

SVIs continued onsite for OU4, and later off-site as part of OU5. BMS and Oxy entered into an Order on Consent (Index #A1-0799-12-10, Site #130004) on September 20, 2013 for the SVIs under OU5. Additional soil vapor samples were collected between 2013 and 2015 from selected previous sampling locations onsite (to assess potential changes in soil vapor concentrations following soil remediation) and from various off-site locations (to further assess soil vapor migration). Based on the laboratory analytical results, soil vapor concentrations onsite appear to have decreased following the remedial actions. The potential for SVI in the commercial building east of the Site was identified, and a sub-slab depressurization (SSD) system or similar engineered mitigative system was recommended to minimize potential future exposures. Findings of the soil vapor investigations performed under OU5 are summarized in the NYSDEC-approved *Remedial Investigation Report – Operable Unit 5* (GHD, April 2016).

Subsurface Structures and Underground Storage Tanks

The following subsurface structures and underground storage tanks (USTs) were addressed and/or removed during the remedial activities at the Site pursuant to work plans reviewed and approved by the NYSDEC:

- *Subsurface Structures (2005 ICM)*: The manholes/catch basins, sumps, and floor trenches associated with AOCs 11, 21B, 38, 40, 42 through 46, and 49 were cleaned during the 2005 ICM to remove standing water (where encountered) and debris. After the structures were cleaned, they were visually inspected. No further actions were

performed on the structures except for AOC 40 and AOC 45, which were addressed during the 2005-2006 building foundation demolition activities and the 2006 ICM. Approximately 9 tons of debris were removed from the structures and transported off-site for disposal as a TSCA-regulated PCB waste and New York State Listed Hazardous Waste.

- *1,000-Gallon Steel UST/AOC 50 (suspected former gasoline tank) (2005 ICM)*: This UST was located in AOC 50 adjacent to the northwest corner of the former Plant 1 Building. The UST was identified during the 2005 ICM using historical facility design drawings and ground penetrating radar. Once the UST was located and soils were excavated to uncover and expose the top of the UST, approximately 742 gallons of water with a slight surficial sheen was removed from the UST and transported off-site for disposal as a RCRA characteristic hazardous waste (based on 1,2-dichloroethane at a concentration of 0.85 ppm, which exceeded the 0.5 ppm limit as presented in Title 40 of the Code of Federal Regulations (40 CFR) Part 261.24 and 6 NYCRR Part 371.3). The UST was removed, cleaned and transported off-site for recycling. The resulting excavation was 7.5 feet wide, 18 feet long, and 6.5 feet deep. Based on the conditions encountered during the UST removal (no corrosion holes in the UST, no visible staining or odors at the excavation limits, no elevated photoionization detector (PID) headspace screening results, and no sheens/non-aqueous phase liquid (NAPL) observed during jar testing) and results of soil samples collected adjacent to the UST during the Phase II RFI, the collection of additional soil samples from the UST excavation for laboratory analysis was not necessary. Based on the findings, the NYSDEC provided approval to backfill the UST excavation.
- *1,000-Gallon Steel UST/AOC 51 (suspected former heating oil tank) (2006 Foundation Demolition)*: This UST was encountered 2 feet beneath the former Plant 2 (AOC 51) concrete slab at the western end of the former Plant 2 building footprint during the concrete slab demolition activities. The UST was removed, crushed and transported off-site for recycling. After the UST was removed, verification sampling was performed along the excavation sidewalls and bottom, and the samples were sent for laboratory analysis for PCBs, SVOCs, and VOCs. The laboratory analytical results were provided to the NYSDEC and Nassau County Department of Health. Based on the results, no further action was required for AOC 51 and the excavation was backfilled with crushed concrete generated from the building demolition activities.

- *9,000-Gallon Steel UST (suspected former tower water system return tank) (2014 Phase 2 OU4)*: The UST was encountered during the Phase 1 OU4 excavation activities and was also identified on a historical site design drawings as part of the fire suppression water piping loop. The UST was located in the eastern portion of the Site between AOCs 29 and 30. Approximately 5,000 gallons of water were pumped from the UST and transported off-site for treatment/disposal as a non-hazardous liquid waste. The UST was cut, crushed, and transported off-site for recycling. During cutting of the UST, the debris from the bottom of the UST was transferred to the lined material staging area for off-site disposal with the non-hazardous, PCB-containing soil from the area. The excavation size as a result of the UST removal was approximately 7 feet wide by 7 feet deep by 30 feet long (the void remaining after removing the UST). Based on visual observation of the soil surrounding the UST during removal and its former use, no verification sampling was performed.
- *Subsurface Utility Vaults (2014 Phase 2 OU4)*: Three previously unidentified utility vaults were encountered during brush/vegetation clearing in preparation for installing the site-wide soil cover system during the Phase 2 OU4 remedial activities. The vaults included a 9.5-foot deep water valve pit (located mid-way between former Plant 2 and 3 buildings) and two 4-foot deep former pull boxes for electrical cable (one located east of Excavation Area 3B and one located west of Excavation Area 11C). The vaults were addressed as follows: (1) the steel plates covering the vaults were removed and recycled; (2) the steel water pipes/valves from the water valve pit were removed and recycled; (3) the vaults were backfilled with either washed stone or imported clean soil; and (4) the concrete/block walls were removed to a depth of 2 feet below the surrounding ground surface before installing the 1-foot soil cover system over the vaults.

Former Septic Tanks/Leachate Pits

Sanitary wastewater from the facility was formerly conveyed via underground piping to several septic tanks and leachate pits (refer to Figure 2 for septic tank and leachate pit locations). The septic tanks and leachate pits were abandoned in-place when sanitary sewer piping was installed to convey the sanitary wastewater to the municipal sewer system beneath Commerce Place. The locations of the septic tanks and leachate pits were confirmed by geophysical survey (electromagnetic and ground-penetrating radar survey) performed as part of the RFI. Available facility design drawings showed the

septic tanks extending approximately 6 to 8 feet bgs and the leachate pits extending approximately 12 to 14 feet bgs. The leachate pits had perforations extending from a depth of approximately 6 feet bgs to the depth of completion. During the RFI, soil borings were drilled immediately adjacent to the septic tanks and leachate pits, and samples were collected from intervals below the bottom of septic tanks/leachate pits (intervals most likely to show impacts, if any, from former releases) and submitted for laboratory analysis for site-related constituents. Based on the analytical results (refer to the RFI Report [BBL, June 2004] and Phase II RFI Report [BBL, January 2005]), NYSDEC concurrence was received that no further action is required for the septic tanks and leachate pits. During remedial activities (described in Section 1.4 below), septic tanks and leachate pits that were within excavation limits were removed and transported for off-site disposal with the surface soil and underlying soil that were impacted.

1.4 SUMMARY OF REMEDIAL ACTIONS

The Site was remediated in accordance with NYSDEC-approved work plans and designs under the NYS RCRA Corrective Action Program (Order on Consent, Index # R1-20011022-212) and the Inactive Hazardous Waste Disposal Site Remedial Program (Order on Consent, Index #A1-0781-11-11) with NYSDEC oversight. Work performed as part of the remedial actions is described and summarized in the following plans and reports:

- *Interim Corrective Measure Work Plan*, (Blasland, Bouck, & Lee, Inc., April 2005)
- *Interim Corrective Measure Certification Report*, (Blasland, Bouck, & Lee, Inc., November 2005)
- *Demolition Work Plan* (Blasland, Bouck, & Lee, July 2005)
- *Demolition Summary Report* (Arcadis, April 2007)
- *AOC 45 Interim Corrective Measure Soil Removal Work Plan* (Blasland, Bouck, & Lee, January 2006)
- *AOC 45 Interim Corrective Measure Certification Report* (Arcadis, May 2007)
- *Interim Corrective Measure Additional PCB Soil Removal Work Plan*, (Arcadis, November 2008)

- *Interim Corrective Measure Additional PCB Soil Removal Certification Report* (Arcadis, January 2010)
- *Remedial Design* (Arcadis, February 2013)
- *Remedial Design Addendum* (Arcadis, August 2014)

A summary of each remedial action at the Site by program is provided below.

2005 ICM: AOC 39 PCB-Impacted Soil Removal, AOC 50 Gasoline UST Removal, Subsurface Structure Cleaning

Work performed as part of the 2005 ICM included the following:

- Removing a 1,000-gallon gasoline UST located northeast of the former Plant 1 building in AOC 50.
- Removing standing water from a foundation sump at the southeast end of Plant 1 (AOC 44).
- Removing accumulated debris from the manholes/catch basins, sumps, and floor trenches at the Site associated with AOCs 11, 21B, 38, 40, 42 through 46, and 49.
- Removing the former concrete transformer pads and excavating soil within AOC 39 that exhibited PCBs at concentrations above 50 ppm.

Based on the verification soil sampling results for AOC 39, no further action was required for that AOC. In total, approximately 30 cubic yards (CY) of PCB-impacted soil were removed from the AOC 39 excavation and transported for off-site disposal as a TSCA-regulated PCB waste/NYS Listed Hazardous Waste. Based on landfill weight tickets, the total amount of soil and concrete debris from AOC 39 was 62.4 tons. The subsurface structure cleaning and UST removal activities are summarized in Section 1.3.

2006 Foundation Demolition

Environmental removals performed as part of the 2006 foundation demolition included the following:

- Removing the 1,000-gallon steel UST (AOC 51) (suspected former heating oil UST) as summarized in Section 1.3.
- Pumping approximately 85 gallons of viscous black NAPL encountered beneath the southwest end of the former Plant 2 building and containerizing the NAPL in steel 55-gallon drums.

- Excavating soil from an area approximately 10 feet wide by 10 feet long to a depth of 4.5 feet below the surrounding grade after removing the NAPL.

Following removal of the NAPL and associated impacted soils, verification soil samples were collected from the excavation limits and submitted for laboratory analysis for PCBs, VOCs, and SVOCs. Based on the analytical results, no additional excavation was required. In total, approximately 17 CY of PCB-impacted soils were removed from the southwest end of the former Plant 2 building area, which was transported for off-site disposal as a nonhazardous waste. The drummed NAPL was also transported off-site as a non-hazardous waste.

2006 ICM: AOC 45 PCB-Impacted Soil Removal

Soil removal activities were completed beneath and around the former Pilot Plant sumps (AOC 45) to address soil containing PCBs at concentrations greater than 50 ppm. The final excavations included the following:

- Excavation Area 1 – approximately 5-foot long by 5-foot wide by 6.5 feet deep excavation west of the Pilot Plant sumps.
- Excavation Area 2 – (consisting of western, middle and eastern sections) – approximately 28-foot long by 28-foot wide excavation around the Pilot Plant sumps. Relative to the surrounding grade, the western section was approximately 7.6 feet deep, the middle section was approximately 27.5 feet deep, and the eastern section was approximately 18.7 feet deep. Temporary excavation sidewall support was provided by sheetpile and internal bracing.

Approximately 670 CY of PCB-impacted soils from these areas and associated concrete from the former Pilot Plant floor slab were transported off-site for disposal as a TSCA-regulated PCB waste/NYS listed hazardous waste.

2009 ICM: Additional PCB-Impacted Soil Removal

The PCB soil removal activities consisted of removing soil from “the eastern plant area” that exhibited PCBs at concentrations greater than 25 ppm (the remedial cleanup objective was changed once work was underway from the 50 ppm goal presented in the approved work plan to 25 ppm in response to discussions with the NYSDEC about requirements for potential cleanup levels for the final site remediation). The ICM activities also addressed certain areas where soil exhibited VOCs and SVOCs at concentrations exceeding the restricted commercial use SCOs. As a result of the ICM, approximately 6,500 CY of impacted soil (estimated based on the excavation volumes

presented in the 2009 ICM certification report) or approximately 8,800 CY of impacted soil and concrete (based on the weight tickets provided by the landfill and an assumed material density of 1.6 tons per CY) were removed and transported off-site for disposal.

During the ICM, soil located within the Plant 1 footprint that was approximately 3 feet above the ground surface (referred to as the “scrape area”) was scraped to match the surrounding surface level. Following NYSDEC approval, the scraped soil was used as subsurface fill material in the onsite sumps (identified as AOCs 28 through 30). Approximately 2,500 CY of soil was scraped and used as subsurface fill. An approximate 10,035 square-foot area adjacent to the scraped area (referred to as the “mound area”) remained in the Plant 1 footprint approximately 3 feet above the surrounding ground surface after completion of the 2009 ICM activities. The mound area was later removed as part of the 2013 to 2014 OU4 remedial action and transported for off-site disposal.

2013-2015 Phase 1 and Phase 2 OU4 – Final Remedial Action

The OU4 remedial activities were performed to remove remaining soil that contained PCBs, SVOCs, and metals at concentrations exceeding cleanup levels and install a clean soil cover to provide conditions that are protective of human health and the environment and support approved uses for the Site. Soil removed for off-site disposal as part of OU4 required work contained: (1) PCBs at concentrations exceeding the 10 ppm subsurface soil cleanup level presented in CP-51/Soil Cleanup Guidance to no greater than 10 feet bgs relative to pre-remediation grade; (2) total PAHs at concentrations exceeding the 500 ppm threshold presented in CP-51/Soil Cleanup Guidance; and (3) arsenic and cadmium at concentrations exceeding the 16 ppm and 9.3 ppm restricted commercial use SCOs presented in 6 NYCRR Part 375-6.8(b). The Phase 1 OU4 remedial activities were performed in accordance with the NYSDEC-approved RD. The remedial activities described in the RD were recommended and presented (at a conceptual level) in the CMS Report and were incorporated into the NYSDEC ROD (December 2012) for OU4. The Phase 1 OU4 remedial activities were completed between February and July 2013 and involved excavation and off-site disposal of only part of the remaining impacted soil at the Site.

The Phase 1 OU4 remedial activities consisted of removing approximately 9,664 CY of PCB-, SVOC-, arsenic-, and cadmium-impacted soil (8,549 CY of surface and subsurface soil from multiple excavation areas and 1,115 CY from above grade materials referred to as the “Mound Area”) from the Site. Of the total volume removed, approximately 572 CY of the soil were transported off-site for disposal as a TSCA-regulated PCB waste/NYS Listed Hazardous Waste, approximately 7,006 CY were

transported off-site for disposal as a non-hazardous waste, and 2,086 CY remained stockpiled onsite for later off-site disposal as part of the Phase 2 OU4 remedial activities in 2014. In addition, approximately 300 CY of concrete debris from subsurface building foundations were transported off-site for disposal as a non-hazardous waste.

The Phase 1 OU4 remedial activities were postponed after: (1) the disposal facility that had been receiving non-hazardous soil from the Site could no longer continue to accept waste soil; and (2) additional sampling was needed to delineate the extent of impacted soil at the Site. A multi-phase site-wide delineation/verification sampling program was subsequently developed and implemented as described in Section 1.3. The sampling program determined the horizontal and vertical extent of the additional soil requiring excavation and off-site disposal for Phase 2 OU4 remedial activities, which were incorporated in the NYSDEC-approved RDA.

The Phase 2 OU4 remedial activities were completed between September 2014 and May 2015 and consisted of the following: (1) excavating approximately 7,112 CY of PCB- and arsenic-impacted soil from various areas of the Site with approximately 1,081 CY transported off-site for disposal as a TSCA-regulated PCB waste/NYS listed hazardous waste and 6,031 CY transported off-site for disposal as a non-hazardous waste; (2) transporting 2,086 CY of soil remaining onsite from the Phase 1 OU4 remedial activities off-site for disposal as a non-hazardous waste; (3) removing asbestos-containing materials from and demolishing the last remaining building at the Site (the Administration Building) and transporting six roll-off waste containers (20 to 30 CY size) of asbestos-containing material and approximately 490 tons of concrete debris off-site for disposal as a non-hazardous waste; (4) constructing the Site-wide 1-foot thick soil cover system over a demarcation layer (i.e., orange construction fencing); and (5) performing permanent disconnection of the remaining utilities at the Site.

At the conclusion of the remedial activities in 2015, the Site was seeded and mulched to establish a vegetative cover onsite.

1.4.1 Removal of Impacted Materials from the Site

This section summarizes the quantities of solid wastes generated and removed by the remedial programs at the Site, organized by remedial program.

2005 ICM: AOC 39 PCB-Impacted Soil Removal, AOC 50 Gasoline UST Removal,
Subsurface Structure Cleaning

- Approximately 30 CY of PCB-impacted soil were removed from the former electrical transformer area (AOC 39), which was transported off-site as a TSCA-regulated PCB waste/NYS listed hazardous waste.
- Approximately 6 CY of debris were removed from the subsurface structures during the cleaning activities, which was transported off-site as a TSCA-regulated PCB waste/NYS listed hazardous waste.

2006 Building Foundation Demolition Activities

- Approximately 1,197 CY of concrete and C&D debris were transported off-site for disposal as a non-hazardous waste due to PCB impacts.
- Approximately 17 CY of PCB-impacted soil were removed from the southwest end of the former Plant 2 building area and transported off-site for disposal as a nonhazardous waste.

2006 ICM: AOC 45 PCB-Impacted Soil Removal

- Approximately 670 CY of PCB-impacted soil were removed from AOC 45 and transported off-site with PCB-impacted concrete from the western one third of the former Pilot Plant as a TSCA-regulated PCB waste/NYS Listed Hazardous Waste.

2009 ICM: Additional PCB-Impacted Soil Removal

- Approximately 8,800 CY of PCB-impacted soil and concrete debris were removed from “the eastern plant area” and transported off-site as a TSCA-regulated PCB waste/NYS Listed Hazardous Waste.

Phase 1 and Phase 2 OU4 (2013-2015) – Final Remedial Action

- Approximately 15,123 CY of soil and concrete debris impacted with PCB, SVOCs, arsenic, and/or cadmium were removed from various areas of the Site and from the Administration Building demolition and transported off-site for disposal as a non-hazardous waste.
- Approximately 1,653 CY of the soil were removed and transported off-site for disposal as a TSCA-regulated PCB waste/NYS Listed Hazardous Waste.

The excavation areas from the above-identified remedial activities at the Site are shown on Figures 5 and 6.

1.4.2 Site-Related Treatment Systems

No long-term treatment systems were installed as part of the Site remedy.

1.4.3 Remaining Impacts

The location and extent of impacted subsurface soil remaining at the Site following implementation of remedial activities are discussed below. The analytical results of reuse materials (crushed concrete and “scrape area” soil) and imported clean fill soil used as subsurface backfill onsite are summarized in Tables 1, 2, and 3. Analytical results for samples that characterize soil remaining at the Site with detected concentrations of PCBs, VOCs/SVOCs, and inorganic constituents after completion of the remedial activities are presented in Tables 4, 5, and 6, respectively. The corresponding sampling locations are shown on Figure 4. As indicated in the attached analytical data tables, certain soil remaining at the Site contains PCBs and other constituents at concentrations greater than commercial SCOs, but the soil is covered by imported clean fill comprising the 1-foot thick soil cover system as approved by NYSDEC. Groundwater impacts associated with the Site are being addressed under OU3 by Oxy with USEPA oversight.

The remedial activities performed at the Site resulted in removal of soil found to contain the following: (1) PCBs at concentrations exceeding the 10 ppm subsurface soil cleanup level presented in CP-51/Soil Cleanup Guidance to no greater than 10 feet bgs relative to pre-remediation grade; (2) total PAHs at concentrations exceeding the 500 ppm threshold presented in CP-51/Soil Cleanup Guidance; (3) arsenic and cadmium at concentrations exceeding the 16 ppm and 9.3 ppm commercial SCOs presented in 6 NYCRR Part 375-6.8(b); and (4) VOCs at concentrations exceeding commercial SCOs. As indicated above, remaining impacted soil is below the soil cover system.

The excavation areas were backfilled using a combination of imported clean fill and reuse material (crushed concrete from the foundation demolition, soil from within the former Plant 1 footprint that was approximately 3 feet above the ground surface [the “scrape area”], and soil provided to BMS by Oxy from off-site property formerly owned by Northrop Grumman where groundwater treatment facilities were being constructed). As discussed below, the determination to use this soil was based upon characterization sampling and approval by NYSDEC.

The soil provided by Oxy was from the installation of utility trenches for the off-site groundwater biosparge system. Based on correspondence between Oxy’s environmental consultant (Conestoga-Rovers & Associates [CRA], now known as GHD) and Northrop Grumman (the former property owner where the biosparge system was being installed) the soil was removed from: (1) an open grass area that has historically always been an open grass area that was occasionally used for vehicle parking; and (2) the property used for the biosparge system control building. As reported by CRA/Oxy, Phase I and II site assessments were performed on the biosparge control building property and there were no impacts from RCRA metals, VOCs, or SVOCs, and no PCBs at concentrations exceeding the cleanup levels in the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046: Determination of SCOs and Cleanup Levels (January 24, 1994), which are consistent with the levels presented in the replacement CP-51. CRA described the areas from which the soil was generated, the locations of the soil characterization samples collected from the soil, and the soil sample physical and chemical analytical results in a May 22, 2012 memorandum to Oxy, which was later provided to the NYSDEC for review/approval.

The reuse soils used to backfill the excavations at the Site: (1) exhibited no visible sheens or staining; (2) met geotechnical requirements for the planned restoration; and (3) analytical results were less than SCOs. The imported clean fill material met the lower of the restricted commercial use SCOs or the protection of groundwater values presented in 6 NYCRR Part 375-6.8(b). A demarcation layer (i.e., orange construction fencing) was placed at the limits shown on Figure 7 and as described below:

- At the interface between soil at the excavation limits and the imported clean fill backfilled into the excavations; and
- At the interface of the one-foot imported clean soil cover (8-inches of run-of-bank gravel and 4 inches of topsoil) and the underlying soil.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

Since remaining impacted soil and soil vapor exists beneath 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.

The responsibilities identified in this SMP for the current Site owner and then upon change of title transferred to the subsequent Site owner(s) (referred to hereafter as the Current Site Owner) are summarized in Appendix C.

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 (EWP) for the proper handling of remaining impacted soil that may be disturbed during maintenance or redevelopment work on the Site;
- Provisions for applying to the NYSDEC for a beneficial use determination (BUD) for certain soil excavated at the Site during future site development or maintenance; 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 Soil Cover System

Exposure to remaining impacted soil/fill at the Site is prevented by a soil cover system placed over the Site. This cover system is currently comprised of a minimum of 12 inches of clean soil (topsoil, run-of-bank gravel, and/or crushed stone), asphalt pavement, concrete-covered sidewalks, and a concrete loading dock area located on the eastern side of the former Administration Building. Portions of the soil cover system may be replaced during Site redevelopment (e.g., by the construction of foundations, buildings, driveways, parking lots, and/or other features). The EWP that appears in Appendix D outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining impacted material is disturbed. Procedures for the inspection and maintenance of this cover are provided in Section 3 of this SMP.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

2.2.2.1 Composite Cover System

The composite cover system is a permanent control and the quality and integrity of this system will be inspected annually or other reduced frequency, as appropriate, with approval by the NYSDEC.

2.3 INSTITUTIONAL CONTROLS

A series of ICs is required by the ROD to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining impacts by controlling disturbances of the subsurface impacts; and (3) limit the use and development of the Site to restricted commercial and industrial uses only. Adherence to these ICs on the Site is required by the Environmental Easement and will be implemented under this SMP. These ICs are:

- Compliance with the Environmental Easement and this SMP by the Grantor and then thereafter to Grantor's successors and assigns;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs on the Controlled Property (the entire Site) must be inspected and monitored at a frequency and in a manner defined in the 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.

ICs 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 ICs in the form of Site restrictions. Adherence to these ICs is required by the Environmental Easement. Site restrictions that apply to the Controlled Property are:

- The Site may only be used for restricted commercial or industrial use provided that the long-term ECs and ICs included in this SMP are employed;
- The Site may only be used for the allowable land uses listed in Appendix E. Any of the prohibited land uses listed in Appendix E would require additional actions by the then Current Site Owner, including any necessary remediation, and amendment of the EE and ICs, as approved by the NYSDEC;
- The Site may not be used for a higher level of use, such as unrestricted, residential, or restricted residential use;
- All future activities on the Site that will disturb remaining impacted material must be conducted in accordance with this SMP;

- The use of the groundwater underlying the Site is prohibited without the approval of the NYSDEC and may require treatment prior to use by the user;
- The potential for vapor intrusion must be evaluated for any buildings developed at the Site and any potential impacts that are identified must be monitored or mitigated by owners/operators of the Site at the time any building development is sought;
- Vegetable gardens and farming on the Site are prohibited; and
- The Current Site Owner (as specified in Appendix C) will submit to NYSDEC a written statement that certifies, under penalty of perjury, and to the best of their knowledge and based on their inquiry of the persons involved in Site operations and maintenance and those persons who conduct Site inspections, 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 and NYSDEC's designated agent(s) (e.g., USEPA) retain 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 an alternate period of time 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. Any future intrusive work that will penetrate the soil cover system, or encounter or disturb the remaining impacted soil, including any modifications or repairs to the existing cover system must be performed in compliance with the EWP that is attached as Appendix D to this SMP. The EWP will be executed for any future intrusive work that is below the demarcation layers placed as part of the final remedial activities. 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 F to this SMP that is in current compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and other applicable Federal, State and local regulations. The HASP outlines health and safety protocols to be followed by field personnel for their protection during future intrusive work. The CAMP,

included as Appendix J to this SMP, describes perimeter air monitoring to be performed during intrusive activities to assess the adequacy of measures to control dust/vapors. 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 D-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 as described in Section 5.

The Current Site Owner and its associated parties preparing the remedial documents submitted to the State, and parties performing this work, are responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining impacted soil, and for structures that may be affected by excavations (such as building foundations). The Current Site Owner will ensure that Site development activities will not impair or compromise the ECs described in this SMP. Any future intrusive work that will penetrate the soil cover system or encounter or disturb the remaining impacted soil, including any modifications or repairs to the existing cover system, must be performed in compliance with the EWP that is attached as Appendix D to this SMP.

The Current Site Owner may submit an application to the NYSDEC for a BUD for impacted soil to be excavated during future site redevelopment or maintenance, depending on the area from which the soil is removed and considering existing/additional characterization analytical data for that soil. A BUD is a designation made by the NYSDEC as to whether the 6 NYCRR Part 360 Solid Waste Management Facilities regulations have jurisdiction over waste material that is to be beneficially re-used. Under the NYSDEC's BUD Program, waste materials that would otherwise be disposed of can be used in a cost-efficient manner, in many instances saving the State's natural resources. A case-specific BUD petition must be submitted using a NYSDEC petition form and include all the information required by 6 NYCRR Part 360-1.15(d)(1), unless otherwise directed by the NYSDEC. Following a review of the petition, the NYSDEC will determine whether the proposed use constitutes a beneficial use based on showing that all criteria outlined in 6 NYCRR Part 360-1.15(d) have been met. Pursuant to Table 5.4(e)4 of DER-10, off-site export and reuse of soil from the Site not meeting unrestricted SCOs

is not allowed, unless it will be sent to a site with an Institutional Control and is subject to a BUD.

2.3.2 Soil Vapor Intrusion Evaluation

Prior to the construction of any enclosed structures at the Site that are located over areas where impacted soil remains and where the potential for SVI has been identified, an SVI evaluation by the Current Site Owner/operator 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 by the Current Site Owner/operator as an element of the building foundation without first conducting an investigation. This mitigation system will include a vapor barrier and passive SSD system that is capable of being converted to an active system.

Prior to conducting an SVI evaluation or installing an SVI mitigation system, the Current Site Owner or party seeking to conduct the work will develop and submit to the NYSDEC and NYSDOH a work plan 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.

SVI sampling data will be validated. Once the validation is complete, the final SVI sampling data will be transmitted to the NYSDEC and NYSDOH, along with a recommendation for follow-up action, such as mitigation. If sampling is performed by someone other than the Current Site Owner, the validated SVI data must be transmitted to the Current Site Owner within 30 days of validation.

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, or other frequency, as appropriate with approval by the NYSDEC. The inspections will be performed as specified in Appendix C to determine and document the following:

- Whether ECs 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 (when issued);
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media, as applicable, 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 Cover System Monitoring section of this SMP (Section 3). The reporting requirements are outlined in the Periodic Review Reporting section of this SMP (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 the extent practical) 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 Current Site Owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any allowed proposed changes in Site use that are required under the terms of the Order on Consent, 6NYCRR Part 375, and/or ECL;

- 7-day advance notice of any proposed ground-intrusive activities pursuant to the EWP that are to be performed below the demarcation layer placed during the remedial activities;
- Notice within 48-hours of any damage or defect to the EC that reduces or has the potential to reduce the effectiveness of an EC and likewise any action to be taken to mitigate the damage or defect;
- Verbal notice by noon of the following day of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public; and
- 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 and Covestro 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 Order on Consent, 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.

The USEPA will be copied on all notifications made to the NYSDEC. After the Site is removed from the NPL, it will not be necessary to copy the USEPA on notifications to the NYSDEC. Refer to Appendix B for the persons from the NYSDEC and USEPA who shall receive notifications.

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 Current Site Owner or its representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. These emergency contact lists must be maintained in an easily accessible location at the Site.

Table 2-1 Emergency Contact Numbers

Medical (NSLIJ Plainview Hospital):	911 or (516) 719-3000
Fire:	911
Police:	911
Utility Mark-out/Clearance One Call Center (New York 811):	(800) 272-4480 or 811 (3-day notice required for utility mark out)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Table 2-2: Other Contact Numbers

Covestro LLC Project Manager: Tim Troutman	(412) 413-2236 (Office) (412) 667-9067 (Cell)
New South Road Realty: Joseph Kelleher	(718) 518-8600 (Office)
Arcadis Project Manager: John Brussel	(315) 671-9441 (Office) (315) 317-8104 (Cell)
NYSDEC Project Manager: Steven Scharf	(518) 402-9620 (Office)
NYSDOH Project Manager: Renata Ockerby	(518) 402-7860 (Office)

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

2.5.2 Map and Directions to Nearest Health Facility

Site Location: 125 New South Road

Nearest Hospital Name: NSLIJ Plainville Hospital

Hospital Location: 888 Old Country Road, Plainview, NY 11803

Hospital Telephone: (516) 719-3000

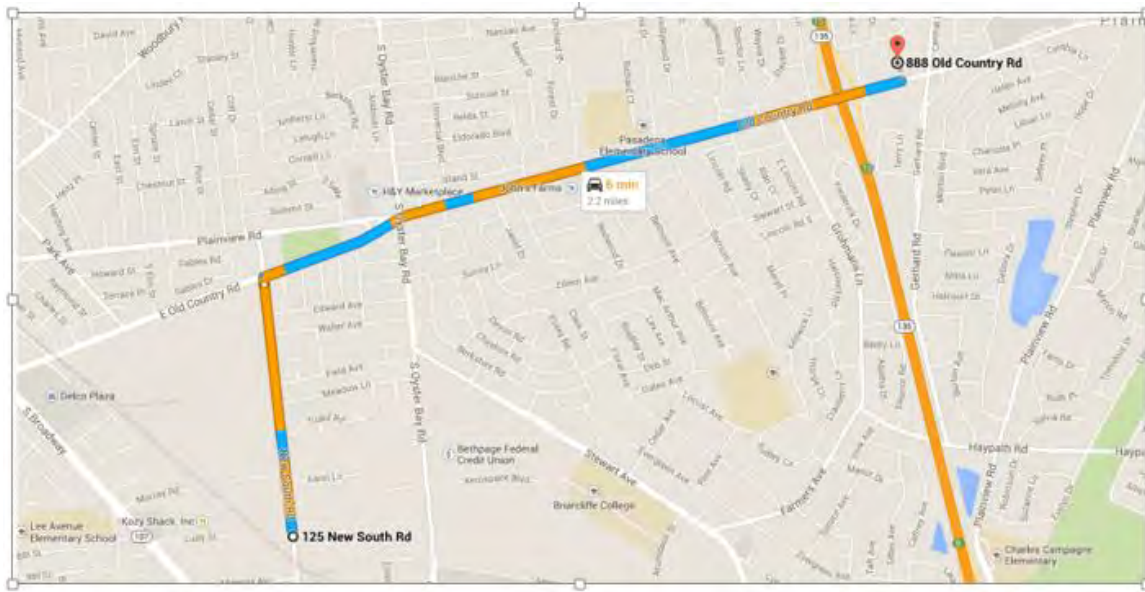
Directions to the Hospital:

1. Travel North on New South Road approximately 0.6 mi.
2. Turn Right onto E. Old Country Rd. and the Hospital will be 1.6 mi. on the Left

Total Distance: 2.2 mi.

Total Estimated Time: 6 minutes

Map Showing Route from the Site to the Hospital:



○ 125 New South Rd

Hicksville, NY 11801



1. Head north on New South Rd toward Karin Ln

0.6 mi



2. Turn right onto E Old Country Rd

Destination will be on the left

1.6 mi

○ 888 Old Country Rd

Plainview, NY 11803

2.5.3 Response Procedures

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (see Table 2-1). The list will also be posted prominently at the Site and made readily available to all personnel at all times.

Spill Response Plan

Spill response procedures have been developed for responding to unplanned release of oil, products, materials, hazardous waste, etc. to soil, surface water, or groundwater. All spills of such materials at the Site will be immediately reported to the Current Site Owner's project manager (whose name and phone number are included in Table 2-2). In addition, reportable spills will be called in to the NYSDEC spills hotline within 2 hours of discovery. Properly trained personnel will implement the following general spill response procedures (when possible):

1. *Ceasing Operation of the Affected Equipment:* This will consist of shutting off the equipment and/or closing any valves and stopping the leak, if possible.
2. *Containing the Spill:* If the spilled material is floating on a water surface, spill-absorbent pads/booms will be placed across the path of the floating spill. If the spilled material sinks below the water surface, a dam, weir, or other containment method will be used to stop the flow of the spilled material. If the spill occurs on land, a ditch, dam, or other containment unit will be constructed to stop the flow of the spilled material. Absorbent material will be applied as necessary.
3. *Cleaning Up the Spill:* Spills in water will be recovered using pumps, sorbent material, etc. as necessary until the spilled material is recovered (and no sheen or other evidence of the spill is observed on the water surface). Spills on land will be recovered using pumps, sorbent material, and heavy equipment, as necessary until the spilled material is recovered. Other activities to be conducted during spill cleanup activities include: removing impacted soil/sorbent pads; using rags and cleaning solution to remove excess spilled material from equipment; and collecting verification samples to confirm that the impacted soil has been removed.

4. *Containerizing Spill Materials:* Spill materials, impacted soil, sorbent pads, etc. will be containerized in New York State Department of Transportation- (NYSDOT-) approved containers. The containers will be labeled with the waste type and date of accumulation in accordance with applicable regulations contained in 49 CFR Part 172. Samples will be collected to characterize the spilled materials for disposal (e.g., as a hazardous/non-hazardous waste).
5. *Disposing of Spill Materials:* Impacted materials and spill cleanup debris will be disposed of at a facility permitted to accept the materials. The Current Site Owner will be responsible for the coordination of the disposal activities.
6. *Performing Post-Spill Maintenance:* Following cleanup of the spill, the Current Site Owner will ensure that all used spill cleanup material and equipment has been disposed of or cleaned, as appropriate. If the equipment that caused the spill (if applicable) cannot be properly repaired, replacement equipment will be obtained.

In the event that the release is of sufficient magnitude and cannot be controlled by diking, damming, absorbing, or other method, the local fire department, NYSDEC, and National Response Center will be notified.

Evacuation Plan

In the event of an emergency that requires Site evacuation; onsite personnel will vacate the Site as directed by onsite fire/police/rescue responders. In the event of an injury to onsite personnel, emergency procedures outlined in the HASP should be followed.

Amendments to Contingency Plan

With NYSDEC notification, this Contingency Plan and/or emergency contact list will be periodically updated to reflect changes in contacts or Site information.

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 impacts at the Site. The focus of the monitoring is on the soil cover system. Monitoring of other ECs is described in Chapter 4, Operation and Maintenance Plan. This Monitoring Plan may only be revised with the approval of NYSDEC. The cover system inspection described in the remainder of this Section will be conducted by the Current Site Owner.

3.2 COVER SYSTEM MONITORING

The surface cover in the area subject to this SMP (i.e., within the limits of the Site) will be evaluated annually (or other reduced frequency, as appropriate, with approval by the NYSDEC) and repaired as needed. Since potential Site impacts are only encountered at one foot or more below grade, the periodic inspections will focus on maintaining physical separation between onsite personnel and the remaining impacts. The evaluation will include a visual inspection of paved and concrete areas and landscaping for any evidence of recent excavation/subsurface utility work, erosion, cover material removal, or other recent work or conditions that could potentially result in exposure of onsite personnel to Site impacts in subsurface soil. The Current Site Owner will be responsible for maintaining/repairing the soil cover system at the Site.

The NYSDEC will be notified of significant items (i.e., items where measures are needed to prevent contact with, or migration of, impacts in subsurface soils within the Site) promptly following inspection. All observed changes will be documented in the Periodic Review Report discussed in Section 5.3. A sample Site-Wide Inspection Form is included as Appendix G. Any needed repairs will be made promptly.

3.3 SITE-WIDE INSPECTION

Site-wide inspections will be performed by the Current Site Owner 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 ECs or monitoring devices. During these inspections, an inspection form will be completed (see Appendix G) by the Current Site Owner. 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; and
- Confirm that Site records are up to date.

Table 3-1: Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Site-Wide Inspection	Annual

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

4.0 OPERATION AND MAINTENANCE PLAN

The Site remedy does not currently rely on any mechanical systems, such as SSD systems or air sparge/soil vapor extraction systems at the Site to protect public health and the environment under current conditions. Therefore, the operation and maintenance of such components are not included in this SMP. This Operation and Maintenance Plan will be revised by the Current Site Owner to include the measures necessary to operate, monitor, and maintain the mechanical components of the SSD systems (or other SVI mitigation systems associated with building(s)) if constructed in connection with future Site redevelopment, if necessary.

5.0 INSPECTIONS, REPORTING AND CERTIFICATIONS

5.1 SITE INSPECTIONS

5.1.1 Inspection Frequency

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

5.1.2 Inspection Forms and Maintenance Reports

The general Site-wide inspection form will be completed by the Current Site Owner during the Site-wide inspection (see Appendix G). This form is 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 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 RD and RDA (and documented in the FER).

5.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

Each Periodic Review Report (to be prepared as discussed under Section 5.3) will include a Certification Statement signed by a licensed New York State Professional Engineer retained by the Current Site Owner that will indicate (if applicable):

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;
- There are no apparent changes that would impair the ability of the control to protect the public health and environment;
- There are no apparent changes 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 NYSDEC and EPA 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; and

- To the best of my knowledge and based on my inquiry of the persons involved in site operations and maintenance, and those persons who conduct the Site inspections under my direction, 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.

The future Site Owner has agreed to the ECs and ICs described in this SMP. The signed Certification Statement will be included in the Periodic Review Report described below in Section 5.3.

5.3 PERIODIC REVIEW REPORT

A Periodic Review Report will be submitted by the Current Site Owner to the NYSDEC every year (unless NYSDEC determines that a longer period is acceptable), beginning sixteen months after the Certificate of Completion or equivalent document is issued. An electronic copy of each Periodic Review Report will also be submitted to the USEPA until the Site is removed from the NPL.

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 the metes and bounds of Appendix A. The report will be prepared in accordance with NYSDEC DER-10 or successor regulation and submitted within 30 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.
- Data summary tables and graphical representations of constituents of interest by media (i.e., 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 constituent concentration trends.

- 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.
- Results of analyses will be submitted electronically in the proper NYSDEC EDD format as specified in document titled “Division of Environmental Remediation (DER) Requirements for Submittal of Electronic Documents”, as available on the NYSDEC’s website at <http://www.dec.ny.gov/regulations/2586.html> and <http://www.dec.ny.gov/chemical/62440.html>.
- A Site evaluation, which includes the following:
 - The compliance of the remedy with the requirements of the Site-specific ROD;
 - 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 impacts 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.

One hard-copy and one electronic copy (as a PDF file) will be submitted to the 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 by the Current Site Owner 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.

TABLES



TABLE 1
SUMMARY OF REUSE CONCRETE ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
HICKSVILLE, NEW YORK

Location ID:	Date Collected	Total PCBs
Restricted Use SCOs Commercial:		1
COMP-1	8/30/2005	0.0790 [0.0760 J]
COMP-2	8/30/2005	0.00840 J
COMP-3	8/30/2005	<0.0350
COMP-4	8/31/2005	0.350 J
COMP-5	8/31/2005	0.167 J
COMP-7	8/31/2005	0.156 J
COMP-8	8/31/2005	0.175 J
COMP-9	8/31/2005	0.235 J
COMP-10	8/31/2005	0.112 J
COMP-11	8/31/2005	0.310
COMP-12	8/31/2005	0.779
Stockpile-1	11/16/2005	1.44 J
Stockpile-2	11/16/2005	0.212 J
Stockpile-3	11/16/2005	4.34 J
Stockpile-4	11/16/2005	0.274
Stockpile-5	11/16/2005	0.0912 J
Stockpile-7	11/16/2005	0.0387 J
Stockpile-8	11/16/2005	2.01 J

Notes:

1. Samples were collected by ARCADIS on the dates indicated.
2. PCBs = Polychlorinated biphenyls.
3. Samples were analyzed by Severn Trent Laboratories, Inc. located in Shelton, Connecticut for PCBs using United States Environmental Protection Agency (USEPA) SW-846 Method 8082.
4. All concentrations reported in dry weight parts per million (ppm), which is equivalent to milligrams per kilogram (mg/kg).
5. Data qualifiers are defined as follows:
J = Indicates that the associated numerical value is an estimated concentration.
< = Constituent not detected at a concentration above the reported detection limit.
6. Bold font indicates that the result exceeds the PCB restricted commercial use soil cleanup objectives from Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375-6.8(b).
7. Data has not been validated.

TABLE 2
SUMMARY OF "SCRAPE AREA" REUSE SOIL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
HICKSVILLE, NEW YORK

Location ID: Sample Depth(Feet): Date Collected:	Restricted Use SCOs Commercial	AOC3-3 0 - 1 02/12/04	AOC3-4 0 - 1 02/12/04	P1-S17 0 - 0.2 05/03/06	P1-S17 2 - 2.5 05/03/06	P1-S18 0 - 0.2 05/03/06	P1-S18 2 - 2.5 05/03/06	P1-S19 0 - 0.2 05/03/06	P1-S19 2 - 2.5 05/03/06	P1-S20 0 - 0.2 05/03/06	P1-S20 2 - 2.5 05/03/06	P1-S21 0 - 0.2 05/03/06	P1-S21 2 - 2.5 05/03/06	P1-S22 0 - 0.2 05/03/06
PCBs														
Total PCBs	1	NA	NA	8.79	1.35 J	1.66 [1.23 J]	0.280 J	2.92	0.455 J	0.296 [1.27 J]	0.310	1.45 J	0.452	<0.0350 [0.0640]
VOCs														
1,1,1-Trichloroethane	500	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
1,1,2,2-Tetrachloroethane	--	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
1,1,2-Trichloroethane	--	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
1,1-Dichloroethane	240	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
1,1-Dichloroethene	500	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
1,2-Dichloroethane	30	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
1,2-Dichloropropane	--	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
2-Butanone (MEK)	500	<0.0230 J	0.0110 J	<0.0100	NA	<0.0110 [<0.0110]	NA	<0.0110	NA	<0.0120 [<0.0110]	NA	<0.0110	NA	<0.0560 [<0.580]
2-Hexanone	--	<0.0230 J	<0.0120	<0.0100	NA	<0.0110 [<0.0110]	NA	<0.0110	NA	<0.0120 [<0.0110]	NA	<0.0110	NA	<0.0560 [<0.580]
4-Methyl-2-pentanone (MIBK)	--	<0.0230	<0.0120	<0.0100	NA	<0.0110 [<0.0110]	NA	<0.0110	NA	<0.0120 [<0.0110]	NA	<0.0110	NA	<0.0560 [<0.580]
Acetone	500	0.380 J	0.0810 J	0.00720 JB	NA	0.0250 B [0.00680 J]	NA	0.00730 JB	NA	0.00890 JB [0.00780 J]	NA	0.00450 JB	NA	0.950 B [2.10]
Benzene	44	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Bromodichloromethane	--	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Bromoform	--	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Bromomethane	--	<0.0120 J	<0.00600 J	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Carbon disulfide	--	0.00500 J	0.000900 J	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Carbon tetrachloride	22	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Chlorobenzene	500	<0.0120	<0.00600 J	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Chloroethane	--	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Chloroform	350	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Chloromethane	--	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
cis-1,2-Dichloroethene	500	0.0410	0.0400	<0.00520	NA	<0.00530 [<0.00530]	NA	0.00510 J	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
cis-1,3-Dichloropropene	--	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Dibromochloromethane	--	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Ethylbenzene	--	<0.0120	<0.00600 J	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Methylene chloride	500	<0.0120	<0.00600	0.00620 JB	NA	0.00580 JB [0.00370 JB]	NA	0.00640 JB	NA	0.00770 JB [0.00380 JB]	NA	0.00990 JB	NA	0.0380 JB [<0.580]
Styrene	--	<0.0120	<0.00600 J	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Tetrachloroethene	150	0.0130	0.0460 J	0.00130 J	NA	0.0800 [0.0290]	NA	0.0320	NA	0.00730 [0.00710]	NA	0.00450 J	NA	<0.0280 [<0.580]
Toluene	500	0.0240	0.0500 J	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
trans-1,2-Dichloroethene	500	0.00700 J	0.000700 J	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
trans-1,3-Dichloropropene	--	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Trichloroethene	200	0.00100 J	0.0120	<0.00520	NA	0.00210 J [0.000800 JM]	NA	0.00320 J	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Vinyl chloride	13	0.000800 J	0.00200 J	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Xylenes (total)	500	<0.0120	<0.00600	<0.00520	NA	<0.00530 [<0.00530]	NA	<0.00540	NA	<0.00580 [<0.00570]	NA	<0.00570	NA	<0.0280 [<0.580]
Total VOCs	--	0.472 J	0.244 J	0.0517 J	NA	0.151 J [0.0403 J]	NA	0.0570 J	NA	0.0239 J [0.0187 J]	NA	0.0649 J	NA	1.22 J [2.43]

TABLE 2
SUMMARY OF "SCRAPE AREA" REUSE SOIL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
HICKSVILLE, NEW YORK

Location ID: Sample Depth(Feet): Date Collected:	Restricted Use SCOs Commercial	AOC3-3 0 - 1 02/12/04	AOC3-4 0 - 1 02/12/04	P1-S17 0 - 0.2 05/03/06	P1-S17 2 - 2.5 05/03/06	P1-S18 0 - 0.2 05/03/06	P1-S18 2 - 2.5 05/03/06	P1-S19 0 - 0.2 05/03/06	P1-S19 2 - 2.5 05/03/06	P1-S20 0 - 0.2 05/03/06	P1-S20 2 - 2.5 05/03/06	P1-S21 0 - 0.2 05/03/06	P1-S21 2 - 2.5 05/03/06	P1-S22 0 - 0.2 05/03/06
SVOCs														
1,2,4-Trichlorobenzene	--	<0.370	<0.390 J	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
1,2-Dichlorobenzene	500	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
1,3-Dichlorobenzene	280	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
1,4-Dichlorobenzene	130	<0.370	<0.390 J	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
2,2-oxybis (1-chloropropane)	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
2,4,5-Trichlorophenol	--	<1.80	<1.90	NA	NA	<3.40 [<1.60]	NA	NA	NA	<1.80 [<1.80]	NA	NA	NA	<1.70 [<1.80]
2,4,6-Trichlorophenol	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
2,4-Dichlorophenol	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
2,4-Dimethylphenol	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
2,4-Dinitrophenol	--	<1.80	<1.90	NA	NA	<3.40 [<1.60]	NA	NA	NA	<1.80 [<1.80]	NA	NA	NA	<1.70 [<1.80]
2,4-Dinitrotoluene	--	<0.370	<0.390 J	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
2,6-Dinitrotoluene	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
2-Chloronaphthalene	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
2-Chlorophenol	--	<0.370	<0.390 J	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
2-Methylnaphthalene	--	<0.370	<0.390	NA	NA	<0.700 [0.0590 J]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
2-Nitroaniline	--	<1.80	<1.90	NA	NA	<3.40 [<1.60]	NA	NA	NA	<1.80 [<1.80]	NA	NA	NA	<1.70 [<1.80]
2-Nitrophenol	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
3,3-Dichlorobenzidine	--	<0.750	<0.780	NA	NA	<1.40 [<0.680]	NA	NA	NA	<0.750 [<0.740]	NA	NA	NA	<0.720 [<0.750]
3-Nitroaniline	--	<1.80	<1.90	NA	NA	<3.40 [<1.60]	NA	NA	NA	<1.80 [<1.80]	NA	NA	NA	<1.70 [<1.80]
4,6-Dinitro-2-methylphenol	--	<1.80	<1.90	NA	NA	<3.40 [<1.60]	NA	NA	NA	<1.80 [<1.80]	NA	NA	NA	<1.70 [<1.80]
4-Bromophenyl phenyl ether	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
4-Chloro-3-methylphenol	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
4-Chloroaniline	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
4-Chlorophenyl phenyl ether	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
4-Nitroaniline	--	<0.750	<0.780	NA	NA	<1.40 [<0.680]	NA	NA	NA	<0.750 [<0.740]	NA	NA	NA	<0.720 [<0.750]
4-Nitrophenol	--	<1.80	<1.90	NA	NA	<3.40 [<1.60]	NA	NA	NA	<1.80 [<1.80]	NA	NA	NA	<1.70 [<1.80]
Acenaphthene	500	<0.370	<0.390	NA	NA	<0.700 [0.180 J]	NA	NA	NA	<0.370 [0.160 J]	NA	NA	NA	<0.360 [<0.380]
Acenaphthylene	500	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Anthracene	500	0.0170 J	<0.390	NA	NA	0.150 J [0.340]	NA	NA	NA	0.140 J [0.290 J]	NA	NA	NA	<0.360 [<0.380]
Benzo(a)anthracene	5.6	0.0520 J	<0.390	NA	NA	0.590 J [0.740]	NA	NA	NA	0.750 [1.20]	NA	NA	NA	0.290 J [0.100 J]
Benzo(a)pyrene	1	0.0330 J	<0.390	NA	NA	0.600 J [0.650]	NA	NA	NA	0.750 [1.10]	NA	NA	NA	0.270 J [0.0980 J]
Benzo(b)fluoranthene	5.6	0.0490 J	<0.390	NA	NA	0.780 [0.660]	NA	NA	NA	0.980 [1.60]	NA	NA	NA	0.400 [0.130 J]
Benzo(ghi)perylene	500	<0.370	<0.390	NA	NA	0.510 J [0.600]	NA	NA	NA	0.770 [1.10]	NA	NA	NA	0.300 J [0.0710 J]
Benzo(k)fluoranthene	56	0.0470 J	<0.390	NA	NA	0.250 J [0.290 J]	NA	NA	NA	0.450 [0.600]	NA	NA	NA	0.170 J [0.0540 J]
Benzoic acid	--	<1.80	<1.90	NA	NA	<3.40 [<1.60]	NA	NA	NA	<1.80 [<1.80]	NA	NA	NA	<1.70 [<1.80]
Benzyl alcohol	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Bis(2-chloroethoxy)methane	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Bis(2-chloroethyl)ether	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Bis(2-ethylhexyl)phthalate	--	<0.370 J	<0.390 J	NA	NA	4.40 B [5.00]	NA	NA	NA	0.640 B [0.490]	NA	NA	NA	0.760 B [0.0570 J]
Butyl benzyl phthalate	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Carbazole	--	<0.370	<0.390	NA	NA	<0.700 [0.140 J]	NA	NA	NA	0.110 J [0.200 J]	NA	NA	NA	<0.360 [<0.380]
Chrysene	56	0.110 J	<0.390	NA	NA	0.700 J [0.770]	NA	NA	NA	0.850 [1.40]	NA	NA	NA	0.370 [0.100 J]
Cresol (o)	500	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Cresol (p)	500	<0.370	0.0880 J	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Dibenzo(a,h)anthracene	0.56	<0.370	<0.390	NA	NA	0.110 J [0.140 JM]	NA	NA	NA	0.180 J [0.210 JM]	NA	NA	NA	0.0690 J [<0.380]

TABLE 2
SUMMARY OF "SCRAPE AREA" REUSE SOIL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
HICKSVILLE, NEW YORK

Location ID: Sample Depth(Feet): Date Collected:	Restricted Use SCOs Commercial	AOC3-3 0 - 1 02/12/04	AOC3-4 0 - 1 02/12/04	P1-S17 0 - 0.2 05/03/06	P1-S17 2 - 2.5 05/03/06	P1-S18 0 - 0.2 05/03/06	P1-S18 2 - 2.5 05/03/06	P1-S19 0 - 0.2 05/03/06	P1-S19 2 - 2.5 05/03/06	P1-S20 0 - 0.2 05/03/06	P1-S20 2 - 2.5 05/03/06	P1-S21 0 - 0.2 05/03/06	P1-S21 2 - 2.5 05/03/06	P1-S22 0 - 0.2 05/03/06
SVOCs Continued														
Dibenzofuran	350	<0.370	<0.390	NA	NA	<0.700 [0.0960 J]	NA	NA	NA	<0.370 [0.0700 J]	NA	NA	NA	<0.360 [<0.380]
Diethyl phthalate	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Dimethyl phthalate	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Di-n-butyl phthalate	--	<0.370	<0.390	NA	NA	0.240 J [0.370]	NA	NA	NA	<0.370 [0.0980 J]	NA	NA	NA	<0.360 [<0.380]
Di-n-octyl phthalate	--	0.0190 J	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Fluoranthene	500	0.0930 J	<0.390	NA	NA	1.00 [1.30]	NA	NA	NA	1.50 [2.30]	NA	NA	NA	0.700 [0.220 J]
Fluorene	500	<0.370	<0.390	NA	NA	<0.700 [0.160 J]	NA	NA	NA	0.0500 J [0.130 J]	NA	NA	NA	<0.360 [<0.380]
Hexachlorobenzene	6	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Hexachlorobutadiene	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Hexachlorocyclopentadiene	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Hexachloroethane	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Indeno(1,2,3-cd)pyrene	5.6	<0.370	<0.390	NA	NA	0.450 J [0.600]	NA	NA	NA	0.690 [1.00]	NA	NA	NA	0.270 J [0.0630 J]
Isophorone	--	<0.370	<0.390	NA	NA	1.30 H [0.120 JH]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Naphthalene	500	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [0.0700 J]	NA	NA	NA	<0.360 [<0.380]
Nitrobenzene	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
n-Nitroso-di-n-propylamine	--	<0.370	<0.390 J	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
n-Nitrosodiphenylamine	--	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Pentachlorophenol	6.7	<1.80	<1.90	NA	NA	<3.40 [<1.60]	NA	NA	NA	<1.80 [<1.80]	NA	NA	NA	<1.70 [<1.80]
Phenanthrene	500	0.120 J	<0.390	NA	NA	0.550 J [1.20]	NA	NA	NA	0.690 [1.40]	NA	NA	NA	0.180 J [0.110 J]
Phenol	500	<0.370	<0.390	NA	NA	<0.700 [<0.340]	NA	NA	NA	<0.370 [<0.370]	NA	NA	NA	<0.360 [<0.380]
Pyrene	500	0.0730 J	<0.390	NA	NA	1.30 [1.40]	NA	NA	NA	1.40 [2.40]	NA	NA	NA	0.600 [0.180 J]
Total PAHs	--	2.07 J	<3.32	NA	NA	8.74 J [9.43 J]	NA	NA	NA	9.94 J [15.3 J]	NA	NA	NA	4.70 J [2.46 J]
Inorganics														
Aluminum	--	4,800	15,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	--	<17.0 J	<16.0 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	16	13.9	7.10 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	400	46.6	33.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	590	<2.90	<2.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	9.3	<4.40	<4.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	--	1,720	678	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	--	8.50	16.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	14.7 J	16.7 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	<15.2 J	<16.9 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	27	<0.566 J	<0.591	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	9,330	17,800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1,000	6.50 B	10.4 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	726	1,890	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	10,000	102	194	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2.8	<2.20	<2.40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	310	7.60	13.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	377	415	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1,500	<23.3	<21.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	1,500	<4.40	<4.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	76.5 B	131	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	--	<32.1	<30.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	--	10.3	24.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	10.9 B	25.7 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 2
SUMMARY OF "SCRAPE AREA" REUSE SOIL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
HICKSVILLE, NEW YORK

Location ID: Sample Depth(Feet): Date Collected:	Restricted Use SCOs Commercial	P1-S23 0 - 0.2 05/03/06	P1-S23 2 - 2.5 05/03/06	P1-S24 0 - 0.2 05/03/06	P1-S27 0 - 0.2 05/03/06	P1-S27 2 - 2.5 05/03/06	P1-S28 0 - 0.2 05/03/06	P1-S28 2 - 2.5 05/03/06	P1-S29 0 - 0.2 05/03/06	P1-S29 2 - 2.5 05/03/06	P1-S30 0 - 0.2 05/03/06	P1-S30 2 - 2.5 05/03/06	P1-S31 0 - 0.2 05/03/06	P1-S31 2 - 2.5 05/03/06	P1-S32 0 - 0.2 05/03/06
PCBs															
Total PCBs	1	1.00 J	0.146	0.460 J	1.34 J	0.172	10.2 J	2.15 J	1.66 J [3.00 J]	3.97	3.71 J [1.43 J]	0.930	1.77	0.0530 J	0.0960
VOCs															
1,1,1-Trichloroethane	500	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
1,1,2,2-Tetrachloroethane	--	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
1,1,2-Trichloroethane	--	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
1,1-Dichloroethane	240	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
1,1-Dichloroethene	500	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
1,2-Dichloroethane	30	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
1,2-Dichloropropane	--	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
2-Butanone (MEK)	500	<0.0110	NA	<0.0110	<0.0100	NA	<0.0110	NA	<0.0110 [<0.0110]	NA	<0.0110 [<0.0100]	NA	NA	NA	<0.0100
2-Hexanone	--	<0.0110	NA	<0.0110	<0.0100	NA	<0.0110	NA	<0.0110 [<0.0110]	NA	<0.0110 [<0.0100]	NA	NA	NA	<0.0100
4-Methyl-2-pentanone (MIBK)	--	<0.0110	NA	<0.0110	<0.0100	NA	<0.0110	NA	<0.0110 [<0.0110]	NA	<0.0110 [<0.0100]	NA	NA	NA	<0.0100
Acetone	500	0.00790 JB	NA	0.0210 JB	0.00680 JB	NA	0.00420 JB	NA	0.00830 JB [0.00360 J]	NA	0.00830 JB [0.00580 J]	NA	NA	NA	0.0160 JB
Benzene	44	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Bromodichloromethane	--	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Bromoform	--	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Bromomethane	--	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Carbon disulfide	--	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Carbon tetrachloride	22	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Chlorobenzene	500	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Chloroethane	--	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Chloroform	350	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Chloromethane	--	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
cis-1,2-Dichloroethene	500	<0.00530	NA	<0.00540	<0.00520	NA	0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
cis-1,3-Dichloropropene	--	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Dibromochloromethane	--	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Ethylbenzene	--	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Methylene chloride	500	0.00670 JB	NA	0.00980 JB	0.00730 JB	NA	0.00860 JB	NA	0.0190 JB [0.00340 JB]	NA	0.0210 JB [0.00310 JB]	NA	NA	NA	0.0210 B
Styrene	--	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Tetrachloroethene	150	0.00530 J	NA	0.0260	0.00380 J	NA	0.0180	NA	<0.00530 [0.00150 J]	NA	<0.00530 [0.00180 J]	NA	NA	NA	<0.00510
Toluene	500	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
trans-1,2-Dichloroethene	500	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
trans-1,3-Dichloropropene	--	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Trichloroethene	200	<0.00530	NA	<0.00540	<0.00520	NA	0.00380 J	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Vinyl chloride	13	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Xylenes (total)	500	<0.00530	NA	<0.00540	<0.00520	NA	<0.00550	NA	<0.00530 [<0.00540]	NA	<0.00530 [<0.00520]	NA	NA	NA	<0.00510
Total VOCs	--	0.0439 J	NA	0.0818 J	0.0429 J	NA	0.0801 J	NA	0.0273 J [0.00850 J]	NA	0.0293 J [0.0107 J]	NA	NA	NA	0.0410 J

TABLE 2
SUMMARY OF "SCRAPE AREA" REUSE SOIL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
HICKSVILLE, NEW YORK

Location ID: Sample Depth(Feet): Date Collected:	Restricted Use SCOs Commercial	P1-S23 0 - 0.2 05/03/06	P1-S23 2 - 2.5 05/03/06	P1-S24 0 - 0.2 05/03/06	P1-S27 0 - 0.2 05/03/06	P1-S27 2 - 2.5 05/03/06	P1-S28 0 - 0.2 05/03/06	P1-S28 2 - 2.5 05/03/06	P1-S29 0 - 0.2 05/03/06	P1-S29 2 - 2.5 05/03/06	P1-S30 0 - 0.2 05/03/06	P1-S30 2 - 2.5 05/03/06	P1-S31 0 - 0.2 05/03/06	P1-S31 2 - 2.5 05/03/06	P1-S32 0 - 0.2 05/03/06
SVOCs															
1,2,4-Trichlorobenzene	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
1,2-Dichlorobenzene	500	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
1,3-Dichlorobenzene	280	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
1,4-Dichlorobenzene	130	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
2,2-oxybis (1-chloropropane)	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
2,4,5-Trichlorophenol	--	NA	NA	NA	<1.60	NA	NA	NA	<1.60 [<1.70]	NA	<17.0 [<1.70]	NA	NA	NA	NA
2,4,6-Trichlorophenol	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
2,4-Dichlorophenol	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
2,4-Dimethylphenol	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
2,4-Dinitrophenol	--	NA	NA	NA	<1.60 *	NA	NA	NA	<1.60 * [<1.70]	NA	<17.0 * [<1.70]	NA	NA	NA	NA
2,4-Dinitrotoluene	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
2,6-Dinitrotoluene	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
2-Chloronaphthalene	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
2-Chlorophenol	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
2-Methylnaphthalene	--	NA	NA	NA	0.0860 J	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
2-Nitroaniline	--	NA	NA	NA	<1.60	NA	NA	NA	<1.60 [<1.70]	NA	<17.0 [<1.70]	NA	NA	NA	NA
2-Nitrophenol	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
3,3-Dichlorobenzidine	--	NA	NA	NA	<0.650	NA	NA	NA	<0.660 [<0.690]	NA	<7.00 [<0.680]	NA	NA	NA	NA
3-Nitroaniline	--	NA	NA	NA	<1.60	NA	NA	NA	<1.60 [<1.70]	NA	<17.0 [<1.70]	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	--	NA	NA	NA	<1.60	NA	NA	NA	<1.60 [<1.70]	NA	<17.0 [<1.70]	NA	NA	NA	NA
4-Bromophenyl phenyl ether	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
4-Chloro-3-methylphenol	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
4-Chloroaniline	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
4-Nitroaniline	--	NA	NA	NA	<0.650	NA	NA	NA	<0.660 [<0.690]	NA	<7.00 [<0.680]	NA	NA	NA	NA
4-Nitrophenol	--	NA	NA	NA	<1.60	NA	NA	NA	<1.60 [<1.70]	NA	<17.0 [<1.70]	NA	NA	NA	NA
Acenaphthene	500	NA	NA	NA	0.340	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [0.130 J]	NA	NA	NA	NA
Acenaphthylene	500	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Anthracene	500	NA	NA	NA	0.630	NA	NA	NA	<0.330 [0.0980 J]	NA	<3.50 [0.230 J]	NA	NA	NA	NA
Benzo(a)anthracene	5.6	NA	NA	NA	2.10	NA	NA	NA	0.290 J [0.330 J]	NA	<3.50 [0.610]	NA	NA	NA	NA
Benzo(a)pyrene	1	NA	NA	NA	1.80	NA	NA	NA	<0.330 [0.270 J]	NA	<3.50 [0.520]	NA	NA	NA	NA
Benzo(b)fluoranthene	5.6	NA	NA	NA	2.30	NA	NA	NA	<0.330 [0.410]	NA	<3.50 [0.620]	NA	NA	NA	NA
Benzo(ghi)perylene	500	NA	NA	NA	1.40	NA	NA	NA	0.0490 J [0.350]	NA	<3.50 [0.520]	NA	NA	NA	NA
Benzo(k)fluoranthene	56	NA	NA	NA	0.850	NA	NA	NA	<0.330 [0.130 J]	NA	<3.50 [0.240 J]	NA	NA	NA	NA
Benzoic acid	--	NA	NA	NA	<1.60 *	NA	NA	NA	<1.60 * [<1.70]	NA	<17.0 * [<1.70]	NA	NA	NA	NA
Benzyl alcohol	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Bis(2-chloroethyl)ether	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	0.990 B	NA	NA	NA	3.70 B [0.340 J]	NA	32.0 B [0.190 J]	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	0.440	NA	NA	NA	<0.330 [0.0610 J]	NA	<3.50 [0.130 J]	NA	NA	NA	NA
Chrysene	56	NA	NA	NA	2.10	NA	NA	NA	<0.330 [0.340 J]	NA	<3.50 [0.610]	NA	NA	NA	NA
Cresol (o)	500	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Cresol (p)	500	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	NA	NA	NA	0.360	NA	NA	NA	<0.330 [0.0660 JM]	NA	<3.50 [0.120 JM]	NA	NA	NA	NA

TABLE 2
SUMMARY OF "SCRAPE AREA" REUSE SOIL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
HICKSVILLE, NEW YORK

Location ID: Sample Depth(Feet): Date Collected:	Restricted Use SCOs Commercial	P1-S23 0 - 0.2 05/03/06	P1-S23 2 - 2.5 05/03/06	P1-S24 0 - 0.2 05/03/06	P1-S27 0 - 0.2 05/03/06	P1-S27 2 - 2.5 05/03/06	P1-S28 0 - 0.2 05/03/06	P1-S28 2 - 2.5 05/03/06	P1-S29 0 - 0.2 05/03/06	P1-S29 2 - 2.5 05/03/06	P1-S30 0 - 0.2 05/03/06	P1-S30 2 - 2.5 05/03/06	P1-S31 0 - 0.2 05/03/06	P1-S31 2 - 2.5 05/03/06	P1-S32 0 - 0.2 05/03/06
SVOCs Continued															
Dibenzofuran	350	NA	NA	NA	0.160 J	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [0.0610 J]	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	0.0870 J	NA	NA	NA	0.330 J [0.0520 J]	NA	1.70 J [<0.340]	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	24.0 M [<0.340]	NA	NA	NA	NA
Fluoranthene	500	NA	NA	NA	4.30	NA	NA	NA	<0.330 [0.630]	NA	<3.50 [1.20]	NA	NA	NA	NA
Fluorene	500	NA	NA	NA	0.280 J	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [0.110 J]	NA	NA	NA	NA
Hexachlorobenzene	6	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Hexachlorobutadiene	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Hexachlorocyclopentadiene	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Hexachloroethane	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	NA	NA	NA	1.30	NA	NA	NA	0.0410 J [0.330 J]	NA	<3.50 [0.540]	NA	NA	NA	NA
Isophorone	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Naphthalene	500	NA	NA	NA	0.100 J	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Nitrobenzene	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
n-Nitroso-di-n-propylamine	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
n-Nitrosodiphenylamine	--	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Pentachlorophenol	6.7	NA	NA	NA	<1.60	NA	NA	NA	<1.60 [<1.70]	NA	<17.0 [<1.70]	NA	NA	NA	NA
Phenanthrene	500	NA	NA	NA	2.80	NA	NA	NA	0.0470 J [0.400]	NA	<3.50 [0.960]	NA	NA	NA	NA
Phenol	500	NA	NA	NA	<0.330	NA	NA	NA	<0.330 [<0.350]	NA	<3.50 [<0.340]	NA	NA	NA	NA
Pyrene	500	NA	NA	NA	3.20	NA	NA	NA	0.140 J [0.610]	NA	<3.50 [1.10]	NA	NA	NA	NA
Total PAHs	--	NA	NA	NA	24.1 J	NA	NA	NA	2.55 J [4.84 J]	NA	<29.8 [8.02 J]	NA	NA	NA	NA
Inorganics															
Aluminum	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	9.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 2
SUMMARY OF "SCRAPE AREA" REUSE SOIL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
HICKSVILLE, NEW YORK

Location ID: Sample Depth(Feet): Date Collected:	Restricted Use SCOs Commercial	P1-S33 0 - 0.2 05/02/06	P1-S33 2 - 2.5 05/02/06	P1-S43 0 - 0.2 05/02/06	P1-S43 2 - 2.5 05/02/06	P1-S44 0 - 0.2 05/02/06	P1-S44 2 - 2.5 05/02/06	P1-S45 0 - 0.2 05/02/06	P1-S46 0 - 0.2 05/02/06	P1-S46 2 - 2.5 05/02/06	P1-S47 0 - 0.2 05/02/06	P1-S47 2 - 2.5 05/02/06	P1-S69 0 - 0.2 08/22/06	P1-S69 2 - 2.5 08/22/06	P1-S70 0 - 0.2 08/22/06	P1-S70 2 - 2.5 08/22/06
PCBs																
Total PCBs	1	1.98 J [1.89 J]	1.69	2.80	0.240	1.81 [0.405 J]	3.48 J	0.692 J	1.10	0.940	2.40	2.17	3.49 J	0.0263 J [0.0290 J]	2.67 J	0.385
VOCs																
1,1,1-Trichloroethane	500	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	--	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	--	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	240	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	500	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	30	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	--	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0110 [<0.0110]	NA	<0.0110	NA	<0.0110 [<0.0110]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--	<0.0110 [<0.0110]	NA	<0.0110	NA	<0.0110 [<0.0110]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	--	<0.0110 [<0.0110]	NA	<0.0110	NA	<0.0110 [<0.0110]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	500	0.00760 J [0.00570 J]	NA	0.00580 JB	NA	0.00930 JB [0.00640 J]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	44	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	--	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	--	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	--	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	22	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	500	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	--	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	350	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	--	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	500	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	--	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	--	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	--	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	500	0.0100 JB [0.00700 JB]	NA	0.0190 JB	NA	0.0170 JB [0.0110 JB]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	150	0.0430 [0.00690]	NA	0.00700	NA	0.00680 [0.0490]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	500	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	500	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	--	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	200	0.00180 J [<0.00540]	NA	<0.00560	NA	<0.00550 [0.00240 J]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	13	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	500	<0.00550 [<0.00540]	NA	<0.00560	NA	<0.00550 [<0.00550]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total VOCs	--	0.0624 J [0.0196 J]	NA	0.0958 J	NA	0.0391 J [0.0988 J]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Location ID: Sample Depth(Feet): Date Collected:	Restricted Use SCOs Commercial	P1-S33 0 - 0.2 05/02/06	P1-S33 2 - 2.5 05/02/06	P1-S43 0 - 0.2 05/02/06	P1-S43 2 - 2.5 05/02/06	P1-S44 0 - 0.2 05/02/06	P1-S44 2 - 2.5 05/02/06	P1-S45 0 - 0.2 05/02/06	P1-S46 0 - 0.2 05/02/06	P1-S46 2 - 2.5 05/02/06	P1-S47 0 - 0.2 05/02/06	P1-S47 2 - 2.5 05/02/06	P1-S69 0 - 0.2 08/22/06	P1-S69 2 - 2.5 08/22/06	P1-S70 0 - 0.2 08/22/06	P1-S70 2 - 2.5 08/22/06
SVOCs																
1,2,4-Trichlorobenzene	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
1,2-Dichlorobenzene	500	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
1,3-Dichlorobenzene	280	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
1,4-Dichlorobenzene	130	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
2,2-oxybis (1-chloropropane)	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
2,4,5-Trichlorophenol	--	<6.80 [<8.50]	NA	NA	NA	<1.70 [<1.70]	NA	NA	NA	NA	NA	NA	<1.70	<1.70 [<1.70]	<1.60	<1.70
2,4,6-Trichlorophenol	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
2,4-Dichlorophenol	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
2,4-Dimethylphenol	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
2,4-Dinitrophenol	--	<6.80 [<8.50]	NA	NA	NA	<1.70 [<1.70]	NA	NA	NA	NA	NA	NA	<1.70	<1.70 [<1.70]	<1.60	<1.70
2,4-Dinitrotoluene	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
2,6-Dinitrotoluene	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
2-Chloronaphthalene	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
2-Chlorophenol	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
2-Methylnaphthalene	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	0.0770 J	<0.360
2-Nitroaniline	--	<6.80 [<8.50]	NA	NA	NA	<1.70 [<1.70]	NA	NA	NA	NA	NA	NA	<1.70	<1.70 [<1.70]	<1.60	<1.70
2-Nitrophenol	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
3,3-Dichlorobenzidine	--	<2.80 [<3.50]	NA	NA	NA	<0.710 [<0.720]	NA	NA	NA	NA	NA	NA	<0.690	<0.680 [<0.680]	<0.640	<0.720
3-Nitroaniline	--	<6.80 [<8.50]	NA	NA	NA	<1.70 [<1.70]	NA	NA	NA	NA	NA	NA	<1.70	<1.70 [<1.70]	<1.60	<1.70
4,6-Dinitro-2-methylphenol	--	<6.80 [<8.50]	NA	NA	NA	<1.70 [<1.70]	NA	NA	NA	NA	NA	NA	<1.70	<1.70 [<1.70]	<1.60	<1.70
4-Bromophenyl phenyl ether	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
4-Chloro-3-methylphenol	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
4-Chloroaniline	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
4-Chlorophenyl phenyl ether	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
4-Nitroaniline	--	<2.80 [<3.50]	NA	NA	NA	<0.710 [<0.720]	NA	NA	NA	NA	NA	NA	<0.690	<0.680 [<0.680]	<0.640	<0.720
4-Nitrophenol	--	<6.80 [<8.50]	NA	NA	NA	<1.70 [<1.70]	NA	NA	NA	NA	NA	NA	<1.70	<1.70 [<1.70]	<1.60	<1.70
Acenaphthene	500	0.790 J [0.640 J]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	0.420	0.0580 J [0.140 J]	0.360	<0.360
Acenaphthylene	500	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	0.0730 J	<0.340 [<0.340]	0.170 J	0.0680 J
Anthracene	500	2.20 [1.40 J]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	0.840 M	0.100 J [0.270 J]	0.770	0.180 J
Benzo(a)anthracene	5.6	5.70 [3.40]	NA	NA	NA	0.0590 J [<0.360]	NA	NA	NA	NA	NA	NA	2.50	0.390 [0.740 M]	2.10	0.600
Benzo(a)pyrene	1	5.20 [3.50]	NA	NA	NA	0.0770 J [0.0490 J]	NA	NA	NA	NA	NA	NA	2.50	0.370 [0.780]	2.20	0.900
Benzo(b)fluoranthene	5.6	5.70 [4.30]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	2.30 H	0.320 JH [0.620]	2.30 H	1.00 M
Benzo(ghi)perylene	500	6.50 [3.70]	NA	NA	NA	0.0660 J [0.0650 J]	NA	NA	NA	NA	NA	NA	1.30	0.340 J [0.600]	1.20	2.50
Benzo(k)fluoranthene	56	1.70 [1.60 J]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	2.10	0.280 J [0.680 M]	1.50	0.530 M
Benzoic acid	--	<6.80 [<8.50]	NA	NA	NA	<1.70 [<1.70]	NA	NA	NA	NA	NA	NA	<1.70	<1.70 [<1.70]	<1.60	<1.70
Benzyl alcohol	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
Bis(2-chloroethoxy)methane	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
Bis(2-chloroethyl)ether	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
Bis(2-ethylhexyl)phthalate	--	8.90 [9.60]	NA	NA	NA	0.190 J [0.120 J]	NA	NA	NA	NA	NA	NA	0.870	0.0730 J [0.0570 J]	2.00	1.70
Butyl benzyl phthalate	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	0.0750 J	<0.340 [<0.340]	<0.320	0.0600 JM
Carbazole	--	0.830 J [0.680 J]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	0.380	<0.340 [0.110 J]	0.400	<0.360
Chrysene	56	6.20 [3.40]	NA	NA	NA	0.100 J [<0.360]	NA	NA	NA	NA	NA	NA	2.60	0.390 M [0.840]	2.20	0.820
Cresol (o)	500	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
Cresol (p)	500	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
Dibenzo(a,h)anthracene	0.56	1.60 [0.880 J]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	0.380 H	0.0850 J [0.0960 J]	0.350	0.160 JH

TABLE 2
SUMMARY OF "SCRAPE AREA" REUSE SOIL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
HICKSVILLE, NEW YORK

Location ID: Sample Depth(Feet): Date Collected:	Restricted Use SCOs Commercial	P1-S33 0 - 0.2 05/02/06	P1-S33 2 - 2.5 05/02/06	P1-S43 0 - 0.2 05/02/06	P1-S43 2 - 2.5 05/02/06	P1-S44 0 - 0.2 05/02/06	P1-S44 2 - 2.5 05/02/06	P1-S45 0 - 0.2 05/02/06	P1-S46 0 - 0.2 05/02/06	P1-S46 2 - 2.5 05/02/06	P1-S47 0 - 0.2 05/02/06	P1-S47 2 - 2.5 05/02/06	P1-S69 0 - 0.2 08/22/06	P1-S69 2 - 2.5 08/22/06	P1-S70 0 - 0.2 08/22/06	P1-S70 2 - 2.5 08/22/06
SVOCs Continued																
Dibenzofuran	350	0.340 J [0.280 J]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	0.140 JM	<0.340 [<0.340]	0.150 J	<0.360
Diethyl phthalate	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
Dimethyl phthalate	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
Di-n-butyl phthalate	--	3.70 [20.0]	NA	NA	NA	0.0830 J [0.0660 J]	NA	NA	NA	NA	NA	NA	0.0730 J	<0.340 [<0.340]	2.70	0.120 J
Di-n-octyl phthalate	--	0.270 J [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	0.200 J	<0.360
Fluoranthene	500	8.70 [6.90]	NA	NA	NA	0.110 J [0.0680 J]	NA	NA	NA	NA	NA	NA	5.10	0.710 [1.40]	4.60	1.00
Fluorene	500	0.680 J [0.510 J]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	0.290 J	<0.340 [0.0620 J]	0.280 J	0.0530 J
Hexachlorobenzene	6	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
Hexachlorobutadiene	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
Hexachlorocyclopentadiene	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
Hexachloroethane	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
Indeno(1,2,3-cd)pyrene	5.6	5.10 [3.00]	NA	NA	NA	0.0450 J [<0.360]	NA	NA	NA	NA	NA	NA	1.70 H	0.390 [0.690 M]	1.60	2.10
Isophorone	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
Naphthalene	500	0.360 J [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	0.0880 J	<0.340 [<0.340]	0.120 J	0.0790 J
Nitrobenzene	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
n-Nitroso-di-n-propylamine	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
n-Nitrosodiphenylamine	--	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
Pentachlorophenol	6.7	<6.80 [<8.50]	NA	NA	NA	<1.70 [<1.70]	NA	NA	NA	NA	NA	NA	<1.70	<1.70 [<1.70]	<1.60	<1.70
Phenanthrene	500	7.30 [4.80]	NA	NA	NA	0.0740 J [0.0640 J]	NA	NA	NA	NA	NA	NA	2.80	0.390 [1.00]	2.60	0.710
Phenol	500	<1.40 [<1.80]	NA	NA	NA	<0.360 [<0.360]	NA	NA	NA	NA	NA	NA	<0.340	<0.340 [<0.340]	<0.320	<0.360
Pyrene	500	12.0 [5.80]	NA	NA	NA	0.110 J [0.0740 J]	NA	NA	NA	NA	NA	NA	3.00	0.620 [1.60]	2.50	1.30
Total PAHs	--	71.1 J [46.5 J]	NA	NA	NA	2.26 J [2.48 J]	NA	NA	NA	NA	NA	NA	28.2 J	5.12 J [10.0 J]	24.9 J	12.4 J
Inorganics																
Aluminum	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	9.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 2
SUMMARY OF "SCRAPE AREA" REUSE SOIL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
HICKSVILLE, NEW YORK

Location ID: Sample Depth(Feet): Date Collected:	Restricted Use SCOs Commercial	P1-S75 0 - 0.2 10/23/06	P1-S75 2 - 2.5 10/23/06	P1-S76 0 - 0.2 10/23/06	P1-S76 2 - 2.5 10/23/06	VS-39-2 2.5 - 3.5 06/08/05	VS-39-3 2.5 - 3.5 06/08/05	VS-P1-S11 2.5 - 3 02/13/09	VS-P1-S28 0.5 - 1 02/12/09	VS-P1-S28 1.5 - 2 02/12/09	VS-P1-S36 1.5 - 2 02/13/09	VS-P1-S41 2 - 2.5 02/13/09	VS-P1-S42 2 - 2.5 02/13/09	VS-P1-S43 2 - 2.5 02/13/09
PCBs														
Total PCBs	1	7.10	<0.0350	1.54 J	0.0180 J	0.0900 J	0.210	0.307 J	6.90	1.45	5.00	NA	NA	NA
VOCs														
1,1,1-Trichloroethane	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
1,1,2,2-Tetrachloroethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
1,1,2-Trichloroethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
1,1-Dichloroethane	240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
1,1-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
1,2-Dichloroethane	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
1,2-Dichloropropane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
2-Butanone (MEK)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0120	0.0210	0.0610
2-Hexanone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0120	<0.0110	<0.0240
4-Methyl-2-pentanone (MIBK)	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0240	0.0930	0.270
Benzene	44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Bromodichloromethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Bromoform	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Bromomethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Carbon disulfide	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Carbon tetrachloride	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Chlorobenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Chloroethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Chloroform	350	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Chloromethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
cis-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	0.0180
cis-1,3-Dichloropropene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Dibromochloromethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Ethylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Methylene chloride	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0240	<0.0220	<0.0490
Styrene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Tetrachloroethene	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00120 J	0.0140	0.0490
Toluene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	0.000310 JB	<0.0120
trans-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
trans-1,3-Dichloropropene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Trichloroethene	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	0.00600	0.0200
Vinyl chloride	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Xylenes (total)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00600	<0.00560	<0.0120
Total VOCs	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00120 J	0.134 J	0.418

TABLE 2
SUMMARY OF "SCRAPE AREA" REUSE SOIL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
HICKSVILLE, NEW YORK

Location ID: Sample Depth(Feet): Date Collected:	Restricted Use SCOs Commercial	P1-S75 0 - 0.2 10/23/06	P1-S75 2 - 2.5 10/23/06	P1-S76 0 - 0.2 10/23/06	P1-S76 2 - 2.5 10/23/06	VS-39-2 2.5 - 3.5 06/08/05	VS-39-3 2.5 - 3.5 06/08/05	VS-P1-S11 2.5 - 3 02/13/09	VS-P1-S28 0.5 - 1 02/12/09	VS-P1-S28 1.5 - 2 02/12/09	VS-P1-S36 1.5 - 2 02/13/09	VS-P1-S41 2 - 2.5 02/13/09	VS-P1-S42 2 - 2.5 02/13/09	VS-P1-S43 2 - 2.5 02/13/09
SVOCs														
1,2,4-Trichlorobenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	280	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-oxybis (1-chloropropane)	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3-Dichlorobenzidine	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	56	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl alcohol	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl)ether	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cresol (o)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cresol (p)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 2
SUMMARY OF "SCRAPE AREA" REUSE SOIL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
HICKSVILLE, NEW YORK

Location ID: Sample Depth(Feet): Date Collected:	Restricted Use SCOs Commercial	P1-S75 0 - 0.2 10/23/06	P1-S75 2 - 2.5 10/23/06	P1-S76 0 - 0.2 10/23/06	P1-S76 2 - 2.5 10/23/06	VS-39-2 2.5 - 3.5 06/08/05	VS-39-3 2.5 - 3.5 06/08/05	VS-P1-S11 2.5 - 3 02/13/09	VS-P1-S28 0.5 - 1 02/12/09	VS-P1-S28 1.5 - 2 02/12/09	VS-P1-S36 1.5 - 2 02/13/09	VS-P1-S41 2 - 2.5 02/13/09	VS-P1-S42 2 - 2.5 02/13/09	VS-P1-S43 2 - 2.5 02/13/09
SVOCs Continued														
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitroso-di-n-propylamine	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PAHs	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics														
Aluminum	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	9.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 2
SUMMARY OF "SCRAPE AREA" REUSE SOIL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
HICKSVILLE, NEW YORK

Notes:

1. Samples were collected by ARCADIS on the dates indicated.
2. VOCs = Volatile Organic Compounds.
3. SVOCs = Semi-Volatile Organic Compounds.
4. PCBs = Polychlorinated Biphenyls.
5. - - = No 6 NYCRR Part 375 SCO listed.
6. Samples were analyzed by TestAmerica Laboratories, Inc. located in Shelton, Connecticut for:
 - VOCs using United States Environmental Protection Agency (USEPA) SW-846 Method 8260.
 - SVOCs using USEPA SW-846 Method 8270.
 - Metals using USEPA SW-846 Methods 6010, 7471, and 9012A.
 - PCBs using USEPA SW-846 Method 8082.
7. All concentrations reported in dry weight parts per million (ppm), which is equivalent to milligrams per kilogram (mg/kg).
8. Data qualifiers are defined as follows:
 - < = Constituent not detected at a concentration above the reported detection limit.
 - * = LCS or LCSD exceeds the control limits.
 - B = The compound has been found in the sample as well as its associated blank.
 - H = Client requested analysis be conducted outside of holding times.
 - J = Indicates that the associated numerical value is an estimated concentration.
 - M = Manually integrated compound.
9. Soil cleanup levels are from the New York State Department of Environmental Conservation- (NYSDEC-) approved Remedial Design (ARCADIS, February 2013) and consist of the following:
 - PCB surface soil, VOC, SVOC and metal soil cleanup levels: Commercial use soil cleanup objectives from Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375-6.8(b).
 - PCB subsurface soil cleanup levels: from the NYSDEC document titled "CP-51 / Soil Cleanup Guidance", dated October 21, 2010.
10. Bold font indicates that the result exceeds the PCB surface soil cleanup levels.
11. Bold font and shading indicates that the result exceeds the PCB subsurface soil cleanup levels or the Restricted Use SCO Commercial.
12. Total PAHs were calculated as the sum of the following, which is consistent with the NYSDEC list from: <http://www.dec.ny.gov/chemical/24922.html>:

2-Methylnaphthalene	Chrysene
Acenaphthene	Dibenzo(a,h)anthracene
Acenaphthylene	Fluoranthene
Anthracene	Fluorene
Benzo(a)anthracene	Indeno(1,2,3-cd)pyrene
Benzo(a)pyrene	Naphthalene
Benzo(b)fluoranthene	Phenanthrene
Benzo(g,h,i)perylene	Pyrene
Benzo(k)fluoranthene	
13. Data has not been validated.
14. All of the scrape area soil was reused onsite at least 1-foot below ground surface, which is relative to pre-remediation grades.

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		ECM-CF-1 05/30/13 ECM-CF-1	ECM-CF-C2 06/24/13 ECM-CF-C2	ECM-CF-C3 07/15/13 ECM-CF-C3	ECM-CF-G2 06/24/13 ECM-CF-G2	ECM-CF-G3 06/24/13 ECM-CF-G3	ECM-CF-G4 07/15/13 ECM-CF-G4	ECM-CF-G5 07/15/13 ECM-CF-G5
	Commercial	Groundwater Protection							
PCBs									
Total PCBs	1	3.2	ND [ND]	ND [ND]	ND [ND]	NA	NA	NA	NA
VOCs									
1,1,1-Trichloroethane	500	0.68	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
1,1-Dichloroethane	240	0.27	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
1,1-Dichloroethene	500	0.33	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
1,2,4-Trimethylbenzene	190	3.6	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
1,2-Dichlorobenzene	500	1.1	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
1,2-Dichloroethane	30	0.02	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
1,3,5,- Trimethylbenzene	190	8.4	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
1,3-Dichlorobenzene	280	2.4	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
1,4- Dioxane	130	0.1	NA [NA]	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	130	1.8	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
2-Butanone (MEK)	500	0.12	<0.0127 [<0.0128]	NA	NA	<0.00710 [<0.00760]	<0.00720	<0.00640 [<0.00720]	<0.00730
Acetone	500	0.05	<0.0127 [<0.0128]	NA	NA	0.0120 J [0.0184 J]	0.00960 J	<0.00210 [<0.00240]	<0.00240
Benzene	44	0.06	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
Carbon tetrachloride	22	0.76	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
Chlorobenzene	500	1.1	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
Chloroform	350	0.37	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
cis-1,2-Dichloroethene	500	0.25	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
Ethylbenzene	--	1	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
Methyl tert-butyl ether	500	0.93	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
Methylene chloride	500	0.05	0.00170 J [0.00160 J]	NA	NA	<0.000480 [<0.000510]	<0.000480	0.00120 J [<0.000480]	0.00210 J
Naphthalene	500								
n-Butylbenzene	500	12	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
n-Propylbenzene	500	3.9	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
sec-Butylbenzene	500	11	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
tert-Butylbenzene	500	5.9	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
Tetrachloroethene	150	1.3	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
Toluene	500	0.7	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
trans-1,2-Dichloroethene	500	0.19	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
Trichloroethene	200	0.47	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
Vinyl chloride	13	0.02	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480
Xylene (m,p)	--	--	<0.00510 [<0.00510]	NA	NA	<0.000950 [<0.00100]	<0.000960	<0.000850 [<0.000960]	<0.000970
Xylene (o)	--	--	<0.00250 [<0.00260]	NA	NA	<0.000480 [<0.000510]	<0.000480	<0.000420 [<0.000480]	<0.000480

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TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		ECM-CF-1 05/30/13 ECM-CF-1	ECM-CF-C2 06/24/13 ECM-CF-C2	ECM-CF-C3 07/15/13 ECM-CF-C3	ECM-CF-G2 06/24/13 ECM-CF-G2	ECM-CF-G3 06/24/13 ECM-CF-G3	ECM-CF-G4 07/15/13 ECM-CF-G4	ECM-CF-G5 07/15/13 ECM-CF-G5
	Commercial	Groundwater Protection							
SVOCs									
1,4- Dioxane	NA	NA	<0.0715 [<0.0715]	<0.0690 [<0.0692]	<0.0688 [<0.0685]	NA	NA	NA	NA
Acenaphthene	500	98	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Acenaphthylene	500	107	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Anthracene	500	1,000	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Benzo(a)anthracene	5.6	1	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Benzo(a)pyrene	1	22	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Benzo(b)fluoranthene	5.6	1.7	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Benzo(ghi)perylene	500	1,000	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Benzo(k)fluoranthene	56	1.7	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Chrysene	56	1	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Cresol (m,p)	--	--	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Cresol (o)	500	0.33	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	1,000	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Dibenzofuran	350	210	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Fluoranthene	500	1,000	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Fluorene	500	386	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Hexachlorobenzene	6	3.2	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	8.2	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Naphthalene	500	12	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Pentachlorophenol	6.7	0.8	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Phenanthrene	500	1,000	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Phenol	500	0.33	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Pyrene	500	1,000	<0.0358 [<0.0358]	<0.0345 [<0.0346]	<0.0344 [<0.0342]	NA	NA	NA	NA
Total PAHs	--	--	<0.286 [<0.286]	<0.276 [<0.277]	<0.275 [<0.274]	NA	NA	NA	NA
Pesticides									
4,4'-DDD	92	14	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA
4,4'-DDE	62	17	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA
4,4'-DDT	47	136	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA
Aldrin	0.68	0.19	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA
alpha-BHC	3.4	0.02	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA
beta-BHC	3	0.09	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA
Chlordane	24	2.9	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA
delta-BHC	500	0.25	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA
Dieldrin	1.4	0.1	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA
Endosulfan I	200	102	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA
Endosulfan II	200	102	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA
Endosulfan Sulfate	200	1,000	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA
Endrin	89	0.06	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA
gamma-BHC (Lindane)	9.2	0.1	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA
Heptachlor	15	0.38	<0.000353 [<0.000354]	<0.000342 [<0.000342]	<0.000340 [<0.000339]	NA	NA	NA	NA

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TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		ECM-CF-1 05/30/13 ECM-CF-1	ECM-CF-C2 06/24/13 ECM-CF-C2	ECM-CF-C3 07/15/13 ECM-CF-C3	ECM-CF-G2 06/24/13 ECM-CF-G2	ECM-CF-G3 06/24/13 ECM-CF-G3	ECM-CF-G4 07/15/13 ECM-CF-G4	ECM-CF-G5 07/15/13 ECM-CF-G5
	Commercial	Groundwater Protection							
Herbicides									
2,4,5-TP Acid (Silvex)	500	3.8	<0.0178 [<0.0179]	<0.0173 [<0.0173]	<0.0172 [<0.0171]	NA	NA	NA	NA
Inorganics									
Arsenic	16	16	3.24 [2.78]	0.770 [0.920]	0.470 [0.370 J]	NA	NA	NA	NA
Barium	400	820	14.3 [12.3]	8.37 [10.8]	8.61 [8.20]	NA	NA	NA	NA
Beryllium	590	47	0.340 [0.290]	0.110 J [0.140]	<0.0650 [<0.0650]	NA	NA	NA	NA
Cadmium	9.3	7.5	<0.0650 [<0.0700]	0.0500 J [0.0600 J]	<0.0650 [<0.0650]	NA	NA	NA	NA
Chromium	--	--	NA	NA	NA	NA	NA	NA	NA
Chromium, hexavalent	400	19	<0.214 [<0.214]	0.100 J [<0.208]	<0.206 [<0.206]	NA	NA	NA	NA
Chromium, trivalent	1,500	--	4.05 [4.30]	2.80 [3.86]	2.10 [2.02]	NA	NA	NA	NA
Copper	270	1,720	3.67 [3.81]	2.27 [3.22]	1.85 [1.58]	NA	NA	NA	NA
Cyanide, Total	27	40	0.0530 J [<0.134]	0.0890 J [<0.130]	<0.129 [<0.128]	NA	NA	NA	NA
Lead	1,000	450	4.12 [2.00]	1.58 [1.98]	1.92 [1.78]	NA	NA	NA	NA
Manganese	10,000	2,000	77.7 [68.5]	53.7 [67.7]	40.4 [35.8]	NA	NA	NA	NA
Mercury	2.8	0.73	0.0100 J [0.0100 J]	<0.00500 [<0.00500]	0.00700 J [0.00600 J]	NA	NA	NA	NA
Nickel	310	130	3.53 [3.13]	1.97 [2.69]	1.50 [1.58]	NA	NA	NA	NA
Selenium	1,500	4	1.18 [1.23]	0.380 J [0.540]	<0.220 [<0.220]	NA	NA	NA	NA
Silver	1,500	8.3	0.980 [1.26]	<0.105 [<0.115]	<0.110 [<0.110]	NA	NA	NA	NA
Zinc	10,000	2,480	10.0 [10.3]	6.61 [8.33]	7.71 [7.27]	NA	NA	NA	NA
Organic Content	--	--	NA	NA	NA	NA	NA	NA	NA
% Solids	--	--	NA	NA	NA	NA	NA	NA	NA
pH	--	--	NA	NA	NA	NA	NA	NA	NA

9/25/2017

G:\Clients\BayerMaterialScience\Hicksville\10 Final Reports and Presentations\2017\SMP-Final\Tables\1201711022_SMP Tables

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-1C1 09/08/14 Comp-1	BMC-CF-1C2 09/08/14 Comp-2	BMC-CF-1G1 09/08/14 1	BMC-CF-1G2 09/08/14 2	BMC-CF-1G3 09/08/14 3	BMC-CF-1G4 09/08/14 4	BMC-CF-1G5 09/08/14 5	BMC-CF-1G6 09/08/14 6	BMC-CF-1G7 09/08/14 7	BMC-CF-2C1 10/09/14 BMC-CF-2C1	BMC-CF-2G1 10/09/14 BMC-CF-2G1
	Commercial	Groundwater Protection											
PCBs													
Total PCBs	1	3.2	<0.0179	<0.0173	NA	NA	NA	NA	NA	NA	NA	<0.0174	NA
VOCs													
1,1,1-Trichloroethane	500	0.68	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
1,1-Dichloroethane	240	0.27	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
1,1-Dichloroethene	500	0.33	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
1,2,4-Trimethylbenzene	190	3.6	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
1,2-Dichlorobenzene	500	1.1	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
1,2-Dichloroethane	30	0.02	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
1,3,5- Trimethylbenzene	190	8.4	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
1,3-Dichlorobenzene	280	2.4	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
1,4- Dioxane	130	0.1	NA	NA	<0.0430	<0.0530	<0.0480	<0.0510	<0.0750	<0.0480	<0.0360	NA	<0.0880
1,4-Dichlorobenzene	130	1.8	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
2-Butanone (MEK)	500	0.12	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
Acetone	500	0.05	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	0.00730	NA	<0.00880
Benzene	44	0.06	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
Carbon tetrachloride	22	0.76	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
Chlorobenzene	500	1.1	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
Chloroform	350	0.37	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
cis-1,2-Dichloroethene	500	0.25	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
Ethylbenzene	--	1	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
Methyl tert-butyl ether	500	0.93	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
Methylene chloride	500	0.05	NA	NA	<0.00210	<0.00270	0.00330 J	<0.00260	0.00540 J	<0.00240	0.00730	NA	<0.00880
Naphthalene	500												
n-Butylbenzene	500	12	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
n-Propylbenzene	500	3.9	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
sec-Butylbenzene	500	11	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
tert-Butylbenzene	500	5.9	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
Tetrachloroethene	150	1.3	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
Toluene	500	0.7	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
trans-1,2-Dichloroethene	500	0.19	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
Trichloroethene	200	0.47	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
Vinyl chloride	13	0.02	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440
Xylene (m,p)	--	--	NA	NA	<0.00430	<0.00530	<0.00480	<0.00510	<0.00750	<0.00480	<0.00360	NA	<0.00880
Xylene (o)	--	--	NA	NA	<0.00210	<0.00270	<0.00240	<0.00260	<0.00370	<0.00240	<0.00180	NA	<0.00440

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-1C1	BMC-CF-1C2	BMC-CF-1G1	BMC-CF-1G2	BMC-CF-1G3	BMC-CF-1G4	BMC-CF-1G5	BMC-CF-1G6	BMC-CF-1G7	BMC-CF-2C1	BMC-CF-2G1
	Commercial	Groundwater Protection	09/08/14 Comp-1	09/08/14 Comp-2	09/08/14 1	09/08/14 2	09/08/14 3	09/08/14 4	09/08/14 5	09/08/14 6	09/08/14 7	10/09/14 BMC-CF-2C1	10/09/14 BMC-CF-2G1
SVOCs													
1,4- Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	98	<0.136	<0.131	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Acenaphthylene	500	107	<0.136	<0.131	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Anthracene	500	1,000	<0.136	<0.131	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Benzo(a)anthracene	5.6	1	<0.136	0.280 JD	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Benzo(a)pyrene	1	22	<0.136	<0.131	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Benzo(b)fluoranthene	5.6	1.7	<0.136	0.141 JD	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Benzo(ghi)perylene	500	1,000	<0.271	<0.261	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Benzo(k)fluoranthene	56	1.7	<0.136	0.158 JD	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Chrysene	56	1	0.150 JD	0.477 JD	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Cresol (m,p)	--	--	<0.271	<0.261	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Cresol (o)	500	0.33	<0.271	<0.261	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Dibenzo(a,h)anthracene	0.56	1,000	<0.136	<0.131	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Dibenzofuran	350	210	<0.136	<0.131	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Fluoranthene	500	1,000	0.220 JD	1.04 D	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Fluorene	500	386	<0.136	<0.131	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Hexachlorobenzene	6	3.2	<0.136	<0.131	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Indeno(1,2,3-cd)pyrene	5.6	8.2	<0.136	<0.131	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Naphthalene	500	12	<0.136	<0.131	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Pentachlorophenol	6.7	0.8	<0.271	<0.261	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Phenanthrene	500	1,000	<0.136	0.572 D	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Phenol	500	0.33	<0.136	<0.131	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Pyrene	500	1,000	0.201 JD	1.01 D	NA	NA	NA	NA	NA	NA	NA	<0.174	NA
Total PAHs	--	--	1.52 J	4.33 J	NA	NA	NA	NA	NA	NA	NA	<1.39	NA
Pesticides													
4,4'-DDD	92	14	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA	<0.00165	NA
4,4'-DDE	62	17	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA	<0.00165	NA
4,4'-DDT	47	136	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA	<0.00165	NA
Aldrin	0.68	0.19	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA	<0.00165	NA
alpha-BHC	3.4	0.02	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA	<0.00165	NA
beta-BHC	3	0.09	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA	<0.00165	NA
Chlordane	24	2.9	0.00533 D	0.00515 D	NA	NA	NA	NA	NA	NA	NA	0.00305	NA
delta-BHC	500	0.25	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA	<0.00165	NA
Dieldrin	1.4	0.1	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA	<0.00165	NA
Endosulfan I	200	102	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA	<0.00165	NA
Endosulfan II	200	102	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA	<0.00165	NA
Endosulfan Sulfate	200	1,000	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA	<0.00165	NA
Endrin	89	0.06	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA	<0.00165	NA
gamma-BHC (Lindane)	9.2	0.1	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA	<0.00165	NA
Heptachlor	15	0.38	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA	<0.00165	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-1C1 09/08/14 Comp-1	BMC-CF-1C2 09/08/14 Comp-2	BMC-CF-1G1 09/08/14 1	BMC-CF-1G2 09/08/14 2	BMC-CF-1G3 09/08/14 3	BMC-CF-1G4 09/08/14 4	BMC-CF-1G5 09/08/14 5	BMC-CF-1G6 09/08/14 6	BMC-CF-1G7 09/08/14 7	BMC-CF-2C1 10/09/14 BMC-CF-2C1	BMC-CF-2G1 10/09/14 BMC-CF-2G1
	Commercial	Groundwater Protection											
Herbicides													
2,4,5-TP Acid (Silvex)	500	3.8	<0.0215	<0.0207	NA	NA	NA	NA	NA	NA	NA	<0.0209	NA
Inorganics													
Arsenic	16	16	3.36	5.59	NA	NA	NA	NA	NA	NA	NA	3.51	NA
Barium	400	820	23.0	20.3	NA	NA	NA	NA	NA	NA	NA	16.0	NA
Beryllium	590	47	<0.108	<0.104	NA	NA	NA	NA	NA	NA	NA	<0.105	NA
Cadmium	9.3	7.5	<0.323	<0.311	NA	NA	NA	NA	NA	NA	NA	<0.314	NA
Chromium	--	--	8.07	12.6	NA	NA	NA	NA	NA	NA	NA	7.23	NA
Chromium, hexavalent	400	19	<0.539	<0.519	NA	NA	NA	NA	NA	NA	NA	<0.523	NA
Chromium, trivalent	1,500	--	8.07	12.6	NA	NA	NA	NA	NA	NA	NA	6.92	NA
Copper	270	1,720	8.72	9.61	NA	NA	NA	NA	NA	NA	NA	4.78	NA
Cyanide, Total	27	40	<0.539	<0.519	NA	NA	NA	NA	NA	NA	NA	<0.523	NA
Lead	1,000	450	20.5	14.6	NA	NA	NA	NA	NA	NA	NA	9.48	NA
Manganese	10,000	2,000	123	1,570	NA	NA	NA	NA	NA	NA	NA	88.8	NA
Mercury	2.8	0.73	0.0331	<0.0311	NA	NA	NA	NA	NA	NA	NA	<0.0314	NA
Nickel	310	130	7.25	11.8	NA	NA	NA	NA	NA	NA	NA	5.73	NA
Selenium	1,500	4	<1.08	1.43	NA	NA	NA	NA	NA	NA	NA	1.31	NA
Silver	1,500	8.3	<0.539	<0.519	NA	NA	NA	NA	NA	NA	NA	<0.523	NA
Zinc	10,000	2,480	36.8	20.1	NA	NA	NA	NA	NA	NA	NA	17.3	NA
Organic Content	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
% Solids	--	--	92.8	96.4	96.2	92.4	94.1	96.5	98.5	98.4	97.1	95.5	88.8
pH	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-2G2 10/09/14 BMC-CF-2G2	BMC-CF-3C1 10/09/14 BMC-CF-3C1	BMC-CF-3G1 10/09/14 BMC-CF-3G1	BMC-CF-3G2 10/09/14 BMC-CF-3G2	BMC-CF-4C1 10/17/14 BMC-CF-4C1	BMC-CF-4G1 10/17/14 BMC-CF-4G1	BMC-CF-4G2 10/17/14 BMC-CF-4G2	BMC-CF-5C1 10/17/14 BMC-CF-5C1	BMC-CF-5G1 10/17/14 BMC-CF-5G1	BMC-CF-5G2 10/17/14 BMC-CF-5G2	BMC-CF-6C1 10/17/14 BMC-CF-6C1
	Commercial	Groundwater Protection											
PCBs													
Total PCBs	1	3.2	NA	<0.0173	NA	NA	<0.0185	NA	NA	<0.0180	NA	NA	<0.0182
VOCs													
1,1,1-Trichloroethane	500	0.68	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
1,1-Dichloroethane	240	0.27	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
1,1-Dichloroethene	500	0.33	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
1,2,4-Trimethylbenzene	190	3.6	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
1,2-Dichlorobenzene	500	1.1	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
1,2-Dichloroethane	30	0.02	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
1,3,5,- Trimethylbenzene	190	8.4	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
1,3-Dichlorobenzene	280	2.4	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
1,4- Dioxane	130	0.1	<0.0590	NA	<0.0930	<0.0800	NA	<0.0800	<0.0990	NA	<0.120	<0.110	NA
1,4-Dichlorobenzene	130	1.8	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
2-Butanone (MEK)	500	0.12	0.00390	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
Acetone	500	0.05	0.0400	NA	<0.00930	<0.00800	NA	<0.00800	<0.00990	NA	<0.0120	<0.0110	NA
Benzene	44	0.06	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
Carbon tetrachloride	22	0.76	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
Chlorobenzene	500	1.1	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
Chloroform	350	0.37	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
cis-1,2-Dichloroethene	500	0.25	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
Ethylbenzene	--	1	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
Methyl tert-butyl ether	500	0.93	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
Methylene chloride	500	0.05	<0.00590	NA	<0.00930	<0.00800	NA	<0.00800	<0.00990	NA	<0.0120	<0.0110	NA
Naphthalene	500												
n-Butylbenzene	500	12	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
n-Propylbenzene	500	3.9	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
sec-Butylbenzene	500	11	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
tert-Butylbenzene	500	5.9	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
Tetrachloroethene	150	1.3	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
Toluene	500	0.7	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
trans-1,2-Dichloroethene	500	0.19	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
Trichloroethene	200	0.47	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
Vinyl chloride	13	0.02	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA
Xylene (m,p)	--	--	<0.00590	NA	<0.00930	<0.00800	NA	<0.00800	<0.00990	NA	<0.0120	<0.0110	NA
Xylene (o)	--	--	<0.00300	NA	<0.00460	<0.00400	NA	<0.00400	<0.00490	NA	<0.00580	<0.00540	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-2G2	BMC-CF-3C1	BMC-CF-3G1	BMC-CF-3G2	BMC-CF-4C1	BMC-CF-4G1	BMC-CF-4G2	BMC-CF-5C1	BMC-CF-5G1	BMC-CF-5G2	BMC-CF-6C1
	Commercial	Groundwater Protection	10/09/14 BMC-CF-2G2	10/09/14 BMC-CF-3C1	10/09/14 BMC-CF-3G1	10/09/14 BMC-CF-3G2	10/17/14 BMC-CF-4C1	10/17/14 BMC-CF-4G1	10/17/14 BMC-CF-4G2	10/17/14 BMC-CF-5C1	10/17/14 BMC-CF-5G1	10/17/14 BMC-CF-5G2	10/17/14 BMC-CF-6C1
SVOCs													
1,4- Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	98	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	<0.364
Acenaphthylene	500	107	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	<0.364
Anthracene	500	1,000	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	<0.364
Benzo(a)anthracene	5.6	1	NA	<0.173	NA	NA	<0.185	NA	NA	0.0577 J	NA	NA	0.229 JD
Benzo(a)pyrene	1	22	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	0.119 JD
Benzo(b)fluoranthene	5.6	1.7	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	0.135 JD
Benzo(ghi)perylene	500	1,000	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	<0.364
Benzo(k)fluoranthene	56	1.7	NA	<0.173	NA	NA	<0.185	NA	NA	0.0458 J	NA	NA	0.153 JD
Chrysene	56	1	NA	<0.173	NA	NA	0.0485 J	NA	NA	0.0789 J	NA	NA	0.300 JD
Cresol (m,p)	--	--	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	<0.364
Cresol (o)	500	0.33	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	<0.364
Dibenzo(a,h)anthracene	0.56	1,000	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	<0.364
Dibenzofuran	350	210	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	<0.364
Fluoranthene	500	1,000	NA	<0.173	NA	NA	0.0930 J	NA	NA	0.138 J	NA	NA	0.486 D
Fluorene	500	386	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	<0.364
Hexachlorobenzene	6	3.2	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	<0.364
Indeno(1,2,3-cd)pyrene	5.6	8.2	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	<0.364
Naphthalene	500	12	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	<0.364
Pentachlorophenol	6.7	0.8	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	<0.364
Phenanthrene	500	1,000	NA	<0.173	NA	NA	<0.185	NA	NA	0.0483 J	NA	NA	0.159 JD
Phenol	500	0.33	NA	<0.173	NA	NA	<0.185	NA	NA	<0.180	NA	NA	<0.364
Pyrene	500	1,000	NA	<0.173	NA	NA	0.0741 J	NA	NA	0.115 J	NA	NA	0.390 D
Total PAHs	--	--	NA	<1.38	NA	NA	1.42 J	NA	NA	1.38 J	NA	NA	3.43 J
Pesticides													
4,4'-DDD	92	14	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
4,4'-DDE	62	17	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
4,4'-DDT	47	136	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Aldrin	0.68	0.19	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
alpha-BHC	3.4	0.02	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
beta-BHC	3	0.09	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Chlordane	24	2.9	NA	<0.00165	NA	NA	0.0106 D	NA	NA	0.00887 D	NA	NA	0.00934 D
delta-BHC	500	0.25	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Dieldrin	1.4	0.1	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Endosulfan I	200	102	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Endosulfan II	200	102	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Endosulfan Sulfate	200	1,000	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Endrin	89	0.06	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
gamma-BHC (Lindane)	9.2	0.1	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Heptachlor	15	0.38	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165

9/25/2017

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TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-2G2 10/09/14 BMC-CF-2G2	BMC-CF-3C1 10/09/14 BMC-CF-3C1	BMC-CF-3G1 10/09/14 BMC-CF-3G1	BMC-CF-3G2 10/09/14 BMC-CF-3G2	BMC-CF-4C1 10/17/14 BMC-CF-4C1	BMC-CF-4G1 10/17/14 BMC-CF-4G1	BMC-CF-4G2 10/17/14 BMC-CF-4G2	BMC-CF-5C1 10/17/14 BMC-CF-5C1	BMC-CF-5G1 10/17/14 BMC-CF-5G1	BMC-CF-5G2 10/17/14 BMC-CF-5G2	BMC-CF-6C1 10/17/14 BMC-CF-6C1
	Commercial	Groundwater Protection											
Herbicides													
2,4,5-TP Acid (Silvex)	500	3.8	NA	<0.0208	NA	NA	<0.0222	NA	NA	<0.0216	NA	NA	<0.0218
Inorganics													
Arsenic	16	16	NA	3.15	NA	NA	3.15	NA	NA	3.05	NA	NA	6.35
Barium	400	820	NA	17.0	NA	NA	20.6	NA	NA	18.5	NA	NA	38.4
Beryllium	590	47	NA	<0.104	NA	NA	<0.111	NA	NA	<0.108	NA	NA	<0.109
Cadmium	9.3	7.5	NA	<0.312	NA	NA	<0.333	NA	NA	<0.324	NA	NA	<0.327
Chromium	--	--	NA	8.04	NA	NA	8.79	NA	NA	7.39	NA	NA	9.63
Chromium, hexavalent	400	19	NA	<0.520	NA	NA	<0.556	NA	NA	<0.540	NA	NA	<0.546
Chromium, trivalent	1,500	--	NA	7.73	NA	NA	8.79	NA	NA	7.39	NA	NA	9.63
Copper	270	1,720	NA	5.05	NA	NA	6.30	NA	NA	6.23	NA	NA	14.7
Cyanide, Total	27	40	NA	<0.520	NA	NA	<0.556	NA	NA	<0.540	NA	NA	<0.546
Lead	1,000	450	NA	10.2	NA	NA	13.5	NA	NA	13.3	NA	NA	38.4
Manganese	10,000	2,000	NA	103	NA	NA	104	NA	NA	99.6	NA	NA	174
Mercury	2.8	0.73	NA	<0.0312	NA	NA	0.0379	NA	NA	0.0611	NA	NA	0.0821
Nickel	310	130	NA	6.16	NA	NA	8.03	NA	NA	6.55	NA	NA	10.3
Selenium	1,500	4	NA	1.16	NA	NA	<1.11	NA	NA	<1.08	NA	NA	<1.09
Silver	1,500	8.3	NA	<0.520	NA	NA	<0.556	NA	NA	<0.540	NA	NA	<0.546
Zinc	10,000	2,480	NA	17.4	NA	NA	23.4	NA	NA	21.0	NA	NA	49.4
Organic Content	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
% Solids	--	--	96.1	96.1	93.6	98.0	90.0	97.4	82.9	92.5	93.3	82.7	91.6
pH	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-6G1	BMC-CF-6G2	BMC-CF-7C1	BMC-CF-7G1	BMC-CF-7G2	BMC-CF-8C1	BMC-CF-8G1	BMC-CF-8G2	BMC-CF-9C1	BMC-CF-9G1	BMC-CF-9G2
	Commercial	Groundwater Protection	10/17/14	10/17/14	10/17/14	10/17/14	10/17/14	10/17/14	10/17/14	10/17/14	10/28/14	10/28/14	10/28/14
			BMC-CF-6G1	BMC-CF-6G2	BMC-CF-7C1	BMC-CF-7G1	BMC-CF-7G2	BMC-CF-8C1	BMC-CF-8G1	BMC-CF-8G2	BMC-CF-9C1	BMC-CF-9G1	BMC-CF-9G2
PCBs													
Total PCBs	1	3.2	NA	NA	<0.0188	NA	NA	<0.0190	NA	NA	0.0585	NA	NA
VOCs													
1,1,1-Trichloroethane	500	0.68	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
1,1-Dichloroethane	240	0.27	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
1,1-Dichloroethene	500	0.33	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
1,2,4-Trimethylbenzene	190	3.6	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
1,2-Dichlorobenzene	500	1.1	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
1,2-Dichloroethane	30	0.02	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
1,3,5- Trimethylbenzene	190	8.4	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
1,3-Dichlorobenzene	280	2.4	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
1,4- Dioxane	130	0.1	<0.100	<0.120	NA	<0.0920	<0.0970	NA	<0.0870	<0.100	NA	<0.110	<0.110
1,4-Dichlorobenzene	130	1.8	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
2-Butanone (MEK)	500	0.12	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
Acetone	500	0.05	<0.0100	<0.0120	NA	<0.00920	<0.00970	NA	<0.00870	<0.0100	NA	<0.0110	<0.0110
Benzene	44	0.06	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
Carbon tetrachloride	22	0.76	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
Chlorobenzene	500	1.1	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
Chloroform	350	0.37	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
cis-1,2-Dichloroethene	500	0.25	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
Ethylbenzene	--	1	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
Methyl tert-butyl ether	500	0.93	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
Methylene chloride	500	0.05	<0.0100	<0.0120	NA	<0.00920	<0.00970	NA	<0.00870	<0.0100	NA	<0.0110	<0.0110
Naphthalene	500												
n-Butylbenzene	500	12	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
n-Propylbenzene	500	3.9	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
sec-Butylbenzene	500	11	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
tert-Butylbenzene	500	5.9	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
Tetrachloroethene	150	1.3	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
Toluene	500	0.7	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
trans-1,2-Dichloroethene	500	0.19	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
Trichloroethene	200	0.47	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
Vinyl chloride	13	0.02	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550
Xylene (m,p)	--	--	<0.0100	<0.0120	NA	<0.00920	<0.00970	NA	<0.00870	<0.0100	NA	<0.0110	<0.0110
Xylene (o)	--	--	<0.00510	<0.00590	NA	<0.00460	<0.00480	NA	<0.00440	<0.00500	NA	<0.00550	<0.00550

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-6G1	BMC-CF-6G2	BMC-CF-7C1	BMC-CF-7G1	BMC-CF-7G2	BMC-CF-8C1	BMC-CF-8G1	BMC-CF-8G2	BMC-CF-9C1	BMC-CF-9G1	BMC-CF-9G2
	Commercial	Groundwater Protection	10/17/14	10/17/14	10/17/14	10/17/14	10/17/14	10/17/14	10/17/14	10/17/14	10/28/14	10/28/14	10/28/14
	BMC-CF-6G1	BMC-CF-6G2	BMC-CF-7C1	BMC-CF-7G1	BMC-CF-7G2	BMC-CF-8C1	BMC-CF-8G1	BMC-CF-8G2	BMC-CF-9C1	BMC-CF-9G1	BMC-CF-9G2		
SVOCs													
1,4- Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	98	NA	NA	<0.376	NA	NA	<0.379	NA	NA	<0.373	NA	NA
Acenaphthylene	500	107	NA	NA	<0.376	NA	NA	<0.379	NA	NA	<0.373	NA	NA
Anthracene	500	1,000	NA	NA	<0.376	NA	NA	<0.379	NA	NA	<0.373	NA	NA
Benzo(a)anthracene	5.6	1	NA	NA	0.245 JD	NA	NA	0.176 JD	NA	NA	0.176 J	NA	NA
Benzo(a)pyrene	1	22	NA	NA	0.116 JD	NA	NA	<0.379	NA	NA	0.141 J	NA	NA
Benzo(b)fluoranthene	5.6	1.7	NA	NA	0.132 JD	NA	NA	<0.379	NA	NA	0.151 J	NA	NA
Benzo(ghi)perylene	500	1,000	NA	NA	<0.376	NA	NA	<0.379	NA	NA	<0.373	NA	NA
Benzo(k)fluoranthene	56	1.7	NA	NA	0.161 JD	NA	NA	0.110 JD	NA	NA	0.151 J	NA	NA
Chrysene	56	1	NA	NA	0.451 D	NA	NA	0.253 JD	NA	NA	0.202 J	NA	NA
Cresol (m,p)	--	--	NA	NA	<0.376	NA	NA	<0.379	NA	NA	<0.373	NA	NA
Cresol (o)	500	0.33	NA	NA	<0.376	NA	NA	<0.379	NA	NA	<0.373	NA	NA
Dibenzo(a,h)anthracene	0.56	1,000	NA	NA	<0.376	NA	NA	<0.379	NA	NA	<0.373	NA	NA
Dibenzofuran	350	210	NA	NA	<0.376	NA	NA	<0.379	NA	NA	<0.373	NA	NA
Fluoranthene	500	1,000	NA	NA	0.897 D	NA	NA	0.537 D	NA	NA	0.371 J	NA	NA
Fluorene	500	386	NA	NA	<0.376	NA	NA	<0.379	NA	NA	<0.373	NA	NA
Hexachlorobenzene	6	3.2	NA	NA	<0.376	NA	NA	<0.379	NA	NA	<0.373	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	8.2	NA	NA	<0.376	NA	NA	<0.379	NA	NA	<0.373	NA	NA
Naphthalene	500	12	NA	NA	<0.376	NA	NA	<0.379	NA	NA	<0.373	NA	NA
Pentachlorophenol	6.7	0.8	NA	NA	<0.376	NA	NA	<0.379	NA	NA	<0.373	NA	NA
Phenanthrene	500	1,000	NA	NA	0.487 D	NA	NA	0.357 JD	NA	NA	0.149 J	NA	NA
Phenol	500	0.33	NA	NA	<0.376	NA	NA	<0.379	NA	NA	<0.373	NA	NA
Pyrene	500	1,000	NA	NA	0.706 D	NA	NA	0.445 D	NA	NA	0.271 J	NA	NA
Total PAHs	--	--	NA	NA	4.70 J	NA	NA	3.77 J	NA	NA	3.10 J	NA	NA
Pesticides													
4,4'-DDD	92	14	NA	NA	0.00285 D	NA	NA	0.00228 D	NA	NA	<0.00165	NA	NA
4,4'-DDE	62	17	NA	NA	0.00189 D	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
4,4'-DDT	47	136	NA	NA	0.00287 D	NA	NA	0.00288 D	NA	NA	<0.00165	NA	NA
Aldrin	0.68	0.19	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
alpha-BHC	3.4	0.02	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
beta-BHC	3	0.09	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Chlordane	24	2.9	NA	NA	0.00465 D	NA	NA	0.00387 D	NA	NA	0.00725	NA	NA
delta-BHC	500	0.25	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Dieldrin	1.4	0.1	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Endosulfan I	200	102	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Endosulfan II	200	102	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Endosulfan Sulfate	200	1,000	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Endrin	89	0.06	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
gamma-BHC (Lindane)	9.2	0.1	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Heptachlor	15	0.38	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID:	6 NYCRR Part 375 SCOs		BMC-CF-6G1	BMC-CF-6G2	BMC-CF-7C1	BMC-CF-7G1	BMC-CF-7G2	BMC-CF-8C1	BMC-CF-8G1	BMC-CF-8G2	BMC-CF-9C1	BMC-CF-9G1	BMC-CF-9G2
Date Collected:	Commercial	Groundwater Protection	10/17/14	10/17/14	10/17/14	10/17/14	10/17/14	10/17/14	10/17/14	10/17/14	10/28/14	10/28/14	10/28/14
Sample Name:			BMC-CF-6G1	BMC-CF-6G2	BMC-CF-7C1	BMC-CF-7G1	BMC-CF-7G2	BMC-CF-8C1	BMC-CF-8G1	BMC-CF-8G2	BMC-CF-9C1	BMC-CF-9G1	BMC-CF-9G2
Herbicides													
2,4,5-TP Acid (Silvex)	500	3.8	NA	NA	<0.0226	NA	NA	<0.0228	NA	NA	<0.0224	NA	NA
Inorganics													
Arsenic	16	16	NA	NA	2.11	NA	NA	3.88	NA	NA	5.56	NA	NA
Barium	400	820	NA	NA	20.8	NA	NA	66.7	NA	NA	32.6	NA	NA
Beryllium	590	47	NA	NA	<0.113	NA	NA	<0.114	NA	NA	<0.112	NA	NA
Cadmium	9.3	7.5	NA	NA	<0.339	NA	NA	2.28	NA	NA	<0.336	NA	NA
Chromium	--	--	NA	NA	7.22	NA	NA	10.3	NA	NA	12.0	NA	NA
Chromium, hexavalent	400	19	NA	NA	<0.564	NA	NA	<0.569	NA	NA	<0.559	NA	NA
Chromium, trivalent	1,500	--	NA	NA	7.22	NA	NA	10.3	NA	NA	12.0	NA	NA
Copper	270	1,720	NA	NA	11.6	NA	NA	27.6	NA	NA	11.5	NA	NA
Cyanide, Total	27	40	NA	NA	<0.564	NA	NA	<0.569	NA	NA	<0.559	NA	NA
Lead	1,000	450	NA	NA	18.2	NA	NA	139	NA	NA	24.6	NA	NA
Manganese	10,000	2,000	NA	NA	137	NA	NA	197	NA	NA	163	NA	NA
Mercury	2.8	0.73	NA	NA	0.0972	NA	NA	0.137	NA	NA	0.0669	NA	NA
Nickel	310	130	NA	NA	8.09	NA	NA	13.0	NA	NA	10.7	NA	NA
Selenium	1,500	4	NA	NA	<1.13	NA	NA	<1.14	NA	NA	<1.12	NA	NA
Silver	1,500	8.3	NA	NA	<0.564	NA	NA	<0.569	NA	NA	<0.559	NA	NA
Zinc	10,000	2,480	NA	NA	33.4	NA	NA	116	NA	NA	39.6	NA	NA
Organic Content	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
% Solids	--	--	91.6	91.1	88.6	87.5	86.9	87.8	86.0	82.9	89.4	92.9	92.5
pH	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-10C1	BMC-CF-10G1	BMC-CF-10G2	BMC-CF-11C1	BMC-CF-11G1	BMC-CF-11G2	BMC-CF-12C1	BMC-CF-12G1	BMC-CF-12G2	BMC-CF-13C1
	Commercial	Groundwater Protection	10/28/14	10/28/14	10/28/14	11/07/14	11/07/14	11/07/14	11/07/14	11/07/14	11/07/14	11/14/14
			BMC-CF-10C1	BMC-CF-10G1	BMC-CF-10G2	BMC-CF-11C1	BMC-CF-11G1	BMC-CF-11G2	BMC-CF-12C1	BMC-CF-12G1	BMC-CF-12G2	BMC-CF-13C1
PCBs												
Total PCBs	1	3.2	<0.0198	NA	NA	<0.0192	NA	NA	<0.0186	NA	NA	<0.0186
VOCs												
1,1,1-Trichloroethane	500	0.68	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
1,1-Dichloroethane	240	0.27	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
1,1-Dichloroethene	500	0.33	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
1,2,4-Trimethylbenzene	190	3.6	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
1,2-Dichlorobenzene	500	1.1	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
1,2-Dichloroethane	30	0.02	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
1,3,5,- Trimethylbenzene	190	8.4	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
1,3-Dichlorobenzene	280	2.4	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
1,4- Dioxane	130	0.1	NA	<0.0830	<0.110	NA	<0.100	<0.120	NA	<0.110	<0.110	NA
1,4-Dichlorobenzene	130	1.8	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
2-Butanone (MEK)	500	0.12	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
Acetone	500	0.05	NA	0.0430	0.0210	NA	<0.0100	<0.0120	NA	0.0760	<0.0110	NA
Benzene	44	0.06	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
Carbon tetrachloride	22	0.76	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
Chlorobenzene	500	1.1	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
Chloroform	350	0.37	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
cis-1,2-Dichloroethene	500	0.25	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
Ethylbenzene	--	1	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
Methyl tert-butyl ether	500	0.93	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
Methylene chloride	500	0.05	NA	<0.00830	<0.0110	NA	<0.0100	<0.0120	NA	<0.0110	<0.0110	NA
Naphthalene	500											
n-Butylbenzene	500	12	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
n-Propylbenzene	500	3.9	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
sec-Butylbenzene	500	11	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
tert-Butylbenzene	500	5.9	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
Tetrachloroethene	150	1.3	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
Toluene	500	0.7	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
trans-1,2-Dichloroethene	500	0.19	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
Trichloroethene	200	0.47	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
Vinyl chloride	13	0.02	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA
Xylene (m,p)	--	--	NA	<0.00830	<0.0110	NA	<0.0100	<0.0120	NA	<0.0110	<0.0110	NA
Xylene (o)	--	--	NA	<0.00410	<0.00570	NA	<0.00500	<0.00600	NA	<0.00540	<0.00560	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-10C1	BMC-CF-10G1	BMC-CF-10G2	BMC-CF-11C1	BMC-CF-11G1	BMC-CF-11G2	BMC-CF-12C1	BMC-CF-12G1	BMC-CF-12G2	BMC-CF-13C1
	Commercial	Groundwater Protection	10/28/14 BMC-CF-10C1	10/28/14 BMC-CF-10G1	10/28/14 BMC-CF-10G2	11/07/14 BMC-CF-11C1	11/07/14 BMC-CF-11G1	11/07/14 BMC-CF-11G2	11/07/14 BMC-CF-12C1	11/07/14 BMC-CF-12G1	11/07/14 BMC-CF-12G2	11/14/14 BMC-CF-13C1
SVOCs												
1,4- Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	98	<0.397	NA	NA	<0.0963	NA	NA	<0.232	NA	NA	<0.0933
Acenaphthylene	500	107	<0.397	NA	NA	<0.0963	NA	NA	<0.232	NA	NA	<0.0933
Anthracene	500	1,000	0.179 J	NA	NA	<0.0963	NA	NA	<0.232	NA	NA	<0.0933
Benzo(a)anthracene	5.6	1	0.341 J	NA	NA	0.227	NA	NA	0.676	NA	NA	0.0679 J
Benzo(a)pyrene	1	22	0.179 J	NA	NA	0.162	NA	NA	0.351	NA	NA	0.0783 J
Benzo(b)fluoranthene	5.6	1.7	0.202 J	NA	NA	0.177	NA	NA	0.392	NA	NA	0.0880 J
Benzo(ghi)perylene	500	1,000	<0.397	NA	NA	0.0762 J	NA	NA	0.215 IS-LOJ	NA	NA	<0.0933
Benzo(k)fluoranthene	56	1.7	0.226 J	NA	NA	0.196	NA	NA	0.409	NA	NA	0.0917 J
Chrysene	56	1	0.347 J	NA	NA	0.303	NA	NA	1.07	NA	NA	0.139
Cresol (m,p)	--	--	<0.397	NA	NA	<0.0963	NA	NA	<0.232	NA	NA	<0.0933
Cresol (o)	500	0.33	<0.397	NA	NA	<0.0963	NA	NA	<0.232	NA	NA	<0.0933
Dibenzo(a,h)anthracene	0.56	1,000	<0.397	NA	NA	<0.0963	NA	NA	<0.232 IS-LO	NA	NA	<0.0933
Dibenzofuran	350	210	<0.397	NA	NA	<0.0963	NA	NA	<0.232	NA	NA	<0.0933
Fluoranthene	500	1,000	0.809	NA	NA	0.587	NA	NA	2.28	NA	NA	0.294
Fluorene	500	386	<0.397	NA	NA	<0.0963	NA	NA	<0.232	NA	NA	<0.0933
Hexachlorobenzene	6	3.2	<0.397	NA	NA	<0.0963	NA	NA	<0.232	NA	NA	<0.0933
Indeno(1,2,3-cd)pyrene	5.6	8.2	0.101 J	NA	NA	0.0778 J	NA	NA	0.217 IS-LOJ	NA	NA	<0.0933
Naphthalene	500	12	<0.397	NA	NA	<0.0963	NA	NA	<0.232	NA	NA	<0.0933
Pentachlorophenol	6.7	0.8	<0.397	NA	NA	<0.0963	NA	NA	<0.232	NA	NA	<0.0933
Phenanthrene	500	1,000	0.653	NA	NA	0.263	NA	NA	1.16	NA	NA	0.174
Phenol	500	0.33	<0.397	NA	NA	<0.0963	NA	NA	<0.232	NA	NA	<0.0933
Pyrene	500	1,000	0.675	NA	NA	0.472	NA	NA	1.73	NA	NA	0.237
Total PAHs	--	--	4.90 J	NA	NA	2.83 J	NA	NA	9.20 J	NA	NA	1.54 J
Pesticides												
4,4'-DDD	92	14	0.00597	NA	NA	<0.00165	NA	NA	0.0144	NA	NA	<0.00165
4,4'-DDE	62	17	0.00376	NA	NA	<0.00165	NA	NA	0.00556	NA	NA	0.00274
4,4'-DDT	47	136	<0.00165	NA	NA	<0.00165	NA	NA	0.00399	NA	NA	0.00494
Aldrin	0.68	0.19	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
alpha-BHC	3.4	0.02	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
beta-BHC	3	0.09	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Chlordane	24	2.9	0.0144	NA	NA	0.00832	NA	NA	0.0228	NA	NA	0.0263
delta-BHC	500	0.25	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Dieldrin	1.4	0.1	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	0.00824
Endosulfan I	200	102	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Endosulfan II	200	102	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Endosulfan Sulfate	200	1,000	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Endrin	89	0.06	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
gamma-BHC (Lindane)	9.2	0.1	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Heptachlor	15	0.38	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165

9/25/2017

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TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-10C1	BMC-CF-10G1	BMC-CF-10G2	BMC-CF-11C1	BMC-CF-11G1	BMC-CF-11G2	BMC-CF-12C1	BMC-CF-12G1	BMC-CF-12G2	BMC-CF-13C1
	Commercial	Groundwater Protection	10/28/14	10/28/14	10/28/14	11/07/14	11/07/14	11/07/14	11/07/14	11/07/14	11/07/14	11/14/14
			BMC-CF-10C1	BMC-CF-10G1	BMC-CF-10G2	BMC-CF-11C1	BMC-CF-11G1	BMC-CF-11G2	BMC-CF-12C1	BMC-CF-12G1	BMC-CF-12G2	BMC-CF-13C1
Herbicides												
2,4,5-TP Acid (Silvex)	500	3.8	<0.0238	NA	NA	<0.0231	NA	NA	<0.0223	NA	NA	<0.0224
Inorganics												
Arsenic	16	16	4.86	NA	NA	3.02	NA	NA	3.84	NA	NA	7.42
Barium	400	820	27.7	NA	NA	21.0	NA	NA	23.8	NA	NA	60.5
Beryllium	590	47	<0.119	NA	NA	<0.115	NA	NA	<0.111	NA	NA	<0.112
Cadmium	9.3	7.5	<0.357	NA	NA	<0.346	NA	NA	<0.334	NA	NA	<0.336
Chromium	--	--	9.61	NA	NA	8.22	NA	NA	9.32	NA	NA	14.2
Chromium, hexavalent	400	19	<0.595	NA	NA	<0.577	NA	NA	<0.557	NA	NA	<0.559
Chromium, trivalent	1,500	--	9.61	NA	NA	8.22	NA	NA	9.32	NA	NA	14.2
Copper	270	1,720	17.9	NA	NA	8.10	NA	NA	17.4	NA	NA	17.8
Cyanide, Total	27	40	<0.595	NA	NA	<0.577	NA	NA	<0.557	NA	NA	<0.559
Lead	1,000	450	33.8	NA	NA	19.2	NA	NA	36.0	NA	NA	54.4
Manganese	10,000	2,000	128	NA	NA	97.7	NA	NA	93.5	NA	NA	202
Mercury	2.8	0.73	0.0888	NA	NA	0.0577	NA	NA	0.0726	NA	NA	0.124
Nickel	310	130	9.11	NA	NA	7.33	NA	NA	9.83	NA	NA	14.4
Selenium	1,500	4	<1.19	NA	NA	2.37	NA	NA	2.78	NA	NA	3.92
Silver	1,500	8.3	<0.595	NA	NA	<0.577	NA	NA	<0.557	NA	NA	<0.559
Zinc	10,000	2,480	61.0	NA	NA	27.4	NA	NA	66.0	NA	NA	68.5
Organic Content	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
% Solids	--	--	84.0	94.1	89.0	86.6	95.0	86.1	89.7	80.2	98.8	89.4
pH	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-13G1 11/14/14 BMC-CF-13G1	BMC-CF-13G2 11/14/14 BMC-CF-13G2	BMC-CF-14C1 11/14/14 BMC-CF-14C1	BMC-CF-14G1 11/14/14 BMC-CF-14G1	BMC-CF-14G2 11/14/14 BMC-CF-14G2	BMC-CF-15C1 11/14/14 BMC-CF-15C1	BMC-CF-15G1 11/14/14 BMC-CF-15G1	BMC-CF-15G2 11/14/14 BMC-CF-15G2	BMC-CF-16C1 11/14/14 BMC-CF-16C1	BMC-CF-16G1 11/14/14 BMC-CF-16G1
	Commercial	Groundwater Protection										
PCBs												
Total PCBs	1	3.2	NA	NA	<0.0205	NA	NA	<0.0186	NA	NA	<0.0174	NA
VOCs												
1,1,1-Trichloroethane	500	0.68	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
1,1-Dichloroethane	240	0.27	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
1,1-Dichloroethene	500	0.33	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
1,2,4-Trimethylbenzene	190	3.6	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
1,2-Dichlorobenzene	500	1.1	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
1,2-Dichloroethane	30	0.02	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
1,3,5- Trimethylbenzene	190	8.4	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
1,3-Dichlorobenzene	280	2.4	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
1,4- Dioxane	130	0.1	<0.110	<0.100	NA	<0.130	<0.120	NA	<0.0950	<0.0960	NA	<0.0930
1,4-Dichlorobenzene	130	1.8	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
2-Butanone (MEK)	500	0.12	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
Acetone	500	0.05	<0.0110	<0.0100	NA	0.00800 J	<0.0120	NA	<0.00950	<0.00960	NA	<0.00930
Benzene	44	0.06	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
Carbon tetrachloride	22	0.76	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
Chlorobenzene	500	1.1	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
Chloroform	350	0.37	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
cis-1,2-Dichloroethene	500	0.25	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
Ethylbenzene	--	1	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
Methyl tert-butyl ether	500	0.93	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
Methylene chloride	500	0.05	<0.0110	<0.0100	NA	<0.0130 CCV-E	<0.0120 CCV-E	NA	<0.00950 CCV-E	<0.00960 CCV-E	NA	<0.00930 CCV-E
Naphthalene	500											
n-Butylbenzene	500	12	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
n-Propylbenzene	500	3.9	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
sec-Butylbenzene	500	11	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
tert-Butylbenzene	500	5.9	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
Tetrachloroethene	150	1.3	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
Toluene	500	0.7	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
trans-1,2-Dichloroethene	500	0.19	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
Trichloroethene	200	0.47	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
Vinyl chloride	13	0.02	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470
Xylene (m,p)	--	--	<0.0110	<0.0100	NA	<0.0130	<0.0120	NA	<0.00950	<0.00960	NA	<0.00930
Xylene (o)	--	--	<0.00550	<0.00510	NA	<0.00650	<0.00600	NA	<0.00470	<0.00480	NA	<0.00470

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-13G1 11/14/14 BMC-CF-13G1	BMC-CF-13G2 11/14/14 BMC-CF-13G2	BMC-CF-14C1 11/14/14 BMC-CF-14C1	BMC-CF-14G1 11/14/14 BMC-CF-14G1	BMC-CF-14G2 11/14/14 BMC-CF-14G2	BMC-CF-15C1 11/14/14 BMC-CF-15C1	BMC-CF-15G1 11/14/14 BMC-CF-15G1	BMC-CF-15G2 11/14/14 BMC-CF-15G2	BMC-CF-16C1 11/14/14 BMC-CF-16C1	BMC-CF-16G1 11/14/14 BMC-CF-16G1
	Commercial	Groundwater Protection										
SVOCs												
1,4- Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	98	NA	NA	<0.0513	NA	NA	<0.0466	NA	NA	<0.0871	NA
Acenaphthylene	500	107	NA	NA	<0.0513	NA	NA	<0.0466	NA	NA	<0.0871	NA
Anthracene	500	1,000	NA	NA	<0.0513	NA	NA	<0.0466	NA	NA	<0.0871	NA
Benzo(a)anthracene	5.6	1	NA	NA	0.0394 J	NA	NA	<0.0466	NA	NA	0.0974	NA
Benzo(a)pyrene	1	22	NA	NA	0.0406 J	NA	NA	<0.0466	NA	NA	0.0682 J	NA
Benzo(b)fluoranthene	5.6	1.7	NA	NA	0.0554	NA	NA	0.0287 J	NA	NA	0.143	NA
Benzo(ghi)perylene	500	1,000	NA	NA	<0.0513	NA	NA	<0.0466	NA	NA	<0.0871	NA
Benzo(k)fluoranthene	56	1.7	NA	NA	0.0575	NA	NA	0.0291 J	NA	NA	0.0863 J	NA
Chrysene	56	1	NA	NA	0.0858	NA	NA	0.0537	NA	NA	0.170	NA
Cresol (m,p)	--	--	NA	NA	<0.0513	NA	NA	<0.0466	NA	NA	<0.0871	NA
Cresol (o)	500	0.33	NA	NA	<0.0513	NA	NA	<0.0466	NA	NA	<0.0871	NA
Dibenzo(a,h)anthracene	0.56	1,000	NA	NA	<0.0513	NA	NA	<0.0466	NA	NA	<0.0871	NA
Dibenzofuran	350	210	NA	NA	<0.0513	NA	NA	<0.0466	NA	NA	<0.0871	NA
Fluoranthene	500	1,000	NA	NA	0.178	NA	NA	0.108	NA	NA	0.317	NA
Fluorene	500	386	NA	NA	<0.0513	NA	NA	<0.0466	NA	NA	<0.0871	NA
Hexachlorobenzene	6	3.2	NA	NA	<0.0513	NA	NA	<0.0466	NA	NA	<0.0871	NA
Indeno(1,2,3-cd)pyrene	5.6	8.2	NA	NA	<0.0513	NA	NA	<0.0466	NA	NA	<0.0871	NA
Naphthalene	500	12	NA	NA	<0.0513	NA	NA	<0.0466	NA	NA	<0.0871	NA
Pentachlorophenol	6.7	0.8	NA	NA	<0.0513	NA	NA	<0.0466	NA	NA	<0.0871	NA
Phenanthrene	500	1,000	NA	NA	0.0792	NA	NA	0.0492	NA	NA	0.175	NA
Phenol	500	0.33	NA	NA	<0.0513	NA	NA	<0.0466	NA	NA	<0.0871	NA
Pyrene	500	1,000	NA	NA	0.145	NA	NA	0.0895	NA	NA	0.296	NA
Total PAHs	--	--	NA	NA	0.886 J	NA	NA	0.591 J	NA	NA	1.70 J	NA
Pesticides												
4,4'-DDD	92	14	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
4,4'-DDE	62	17	NA	NA	0.00284	NA	NA	<0.00165	NA	NA	<0.00165	NA
4,4'-DDT	47	136	NA	NA	0.00520	NA	NA	0.00193	NA	NA	<0.00165	NA
Aldrin	0.68	0.19	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
alpha-BHC	3.4	0.02	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
beta-BHC	3	0.09	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
Chlordane	24	2.9	NA	NA	0.0149	NA	NA	0.00740	NA	NA	0.00937	NA
delta-BHC	500	0.25	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
Dieldrin	1.4	0.1	NA	NA	0.00552	NA	NA	0.00310	NA	NA	0.00329	NA
Endosulfan I	200	102	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
Endosulfan II	200	102	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
Endosulfan Sulfate	200	1,000	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
Endrin	89	0.06	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
gamma-BHC (Lindane)	9.2	0.1	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
Heptachlor	15	0.38	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs Commercial	Groundwater Protection	BMC-CF-13G1 11/14/14 BMC-CF-13G1	BMC-CF-13G2 11/14/14 BMC-CF-13G2	BMC-CF-14C1 11/14/14 BMC-CF-14C1	BMC-CF-14G1 11/14/14 BMC-CF-14G1	BMC-CF-14G2 11/14/14 BMC-CF-14G2	BMC-CF-15C1 11/14/14 BMC-CF-15C1	BMC-CF-15G1 11/14/14 BMC-CF-15G1	BMC-CF-15G2 11/14/14 BMC-CF-15G2	BMC-CF-16C1 11/14/14 BMC-CF-16C1	BMC-CF-16G1 11/14/14 BMC-CF-16G1
Herbicides												
2,4,5-TP Acid (Silvex)	500	3.8	NA	NA	<0.0246	NA	NA	<0.0224	NA	NA	<0.0209	NA
Inorganics												
Arsenic	16	16	NA	NA	7.46	NA	NA	7.17	NA	NA	3.87	NA
Barium	400	820	NA	NA	45.7	NA	NA	46.7	NA	NA	24.3	NA
Beryllium	590	47	NA	NA	<0.123	NA	NA	<0.112	NA	NA	<0.104	NA
Cadmium	9.3	7.5	NA	NA	<0.369	NA	NA	<0.335	NA	NA	<0.313	NA
Chromium	--	--	NA	NA	12.8	NA	NA	12.7	NA	NA	9.81	NA
Chromium, hexavalent	400	19	NA	NA	<0.616	NA	NA	<0.559	NA	NA	<0.522	NA
Chromium, trivalent	1,500	--	NA	NA	12.8	NA	NA	12.7	NA	NA	9.81	NA
Copper	270	1,720	NA	NA	17.8	NA	NA	16.1	NA	NA	7.92	NA
Cyanide, Total	27	40	NA	NA	<0.616	NA	NA	<0.559	NA	NA	<0.522	NA
Lead	1,000	450	NA	NA	50.3	NA	NA	45.4	NA	NA	19.5	NA
Manganese	10,000	2,000	NA	NA	197	NA	NA	199	NA	NA	115	NA
Mercury	2.8	0.73	NA	NA	0.118	NA	NA	0.0925	NA	NA	0.0676	NA
Nickel	310	130	NA	NA	14.0	NA	NA	13.2	NA	NA	9.76	NA
Selenium	1,500	4	NA	NA	3.93	NA	NA	4.08	NA	NA	3.30	NA
Silver	1,500	8.3	NA	NA	<0.616	NA	NA	<0.559	NA	NA	<0.522	NA
Zinc	10,000	2,480	NA	NA	63.8	NA	NA	52.2	NA	NA	27.9	NA
Organic Content	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
% Solids	--	--	94.8	84.7	81.2	80.9	84.5	89.4	84.3	85.9	95.8	94.6
pH	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-16G2 11/14/14 BMC-CF-16G2	BMC-CF-17C1 12/02/14 BMC-CF-17C1	BMC-CF-17G1 12/02/14 BMC-CF-17G1	BMC-CF-17G2 12/02/14 BMC-CF-17G2	BMC-CF-18C1 12/02/14 BMC-CF-18C1	BMC-CF-18G1 12/02/14 BMC-CF-18G1	BMC-CF-18G2 12/02/14 BMC-CF-18G2	BMC-CF-19C1 12/02/14 BMC-CF-19C1	BMC-CF-19G1 12/02/14 BMC-CF-19G1	BMC-CF-19G2 12/02/14 BMC-CF-19G2	BMC-CF-20C1 12/12/14 BMC-CF-20C1
	Commercial	Groundwater Protection											
PCBs													
Total PCBs	1	3.2	NA	<0.0192	NA	NA	<0.0185	NA	NA	<0.0173	NA	NA	<0.0189
VOCs													
1,1,1-Trichloroethane	500	0.68	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
1,1-Dichloroethane	240	0.27	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
1,1-Dichloroethene	500	0.33	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
1,2,4-Trimethylbenzene	190	3.6	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
1,2-Dichlorobenzene	500	1.1	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
1,2-Dichloroethane	30	0.02	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
1,3,5- Trimethylbenzene	190	8.4	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
1,3-Dichlorobenzene	280	2.4	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
1,4- Dioxane	130	0.1	<0.100	NA	<0.0820	<0.0860	NA	<0.120	<0.230	NA	<0.0990	<0.0940	NA
1,4-Dichlorobenzene	130	1.8	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
2-Butanone (MEK)	500	0.12	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
Acetone	500	0.05	0.00710 J	NA	<0.00820	0.00770 JB	NA	0.00620 JB	0.0200 BJ	NA	<0.00990	0.0490 B	NA
Benzene	44	0.06	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
Carbon tetrachloride	22	0.76	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
Chlorobenzene	500	1.1	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
Chloroform	350	0.37	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
cis-1,2-Dichloroethene	500	0.25	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
Ethylbenzene	--	1	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
Methyl tert-butyl ether	500	0.93	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
Methylene chloride	500	0.05	<0.0100	NA	<0.00820	<0.00860	NA	<0.0120	0.0180 J	NA	<0.00990	<0.00940	NA
Naphthalene	500												
n-Butylbenzene	500	12	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
n-Propylbenzene	500	3.9	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
sec-Butylbenzene	500	11	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
tert-Butylbenzene	500	5.9	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
Tetrachloroethene	150	1.3	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
Toluene	500	0.7	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
trans-1,2-Dichloroethene	500	0.19	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
Trichloroethene	200	0.47	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
Vinyl chloride	13	0.02	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA
Xylene (m,p)	--	--	<0.0100	NA	<0.00820	<0.00860	NA	<0.0120	<0.0230	NA	<0.00990	<0.00940	NA
Xylene (o)	--	--	<0.00510	NA	<0.00410	<0.00430	NA	<0.00610	<0.0110	NA	<0.00490	<0.00470	NA

9/25/2017

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TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-16G2	BMC-CF-17C1	BMC-CF-17G1	BMC-CF-17G2	BMC-CF-18C1	BMC-CF-18G1	BMC-CF-18G2	BMC-CF-19C1	BMC-CF-19G1	BMC-CF-19G2	BMC-CF-20C1
	Commercial	Groundwater Protection	11/14/14	12/02/14	12/02/14	12/02/14	12/02/14	12/02/14	12/02/14	12/02/14	12/02/14	12/02/14	12/12/14
			BMC-CF-16G2	BMC-CF-17C1	BMC-CF-17G1	BMC-CF-17G2	BMC-CF-18C1	BMC-CF-18G1	BMC-CF-18G2	BMC-CF-19C1	BMC-CF-19G1	BMC-CF-19G2	BMC-CF-20C1
SVOCs													
1,4- Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	98	NA	<0.0961	NA	NA	<0.0926	NA	NA	0.0705 J	NA	NA	<0.0949
Acenaphthylene	500	107	NA	<0.0961	NA	NA	<0.0926	NA	NA	<0.0865	NA	NA	<0.0949
Anthracene	500	1,000	NA	<0.0961	NA	NA	<0.0926	NA	NA	0.198	NA	NA	<0.0949
Benzo(a)anthracene	5.6	1	NA	<0.0961	NA	NA	<0.0926	NA	NA	0.726	NA	NA	0.0538 J
Benzo(a)pyrene	1	22	NA	<0.0961	NA	NA	<0.0926	NA	NA	0.209	NA	NA	0.0728 J
Benzo(b)fluoranthene	5.6	1.7	NA	<0.0961	NA	NA	0.0563 J	NA	NA	0.315	NA	NA	0.0842 J
Benzo(ghi)perylene	500	1,000	NA	<0.0961	NA	NA	<0.0926	NA	NA	0.248	NA	NA	0.0553 J
Benzo(k)fluoranthene	56	1.7	NA	<0.0961	NA	NA	<0.0926	NA	NA	0.260	NA	NA	0.0622 J
Chrysene	56	1	NA	<0.0961	NA	NA	0.0814 J	NA	NA	0.667	NA	NA	0.148
Cresol (m,p)	--	--	NA	<0.0961	NA	NA	<0.0926	NA	NA	<0.0865	NA	NA	<0.0949
Cresol (o)	500	0.33	NA	<0.0961	NA	NA	<0.0926	NA	NA	<0.0865	NA	NA	<0.0949
Dibenzo(a,h)anthracene	0.56	1,000	NA	<0.0961	NA	NA	<0.0926	NA	NA	0.114	NA	NA	<0.0949
Dibenzofuran	350	210	NA	<0.0961	NA	NA	<0.0926	NA	NA	<0.0865	NA	NA	<0.0949
Fluoranthene	500	1,000	NA	0.0668 J	NA	NA	0.185	NA	NA	1.39	NA	NA	0.260
Fluorene	500	386	NA	<0.0961	NA	NA	<0.0926	NA	NA	0.0629 J	NA	NA	<0.0949
Hexachlorobenzene	6	3.2	NA	<0.0961	NA	NA	<0.0926	NA	NA	<0.0865	NA	NA	<0.0949
Indeno(1,2,3-cd)pyrene	5.6	8.2	NA	<0.0961	NA	NA	<0.0926	NA	NA	0.257	NA	NA	0.0561 J
Naphthalene	500	12	NA	<0.0961	NA	NA	<0.0926	NA	NA	<0.0865	NA	NA	<0.0949
Pentachlorophenol	6.7	0.8	NA	<0.0961	NA	NA	<0.0926	NA	NA	<0.0865	NA	NA	<0.0949
Phenanthrene	500	1,000	NA	<0.0961	NA	NA	0.110	NA	NA	0.836	NA	NA	0.0796 J
Phenol	500	0.33	NA	<0.0961	NA	NA	<0.0926	NA	NA	<0.0865	NA	NA	<0.0949
Pyrene	500	1,000	NA	<0.0961	NA	NA	0.113	NA	NA	1.78	NA	NA	0.183
Total PAHs	--	--	NA	0.788 J	NA	NA	1.06 J	NA	NA	7.22 J	NA	NA	1.34 J
Pesticides													
4,4'-DDD	92	14	NA	0.00559	NA	NA	0.00440	NA	NA	0.0150	NA	NA	0.00348
4,4'-DDE	62	17	NA	0.00648	NA	NA	0.00561	NA	NA	0.00359	NA	NA	0.00509
4,4'-DDT	47	136	NA	0.00866	NA	NA	0.00306	NA	NA	0.00547	NA	NA	0.00266
Aldrin	0.68	0.19	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
alpha-BHC	3.4	0.02	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
beta-BHC	3	0.09	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Chlordane	24	2.9	NA	0.00831	NA	NA	0.00828	NA	NA	0.0264	NA	NA	0.0120
delta-BHC	500	0.25	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Dieldrin	1.4	0.1	NA	0.0159	NA	NA	0.00399	NA	NA	0.00703	NA	NA	<0.00165
Endosulfan I	200	102	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Endosulfan II	200	102	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Endosulfan Sulfate	200	1,000	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Endrin	89	0.06	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
gamma-BHC (Lindane)	9.2	0.1	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165
Heptachlor	15	0.38	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165

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TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs Commercial	Groundwater Protection	BMC-CF-16G2 11/14/14 BMC-CF-16G2	BMC-CF-17C1 12/02/14 BMC-CF-17C1	BMC-CF-17G1 12/02/14 BMC-CF-17G1	BMC-CF-17G2 12/02/14 BMC-CF-17G2	BMC-CF-18C1 12/02/14 BMC-CF-18C1	BMC-CF-18G1 12/02/14 BMC-CF-18G1	BMC-CF-18G2 12/02/14 BMC-CF-18G2	BMC-CF-19C1 12/02/14 BMC-CF-19C1	BMC-CF-19G1 12/02/14 BMC-CF-19G1	BMC-CF-19G2 12/02/14 BMC-CF-19G2	BMC-CF-20C1 12/12/14 BMC-CF-20C1
Herbicides													
2,4,5-TP Acid (Silvex)	500	3.8	NA	<0.0230	NA	NA	<0.0222	NA	NA	<0.0207	NA	NA	<0.0227
Inorganics													
Arsenic	16	16	NA	5.37	NA	NA	4.68	NA	NA	3.41	NA	NA	9.10
Barium	400	820	NA	25.4	NA	NA	26.4	NA	NA	59.0	NA	NA	29.6
Beryllium	590	47	NA	<0.115	NA	NA	<0.111	NA	NA	<0.104	NA	NA	<0.114
Cadmium	9.3	7.5	NA	<0.346	NA	NA	<0.333	NA	NA	<0.311	NA	NA	<0.341
Chromium	--	--	NA	9.40	NA	NA	9.47	NA	NA	9.66	NA	NA	9.24
Chromium, hexavalent	400	19	NA	<0.576	NA	NA	<0.555	NA	NA	<0.519	NA	NA	<0.569
Chromium, trivalent	1,500	--	NA	9.40	NA	NA	9.47	NA	NA	9.66	NA	NA	9.24
Copper	270	1,720	NA	12.3	NA	NA	13.1	NA	NA	22.7	NA	NA	17.7
Cyanide, Total	27	40	NA	<0.576	NA	NA	<0.555	NA	NA	<0.519	NA	NA	<0.569
Lead	1,000	450	NA	22.7	NA	NA	23.5	NA	NA	68.1	NA	NA	42.3
Manganese	10,000	2,000	NA	157	NA	NA	163	NA	NA	151	NA	NA	158
Mercury	2.8	0.73	NA	0.0770	NA	NA	0.0757	NA	NA	0.371	NA	NA	0.136
Nickel	310	130	NA	7.55	NA	NA	7.47	NA	NA	9.33	NA	NA	9.02
Selenium	1,500	4	NA	3.37	NA	NA	3.43	NA	NA	3.33	NA	NA	3.22
Silver	1,500	8.3	NA	<0.576	NA	NA	<0.555	NA	NA	<0.519	NA	NA	<0.569
Zinc	10,000	2,480	NA	29.9	NA	NA	36.7	NA	NA	76.3	NA	NA	55.7
Organic Content	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
% Solids	--	--	86.9	86.8	88.5	89.1	90.1	94.3	88.5	96.4	97.4	96.0	87.9
pH	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs Commercial	Groundwater Protection	BMC-CF-20G1 12/12/14 BMC-CF-20G1	BMC-CF-20G2 12/12/14 BMC-CF-20G2	BMC-CF-21C1 12/12/14 BMC-CF-21C1	BMC-CF-21G1 12/12/14 BMC-CF-21G1	BMC-CF-21G2 12/12/14 BMC-CF-21G2	BMC-CF-22C1 12/23/14 BMC-CF-22-C1	BMC-CF-22G1 12/23/14 BMC-CF-22-G1	BMC-CF-22G2 12/23/14 BMC-CF-22-G2	BMC-CF-23C1 12/23/14 BMC-CF-23-C1	BMC-CF-23G1 12/23/14 BMC-CF-23-G1
PCBs												
Total PCBs	1	3.2	NA	NA	<0.0186	NA	NA	<0.0185	NA	NA	<0.0181	NA
VOCs												
1,1,1-Trichloroethane	500	0.68	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
1,1-Dichloroethane	240	0.27	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
1,1-Dichloroethene	500	0.33	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
1,2,4-Trimethylbenzene	190	3.6	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
1,2-Dichlorobenzene	500	1.1	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
1,2-Dichloroethane	30	0.02	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
1,3,5,- Trimethylbenzene	190	8.4	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
1,3-Dichlorobenzene	280	2.4	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
1,4- Dioxane	130	0.1	<0.230	<0.250	NA	<0.230	<0.230	NA	<0.0930	<0.0570	NA	<0.0930
1,4-Dichlorobenzene	130	1.8	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
2-Butanone (MEK)	500	0.12	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
Acetone	500	0.05	<0.0120	<0.0130	NA	<0.0120	<0.0120	NA	<0.00930	<0.00570	NA	0.00740 J
Benzene	44	0.06	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
Carbon tetrachloride	22	0.76	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
Chlorobenzene	500	1.1	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
Chloroform	350	0.37	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
cis-1,2-Dichloroethene	500	0.25	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
Ethylbenzene	--	1	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
Methyl tert-butyl ether	500	0.93	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
Methylene chloride	500	0.05	<0.0120	<0.0130	NA	<0.0120	<0.0120	NA	0.00970 B	0.00600 B	NA	0.00790 JB
Naphthalene	500											
n-Butylbenzene	500	12	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
n-Propylbenzene	500	3.9	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
sec-Butylbenzene	500	11	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
tert-Butylbenzene	500	5.9	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
Tetrachloroethene	150	1.3	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
Toluene	500	0.7	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
trans-1,2-Dichloroethene	500	0.19	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
Trichloroethene	200	0.47	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	0.00830
Vinyl chloride	13	0.02	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460
Xylene (m,p)	--	--	<0.0120	<0.0130	NA	<0.0120	<0.0120	NA	<0.00930	<0.00570	NA	<0.00930
Xylene (o)	--	--	<0.00580	<0.00630	NA	<0.00580	<0.00580	NA	<0.00470	<0.00290	NA	<0.00460

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TABLE 3
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SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs Commercial	Groundwater Protection	BMC-CF-20G1 12/12/14 BMC-CF-20G1	BMC-CF-20G2 12/12/14 BMC-CF-20G2	BMC-CF-21C1 12/12/14 BMC-CF-21C1	BMC-CF-21G1 12/12/14 BMC-CF-21G1	BMC-CF-21G2 12/12/14 BMC-CF-21G2	BMC-CF-22C1 12/23/14 BMC-CF-22-C1	BMC-CF-22G1 12/23/14 BMC-CF-22-G1	BMC-CF-22G2 12/23/14 BMC-CF-22-G2	BMC-CF-23C1 12/23/14 BMC-CF-23-C1	BMC-CF-23G1 12/23/14 BMC-CF-23-G1
SVOCs												
1,4- Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	98	NA	NA	<0.0932	NA	NA	<0.0928	NA	NA	<0.452	NA
Acenaphthylene	500	107	NA	NA	<0.0932	NA	NA	<0.0928	NA	NA	<0.452	NA
Anthracene	500	1,000	NA	NA	<0.0932	NA	NA	<0.0928	NA	NA	<0.452	NA
Benzo(a)anthracene	5.6	1	NA	NA	0.168	NA	NA	0.0868 J	NA	NA	0.289 J	NA
Benzo(a)pyrene	1	22	NA	NA	0.117	NA	NA	<0.0928	NA	NA	<0.452	NA
Benzo(b)fluoranthene	5.6	1.7	NA	NA	0.104	NA	NA	<0.0928	NA	NA	<0.452	NA
Benzo(ghi)perylene	500	1,000	NA	NA	0.0738 J	NA	NA	<0.0928	NA	NA	<0.452	NA
Benzo(k)fluoranthene	56	1.7	NA	NA	0.162	NA	NA	<0.0928	NA	NA	<0.452	NA
Chrysene	56	1	NA	NA	0.264	NA	NA	0.102	NA	NA	0.289 J	NA
Cresol (m,p)	--	--	NA	NA	<0.0932	NA	NA	<0.0928	NA	NA	<0.452	NA
Cresol (o)	500	0.33	NA	NA	<0.0932	NA	NA	<0.0928	NA	NA	<0.452	NA
Dibenzo(a,h)anthracene	0.56	1,000	NA	NA	<0.0932	NA	NA	<0.0928	NA	NA	<0.452	NA
Dibenzofuran	350	210	NA	NA	<0.0932	NA	NA	<0.0928	NA	NA	<0.452	NA
Fluoranthene	500	1,000	NA	NA	0.471	NA	NA	0.213	NA	NA	0.578	NA
Fluorene	500	386	NA	NA	<0.0932	NA	NA	<0.0928	NA	NA	<0.452	NA
Hexachlorobenzene	6	3.2	NA	NA	<0.0932	NA	NA	<0.0928	NA	NA	<0.452	NA
Indeno(1,2,3-cd)pyrene	5.6	8.2	NA	NA	0.0738 J	NA	NA	<0.0928	NA	NA	<0.452	NA
Naphthalene	500	12	NA	NA	<0.0932	NA	NA	<0.0928	NA	NA	<0.452	NA
Pentachlorophenol	6.7	0.8	NA	NA	<0.0932	NA	NA	<0.0928	NA	NA	<0.452	NA
Phenanthrene	500	1,000	NA	NA	0.265	NA	NA	0.124	NA	NA	0.304 J	NA
Phenol	500	0.33	NA	NA	<0.0932	NA	NA	<0.0928	NA	NA	<0.452	NA
Pyrene	500	1,000	NA	NA	0.429	NA	NA	0.180	NA	NA	0.524	NA
Total PAHs	--	--	NA	NA	2.41 J	NA	NA	1.22 J	NA	NA	4.47 J	NA
Pesticides												
4,4'-DDD	92	14	NA	NA	0.00213	NA	NA	<0.00165	NA	NA	<0.00165	NA
4,4'-DDE	62	17	NA	NA	0.00361	NA	NA	<0.00165	NA	NA	<0.00165	NA
4,4'-DDT	47	136	NA	NA	0.00488	NA	NA	0.00453	NA	NA	0.00347	NA
Aldrin	0.68	0.19	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
alpha-BHC	3.4	0.02	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
beta-BHC	3	0.09	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
Chlordane	24	2.9	NA	NA	0.0161	NA	NA	0.0124	NA	NA	0.00479	NA
delta-BHC	500	0.25	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
Dieldrin	1.4	0.1	NA	NA	<0.00165	NA	NA	0.0169	NA	NA	0.00397	NA
Endosulfan I	200	102	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
Endosulfan II	200	102	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
Endosulfan Sulfate	200	1,000	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
Endrin	89	0.06	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
gamma-BHC (Lindane)	9.2	0.1	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA
Heptachlor	15	0.38	NA	NA	<0.00165	NA	NA	0.00489	NA	NA	<0.00165	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs Commercial	Groundwater Protection	BMC-CF-20G1 12/12/14 BMC-CF-20G1	BMC-CF-20G2 12/12/14 BMC-CF-20G2	BMC-CF-21C1 12/12/14 BMC-CF-21C1	BMC-CF-21G1 12/12/14 BMC-CF-21G1	BMC-CF-21G2 12/12/14 BMC-CF-21G2	BMC-CF-22C1 12/23/14 BMC-CF-22-C1	BMC-CF-22G1 12/23/14 BMC-CF-22-G1	BMC-CF-22G2 12/23/14 BMC-CF-22-G2	BMC-CF-23C1 12/23/14 BMC-CF-23-C1	BMC-CF-23G1 12/23/14 BMC-CF-23-G1
Herbicides												
2,4,5-TP Acid (Silvex)	500	3.8	NA	NA	<0.0224	NA	NA	<0.0222	NA	NA	<0.0217	NA
Inorganics												
Arsenic	16	16	NA	NA	6.98	NA	NA	5.29	NA	NA	4.22	NA
Barium	400	820	NA	NA	36.1	NA	NA	46.1	NA	NA	21.8	NA
Beryllium	590	47	NA	NA	<0.112	NA	NA	<0.111	NA	NA	<0.108	NA
Cadmium	9.3	7.5	NA	NA	<0.335	NA	NA	<0.334	NA	NA	<0.325	NA
Chromium	--	--	NA	NA	11.1	NA	NA	9.90	NA	NA	6.94	NA
Chromium, hexavalent	400	19	NA	NA	<0.559	NA	NA	<0.556	NA	NA	<0.542	NA
Chromium, trivalent	1,500	--	NA	NA	11.1	NA	NA	9.90	NA	NA	6.94	NA
Copper	270	1,720	NA	NA	22.4	NA	NA	17.4	NA	NA	9.61	NA
Cyanide, Total	27	40	NA	NA	<0.559	NA	NA	<0.556	NA	NA	<0.542	NA
Lead	1,000	450	NA	NA	49.2	NA	NA	91.5	NA	NA	29.4	NA
Manganese	10,000	2,000	NA	NA	140	NA	NA	150	NA	NA	91.6	NA
Mercury	2.8	0.73	NA	NA	0.104	NA	NA	0.250	NA	NA	0.0713	NA
Nickel	310	130	NA	NA	10.6	NA	NA	10.4	NA	NA	6.82	NA
Selenium	1,500	4	NA	NA	3.23	NA	NA	2.51	NA	NA	2.02	NA
Silver	1,500	8.3	NA	NA	<0.559	NA	NA	<0.556	NA	NA	<0.542	NA
Zinc	10,000	2,480	NA	NA	52.6	NA	NA	57.1	NA	NA	35.2	NA
Organic Content	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
% Solids	--	--	90.8	88.9	89.5	90.1	88.2	89.9	88.0	87.3	92.3	88.4
pH	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-23G2 12/23/14 BMC-CF-23-G2	BMC-CF-24C1 12/30/14 BMC-CF-24C1	BMC-CF-24G1 12/31/14 BMC-CF-24G1	BMC-CF-24G2 12/31/14 BMC-CF-24G2	BMC-CF-25C1 12/30/14 BMC-CF-25C1	BMC-CF-25G1 12/31/14 BMC-CF-25G1	BMC-CF-25G2 12/31/14 BMC-CF-25G2	BMC-CF-26C1 12/30/14 BMC-CF-26C1	BMC-CF-26G1 12/31/14 BMC-CF-26G1	BMC-CF-26G2 12/31/14 BMC-CF-26G2
	Commercial	Groundwater Protection										
PCBs												
Total PCBs	1	3.2	NA	<0.0184	NA	NA	<0.0195	NA	NA	<0.0201	NA	NA
VOCs												
1,1,1-Trichloroethane	500	0.68	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
1,1-Dichloroethane	240	0.27	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
1,1-Dichloroethene	500	0.33	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
1,2,4-Trimethylbenzene	190	3.6	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
1,2-Dichlorobenzene	500	1.1	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
1,2-Dichloroethane	30	0.02	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
1,3,5- Trimethylbenzene	190	8.4	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
1,3-Dichlorobenzene	280	2.4	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
1,4- Dioxane	130	0.1	<0.0950	NA	<0.160	<0.110	NA	<0.140	<0.150	NA	<0.0950	<0.100
1,4-Dichlorobenzene	130	1.8	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
2-Butanone (MEK)	500	0.12	<0.00480	NA	<0.00820	<0.00530	NA	0.0170	<0.00730	NA	<0.00470	<0.00500
Acetone	500	0.05	0.00900 J	NA	0.0430	0.0260	NA	0.0890	<0.0150	NA	0.00970	0.00630 J
Benzene	44	0.06	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
Carbon tetrachloride	22	0.76	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
Chlorobenzene	500	1.1	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
Chloroform	350	0.37	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
cis-1,2-Dichloroethene	500	0.25	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
Ethylbenzene	--	1	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
Methyl tert-butyl ether	500	0.93	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
Methylene chloride	500	0.05	0.00610 JB	NA	<0.0160	<0.0110	NA	<0.0140	<0.0150	NA	<0.00950	<0.0100
Naphthalene	500											
n-Butylbenzene	500	12	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
n-Propylbenzene	500	3.9	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
sec-Butylbenzene	500	11	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
tert-Butylbenzene	500	5.9	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
Tetrachloroethene	150	1.3	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
Toluene	500	0.7	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
trans-1,2-Dichloroethene	500	0.19	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
Trichloroethene	200	0.47	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
Vinyl chloride	13	0.02	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500
Xylene (m,p)	--	--	<0.00950	NA	<0.0160	<0.0110	NA	<0.0140	<0.0150	NA	<0.00950	<0.0100
Xylene (o)	--	--	<0.00480	NA	<0.00820	<0.00530	NA	<0.00680	<0.00730	NA	<0.00470	<0.00500

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-23G2 12/23/14 BMC-CF-23-G2	BMC-CF-24C1 12/30/14 BMC-CF-24C1	BMC-CF-24G1 12/31/14 BMC-CF-24G1	BMC-CF-24G2 12/31/14 BMC-CF-24G2	BMC-CF-25C1 12/30/14 BMC-CF-25C1	BMC-CF-25G1 12/31/14 BMC-CF-25G1	BMC-CF-25G2 12/31/14 BMC-CF-25G2	BMC-CF-26C1 12/30/14 BMC-CF-26C1	BMC-CF-26G1 12/31/14 BMC-CF-26G1	BMC-CF-26G2 12/31/14 BMC-CF-26G2
	Commercial	Groundwater Protection										
SVOCs												
1,4- Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	98	NA	<0.0922	NA	NA	<0.0976	NA	NA	<0.101	NA	NA
Acenaphthylene	500	107	NA	<0.0922	NA	NA	<0.0976	NA	NA	<0.101	NA	NA
Anthracene	500	1,000	NA	<0.0922	NA	NA	<0.0976	NA	NA	<0.101	NA	NA
Benzo(a)anthracene	5.6	1	NA	0.0796 J	NA	NA	0.114	NA	NA	0.160	NA	NA
Benzo(a)pyrene	1	22	NA	<0.0922	NA	NA	0.0671 J	NA	NA	0.0829 J	NA	NA
Benzo(b)fluoranthene	5.6	1.7	NA	0.0723 J	NA	NA	0.0710 J	NA	NA	0.109	NA	NA
Benzo(ghi)perylene	500	1,000	NA	<0.0922	NA	NA	<0.0976	NA	NA	<0.101	NA	NA
Benzo(k)fluoranthene	56	1.7	NA	0.0686 J	NA	NA	0.0843 J	NA	NA	0.105	NA	NA
Chrysene	56	1	NA	0.128	NA	NA	0.176	NA	NA	0.261	NA	NA
Cresol (m,p)	--	--	NA	<0.0922	NA	NA	<0.0976	NA	NA	<0.101	NA	NA
Cresol (o)	500	0.33	NA	<0.0922	NA	NA	<0.0976	NA	NA	<0.101	NA	NA
Dibenzo(a,h)anthracene	0.56	1,000	NA	<0.0922	NA	NA	<0.0976	NA	NA	<0.101	NA	NA
Dibenzofuran	350	210	NA	<0.0922	NA	NA	<0.0976	NA	NA	<0.101	NA	NA
Fluoranthene	500	1,000	NA	0.213	NA	NA	0.315	NA	NA	0.479	NA	NA
Fluorene	500	386	NA	<0.0922	NA	NA	<0.0976	NA	NA	<0.101	NA	NA
Hexachlorobenzene	6	3.2	NA	<0.0922	NA	NA	<0.0976	NA	NA	<0.101	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	8.2	NA	<0.0922	NA	NA	<0.0976	NA	NA	<0.101	NA	NA
Naphthalene	500	12	NA	<0.0922	NA	NA	<0.0976	NA	NA	<0.101	NA	NA
Pentachlorophenol	6.7	0.8	NA	<0.0922	NA	NA	<0.0976	NA	NA	<0.101	NA	NA
Phenanthrene	500	1,000	NA	0.0885 J	NA	NA	0.151	NA	NA	0.232	NA	NA
Phenol	500	0.33	NA	<0.0922	NA	NA	<0.0976	NA	NA	<0.101	NA	NA
Pyrene	500	1,000	NA	0.177	NA	NA	0.261	NA	NA	0.386	NA	NA
Total PAHs	--	--	NA	1.24 J	NA	NA	1.63 J	NA	NA	2.22 J	NA	NA
Pesticides												
4,4'-DDD	92	14	NA	<0.00165	NA	NA	0.00455	NA	NA	0.00563	NA	NA
4,4'-DDE	62	17	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
4,4'-DDT	47	136	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Aldrin	0.68	0.19	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
alpha-BHC	3.4	0.02	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
beta-BHC	3	0.09	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Chlordane	24	2.9	NA	0.00666	NA	NA	0.0123	NA	NA	0.0417	NA	NA
delta-BHC	500	0.25	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Dieldrin	1.4	0.1	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Endosulfan I	200	102	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Endosulfan II	200	102	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Endosulfan Sulfate	200	1,000	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Endrin	89	0.06	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
gamma-BHC (Lindane)	9.2	0.1	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Heptachlor	15	0.38	NA	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA

9/25/2017

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TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs Commercial	Groundwater Protection	BMC-CF-23G2 12/23/14 BMC-CF-23-G2	BMC-CF-24C1 12/30/14 BMC-CF-24C1	BMC-CF-24G1 12/31/14 BMC-CF-24G1	BMC-CF-24G2 12/31/14 BMC-CF-24G2	BMC-CF-25C1 12/30/14 BMC-CF-25C1	BMC-CF-25G1 12/31/14 BMC-CF-25G1	BMC-CF-25G2 12/31/14 BMC-CF-25G2	BMC-CF-26C1 12/30/14 BMC-CF-26C1	BMC-CF-26G1 12/31/14 BMC-CF-26G1	BMC-CF-26G2 12/31/14 BMC-CF-26G2
Herbicides												
2,4,5-TP Acid (Silvex)	500	3.8	NA	<0.0221	NA	NA	<0.0234	NA	NA	<0.0241	NA	NA
Inorganics												
Arsenic	16	16	NA	3.55	NA	NA	5.95	NA	NA	9.37	NA	NA
Barium	400	820	NA	22.0	NA	NA	33.8	NA	NA	31.4	NA	NA
Beryllium	590	47	NA	<0.111	NA	NA	<0.117	NA	NA	<0.121	NA	NA
Cadmium	9.3	7.5	NA	<0.332	NA	NA	<0.351	NA	NA	<0.362	NA	NA
Chromium	--	--	NA	7.94	NA	NA	12.2	NA	NA	11.4	NA	NA
Chromium, hexavalent	400	19	NA	<0.553	NA	NA	<0.585	NA	NA	<0.603	NA	NA
Chromium, trivalent	1,500	--	NA	7.94	NA	NA	12.2	NA	NA	11.4	NA	NA
Copper	270	1,720	NA	8.85	NA	NA	16.3	NA	NA	15.4	NA	NA
Cyanide, Total	27	40	NA	<0.553	NA	NA	<0.585	NA	NA	<0.603	NA	NA
Lead	1,000	450	NA	17.5	NA	NA	46.0	NA	NA	911	NA	NA
Manganese	10,000	2,000	NA	90.4	NA	NA	129	NA	NA	133	NA	NA
Mercury	2.8	0.73	NA	0.0581	NA	NA	0.126	NA	NA	0.508	NA	NA
Nickel	310	130	NA	6.95	NA	NA	8.91	NA	NA	9.16	NA	NA
Selenium	1,500	4	NA	2.35	NA	NA	2.58	NA	NA	2.85	NA	NA
Silver	1,500	8.3	NA	<0.553	NA	NA	<0.585	NA	NA	<0.603	NA	NA
Zinc	10,000	2,480	NA	29.7	NA	NA	50.4	NA	NA	43.9	NA	NA
Organic Content	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
% Solids	--	--	85.4	90.4	92.1	86.8	85.4	86.9	85.4	82.9	83.9	82.4
pH	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs Commercial	Groundwater Protection	BMC-CF-27C1 01/09/15 BMC-CF-27C1	BMC-CF-27G1 01/09/15 BMC-CF-27G1	BMC-CF-27G2 01/09/15 BMC-CF-27G2	BMC-CF-28C1 01/09/15 BMC-CF-28C1	BMC-CF-28G1 01/09/15 BMC-CF-28G1	BMC-CF-28G2 01/09/15 BMC-CF-28G2	BMC-CF-29C1 01/09/15 BMC-CF-29C1	BMC-CF-29G1 01/09/15 BMC-CF-29G1	BMC-CF-29G2 01/09/15 BMC-CF-29G2	BMC-CF-30C1 01/09/15 BMC-CF-30C1
PCBs												
Total PCBs	1	3.2	<0.0283	NA	NA	<0.0294	NA	NA	<0.0277	NA	NA	<0.0302
VOCs												
1,1,1-Trichloroethane	500	0.68	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
1,1-Dichloroethane	240	0.27	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
1,1-Dichloroethene	500	0.33	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
1,2,4-Trimethylbenzene	190	3.6	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
1,2-Dichlorobenzene	500	1.1	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
1,2-Dichloroethane	30	0.02	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
1,3,5,- Trimethylbenzene	190	8.4	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
1,3-Dichlorobenzene	280	2.4	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
1,4- Dioxane	130	0.1	NA	<0.130	<0.120	NA	<0.160	<0.130	NA	<0.110	<0.150	NA
1,4-Dichlorobenzene	130	1.8	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
2-Butanone (MEK)	500	0.12	NA	0.0320 CCV-E	0.00680 CCV-E	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
Acetone	500	0.05	NA	0.130 CCV-E	0.0370 CCV-E	NA	0.00820 CCV-EJ	0.0380 CCV-E	NA	0.0100 CCV-EJ	<0.0150	NA
Benzene	44	0.06	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
Carbon tetrachloride	22	0.76	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
Chlorobenzene	500	1.1	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
Chloroform	350	0.37	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
cis-1,2-Dichloroethene	500	0.25	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
Ethylbenzene	--	1	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
Methyl tert-butyl ether	500	0.93	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
Methylene chloride	500	0.05	NA	<0.0130	<0.0120	NA	<0.0160	<0.0130	NA	<0.0110	<0.0150	NA
Naphthalene	500											
n-Butylbenzene	500	12	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
n-Propylbenzene	500	3.9	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
sec-Butylbenzene	500	11	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
tert-Butylbenzene	500	5.9	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
Tetrachloroethene	150	1.3	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
Toluene	500	0.7	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
trans-1,2-Dichloroethene	500	0.19	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
Trichloroethene	200	0.47	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
Vinyl chloride	13	0.02	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA
Xylene (m,p)	--	--	NA	<0.0130	<0.0120	NA	<0.0160	<0.0130	NA	<0.0110	<0.0150	NA
Xylene (o)	--	--	NA	<0.00660	<0.00610	NA	<0.00780	<0.00660	NA	<0.00550	<0.00740	NA

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TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs Commercial	Groundwater Protection	BMC-CF-27C1 01/09/15 BMC-CF-27C1	BMC-CF-27G1 01/09/15 BMC-CF-27G1	BMC-CF-27G2 01/09/15 BMC-CF-27G2	BMC-CF-28C1 01/09/15 BMC-CF-28C1	BMC-CF-28G1 01/09/15 BMC-CF-28G1	BMC-CF-28G2 01/09/15 BMC-CF-28G2	BMC-CF-29C1 01/09/15 BMC-CF-29C1	BMC-CF-29G1 01/09/15 BMC-CF-29G1	BMC-CF-29G2 01/09/15 BMC-CF-29G2	BMC-CF-30C1 01/09/15 BMC-CF-30C1
SVOCs												
1,4- Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	98	<0.0946	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Acenaphthylene	500	107	<0.0946	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Anthracene	500	1,000	0.141	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Benzo(a)anthracene	5.6	1	0.427	NA	NA	0.0737 J	NA	NA	<0.0924	NA	NA	<0.101
Benzo(a)pyrene	1	22	0.218	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Benzo(b)fluoranthene	5.6	1.7	0.321	NA	NA	0.0909 J	NA	NA	<0.0924	NA	NA	<0.101
Benzo(ghi)perylene	500	1,000	0.116	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Benzo(k)fluoranthene	56	1.7	0.260	NA	NA	0.0893 J	NA	NA	<0.0924	NA	NA	<0.101
Chrysene	56	1	0.505	NA	NA	0.0799 J	NA	NA	<0.0924	NA	NA	0.0757 J
Cresol (m,p)	--	--	<0.0946	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Cresol (o)	500	0.33	<0.0946	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Dibenzo(a,h)anthracene	0.56	1,000	<0.0946	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Dibenzofuran	350	210	<0.0946	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Fluoranthene	500	1,000	1.03	NA	NA	0.158	NA	NA	0.0805 J	NA	NA	0.130
Fluorene	500	386	<0.0946	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Hexachlorobenzene	6	3.2	<0.0946	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Indeno(1,2,3-cd)pyrene	5.6	8.2	0.0968	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Naphthalene	500	12	<0.0946	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Pentachlorophenol	6.7	0.8	<0.0946	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Phenanthrene	500	1,000	0.614	NA	NA	0.0807 J	NA	NA	<0.0924	NA	NA	<0.101
Phenol	500	0.33	<0.0946	NA	NA	<0.0980	NA	NA	<0.0924	NA	NA	<0.101
Pyrene	500	1,000	0.829	NA	NA	0.129	NA	NA	0.0679 J	NA	NA	0.103
Total PAHs	--	--	4.79	NA	NA	1.14 J	NA	NA	0.795 J	NA	NA	0.965 J
Pesticides												
4,4'-DDD	92	14	0.00472	NA	NA	<0.00248	NA	NA	0.00418	NA	NA	0.00346
4,4'-DDE	62	17	0.00563	NA	NA	<0.00248	NA	NA	<0.00248	NA	NA	0.00807
4,4'-DDT	47	136	0.00450	NA	NA	<0.00248	NA	NA	<0.00248	NA	NA	0.00360
Aldrin	0.68	0.19	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248
alpha-BHC	3.4	0.02	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248
beta-BHC	3	0.09	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248
Chlordane	24	2.9	0.0140	NA	NA	0.00448	NA	NA	0.00565	NA	NA	0.0322
delta-BHC	500	0.25	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248
Dieldrin	1.4	0.1	0.00631	NA	NA	<0.00248	NA	NA	<0.00248	NA	NA	0.00733
Endosulfan I	200	102	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248
Endosulfan II	200	102	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248
Endosulfan Sulfate	200	1,000	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248
Endrin	89	0.06	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248
gamma-BHC (Lindane)	9.2	0.1	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248
Heptachlor	15	0.38	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248	NA	NA	<0.00248

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TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs Commercial	Groundwater Protection	BMC-CF-27C1 01/09/15 BMC-CF-27C1	BMC-CF-27G1 01/09/15 BMC-CF-27G1	BMC-CF-27G2 01/09/15 BMC-CF-27G2	BMC-CF-28C1 01/09/15 BMC-CF-28C1	BMC-CF-28G1 01/09/15 BMC-CF-28G1	BMC-CF-28G2 01/09/15 BMC-CF-28G2	BMC-CF-29C1 01/09/15 BMC-CF-29C1	BMC-CF-29G1 01/09/15 BMC-CF-29G1	BMC-CF-29G2 01/09/15 BMC-CF-29G2	BMC-CF-30C1 01/09/15 BMC-CF-30C1
Herbicides												
2,4,5-TP Acid (Silvex)	500	3.8	<0.0227	NA	NA	<0.0235	NA	NA	<0.0222	NA	NA	<0.0242
Inorganics												
Arsenic	16	16	4.41	NA	NA	4.69	NA	NA	3.09	NA	NA	6.20
Barium	400	820	32.3	NA	NA	34.2	NA	NA	20.3	NA	NA	26.3
Beryllium	590	47	<0.113	NA	NA	<0.118	NA	NA	<0.111	NA	NA	<0.121
Cadmium	9.3	7.5	<0.340	NA	NA	<0.353	NA	NA	<0.332	NA	NA	<0.363
Chromium	--	--	11.5	NA	NA	10.9	NA	NA	6.39	NA	NA	10.3
Chromium, hexavalent	400	19	<0.567	NA	NA	<0.588	NA	NA	<0.554	NA	NA	<0.604
Chromium, trivalent	1,500	--	11.5	NA	NA	10.9	NA	NA	6.39	NA	NA	10.3
Copper	270	1,720	13.9	NA	NA	14.7	NA	NA	7.22	NA	NA	13.7
Cyanide, Total	27	40	<0.567	NA	NA	<0.588	NA	NA	<0.554	NA	NA	<0.604
Lead	1,000	450	34.1	NA	NA	27.8	NA	NA	17.5	NA	NA	21.4
Manganese	10,000	2,000	146	NA	NA	163	NA	NA	80.8	NA	NA	157
Mercury	2.8	0.73	0.0998	NA	NA	0.0933	NA	NA	0.0526	NA	NA	0.0669
Nickel	310	130	9.94	NA	NA	9.95	NA	NA	5.50	NA	NA	10.2
Selenium	1,500	4	2.64	NA	NA	3.13	NA	NA	1.82	NA	NA	3.56
Silver	1,500	8.3	<0.567	NA	NA	<0.588	NA	NA	<0.554	NA	NA	<0.604
Zinc	10,000	2,480	40.6	NA	NA	46.3	NA	NA	26.0	NA	NA	33.1
Organic Content	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
% Solids	--	--	88.2	90.6	92.7	85.1	91.8	81.3	90.3	90.9	94.6	82.8
pH	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-30G1 01/09/15 BMC-CF-30G1	BMC-CF-30G2 01/09/15 BMC-CF-30G2	BMC-CF-31C1 01/09/15 BMC-CF-31C1	BMC-CF-31G1 01/09/15 BMC-CF-31G1	BMC-CF-31G2 01/09/15 BMC-CF-31G2	BMC-TS-1C1 10/28/14 BMC-TS-1C1	BMC-TS-1C2 10/28/14 BMC-TS-1C2	BMC-TS-1G1 10/28/14 BMC-TS-1G1	BMC-TS-1G2 10/28/14 BMC-TS-1G2	BMC-TS-1G3 10/28/14 BMC-TS-1G3	BMC-TS-1G4 10/28/14 BMC-TS-1G4
	Commercial	Groundwater Protection											
PCBs													
Total PCBs	1	3.2	NA	NA	<0.0292	NA	NA	<0.0186	<0.0181	NA	NA	NA	NA
VOCs													
1,1,1-Trichloroethane	500	0.68	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
1,1-Dichloroethane	240	0.27	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
1,1-Dichloroethene	500	0.33	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
1,2,4-Trimethylbenzene	190	3.6	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
1,2-Dichlorobenzene	500	1.1	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
1,2-Dichloroethane	30	0.02	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
1,3,5- Trimethylbenzene	190	8.4	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
1,3-Dichlorobenzene	280	2.4	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
1,4- Dioxane	130	0.1	<0.0960	<0.0890	NA	<0.110	<0.100	NA	NA	<0.0960	<0.110	<0.120	<0.110
1,4-Dichlorobenzene	130	1.8	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
2-Butanone (MEK)	500	0.12	0.0270 CCV-E	0.0240 CCV-E	NA	0.00620 CCV-E	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
Acetone	500	0.05	0.120 CCV-E	0.0740 CCV-E	NA	0.0490 CCV-E	0.00900 CCV-EJ	NA	NA	<0.00960	<0.0110	<0.0120	<0.0110
Benzene	44	0.06	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
Carbon tetrachloride	22	0.76	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
Chlorobenzene	500	1.1	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
Chloroform	350	0.37	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
cis-1,2-Dichloroethene	500	0.25	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
Ethylbenzene	--	1	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
Methyl tert-butyl ether	500	0.93	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
Methylene chloride	500	0.05	<0.00960	<0.00890	NA	<0.0110	<0.0100	NA	NA	<0.00960	<0.0110	<0.0120	<0.0110
Naphthalene	500												
n-Butylbenzene	500	12	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
n-Propylbenzene	500	3.9	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
sec-Butylbenzene	500	11	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
tert-Butylbenzene	500	5.9	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
Tetrachloroethene	150	1.3	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
Toluene	500	0.7	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
trans-1,2-Dichloroethene	500	0.19	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
Trichloroethene	200	0.47	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
Vinyl chloride	13	0.02	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570
Xylene (m,p)	--	--	<0.00960	<0.00890	NA	<0.0110	<0.0100	NA	NA	<0.00960	<0.0110	<0.0120	<0.0110
Xylene (o)	--	--	<0.00480	<0.00450	NA	<0.00540	<0.00500	NA	NA	<0.00480	<0.00560	<0.00590	<0.00570

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TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-CF-30G1 01/09/15 BMC-CF-30G1	BMC-CF-30G2 01/09/15 BMC-CF-30G2	BMC-CF-31C1 01/09/15 BMC-CF-31C1	BMC-CF-31G1 01/09/15 BMC-CF-31G1	BMC-CF-31G2 01/09/15 BMC-CF-31G2	BMC-TS-1C1 10/28/14 BMC-TS-1C1	BMC-TS-1C2 10/28/14 BMC-TS-1C2	BMC-TS-1G1 10/28/14 BMC-TS-1G1	BMC-TS-1G2 10/28/14 BMC-TS-1G2	BMC-TS-1G3 10/28/14 BMC-TS-1G3	BMC-TS-1G4 10/28/14 BMC-TS-1G4
	Commercial	Groundwater Protection											
SVOCs													
1,4- Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	98	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Acenaphthylene	500	107	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Anthracene	500	1,000	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Benzo(a)anthracene	5.6	1	NA	NA	0.106	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Benzo(a)pyrene	1	22	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Benzo(b)fluoranthene	5.6	1.7	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Benzo(ghi)perylene	500	1,000	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Benzo(k)fluoranthene	56	1.7	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Chrysene	56	1	NA	NA	0.160	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Cresol (m,p)	--	--	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Cresol (o)	500	0.33	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	1,000	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Dibenzofuran	350	210	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Fluoranthene	500	1,000	NA	NA	0.338	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Fluorene	500	386	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Hexachlorobenzene	6	3.2	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	8.2	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Naphthalene	500	12	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Pentachlorophenol	6.7	0.8	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Phenanthrene	500	1,000	NA	NA	0.167	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Phenol	500	0.33	NA	NA	<0.0975	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Pyrene	500	1,000	NA	NA	0.266	NA	NA	<0.371	<0.361	NA	NA	NA	NA
Total PAHs	--	--	NA	NA	1.57	NA	NA	<2.97	<2.89	NA	NA	NA	NA
Pesticides													
4,4'-DDD	92	14	NA	NA	<0.00248	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA
4,4'-DDE	62	17	NA	NA	<0.00248	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA
4,4'-DDT	47	136	NA	NA	<0.00248	NA	NA	<0.00165	0.00251	NA	NA	NA	NA
Aldrin	0.68	0.19	NA	NA	<0.00248	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA
alpha-BHC	3.4	0.02	NA	NA	<0.00248	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA
beta-BHC	3	0.09	NA	NA	<0.00248	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA
Chlordane	24	2.9	NA	NA	0.00766	NA	NA	0.00326	0.00462	NA	NA	NA	NA
delta-BHC	500	0.25	NA	NA	<0.00248	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA
Dieldrin	1.4	0.1	NA	NA	0.00324	NA	NA	<0.00165	0.00208	NA	NA	NA	NA
Endosulfan I	200	102	NA	NA	<0.00248	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA
Endosulfan II	200	102	NA	NA	<0.00248	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA
Endosulfan Sulfate	200	1,000	NA	NA	<0.00248	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA
Endrin	89	0.06	NA	NA	<0.00248	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA
gamma-BHC (Lindane)	9.2	0.1	NA	NA	<0.00248	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA
Heptachlor	15	0.38	NA	NA	<0.00248	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA

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TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs Commercial	Groundwater Protection	BMC-CF-30G1 01/09/15 BMC-CF-30G1	BMC-CF-30G2 01/09/15 BMC-CF-30G2	BMC-CF-31C1 01/09/15 BMC-CF-31C1	BMC-CF-31G1 01/09/15 BMC-CF-31G1	BMC-CF-31G2 01/09/15 BMC-CF-31G2	BMC-TS-1C1 10/28/14 BMC-TS-1C1	BMC-TS-1C2 10/28/14 BMC-TS-1C2	BMC-TS-1G1 10/28/14 BMC-TS-1G1	BMC-TS-1G2 10/28/14 BMC-TS-1G2	BMC-TS-1G3 10/28/14 BMC-TS-1G3	BMC-TS-1G4 10/28/14 BMC-TS-1G4
Herbicides													
2,4,5-TP Acid (Silvex)	500	3.8	NA	NA	<0.0234	NA	NA	<0.0223	<0.0217	NA	NA	NA	NA
Inorganics													
Arsenic	16	16	NA	NA	5.18	NA	NA	3.45	3.84	NA	NA	NA	NA
Barium	400	820	NA	NA	35.6	NA	NA	19.0	21.2	NA	NA	NA	NA
Beryllium	590	47	NA	NA	<0.117	NA	NA	<0.111	<0.108	NA	NA	NA	NA
Cadmium	9.3	7.5	NA	NA	<0.351	NA	NA	<0.334	<0.325	NA	NA	NA	NA
Chromium	--	--	NA	NA	11.8	NA	NA	8.46	9.58	NA	NA	NA	NA
Chromium, hexavalent	400	19	NA	NA	<0.585	NA	NA	<0.557	<0.542	NA	NA	NA	NA
Chromium, trivalent	1,500	--	NA	NA	11.8	NA	NA	8.46	9.58	NA	NA	NA	NA
Copper	270	1,720	NA	NA	16.6	NA	NA	5.31	6.17	NA	NA	NA	NA
Cyanide, Total	27	40	NA	NA	<0.585	NA	NA	<0.557	<0.542	NA	NA	NA	NA
Lead	1,000	450	NA	NA	34.3	NA	NA	12.4	15.1	NA	NA	NA	NA
Manganese	10,000	2,000	NA	NA	157	NA	NA	101	130	NA	NA	NA	NA
Mercury	2.8	0.73	NA	NA	0.0976	NA	NA	0.0399	0.0404	NA	NA	NA	NA
Nickel	310	130	NA	NA	12.1	NA	NA	7.90	8.96	NA	NA	NA	NA
Selenium	1,500	4	NA	NA	3.22	NA	NA	<1.11	<1.08	NA	NA	NA	NA
Silver	1,500	8.3	NA	NA	<0.585	NA	NA	<0.557	<0.542	NA	NA	NA	NA
Zinc	10,000	2,480	NA	NA	44.4	NA	NA	21.3	23.9	NA	NA	NA	NA
Organic Content	--	--	NA	NA	NA	NA	NA	2.69 HT-04	2.43 HT-04	NA	NA	NA	NA
% Solids	--	--	90.4	91.8	85.5	87.4	86.1	89.8	92.3	93.5	91.8	91.8	90.9
pH	--	--	NA	NA	NA	NA	NA	6.16 HT-pH	6.11 HT-pH	NA	NA	NA	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-TS-1G5 10/28/14	BMC-TS-1G6 10/28/14	BMC-TS-1G7 10/28/14	PL-TS-1C1 12/12/14	PL-TS-1C2 12/12/14	PL-TS-1G1 12/12/14	PL-TS-1G2 12/12/14	PL-TS-1G3 12/12/14	PL-TS-1G4 12/12/14	PL-TS-1G5 12/12/14	PL-TS-1G6 12/12/14	PL-TS-1G7 12/12/14
	Commercial	Groundwater Protection	BMC-TS-1G5	BMC-TS-1G6	BMC-TS-1G7	PL-TS-1C1	PL-TS-1C2	PL-TS-1G1	PL-TS-1G2	PL-TS-1G3	PL-TS-1G4	PL-TS-1G5	PL-TS-1G6	PL-TS-1G7
PCBs														
Total PCBs	1	3.2	NA	NA	NA	<0.0203	<0.0200	NA	NA	NA	NA	NA	NA	NA
VOCs														
1,1,1-Trichloroethane	500	0.68	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
1,1-Dichloroethane	240	0.27	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
1,1-Dichloroethene	500	0.33	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
1,2,4-Trimethylbenzene	190	3.6	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630 IS-LO	<0.00540	<0.00720	<0.00460	<0.00440
1,2-Dichlorobenzene	500	1.1	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630 IS-LO	<0.00540	<0.00720	<0.00460	<0.00440
1,2-Dichloroethane	30	0.02	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
1,3,5,- Trimethylbenzene	190	8.4	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630 IS-LO	<0.00540	<0.00720	<0.00460	<0.00440
1,3-Dichlorobenzene	280	2.4	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630 IS-LO	<0.00540	<0.00720	<0.00460	<0.00440
1,4- Dioxane	130	0.1	<0.0840	<0.0950	<0.0990	NA	NA	<0.150	<0.120	<0.130	<0.110	<0.140	<0.0920	<0.0890
1,4-Dichlorobenzene	130	1.8	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630 IS-LO	<0.00540	<0.00720	<0.00460	<0.00440
2-Butanone (MEK)	500	0.12	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
Acetone	500	0.05	<0.00840	<0.00950	<0.00990	NA	NA	<0.0150	<0.0120	<0.0130	<0.0110	<0.0140	<0.00920	<0.00890
Benzene	44	0.06	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
Carbon tetrachloride	22	0.76	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
Chlorobenzene	500	1.1	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
Chloroform	350	0.37	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
cis-1,2-Dichloroethene	500	0.25	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
Ethylbenzene	- -	1	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
Methyl tert-butyl ether	500	0.93	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
Methylene chloride	500	0.05	<0.00840	<0.00950	<0.00990	NA	NA	<0.0150	<0.0120	<0.0130	<0.0110	<0.0140	<0.00920	<0.00890
Naphthalene	500													
n-Butylbenzene	500	12	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630 IS-LO	<0.00540	<0.00720	<0.00460	<0.00440
n-Propylbenzene	500	3.9	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630 IS-LO	<0.00540	<0.00720	<0.00460	<0.00440
sec-Butylbenzene	500	11	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630 IS-LO	<0.00540	<0.00720	<0.00460	<0.00440
tert-Butylbenzene	500	5.9	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630 IS-LO	<0.00540	<0.00720	<0.00460	<0.00440
Tetrachloroethene	150	1.3	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
Toluene	500	0.7	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
trans-1,2-Dichloroethene	500	0.19	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
Trichloroethene	200	0.47	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
Vinyl chloride	13	0.02	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440
Xylene (m,p)	- -	- -	<0.00840	<0.00950	<0.00990	NA	NA	<0.0150	<0.0120	<0.0130	<0.0110	<0.0140	<0.00920	<0.00890
Xylene (o)	- -	- -	<0.00420	<0.00470	<0.00500	NA	NA	<0.00760	<0.00610	<0.00630	<0.00540	<0.00720	<0.00460	<0.00440

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TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		BMC-TS-1G5	BMC-TS-1G6	BMC-TS-1G7	PL-TS-1C1	PL-TS-1C2	PL-TS-1G1	PL-TS-1G2	PL-TS-1G3	PL-TS-1G4	PL-TS-1G5	PL-TS-1G6	PL-TS-1G7
	Commercial	Groundwater Protection	10/28/14 BMC-TS-1G5	10/28/14 BMC-TS-1G6	10/28/14 BMC-TS-1G7	12/12/14 PL-TS-1C1	12/12/14 PL-TS-1C2	12/12/14 PL-TS-1G1	12/12/14 PL-TS-1G2	12/12/14 PL-TS-1G3	12/12/14 PL-TS-1G4	12/12/14 PL-TS-1G5	12/12/14 PL-TS-1G6	12/12/14 PL-TS-1G7
SVOCs														
1,4- Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	98	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	500	107	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Anthracene	500	1,000	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	5.6	1	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	5.6	1.7	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	500	1,000	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	56	1.7	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	1	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Cresol (m,p)	--	--	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Cresol (o)	500	0.33	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	1,000	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	350	210	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	1,000	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Fluorene	500	386	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	6	3.2	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	8.2	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	12	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	6.7	0.8	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	500	1,000	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Phenol	500	0.33	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	1,000	NA	NA	NA	<0.0508	<0.0500	NA	NA	NA	NA	NA	NA	NA
Total PAHs	--	--	NA	NA	NA	<0.406	<0.400	NA	NA	NA	NA	NA	NA	NA
Pesticides														
4,4'-DDD	92	14	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	62	17	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	47	136	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA
Aldrin	0.68	0.19	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	3.4	0.02	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA
beta-BHC	3	0.09	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA
Chlordane	24	2.9	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA
delta-BHC	500	0.25	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA
Dieldrin	1.4	0.1	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	200	102	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	200	102	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	200	1,000	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA
Endrin	89	0.06	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	9.2	0.1	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA
Heptachlor	15	0.38	NA	NA	NA	<0.00165	<0.00165	NA	NA	NA	NA	NA	NA	NA

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TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs Commercial	Groundwater Protection	BMC-TS-1G5 10/28/14 BMC-TS-1G5	BMC-TS-1G6 10/28/14 BMC-TS-1G6	BMC-TS-1G7 10/28/14 BMC-TS-1G7	PL-TS-1C1 12/12/14 PL-TS-1C1	PL-TS-1C2 12/12/14 PL-TS-1C2	PL-TS-1G1 12/12/14 PL-TS-1G1	PL-TS-1G2 12/12/14 PL-TS-1G2	PL-TS-1G3 12/12/14 PL-TS-1G3	PL-TS-1G4 12/12/14 PL-TS-1G4	PL-TS-1G5 12/12/14 PL-TS-1G5	PL-TS-1G6 12/12/14 PL-TS-1G6	PL-TS-1G7 12/12/14 PL-TS-1G7
Herbicides														
2,4,5-TP Acid (Silvex)	500	3.8	NA	NA	NA	<0.0244	<0.0240	NA	NA	NA	NA	NA	NA	NA
Inorganics														
Arsenic	16	16	NA	NA	NA	4.12	4.30	NA	NA	NA	NA	NA	NA	NA
Barium	400	820	NA	NA	NA	20.9	20.4	NA	NA	NA	NA	NA	NA	NA
Beryllium	590	47	NA	NA	NA	<0.122	<0.120	NA	NA	NA	NA	NA	NA	NA
Cadmium	9.3	7.5	NA	NA	NA	<0.366	<0.360	NA	NA	NA	NA	NA	NA	NA
Chromium	--	--	NA	NA	NA	8.98	8.01	NA	NA	NA	NA	NA	NA	NA
Chromium, hexavalent	400	19	NA	NA	NA	<0.609	<0.599	NA	NA	NA	NA	NA	NA	NA
Chromium, trivalent	1,500	--	NA	NA	NA	8.98	8.01	NA	NA	NA	NA	NA	NA	NA
Copper	270	1,720	NA	NA	NA	8.52	9.01	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	27	40	NA	NA	NA	<0.609	<0.599	NA	NA	NA	NA	NA	NA	NA
Lead	1,000	450	NA	NA	NA	13.3	13.3	NA	NA	NA	NA	NA	NA	NA
Manganese	10,000	2,000	NA	NA	NA	97.9	101	NA	NA	NA	NA	NA	NA	NA
Mercury	2.8	0.73	NA	NA	NA	0.0445	0.0396	NA	NA	NA	NA	NA	NA	NA
Nickel	310	130	NA	NA	NA	7.77	7.54	NA	NA	NA	NA	NA	NA	NA
Selenium	1,500	4	NA	NA	NA	2.85	3.00	NA	NA	NA	NA	NA	NA	NA
Silver	1,500	8.3	NA	NA	NA	<0.609	<0.599	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	2,480	NA	NA	NA	23.3	22.5	NA	NA	NA	NA	NA	NA	NA
Organic Content	--	--	NA	NA	NA	5.01	4.78	NA	NA	NA	NA	NA	NA	NA
% Solids	--	--	89.8	93.3	93.0	82.0	83.4	84.1	84.9	82.6	86.9	82.0	85.5	88.8
pH	--	--	NA	NA	NA	7.23	7.42	NA	NA	NA	NA	NA	NA	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		PL-TS-2C1	PL-TS-2G1	PL-TS-2G2	PL-TS-3C1	PL-TS-3G1	PL-TS-3G2	PL-TS-4C1	PL-TS-4G1	PL-TS-4G2
	Commercial	Groundwater Protection	12/31/14	12/31/14	12/31/14	12/31/14	12/31/14	12/31/14	12/31/14	12/31/14	12/31/14
			PL TS-2 C1	PL- TS- 2 G1	PL-TS-2G2	PL TS-3C1	PL-TS-3G1	PL-TS-3G2	PL TS-4C1	PL-TS-4G1	PL-TS-4G2
PCBs											
Total PCBs	1	3.2	<0.0197	NA	NA	<0.0190	NA	NA	<0.0186	NA	NA
VOCs											
1,1,1-Trichloroethane	500	0.68	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
1,1-Dichloroethane	240	0.27	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
1,1-Dichloroethene	500	0.33	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
1,2,4-Trimethylbenzene	190	3.6	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
1,2-Dichlorobenzene	500	1.1	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
1,2-Dichloroethane	30	0.02	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
1,3,5,- Trimethylbenzene	190	8.4	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
1,3-Dichlorobenzene	280	2.4	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
1,4- Dioxane	130	0.1	NA	<0.100	<0.100	NA	<0.120	<0.120	NA	<0.100	<0.110
1,4-Dichlorobenzene	130	1.8	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
2-Butanone (MEK)	500	0.12	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
Acetone	500	0.05	NA	<0.0100	<0.0100	NA	<0.0120	<0.0120	NA	<0.0100	<0.0110
Benzene	44	0.06	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
Carbon tetrachloride	22	0.76	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
Chlorobenzene	500	1.1	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
Chloroform	350	0.37	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
cis-1,2-Dichloroethene	500	0.25	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
Ethylbenzene	--	1	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
Methyl tert-butyl ether	500	0.93	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
Methylene chloride	500	0.05	NA	<0.0100	<0.0100	NA	<0.0120	<0.0120	NA	<0.0100	<0.0110
Naphthalene	500										
n-Butylbenzene	500	12	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
n-Propylbenzene	500	3.9	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
sec-Butylbenzene	500	11	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
tert-Butylbenzene	500	5.9	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
Tetrachloroethene	150	1.3	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
Toluene	500	0.7	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
trans-1,2-Dichloroethene	500	0.19	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
Trichloroethene	200	0.47	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
Vinyl chloride	13	0.02	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560
Xylene (m,p)	--	--	NA	<0.0100	<0.0100	NA	<0.0120	<0.0120	NA	<0.0100	<0.0110
Xylene (o)	--	--	NA	<0.00520	<0.00500	NA	<0.00610	<0.00600	NA	<0.00520	<0.00560

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		PL-TS-2C1	PL-TS-2G1	PL-TS-2G2	PL-TS-3C1	PL-TS-3G1	PL-TS-3G2	PL-TS-4C1	PL-TS-4G1	PL-TS-4G2
	Commercial	Groundwater Protection	12/31/14	12/31/14	12/31/14	12/31/14	12/31/14	12/31/14	12/31/14	12/31/14	12/31/14
			PL TS-2 C1	PL- TS- 2 G1	PL-TS-2G2	PL TS-3C1	PL-TS-3G1	PL-TS-3G2	PL TS-4C1	PL-TS-4G1	PL-TS-4G2
SVOCs											
1,4- Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	98	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Acenaphthylene	500	107	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Anthracene	500	1,000	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Benzo(a)anthracene	5.6	1	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Benzo(a)pyrene	1	22	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Benzo(b)fluoranthene	5.6	1.7	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Benzo(ghi)perylene	500	1,000	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Benzo(k)fluoranthene	56	1.7	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Chrysene	56	1	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Cresol (m,p)	--	--	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Cresol (o)	500	0.33	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Dibenzo(a,h)anthracene	0.56	1,000	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Dibenzofuran	350	210	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Fluoranthene	500	1,000	<0.0494	NA	NA	<0.0477	NA	NA	0.0398 J	NA	NA
Fluorene	500	386	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Hexachlorobenzene	6	3.2	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	8.2	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Naphthalene	500	12	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Pentachlorophenol	6.7	0.8	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Phenanthrene	500	1,000	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Phenol	500	0.33	<0.0494	NA	NA	<0.0477	NA	NA	<0.0465	NA	NA
Pyrene	500	1,000	<0.0494	NA	NA	<0.0477	NA	NA	0.0331 J	NA	NA
Total PAHs	--	--	<0.395	NA	NA	<0.382	NA	NA	0.398 J	NA	NA
Pesticides											
4,4'-DDD	92	14	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
4,4'-DDE	62	17	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
4,4'-DDT	47	136	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Aldrin	0.68	0.19	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
alpha-BHC	3.4	0.02	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
beta-BHC	3	0.09	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Chlordane	24	2.9	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
delta-BHC	500	0.25	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Dieldrin	1.4	0.1	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Endosulfan I	200	102	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Endosulfan II	200	102	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Endosulfan Sulfate	200	1,000	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Endrin	89	0.06	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
gamma-BHC (Lindane)	9.2	0.1	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA
Heptachlor	15	0.38	<0.00165	NA	NA	<0.00165	NA	NA	<0.00165	NA	NA

9/25/2017

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TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Date Collected: Sample Name:	6 NYCRR Part 375 SCOs		PL-TS-2C1 12/31/14	PL-TS-2G1 12/31/14	PL-TS-2G2 12/31/14	PL-TS-3C1 12/31/14	PL-TS-3G1 12/31/14	PL-TS-3G2 12/31/14	PL-TS-4C1 12/31/14	PL-TS-4G1 12/31/14	PL-TS-4G2 12/31/14
	Commercial	Groundwater Protection	PL TS-2 C1	PL- TS- 2 G1	PL-TS-2G2	PL TS-3C1	PL-TS-3G1	PL-TS-3G2	PL TS-4C1	PL-TS-4G1	PL-TS-4G2
Herbicides											
2,4,5-TP Acid (Silvex)	500	3.8	<0.0237	NA	NA	<0.0229	NA	NA	<0.0223	NA	NA
Inorganics											
Arsenic	16	16	5.23	NA	NA	4.85	NA	NA	3.66	NA	NA
Barium	400	820	25.2	NA	NA	23.8	NA	NA	18.0	NA	NA
Beryllium	590	47	<0.118	NA	NA	<0.114	NA	NA	<0.112	NA	NA
Cadmium	9.3	7.5	<0.355	NA	NA	<0.343	NA	NA	<0.335	NA	NA
Chromium	--	--	10.9	NA	NA	9.42	NA	NA	7.72	NA	NA
Chromium, hexavalent	400	19	<0.592	NA	NA	<0.572	NA	NA	<0.558	NA	NA
Chromium, trivalent	1,500	--	10.9	NA	NA	9.42	NA	NA	7.72	NA	NA
Copper	270	1,720	9.42	NA	NA	9.11	NA	NA	6.54	NA	NA
Cyanide, Total	27	40	<0.592	NA	NA	<0.572	NA	NA	<0.558	NA	NA
Lead	1,000	450	13.5	NA	NA	14.1	NA	NA	13.6	NA	NA
Manganese	10,000	2,000	114	NA	NA	105	NA	NA	82.5	NA	NA
Mercury	2.8	0.73	0.0394	NA	NA	<0.0343	NA	NA	<0.0335	NA	NA
Nickel	310	130	8.77	NA	NA	7.44	NA	NA	5.78	NA	NA
Selenium	1,500	4	3.11	NA	NA	2.67	NA	NA	2.05	NA	NA
Silver	1,500	8.3	<0.592	NA	NA	<0.572	NA	NA	<0.558	NA	NA
Zinc	10,000	2,480	23.8	NA	NA	24.2	NA	NA	17.6	NA	NA
Organic Content	--	--	4.08	NA	NA	5.74	NA	NA	3.32	NA	NA
% Solids	--	--	84.5	86.3	89.5	87.5	85.3	88.1	89.7	90.9	92.1
pH	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3
SUMMARY OF IMPORTED CLEAN FILL MATERIAL ANALYTICAL RESULTS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Notes:

1. The 2013 samples were collected by Preferred Environmental Services and the 2014 samples were collected by Posillico Inc. on the dates indicated.
2. VOCs = Volatile Organic Compounds.
3. SVOCs = Semi-Volatile Organic Compounds.
4. PCBs = Polychlorinated Biphenyls.
5. PAHs = Polycyclic Aromatic Hydrocarbons.
6. Samples were analyzed by York Analytical Laboratories, Inc. located in Stratford, Connecticut for:
 - VOCs using United States Environmental Protection Agency (USEPA) SW-846 Method 8260.
 - SVOCs using USEPA SW-846 Method 8270.
 - Inorganics using USEPA SW-846 Methods 6010, 7471 and 335.4.
 - PCBs using USEPA SW-846 Method 8082.
 - Pesticides using USEPA SW-846 Method 8081.
7. All concentrations reported in dry weight parts per million (ppm), which is equivalent to milligrams per kilogram (mg/kg).
8. Data qualifiers are defined as follows:
 - < = Constituent not detected at a concentration above the reported detection limit.
 - B = The compound has been found in the sample as well as its associated blank.
 - D = Concentration is based on a diluted sample analysis.
 - HT-04 = Client requested analysis be conducted outside of holding times.
 - J = Indicates that the associated numerical value is an estimated concentration.
 - CCV-E = The value is estimated due to its behavior during continuing calibration verification (>20% Difference for average Rf or >20% Drift for quadratic fit).
 - IS LO = Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit.
9. 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs) are from Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375-6.8(b).
10. Bold font indicates that the result exceeds the Commercial SCO and shading indicates that the result exceeds the Groundwater Protection SCO.
11. - - = No 6 NYCRR Part 375 SCO listed.
12. Total PAHs were calculated as the sum of the following, which is consistent with the NYSDEC list from: <http://www.dec.ny.gov/chemical/24922.html>:

2-Methylnaphthalene	Benzo(b)fluoranthene	Fluorene
Acenaphthene	Benzo(g,h,i)perylene	Indeno(1,2,3-cd)pyrene
Acenaphthylene	Benzo(k)fluoranthene	Naphthalene
Anthracene	Chrysene	Phenanthrene
Benzo(a)anthracene	Dibenzo(a,h)anthracene	Pyrene
Benzo(a)pyrene	Fluoranthene	

TABLE 4
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED PCBs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID	Surface Elevation (Feet)	Sample Depth (Feet bgs)	Date Collected	Total PCBs
Restricted Use SCOs Commercial:				1
AOC15-3	130.10	0 - 1	2/16/2004	0.0181 J
AOC31-1	122.00	0	2/9/2004	2.80 J
AOC31-3S	123.50	0 - 0.17	10/20/2004	2.40
	123.50	0.5 - 1.5	10/20/2004	0.0400
AOC31-4S	125.82	0 - 0.17	10/20/2004	1.09 J
	125.82	0.5 - 1.5	10/20/2004	0.165 J
AOC39-1	129.46	0 - 1	2/18/2004	0.0220 J
AOC39-12S	129.50	0 - 0.17	10/20/2004	7.51 J
	129.50	0.5 - 1.5	10/20/2004	0.502 J
	129.50	2 - 3	10/20/2004	0.264 J
	129.50	3 - 4	10/20/2004	0.164
AOC52-5	129.50	10 - 10.5	6/4/2008	3.14 J
P1-S1	131.60	8 - 8.5	5/3/2006	0.701
P1-S4	131.50	4 - 4.5	2/1/2006	1.57 J
P1-S10	132.00	6 - 6.5	5/3/2006	0.216 J
P1-S13	132.50	6 - 6.5	5/3/2006	2.53 J
P1-S16	132.20	4 - 4.5	1/31/2006	0.870
P1-S17	130.20	4 - 4.5	5/3/2006	0.00290 J
P1-S18	131.20	4 - 4.5	5/3/2006	0.836 J
P1-S19	130.90	4 - 4.5	5/3/2006	0.0230
P1-S20	132.00	4 - 4.5	5/3/2006	0.0210
P1-S21	129.40	4 - 4.5	5/3/2006	0.0140 J
P1-S22	131.80	4 - 4.5	5/3/2006	0.0310
P1-S23	132.50	4 - 4.5	5/3/2006	0.0190
P1-S24	132.50	4 - 4.5	5/3/2006	0.137 J
P1-S25	131.90	2 - 2.5	5/3/2006	0.395
	131.90	4 - 4.5	5/3/2006	0.275
P1-S26	132.50	4 - 4.5	5/3/2006	0.702 J
P1-S27	132.80	4 - 4.5	5/3/2006	0.786 J
P1-S28	132.50	4 - 4.5	5/3/2006	0.172
P1-S29	132.50	4 - 4.5	5/3/2006	0.118
P1-S30	132.50	4 - 4.5	5/3/2006	0.0790
P1-S31	132.00	4 - 4.5	5/3/2006	0.147
P1-S32	132.00	4 - 4.5	5/3/2006	0.0690 J
P1-S33	131.40	4 - 4.5	5/2/2006	0.433 J
P1-S34	129.80	6 - 6.5	5/2/2006	0.497 J
P1-S36	129.30	2 - 2.5	5/2/2006	1.56 J
	129.30	4 - 4.5	5/2/2006	0.436 J
P1-S37	129.50	2 - 2.5	5/2/2006	5.10
	129.50	4 - 4.5	5/2/2006	0.670
P1-S38	129.50	2 - 2.5	5/2/2006	0.0250
	129.50	4 - 4.5	5/2/2006	0.810
P1-S39	129.60	2 - 2.5	5/2/2006	1.30 J
	129.60	4 - 4.5	5/2/2006	0.139 J
P1-S40	130.60	2 - 2.5	5/2/2006	3.12 J
	130.60	4 - 4.5	5/2/2006	0.529 J
P1-S41	129.90	2 - 2.5	5/2/2006	5.06 J
	129.90	4 - 4.5	5/2/2006	0.336 J
P1-S42	129.40	2 - 2.5	5/2/2006	1.25
	129.40	4 - 4.5	5/2/2006	0.169 J
P1-S43	129.70	4 - 4.5	5/2/2006	0.355
P1-S44	129.40	4 - 4.5	5/2/2006	1.22 J
P1-S45	129.00	4 - 4.5	5/2/2006	0.839 J
P1-S46	128.90	4 - 4.5	5/2/2006	0.0209 J
P1-S47	128.70	4 - 4.5	5/2/2006	0.171
P1-S48	128.80	4 - 4.5	5/2/2006	0.670
P1-S49	129.10	4 - 4.5	8/21/2006	9.35 J
P1-S50	129.00	2 - 2.5	8/21/2006	5.18 J
P1-S51	129.50	4 - 4.5	8/21/2006	5.07 J
P1-S56	129.30	4 - 4.5	8/21/2006	9.08
	129.30	6 - 6.5	8/21/2006	0.690
P1-S57	129.70	2 - 2.5	8/21/2006	0.469 J
P1-S58	129.50	2 - 2.5	8/21/2006	6.46 J
P1-S59	130.10	2 - 2.5	8/21/2006	1.30
P1-S60	129.70	2 - 2.5	8/21/2006	0.112 J
P1-S61	129.60	2 - 2.5	8/21/2006	5.66 J
P1-S62	128.80	2 - 2.5	8/21/2006	1.06 J
P1-S63	128.50	6 - 6.5	8/21/2006	2.60

Location ID	Surface Elevation (Feet)	Sample Depth (Feet bgs)	Date Collected	Total PCBs
Restricted Use SCOs Commercial:				1
P1-S64	128.50	4 - 4.5	8/21/2006	3.30
P1-S65	128.50	4 - 4.5	8/21/2006	0.920 J
P1-S67	129.30	6 - 6.5	8/21/2006	0.830
P1-S71	129.00	0 - 0.2	8/22/2006	1.25 J
	129.00	2 - 2.5	8/22/2006	0.234 J [0.161 J]
P1-S72	129.00	0 - 0.2	8/22/2006	3.00
	129.00	2 - 2.5	8/22/2006	3.90
P1-S73	128.50	0 - 0.2	10/23/2006	0.174 J
	128.50	2 - 2.5	10/23/2006	0.140 J
P1-S74	129.10	0 - 0.2	10/23/2006	6.80
	129.10	2 - 2.5	10/23/2006	0.978 J
P1-S77	128.90	0 - 0.2	10/23/2006	0.900
	128.90	2 - 2.5	10/23/2006	0.840
P1-S78	130.00	2 - 2.5	10/23/2006	1.97 J
P1-S79	129.40	2 - 2.5	10/23/2006	0.0440 J [0.104 J]
P1-S80	129.30	0 - 0.2	10/23/2006	<0.0340
	129.30	2 - 2.5	10/23/2006	<0.0340
P1-S81	129.00	2 - 2.5	10/24/2006	2.50 [6.10]
P1-S82	128.50	2 - 2.5	10/24/2006	2.24 J
P1-S83	128.30	0 - 0.2	10/24/2006	2.70
	128.30	2 - 2.5	10/24/2006	3.10 [2.29]
P1-S84	129.10	10 - 10.5	4/23/2007	5.54 J
P1-S85	128.40	2 - 2.2	10/24/2006	6.56 J
P1-S86	128.20	0 - 0.2	10/24/2006	3.43 J
	128.20	2 - 2.5	10/24/2006	2.93 J
P1-S90	129.00	6 - 6.5	10/24/2006	3.00
P1-S91	129.50	6 - 6.5	10/24/2006	0.590
P1-S93	128.70	0 - 0.2	10/23/2006	0.435 J
	128.70	2 - 2.5	10/23/2006	0.270 J
P1-S94	129.30	0 - 0.2	10/23/2006	1.53 J
	129.30	2 - 2.5	10/23/2006	0.525 J
P1-S95	129.50	2 - 2.5	10/23/2006	3.80
P1-S96	129.00	0 - 0.2	10/23/2006	0.240
	129.00	2 - 2.5	10/23/2006	0.103
P1-S97	130.40	2 - 2.5	10/24/2006	0.198
P1-S98	129.10	0 - 0.2	10/23/2006	0.0270 J
	129.10	2 - 2.5	10/23/2006	0.0178 J
P1-S99	129.90	2 - 2.5	10/23/2006	0.0410
P1-S100	129.80	0 - 0.2	10/23/2006	0.0180
	129.80	2 - 2.5	10/23/2006	0.0118 J
P1-S101	130.00	0 - 0.2	10/23/2006	0.0780
	130.00	2 - 2.5	10/23/2006	0.0540
P1-S102	129.50	0 - 0.2	10/24/2006	1.08
	129.50	2 - 2.5	10/24/2006	0.0620
P1-S103	129.00	6 - 6.5	10/24/2006	1.80
P1-S104	128.50	2 - 2.5	10/24/2006	4.10
P1-S105	129.00	0 - 0.2	10/24/2006	4.40
	129.00	2 - 2.5	10/24/2006	3.20
P1-S106	127.20	0 - 0.2	10/24/2006	0.740
	127.20	2 - 2.5	10/24/2006	1.11
P1-S107	128.80	0 - 0.2	10/24/2006	2.80
	128.80	2 - 2.5	10/24/2006	2.68
P1-S108	128.00	10 - 10.5	4/23/2007	0.754 J
P1-S109	128.00	0 - 0.2	10/24/2006	3.90
	128.00	2 - 2.5	10/24/2006	0.0960 J
P1-S110	127.50	0 - 0.2	10/24/2006	4.30
	127.50	2 - 2.5	10/24/2006	5.80
P1-S111	127.80	10 - 10.5	4/23/2007	19.5
P1-S112	128.90	2 - 2.5	10/24/2006	0.490
P1-S113	128.60	2 - 2.5	10/24/2006	0.700
P1-S114	128.50	2 - 2.5	10/24/2006	1.73
P1-S115	128.60	2 - 2.5	4/23/2007	2.77 J [1.39 J]
P1-S117	128.70	0 - 0.2	4/23/2007	0.324
	128.70	2 - 2.5	4/23/2007	0.0823 J
P1-S121	129.50	2 - 2.5	4/24/2007	0.900 J
	129.50	4 - 4.5	4/24/2007	0.191 J
P1-S122	129.50	6 - 6.5	4/24/2007	0.174 J
	126.50	4 - 4.5	4/24/2007	9.22 J

TABLE 4
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED PCBs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID	Surface Elevation (Feet)	Sample Depth (Feet bgs)	Date Collected	Total PCBs	Location ID	Surface Elevation (Feet)	Sample Depth (Feet bgs)	Date Collected	Total PCBs
Restricted Use SCOs Commercial: 1					Restricted Use SCOs Commercial: 1				
P1-S122	126.50	4 - 4.5	4/24/2007	9.22 J	SB-17	130.22	2 - 4	5/14/2013	3.86
	126.50	6 - 6.5	4/24/2007	7.29 J		130.22	8 - 10	5/14/2013	4.16
P1-S123	129.20	2 - 2.5	4/24/2007	0.719 J [0.631 J]	SB-18	130.09	2 - 4	5/23/2013	<0.0320
	129.20	4 - 4.5	4/24/2007	0.0223 J	SB-19	132.30	2 - 4	5/16/2013	<0.0340
	129.20	6 - 6.5	4/24/2007	0.0205 J	SB-20	132.05	2 - 4	5/16/2013	<0.0330
P1-S124	127.70	8 - 8.5	4/24/2007	4.80	SB-21	130.00	0 - 0.2	5/14/2013	0.0414
P1-S125	128.80	2 - 2.5	4/24/2007	4.46 J		130.00	2 - 4	5/14/2013	<0.0330
P1-S126	128.00	2 - 2.5	4/24/2007	0.261	SB-22	129.50	0 - 0.2	5/14/2013	0.172
	128.00	4 - 4.5	4/24/2007	0.241 J		129.50	2 - 4	5/14/2013	0.622
	128.00	6 - 6.5	4/24/2007	0.184 J	SB-23	129.86	0 - 0.2	5/23/2013	1.36
P1-S127	128.30	6 - 6.5	4/24/2007	0.0480 J		129.86	2 - 4	5/23/2013	4.31
P1-S128	128.00	6 - 6.5	4/24/2007	0.960	SB-24	129.79	0 - 0.2	5/23/2013	0.268
P1-S129	128.50	0 - 0.2	4/24/2007	5.19 J		129.79	2 - 4	5/23/2013	<0.0370
	128.50	2 - 2.5	4/24/2007	0.118	SB-25	129.18	0 - 0.2	5/23/2013	3.78
P1-S131	128.50	0 - 0.2	4/24/2007	5.63 J		129.18	2 - 4	5/23/2013	<0.0400
	128.50	2 - 2.5	4/24/2007	1.47 J		129.63	0 - 0.2	5/23/2013	1.89
P1-S132	128.30	0 - 0.2	4/24/2007	6.49 J [2.37 J]	SB-26	129.63	0.5 - 2	5/23/2013	0.241
	128.30	2 - 2.5	4/24/2007	2.69 J		129.63	2 - 4	5/23/2013	<0.0370
P1-S133	128.50	2 - 2.5	4/24/2007	0.252		129.60	0 - 0.2	5/23/2013	3.38
P1-S135	128.20	4 - 4.5	4/24/2007	0.220	SB-27	129.60	0.5 - 2	5/23/2013	0.155
	128.20	6 - 6.5	4/24/2007	2.50		129.60	2 - 4	5/23/2013	<0.0380
P1-S136	128.10	4 - 4.5	4/24/2007	5.40 J	SB-28	129.35	2 - 4	5/23/2013	<0.0340
	128.10	6 - 6.5	4/24/2007	3.00 J		129.10	0 - 0.2	5/23/2013	1.18
P1-S137	128.30	4 - 4.5	4/24/2007	1.29	SB-29	129.10	0.5 - 2	5/23/2013	<0.0370
	128.30	6 - 6.5	4/24/2007	5.80		129.10	2 - 4	5/23/2013	<0.0400
P1-S138	132.65	2 - 2.5	4/24/2007	6.60		129.00	0 - 0.2	5/23/2013	4.54
P1-S139	128.50	0 - 0.5	6/3/2008	2.31 J	SB-30	129.00	0.5 - 2	5/23/2013	0.121
	128.50	2 - 2.5	6/3/2008	0.884 J		129.00	2 - 4	5/23/2013	<0.0370
P1-S141	128.65	4 - 4.5	6/9/2008	4.10		129.00	0 - 0.2	5/23/2013	7.87
	128.65	6 - 6.5	6/9/2008	1.40	SB-31	129.00	0.5 - 2	5/23/2013	0.174
P1-S143	128.00	6 - 6.5	6/10/2008	9.51 J		129.00	2 - 4	5/23/2013	<0.0390
	128.00	8 - 8.5	6/10/2008	6.39 J	SB-32	129.01	2 - 4	5/23/2013	<0.0350
	128.00	10 - 10.5	6/10/2008	5.92 J	SB-33	132.00	2 - 4	5/17/2013	<0.0360
P1-S144	128.09	10 - 10.5	6/6/2008	2.38 J	SB-34	131.98	2 - 4	5/16/2013	<0.0330
P1-S145	128.50	0 - 0.5	6/11/2008	2.12 J	SB-35	132.00	2 - 4	5/16/2013	<0.0340
	128.50	2 - 2.5	6/11/2008	5.20	SB-36	131.52	0 - 0.2	5/16/2013	0.131
P1-S146	128.50	4 - 4.5	6/10/2008	0.778 J		131.52	2 - 4	5/16/2013	<0.0330
	128.50	6 - 6.5	6/10/2008	6.36		130.19	0 - 0.2	5/16/2013	1.34
P1-S147	128.79	2 - 2.5	6/9/2008	0.640	SB-37	130.19	0.5 - 2	5/16/2013	0.115
SB-1	132.49	0 - 0.2	05/13/13	5.94		130.19	2 - 4	5/16/2013	<0.0340
	132.49	2 - 4	5/13/2013	<0.0350	SB-38	129.41	0 - 0.2	5/21/2013	0.793
SB-2	132.91	0 - 0.2	5/13/2013	0.159		129.41	2 - 4	5/21/2013	<0.0330
	132.91	0.5 - 2	5/13/2013	<0.0390	SB-39	129.13	0 - 0.2	5/23/2013	2.03
	132.91	2 - 4	5/13/2013	<0.0340		129.13	2 - 4	5/23/2013	<0.0330
SB-4	132.42	2 - 4	5/14/2013	<0.0370		129.20	0 - 0.2	5/22/2013	<0.0340
SB-5	131.78	0 - 0.2	5/14/2013	1.12	SB-40	129.20	0.5 - 2	5/22/2013	1.30
	131.78	2 - 4	5/14/2013	<0.0340		129.20	2 - 4	5/22/2013	0.187
SB-6	132.50	0 - 0.2	5/15/2013	0.191	SB-41	129.50	2 - 4	5/23/2013	<0.0400
	132.50	2 - 4	5/15/2013	<0.0360	SB-42	129.24	2 - 4	5/23/2013	0.766
SB-7	133.63	2 - 4	5/15/2013	0.696	SB-43	128.92	2 - 4	5/23/2013	<0.0400
SB-8	133.00	0 - 0.2	5/14/2013	0.129		128.65	0 - 0.5	5/23/2013	7.11
	133.00	2 - 4	5/14/2013	<0.0350	SB-44	128.65	0.5 - 2	5/23/2013	<0.0360
SB-9	131.38	2 - 4	5/14/2013	<0.0320		128.65	2 - 4	5/23/2013	<0.0350
SB-10	130.79	0 - 0.2	5/14/2013	0.949	SB-45	129.00	2 - 4	5/23/2013	<0.0390
	130.79	2 - 4	5/14/2013	7.34	SB-46	128.67	2 - 4	5/24/2013	<0.0370
SB-11	129.07	0 - 0.2	5/15/2013	<0.0370	SB-47	128.77	2 - 4	5/23/2013	<0.0370
	129.07	0.5 - 2	5/15/2013	<0.0350	SB-48	128.45	2 - 4	5/23/2013	<0.0370
	129.07	2 - 4	5/15/2013	<0.0350	SB-49	128.49	2 - 4	5/24/2013	0.0596
SB-12	133.00	2 - 4	5/15/2013	<0.0350	SB-50	128.58	2 - 4	5/24/2013	<0.0330
SB-13	133.43	2 - 4	5/16/2013	0.0343		132.38	0 - 0.2	5/17/2013	0.0480
SB-14	132.50	0 - 0.2	05/14/13	0.208	SB-51	132.38	0.5 - 2	5/17/2013	<0.0400
	132.50	2 - 4	5/14/2013	<0.0380		132.38	2 - 4	5/17/2013	<0.0380
SB-15	130.26	0 - 0.2	5/14/2013	1.36		131.51	0 - 0.2	5/17/2013	0.324 [0.218]
	130.26	0.5 - 2	5/14/2013	<0.0340	SB-52	131.51	0.5 - 2	5/17/2013	<0.0380
	130.26	2 - 4	5/14/2013	<0.0320		131.51	2 - 4	5/17/2013	<0.0360
SB-16	130.49	2 - 4	5/14/2013	<0.0320		131.00	0 - 0.2	5/21/2013	1.39
SB-17	130.22	0 - 0.2	5/14/2013	3.47	SB-53	131.00	0.5 - 2	5/21/2013	<0.0360
	130.22	0.5 - 2	5/14/2013	1.41		131.00	2 - 4	5/21/2013	<0.0350

TABLE 4
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SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID	Surface Elevation (Feet)	Sample Depth (Feet bgs)	Date Collected	Total PCBs	Location ID	Surface Elevation (Feet)	Sample Depth (Feet bgs)	Date Collected	Total PCBs
Restricted Use SCOs Commercial:				1	Restricted Use SCOs Commercial:				1
SB-54	130.50	2 - 4	5/20/2013	<0.0360	SB-83	129.84	2 - 4	5/20/2013	<0.0340
SB-55	130.13	2 - 4	5/20/2013	<0.0360	SB-84	130.00	0 - 0.2	5/20/2013	1.30
SB-56	129.99	0 - 0.2	5/20/2013	5.77		130.00	2 - 4	5/20/2013	<0.0330
	129.99	2 - 4	5/20/2013	<0.0340	SB-85	129.99	0 - 0.2	5/20/2013	0.982
SB-57	131.09	0 - 0.2	5/16/2013	0.495		129.99	0.5 - 2	5/20/2013	0.0752
	131.09	0.5 - 2	5/16/2013	<0.0360		129.99	2 - 4	5/20/2013	<0.0340
	131.09	2 - 4	5/16/2013	<0.0330	SB-86	130.51	0 - 0.2	5/20/2013	0.802
SB-58	129.62	0 - 0.2	5/21/2013	0.570		130.51	2 - 4	5/20/2013	<0.0360
	129.62	2 - 4	5/21/2013	<0.0330	SB-87	129.00	0 - 0.2	5/21/2013	1.00
SB-59	128.98	0 - 0.2	5/21/2013	0.286		129.00	0.5 - 2	5/21/2013	<0.0350
	128.98	2 - 4	5/21/2013	<0.0340		129.00	2 - 4	5/21/2013	<0.0340
SB-60	128.54	0 - 0.2	5/22/2013	0.841	SB-88	129.29	0 - 0.2	5/20/2013	<0.0400
	128.54	2 - 4	5/22/2013	<0.0330		129.29	2 - 4	5/20/2013	<0.0330
SB-61	128.49	0 - 0.2	5/22/2013	1.01	SB-89	129.04	0 - 0.2	5/20/2013	<0.0370
	128.49	2 - 4	5/22/2013	<0.0330		129.04	2 - 4	5/20/2013	<0.0330
SB-62	128.50	2 - 4	5/22/2013	<0.0350	SB-90	130.00	0 - 0.2	5/20/2013	1.11
	128.50	0 - 0.2	5/22/2013	2.50		130.00	2 - 4	5/20/2013	<0.0380
SB-63	128.50	0.5 - 2	5/22/2013	0.0417	SB-91	129.32	0 - 0.2	5/21/2013	0.575
	128.50	2 - 4	5/22/2013	<0.0350		129.32	2 - 4	5/21/2013	<0.0330
	130.39	0 - 0.2	5/17/2013	0.964	SB-92	129.00	0 - 0.2	5/21/2013	9.80
SB-64	130.39	0.5 - 2	5/17/2013	<0.0370		129.00	2 - 4	5/21/2013	0.0500
	130.39	2 - 4	5/17/2013	<0.0370	SB-93	127.56	0 - 0.2	5/17/2013	0.631
	131.03	0 - 0.2	5/17/2013	0.113 [0.162]		127.56	0.5 - 2	5/17/2013	0.0787
SB-65	131.03	0.5 - 2	5/17/2013	<0.0340		127.56	2 - 4	5/17/2013	<0.0330
	131.03	2 - 4	5/17/2013	<0.0320	SB-94	129.10	0 - 0.2	5/24/2013	1.17
	131.24	0 - 0.2	5/22/2013	1.09		129.10	0.5 - 2	5/24/2013	2.24
SB-66	131.24	2 - 4	5/22/2013	<0.0380		129.10	2 - 4	5/24/2013	1.50
	130.99	2 - 4	5/22/2013	0.170	SB-95	130.13	0 - 0.2	5/21/2013	0.150
SB-67	130.67	0 - 0.2	5/21/2013	0.141		130.13	0.5 - 2	5/21/2013	<0.0370
	130.67	0.5 - 2	5/21/2013	0.161		130.13	2 - 4	5/21/2013	<0.0360
	130.67	2 - 4	5/21/2013	<0.0330	SB-96	129.89	2 - 4	5/21/2013	0.0558
SB-68	130.05	0 - 0.2	5/21/2013	0.199		129.14	0 - 0.2	5/22/2013	6.14
	130.05	0.5 - 2	5/21/2013	0.264	SB-97	129.14	0.5 - 2	5/22/2013	<0.0320
	130.05	2 - 4	5/21/2013	0.239		129.14	2 - 4	5/22/2013	0.0648
SB-69	130.18	0 - 0.2	5/21/2013	0.894		127.77	0.5 - 2	5/24/2013	4.87
	130.18	0.5 - 2	5/21/2013	0.0510	SB-98	127.77	2 - 4	5/24/2013	<0.0340
	130.18	2 - 4	5/21/2013	<0.0330	SB-99	128.36	0 - 0.2	5/24/2013	6.80
SB-70	130.17	2 - 4	5/20/2013	0.204		128.36	0.5 - 2	5/24/2013	1.13
	129.07	0 - 0.2	5/21/2013	4.84		128.36	2 - 4	5/24/2013	<0.0320
SB-71	129.07	2 - 4	5/21/2013	<0.0320	SB-100	128.51	4 - 6	5/24/2013	<0.0340
	129.00	0 - 0.2	5/22/2013	0.707		128.51	6 - 8	5/24/2013	0.107
SB-72	129.00	0.5 - 2	5/22/2013	0.158		128.51	8 - 10	5/24/2013	0.0569
	129.00	2 - 4	5/22/2013	<0.0330	SB-101	129.14	0 - 0.2	5/24/2013	0.144
	128.89	0 - 0.2	5/22/2013	4.51		129.14	0.5 - 2	5/24/2013	<0.0360
SB-73	128.89	2 - 4	5/22/2013	<0.0340		129.14	2 - 4	5/24/2013	<0.0360
	128.85	0 - 0.2	5/22/2013	1.14	SB-102	128.64	0.5 - 2	5/28/2013	2.32
	128.85	0.5 - 2	5/22/2013	1.11		128.64	2 - 4	5/28/2013	<0.0350
SB-74	128.85	2 - 4	5/22/2013	<0.0340	SB-103	128.42	0.5 - 2	05/28/13	<0.0350
	130.73	0 - 0.2	5/17/2013	0.756		131.78	0 - 0.2	5/17/2013	0.150
SB-75	130.73	2 - 4	5/17/2013	<0.0320	SB-104	131.78	2 - 4	5/17/2013	<0.0340
	130.89	0 - 0.2	5/20/2013	1.43		131.20	2 - 4	5/21/2013	<0.0340
SB-76	130.89	2 - 4	5/20/2013	<0.0340	SB-105	130.45	0 - 0.2	5/20/2013	0.923 [1.54]
	129.95	0 - 0.2	5/20/2013	3.50		130.45	0.5 - 2	5/20/2013	<0.0370
SB-77	129.95	0.5 - 2	5/20/2013	1.73		130.45	2 - 4	5/20/2013	<0.0330
	129.95	2 - 4	5/20/2013	<0.0330	SB-106	130.35	0 - 0.2	5/20/2013	1.65
	131.05	0 - 0.2	5/20/2013	2.21		130.35	0.5 - 2	5/20/2013	<0.0360
SB-78	131.05	0.5 - 2	5/20/2013	0.316		130.35	2 - 4	5/20/2013	<0.0330
	131.05	2 - 4	5/20/2013	<0.0360	SB-107	130.60	0 - 0.2	5/20/2013	1.17
	129.52	0 - 0.2	5/21/2013	0.920		130.60	0.5 - 2	5/20/2013	<0.0370
SB-79	129.52	2 - 4	5/21/2013	<0.0350		130.60	2 - 4	5/20/2013	<0.0370
	128.80	0 - 0.2	5/17/2013	<0.0340	SB-108	128.87	2 - 4	5/22/2013	<0.0360
	128.80	0.5 - 2	5/17/2013	<0.0360		132.67	2 - 4	5/15/2013	<0.0340 [<0.0340]
SB-80	128.80	2 - 4	5/17/2013	<0.0340	SB-110	133.07	0 - 0.2	8/28/2013	0.428 J
	128.83	0 - 0.2	5/17/2013	0.123	SB-133	133.31	0 - 0.2	8/28/2013	9.29
SB-81	128.83	0.5 - 2	5/17/2013	<0.0350	SB-139	133.87	0 - 0.2	8/28/2013	0.232
	128.83	2 - 4	5/17/2013	<0.0340	SB-145	130.49	0 - 0.2	8/28/2013	2.28
SB-82	129.84	0 - 0.2	5/20/2013	5.19	SB-146	130.28	0 - 0.2	8/28/2013	3.98
	129.84	0.5 - 2	5/20/2013	0.0372	SB-148	130.49	0 - 0.2	8/28/2013	0.343

TABLE 4
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED PCBs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID	Surface Elevation (Feet)	Sample Depth (Feet bgs)	Date Collected	Total PCBs	Location ID	Surface Elevation (Feet)	Sample Depth (Feet bgs)	Date Collected	Total PCBs
Restricted Use SCOs Commercial:				1	Restricted Use SCOs Commercial:				1
SB-148	130.49	0.5 - 2	8/28/2013	0.608	SB-217	130.71	0.5 - 2	8/29/2013	<0.0350
SB-151	130.32	0 - 0.2	8/28/2013	8.12	SB-218	131.41	0 - 0.2	8/30/2013	0.568
SB-152	129.73	1 - 2	8/30/2013	0.0533	SB-218	131.41	0.5 - 2	8/30/2013	0.0687
	129.73	2 - 4	8/30/2013	<0.0300	SB-220	130.49	0 - 0.2	9/4/2013	5.76
SB-153	129.58	1 - 2	9/3/2013	<0.0310	SB-221	130.23	0 - 0.2	9/4/2013	1.47
	129.58	2 - 4	9/3/2013	<0.0340	SB-222	129.29	0 - 0.2	9/4/2013	1.32
	129.58	4 - 6	9/3/2013	<0.0340	SB-223	130.20	0 - 0.2	9/4/2013	9.95
SB-154	129.70	1 - 2	8/30/2013	0.0670	SB-225	130.12	0 - 0.2	9/4/2013	0.815 [0.548]
	129.70	2 - 4	8/30/2013	<0.0310	SB-226	130.15	0 - 0.2	9/4/2013	1.12
SB-160	128.58	0 - 0.2	8/29/2013	7.76	SB-227	129.63	0 - 0.2	9/4/2013	0.202
SB-161	128.49	0 - 0.2	8/29/2013	2.47	SB-228	129.77	0 - 0.2	9/4/2013	1.04
SB-162	128.49	0 - 0.2	8/29/2013	3.13	SB-233	131.23	0 - 0.2	8/27/2013	0.897
SB-163	128.83	0 - 0.2	8/29/2013	1.59	SB-234	130.48	0 - 0.2	9/3/2013	2.56
SB-165	129.43	2 - 4	8/29/2013	<0.0340	SB-235	130.16	0 - 0.2	9/3/2013	<0.0360
SB-166	129.07	2 - 4	8/29/2013	0.104 J	SB-236	129.55	0 - 0.2	9/3/2013	0.0966
SB-167	129.43	2 - 4	8/29/2013	0.368	SB-237	128.91	0 - 0.2	9/3/2013	0.182
SB-168	129.50	0.5 - 2	8/29/2013	0.0467	SB-238	128.00	0 - 0.2	9/3/2013	0.654
SB-169	129.01	0.5 - 2	8/28/2013	0.0629	SB-246	130.00	0 - 0.2	9/5/2013	1.79
SB-170	129.16	0 - 0.2	8/28/2013	8.35	SB-247	129.75	0 - 0.2	9/5/2013	6.79
SB-171	129.55	0 - 0.2	8/28/2013	1.65	SB-248	130.24	0 - 0.2	9/5/2013	4.19
SB-174	129.50	0 - 0.2	08/29/13	5.41	SB-252	131.10	0 - 0.2	11/19/2013	1.43
SB-175	129.26	0.2 - 0.4	8/29/2013	3.33	SB-252	131.10	0.5 - 2	11/19/2013	0.0245 J
SB-176	129.01	0 - 0.2	8/29/2013	6.68 [8.07]	SB-252	131.10	2 - 3	11/20/2013	0.301 J
SB-179	129.42	4 - 6	9/5/2013	0.0533	SB-252	131.10	3 - 4	12/2/2013	<0.0320
SB-180	127.30	0 - 0.2	9/9/2013	0.605	SB-253	130.86	2 - 4	12/2/2013	<0.0330
	127.30	0.5 - 2	9/9/2013	8.87	SB-254	130.51	0 - 0.2	11/19/2013	3.87
	127.30	2 - 4	9/9/2013	2.20	SB-254	130.51	0.5 - 2	11/19/2013	2.73 [2.56]
SB-181	127.42	2 - 4	9/9/2013	3.35	SB-254	130.51	2 - 4	12/2/2013	<0.0330
SB-182	128.21	1 - 2	9/6/2013	0.256	SB-255	130.20	2 - 4	12/2/2013	0.185
SB-184	120.59	2 - 4	9/6/2013	6.74	SB-256	131.13	2 - 4	12/2/2013	<0.0330
SB-185	125.15	0.5 - 2	9/5/2013	1.75	SB-257	131.02	0 - 0.2	11/19/2013	0.683
	125.15	2 - 4	9/5/2013	0.566	SB-257	131.02	0.5 - 2	11/19/2013	0.0309 J
	125.15	4 - 6	9/5/2013	2.72	SB-257	131.02	2 - 4	12/2/2013	<0.0320
	125.15	6 - 8	9/5/2013	4.61	SB-258	131.05	2 - 3.5	12/2/2013	9.33
SB-186	126.12	8 - 10	9/5/2013	8.80	SB-260	128.50	0 - 0.2	11/19/2013	2.84
SB-187	125.95	2 - 4	9/5/2013	3.51	SB-260	128.50	0.5 - 2	11/19/2013	<0.0370
	125.95	4 - 6	9/6/2013	5.48	SB-263	130.89	0.5 - 2	11/20/2013	<0.0360
	125.95	6 - 8	9/6/2013	0.448	SB-337	132.00	0 - 0.2	12/10/2014	0.170
SB-188	128.50	2 - 4	9/5/2013	<0.0350	SB-338	132.19	0 - 0.2	12/10/2014	<0.0740
SB-189	128.50	0 - 0.2	9/5/2013	2.05	SB-339	132.32	0 - 0.2	12/10/2014	<0.0770
	128.50	2 - 4	9/5/2013	<0.0330	SB-340	132.02	0 - 0.2	12/10/2014	0.0300 J
SB-190	128.50	0 - 0.2	9/5/2013	8.97	SB-341	132.06	0 - 0.2	12/10/2014	0.0210 J [0.0420]
	128.50	2 - 4	9/5/2013	<0.0330	SB-342	132.01	0 - 0.2	12/10/2014	0.0300 J
SB-191	128.50	0 - 0.2	9/5/2013	6.28	UST-AOC-50	129.46	0 - 2.5	6/8/2005	1.07
	128.50	2 - 4	9/5/2013	<0.0330	V-A9-S10SW	126.83	5.5	6/17/2009	1.47 J
SB-192	118.59	0 - 0.2	9/5/2013	0.532	V-A11-S1	129.00	3	6/3/2009	0.0970 [0.0480 J]
	118.59	2 - 4	9/5/2013	0.177	V-RD-9	132.67	0.5 - 2	4/5/2013	<0.0258
	117.83	0 - 0.2	9/5/2013	0.442	V-RD-10	132.52	0.5 - 2	4/5/2013	<0.0279
SB-193	117.83	2 - 4	9/5/2013	0.126	V-RD-11	133.00	0.5 - 2	4/5/2013	<0.0282
	121.93	0 - 0.2	9/5/2013	2.69	V-RD-12	132.76	0.5 - 2	4/5/2013	0.470
SB-194	121.93	2 - 4	9/5/2013	6.23	V-RD-13	132.71	0.5 - 2	4/5/2013	0.620
	128.17	0 - 0.2	8/27/2013	4.78 [4.90]	V-RD-15	132.55	0.5 - 2	4/9/2013	0.190 [0.150]
SB-197	128.50	0.5 - 2	9/9/2013	1.50	V-RD-31	131.01	2 - 3	4/18/2013	<0.0263
SB-198	129.01	0 - 0.2	8/29/2013	1.20	V-RD-32	131.76	2 - 3	4/18/2013	5.40
SB-199	128.87	0 - 0.2	8/29/2013	0.229	V-RD-33	132.41	2 - 3	4/18/2013	<0.0262
SB-200	131.00	1 - 2	9/9/2013	<0.0360	V-RD-34	131.22	2 - 3	4/18/2013	4.10 [2.20]
	131.00	2 - 4	9/9/2013	<0.0370	V-RD-35	131.96	2 - 3	4/18/2013	<0.0279
SB-201	130.99	2 - 4	9/6/2013	0.0453	V-RD-36	130.27	2 - 3	4/18/2013	<0.0259
SB-202	131.00	2 - 4	9/6/2013	<0.0360	V-RD-37	124.01	2 - 3	4/18/2013	<0.0316
SB-203	131.00	2 - 4	9/6/2013	0.0428	V-RD-38	126.59	2 - 3	4/18/2013	0.430
SB-208	131.06	0 - 0.2	8/29/2013	0.184	V-RD-39	131.52	4 - 4.5	5/7/2013	0.350
SB-209	131.00	0 - 0.2	8/29/2013	2.01	V-RD-40	124.62	4 - 4.5	5/7/2013	0.620
SB-213	130.83	0 - 0.2	8/29/2013	2.61	V-RD-41	126.84	4 - 4.5	5/7/2013	<0.0256 [-0.0257]
	130.83	0.5 - 2	8/29/2013	0.346	V-RD-46	128.32	2 - 2.5	4/9/2013	<0.0260
SB-215	131.50	0.5 - 2	8/29/2013	0.0307 J	V-RD-47	128.21	2 - 2.5	4/9/2013	0.120
SB-216	131.18	0 - 0.2	8/29/2013	1.71	V-RD-48	128.78	2 - 2.5	4/16/2013	<0.0285
	131.18	0.5 - 2	8/29/2013	<0.0380	V-RD-49	128.20	2 - 2.5	4/9/2013	<0.0320
SB-217	130.71	0 - 0.2	8/29/2013	3.74	V-RD-50	128.26	4 - 4.5	4/16/2013	0.330

TABLE 4
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED PCBs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID	Surface Elevation (Feet)	Sample Depth (Feet bgs)	Date Collected	Total PCBs
Restricted Use SCOs Commercial:				1
V-RD-51	127.79	6 - 6.5	5/3/2013	0.0806
V-RD-52	128.05	6 - 6.5	5/3/2013	<0.0256
V-RD-53	128.21	6 - 6.5	5/3/2013	<0.0259
V-RD-54	127.99	8 - 8.5	5/3/2013	0.0627
V-RD-55	127.78	2.5 - 3.5	4/18/2013	0.550
V-RD-56	127.70	4 - 4.5	4/18/2013	0.240
V-RD-57	129.15	1 - 2	4/18/2013	0.120
V-RD-58	129.00	1 - 2	4/18/2013	1.50
V-RD-59	129.26	2 - 2.5	4/18/2013	0.250
V-RD-60	129.47	4 - 4.5	5/3/2013	<0.0258
V-RD-61	129.49	4 - 4.5	5/3/2013	9.80
V-RD-62	129.50	4 - 4.5	5/3/2013	0.430
V-RD-64	129.42	4 - 4.5	5/3/2013	0.960
V-RD-65	129.28	2 - 2.5	5/3/2013	<0.0257
V-RD-66	129.40	0 - 0.5	5/20/2013	3.80 [4.60]
V-RD-67	129.17	2 - 2.5	5/20/2013	2.70
V-RD-68	129.50	0 - 0.5	5/20/2013	5.40
V-RD-69	126.81	6 - 6.5	5/14/2013	2.60
V-RD-70	127.97	6 - 6.5	5/14/2013	<0.0261
V-RD-71	127.33	6 - 6.5	5/14/2013	0.490
V-RD-72	126.50	6 - 6.5	5/14/2013	0.750
V-RD-73	127.19	2 - 2.5	5/14/2013	0.200
V-RD-74	128.00	2 - 2.5	5/14/2013	<0.0261
V-RD-75	129.01	2 - 2.5	5/14/2013	<0.0257
V-RD-76	128.23	2 - 2.5	5/7/2013	<0.0258
V-RD-77	127.45	2 - 2.5	5/7/2013	2.00
V-RD-78	128.00	4 - 4.5	5/14/2013	0.0787
V-RD-81	129.01	0 - 0.5	5/7/2013	2.90
V-RD-82	128.86	4 - 4.5	5/7/2013	<0.0263
V-RD-83	128.71	2 - 2.5	5/7/2013	<0.0256
V-RD-84	127.16	2 - 2.5	5/7/2013	0.260
V-RD-85	128.52	2 - 2.5	5/7/2013	0.0829
V-RD-86	123.12	6 - 6.5	6/11/2013	0.610
V-RD-87	122.05	6 - 6.5	6/11/2013	0.100
V-RD-88	127.97	6 - 6.5	6/11/2013	<0.0101
V-RD-89	124.50	6 - 6.5	6/17/2013	0.0828
V-RD-90	123.13	10 - 10.5	6/11/2013	<0.0105
V-RD-94	126.46	8 - 8.5	5/16/2013	<0.0259
V-RD-98	128.50	4 - 4.5	5/16/2013	0.540
V-RD-99	128.29	0 - 0.5	5/16/2013	4.10
V-RD-100	128.29	4 - 4.5	5/16/2013	0.0590
V-RD-100	128.23	4 - 4.5	5/16/2013	<0.0259
V-RD-101A	121.49	6 - 8	9/6/2013	0.787
V-RD-102	120.56	4 - 4.5	5/16/2013	5.10
V-RD-103	125.38	4 - 4.5	5/16/2013	4.00
V-RD-104	122.75	4 - 4.5	5/16/2013	3.20
V-RD-105	121.42	6 - 6.5	5/16/2013	5.90
V-RD-106	129.32	6 - 6.5	5/31/2013	<0.0102
V-RD-107	128.97	6 - 6.5	5/31/2013	0.750 [0.550]
V-RD-108	128.28	6 - 6.5	5/31/2013	2.30
V-RD-111	125.08	3 - 3.5	5/31/2013	4.10
V-RD-112	128.60	6 - 6.5	5/30/2013	0.490
V-RD-115	127.13	6 - 6.5	5/30/2013	0.390
V-RD-119	128.55	2 - 2.5	4/30/2013	<0.0302
V-RD-120	128.50	2 - 2.5	4/30/2013	4.20
V-RD-121	128.50	2 - 2.5	4/30/2013	0.0793
V-RD-122	128.50	4 - 4.5	4/30/2013	0.780
V-RD-123	128.50	4 - 4.5	4/30/2013	<0.0269
V-RD-124	128.43	4 - 4.5	4/30/2013	<0.0263
V-RD-125	129.00	0 - 0.5	4/26/2013	0.790
V-RD-126	128.85	1.5 - 2	4/26/2013	<0.0265
V-RD-127	129.12	1.5 - 2	4/26/2013	0.380
V-RD-131	128.50	2 - 2.5	5/20/2013	<0.0256
V-RD-132	128.50	2 - 2.5	5/20/2013	<0.0302
V-RD-133	128.50	2 - 2.5	5/20/2013	<0.0299
V-RD-134	128.50	4 - 4.5	4/25/2013	<0.0259
V-RD-135	128.60	0 - 0.5	4/25/2013	<0.0275
V-RD-135	128.60	4 - 4.5	4/25/2013	<0.0257

Location ID	Surface Elevation (Feet)	Sample Depth (Feet bgs)	Date Collected	Total PCBs
Restricted Use SCOs Commercial:				1
V-RD-136	128.61	0 - 0.5	4/25/2013	0.0997
V-RD-136	128.61	4 - 4.5	4/25/2013	<0.0257
V-RD-137	128.50	4 - 4.5	4/25/2013	<0.0258
V-RD-138	129.22	0 - 0.5	4/25/2013	0.610 [0.460]
V-RD-138	129.22	4 - 4.5	4/25/2013	<0.0255
V-RD-139	128.93	0 - 0.5	4/25/2013	0.720
V-RD-139	128.93	4 - 4.5	4/25/2013	<0.0260
V-RD-145	129.52	6 - 6.5	5/29/2013	0.0111 J
V-RD-146	128.51	6.5 - 7.5	5/3/2013	0.950
V-RD-147	128.47	8 - 8.5	5/3/2013	4.90 [5.00]
V-RD-161	131.49	0 - 0.5	4/30/2013	0.710
V-RD-162	130.81	0 - 0.5	4/30/2013	6.80
V-RD-163	130.50	0 - 0.5	4/30/2013	0.810
V-RD-164	130.66	0 - 0.5	4/30/2013	0.360
V-RD-165	131.26	0 - 0.5	4/30/2013	0.380
V-RD-166	131.58	0 - 0.5	4/30/2013	0.120
V-RD-167	132.20	0 - 0.5	3/19/2013	<0.0105
V-RD-168	132.00	0 - 0.5	3/19/2013	<0.00950
V-RD-169	132.34	0 - 0.5	3/19/2013	<0.0100
V-RD-170	132.09	0 - 0.5	6/17/2013	<0.0111
V-RD-171	131.11	0 - 0.5	6/17/2013	<0.0110
V-RD-172	130.42	0 - 0.5	6/17/2013	0.0754
V-RD-173	128.37	0 - 0.5	6/17/2013	0.460
V-RD-174	130.51	0 - 0.5	6/17/2013	0.430
V-RD-175	131.50	0 - 0.5	6/17/2013	0.270
V-RD-176	131.50	0 - 0.5	6/17/2013	0.110
V-RD-177	131.53	0 - 0.5	6/17/2013	0.140
V-RD-178	131.67	0 - 0.5	6/17/2013	0.0749
V-RD-202	129.49	0 - 0.5	4/30/2013	0.640
V-RD-203	129.50	0 - 0.5	4/30/2013	3.10
V-RD-204	129.51	0 - 0.5	4/30/2013	8.50
V-RD-205	130.74	0 - 0.5	3/22/2013	0.660 [0.520]
V-RD-206	130.26	0 - 0.5	3/22/2013	3.50
V-RD-207	130.74	0 - 0.5	3/22/2013	3.60
V-RD-209	128.50	0 - 0.5	4/1/2013	1.70
V-RD-210	128.46	0 - 0.5	4/2/2013	<0.0280
V-RD-211	126.54	0 - 0.5	4/1/2013	<0.0265
V-RD-212	128.48	0 - 0.5	4/1/2013	3.50
V-RD-217	129.00	0 - 0.5	4/3/2013	2.80
V-RD-218	129.42	0 - 0.5	4/3/2013	0.0340
V-RD-219	129.50	0 - 0.5	4/30/2013	0.350
V-RD-220	129.50	0 - 0.5	4/30/2013	0.380
V-RD-221	128.78	0 - 0.5	4/3/2013	4.20
V-RD-222	127.22	0 - 0.5	4/2/2013	2.30
V-RD-223A	127.58	0.5 - 2	5/28/2013	2.13
V-RD-223B	127.47	0.5 - 2	5/28/2013	2.18
V-RD-223B	127.47	2 - 4	5/28/2013	1.31
V-RD-223C	127.81	2 - 4	05/29/13	0.157
V-RD-223E	127.76	0 - 0.2	3/10/2014	1.17 [1.02]
V-RD-224	129.74	0 - 0.5	3/28/2013	0.190
V-RD-225	129.39	0 - 0.5	3/28/2013	1.90
V-RD-226	128.50	0 - 0.5	3/27/2013	0.220
V-RD-228	127.99	0 - 0.5	3/27/2013	1.80
V-RD-229	127.94	0 - 0.5	3/27/2013	1.30
V-RD-231	127.99	0 - 0.5	3/27/2013	0.0490
V-RD-232	129.00	0 - 0.5	3/28/2013	9.70
V-RD-233	129.19	0 - 0.5	3/27/2013	1.90
V-RD-236	127.50	0 - 0.5	3/27/2013	1.90
V-RD-237	128.50	0 - 0.5	5/1/2013	0.540
V-RD-238	128.68	0 - 0.5	5/1/2013	2.00
V-RD-239	128.91	0 - 0.5	5/1/2013	1.00
V-RD-240	129.01	0 - 0.5	5/1/2013	2.00
V-RD-241	129.02	0 - 0.5	5/1/2013	7.80
V-RD-242	129.00	0 - 0.5	5/1/2013	7.40
V-RD-243A	128.50	2 - 4	5/24/2013	<0.0330
V-RD-243B	128.50	0.5 - 2	5/24/2013	3.87
V-RD-243B	128.50	2 - 4	5/24/2013	<0.0350

TABLE 4
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED PCBs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID	Surface Elevation (Feet)	Sample Depth (Feet bgs)	Date Collected	Total PCBs
Restricted Use SCOs Commercial:				1
V-RD-243C	128.50	0.5 - 2	5/24/2013	4.71
	128.50	2 - 4	5/24/2013	<0.0350
V-RD-243E	128.50	0.5 - 2	3/10/2014	3.07
V-RD-243F	128.50	2 - 4	12/3/2014	<0.0178
V-RD-244	128.65	0 - 0.5	4/3/2013	0.160
V-RD-245	128.50	0 - 0.5	4/3/2013	0.890
V-RD-246	128.50	0 - 0.5	4/3/2013	0.280
V-RD-247	128.50	0 - 0.5	4/3/2013	5.60
V-RD-249	128.97	0 - 0.5	4/3/2013	0.0470
V-RD-250	129.18	0 - 0.5	4/3/2013	<0.00900
V-RD-251	128.98	0 - 0.5	4/3/2013	<0.0100
V-RD-252	128.81	0 - 0.5	4/3/2013	0.550
V-RD-253	130.47	0 - 0.5	4/3/2013	<0.00900
V-RD-254	130.24	0 - 0.5	4/4/2013	0.550
V-RD-255	130.07	0 - 0.5	4/3/2013	1.20
V-RD-256	129.46	0 - 0.5	4/3/2013	0.0810 [0.110]
V-RD-257	129.41	0 - 0.5	4/3/2013	0.0220
V-RD-258	129.67	0 - 0.5	4/3/2013	0.140
V-RD-259	129.94	0 - 0.5	4/4/2013	1.30
V-RD-260	129.35	0 - 0.5	4/3/2013	0.350
V-RD-261	129.34	0 - 0.5	4/3/2013	0.100
V-RD-262	129.64	0 - 0.5	4/3/2013	0.250
V-RD-263	129.07	0 - 0.5	4/30/2013	0.120
V-RD-264	129.30	0 - 0.5	4/30/2013	1.40 [1.00]
V-RD-265	129.50	0 - 0.5	4/30/2013	4.40
V-RD-266	129.50	0 - 0.5	4/30/2013	6.00
V-RD-267	131.00	0 - 0.5	4/4/2013	0.330
V-RD-268	131.00	0 - 0.5	4/4/2013	0.240
V-RD-269	131.00	0 - 0.5	4/4/2013	0.800
V-RD-271	133.40	2 - 4	12/2/2013	0.0858
V-RD-272	133.00	2 - 4	12/2/2013	<0.0360
V-RD-272A	133.00	2 - 4	3/12/2014	2.33
V-RD-272B	132.98	0 - 0.2	3/12/2014	0.139 J
	132.98	0.5 - 2	3/12/2014	1.43
V-RD-273	129.01	2 - 4	11/19/2013	0.532 J
V-RD-273B	129.01	2 - 4	3/12/2014	0.0670 J [0.104 J]
V-RD-274	131.26	2 - 4	1/2/2015	<0.0670
V-RD-275	131.28	2 - 4	12/19/2014	<0.0690
V-RD-276	131.37	2 - 4	12/12/2014	<0.0680
V-RD-277	130.99	2 - 4	1/2/2015	<0.0690
V-RD-278	131.17	2 - 4	12/19/2014	<0.0680
V-RD-279	131.50	2 - 4	12/12/2014	0.0340 J
V-RD-283	127.73	0 - 0.2	9/10/2014	1.20
	127.73	0.5 - 2	9/10/2014	<0.0700
VS-39-1	129.50	0 - 2	6/8/2005	2.48
	129.50	0.5 - 1.5	6/8/2005	0.132 J
VS-39-4	129.20	2.5 - 3.5	6/8/2005	0.0540
VS-39-5	129.50	0 - 2	6/8/2005	1.06
	129.50	0.5 - 1.5	6/8/2005	0.0318 J
VS-45-2	126.88	30 - 32	8/4/2005	1.00
	126.88	34 - 36	8/4/2005	26.0 [48.0]
	126.88	40 - 42	8/4/2005	7.40
	126.88	44 - 46	8/4/2005	6.00
	126.88	50 - 52	8/4/2005	0.0280 J
VS-45-11	126.95	22 - 24	6/29/2005	23.0
VS-45-15	128.50	28 - 30	6/5/2008	3.70
VS-45-23	128.50	4.5 - 5	8/9/2005	1.45 J [2.10]
	128.50	6.5 - 7.5	8/9/2005	0.990 J
VS-P1-S9	130.60	3.5 - 4	2/12/2009	3.82 J

TABLE 4
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED PCBs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Notes:

1. **Sample depths are prior to the installation of 1-foot thick soil cover system.**
2. Surface elevations were at the time of sampling.
3. The 2013 samples were collected by Preferred Environmental Services on the dates indicated, all others were collected by ARCADIS on the dates indicated.
4. PCBs = Polychlorinated biphenyls.
5. - - = No cleanup level applicable.
6. bgs = Below ground surface.
7. Samples were analyzed by TestAmerica Laboratories, Inc. in Shelton, Connecticut, York Analytical Laboratories, Inc. in Stratford, Connecticut, Accutest Laboratories in Marlborough Massachusetts, Accutest Laboratories in Dayton New Jersey, CHEMTECH in Mountainside, New Jersey and PACE ANALYTICAL in Melville, New York for:
 - PCBs using United States Environmental Protection Agency (USEPA) USEPA SW-846 Method 8082.
8. All concentrations reported in dry weight parts per million (ppm), which is equivalent to milligrams per kilogram (mg/kg).
9. Data qualifiers are defined as follows:
 - < = Constituent not detected at a concentration above the reported detection limit.
 - * = LCS or LCSD exceeds the control limits.
 - A = Indicates that a Tentatively Identified Compound is a suspected aldol condensation product.
 - B = The compound has been found in the sample as well as its associated blank.
 - D = Concentration is based on a diluted sample analysis.
 - E = The compound was quantitated above the calibration range.
 - J = The associated numerical value is an estimated concentration.
 - P = Indicates >25% difference for detected concentrations between the two GC columns
10. Soil cleanup levels are from the New York State Department of Environmental Conservation- (NYSDEC-) approved Remedial Design (ARCADIS, February 2013) and consist of the following:
 - PCB surface soil cleanup levels: Commercial use soil cleanup objectives from Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375-6.8(b).
 - PCB subsurface soil cleanup levels: from the NYSDEC document titled "CP-51 / Soil Cleanup Guidance", dated October 21, 2010.
11. Bold font indicates that the result exceeds the 1 ppm PCB surface soil cleanup level.
12. Bold font and shading indicates that the result exceeds the 10 ppm PCB subsurface soil cleanup level.

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	AOC2-1 128.80 0 - 1 02/12/04	AOC2-2 128.60 0 - 1 02/12/04	AOC3-3 132.20 0 - 1 02/12/04	AOC3-4 131.70 0 - 1 02/12/04	AOC4-2 129.00 0 - 1 02/12/04	AOC5-1 128.50 0 - 1 02/12/04
VOCs							
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0110 J	<0.0110 J	<0.0230 J	0.0110 J	<0.0110 [<0.0110 J]	0.0210
2-Hexanone	--	<0.0110	<0.0110	<0.0230 J	<0.0120	<0.0110 [<0.0110 J]	<0.0120
4-Methyl-2-pentanone (MIBK)	--	<0.0110	<0.0110	<0.0230	<0.0120	<0.0110 [<0.0110]	<0.0120
Acetone	500	<0.0110 J	<0.0110 J	0.380 J	0.0810 J	<0.0110 [<0.0110 J]	0.0420
Benzene	44	<0.00500	<0.00500	<0.0120	<0.00600	<0.00500 [<0.00500]	<0.00600
Bromomethane	--	<0.00500 J	<0.00500 J	<0.0120 J	<0.00600 J	<0.00500 J [<0.00500 J]	<0.00600 J
Carbon disulfide	--	<0.00500	<0.00500	0.00500 J	0.000900 J	<0.00500 [0.000900 J]	0.00100 J
Chlorobenzene	500	<0.00500	<0.00500	<0.0120	<0.00600 J	<0.00500 [<0.00500]	<0.00600
Chloroform	350	<0.00500	<0.00500	<0.0120	<0.00600	<0.00500 [<0.00500]	<0.00600
cis-1,2-Dichloroethene	500	<0.00500	0.00800	0.0410	0.0400	<0.00500 [<0.00500]	<0.00600
Ethylbenzene	--	<0.00500	<0.00500	<0.0120	<0.00600 J	<0.00500 [<0.00500]	<0.00600
Methylene chloride	500	<0.00600	<0.00900	<0.0120	<0.00600	<0.00500 [<0.00500]	<0.00600
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00500	<0.00500	<0.0120	<0.00600 J	<0.00500 [<0.00500]	<0.00600
Tetrachloroethene	150	0.00300 J	0.0200	0.0130	0.0460 J	0.0140 [0.0250]	0.0300
Toluene	500	0.00100 J	0.0580	0.0240	0.0500 J	<0.00500 [0.0180]	0.120
trans-1,2-Dichloroethene	500	<0.00500	0.000800 J	0.00700 J	0.000700 J	<0.00500 [<0.00500]	<0.00600
Trichloroethene	200	<0.00500	0.00200 J	0.00100 J	0.0120	<0.00500 [<0.00500]	<0.00600
Vinyl chloride	13	<0.00500	<0.00500	0.000800 J	0.00200 J	<0.00500 [<0.00500]	<0.00600
Xylenes (total)	500	<0.00500	<0.00500	<0.0120	<0.00600	<0.00500 [0.00200 J]	0.00300 J
SVOCs							
2-Methylnaphthalene	--	<1.40	<0.340	<0.370	<0.390	0.210 J [0.240 J]	23.0
Acenaphthene	500	<1.40	0.0250 J	<0.370	<0.390	<0.360 [0.0930 J]	36.0
Acenaphthylene	500	<1.40	<0.340	<0.370	<0.390	<0.360 [<0.350]	<19.0
Anthracene	500	0.0820 J	0.0480 J	0.0170 J	<0.390	0.500 [0.310 J]	1.40 J
Benzo(a)anthracene	5.6	0.230 J	0.140 J	0.0520 J	<0.390	<0.360 [<0.350]	1.00 J
Benzo(a)pyrene	1	0.210 J	0.120 J	0.0330 J	<0.390	<0.360 [<0.350]	<19.0
Benzo(b)fluoranthene	5.6	0.180 J	0.110 J	0.0490 J	<0.390	<0.360 [<0.350]	<19.0
Benzo(ghi)perylene	500	0.0710 J	0.0450 J	<0.370	<0.390	<0.360 [<0.350]	<19.0
Benzo(k)fluoranthene	56	0.240 J	0.140 J	0.0470 J	<0.390	<0.360 [<0.350]	<19.0
Benzoic acid	--	<6.60	<1.60	<1.80	<1.90	<1.70 [<1.70]	<94.0
Bis(2-ethylhexyl)phthalate	--	<1.40	<0.340	<0.370 J	<0.390 J	0.870 [0.820]	150
Butyl benzyl phthalate	--	<1.40	<0.340	<0.370	<0.390	<0.360 [<0.350]	<19.0
Caprolactam	--	NA	NA	NA	NA	NA	NA
Carbazole	--	<1.40	<0.340	<0.370	<0.390	<0.360 [<0.350]	4.70 J
Chrysene	56	0.250 J	0.150 J	0.110 J	<0.390	<0.360 [0.0690 J]	1.30 J
Cresol (p)	500	<1.40	<0.340	<0.370	0.0880 J	<0.360 [<0.350]	<19.0
Dibenzo(a,h)anthracene	0.56	<1.40	<0.340	<0.370	<0.390	<0.360 [<0.350]	<19.0
Dibenzofuran	350	<1.40	<0.340	<0.370	<0.390	<0.360 [<0.350]	15.0 J
Diethyl phthalate	--	<1.40	<0.340	<0.370	<0.390	<0.360 [<0.350]	2.30 J
Dimethyl phthalate	--	<1.40	<0.340	<0.370	<0.390	<0.360 [<0.350]	<19.0
Di-n-butyl phthalate	--	<1.40	<0.340	<0.370	<0.390	<0.360 [<0.350]	1.10 J
Di-n-octyl phthalate	--	0.0730 J	<0.340	0.0190 J	<0.390	0.0580 J [0.0330 J]	<19.0
Fluoranthene	500	0.430 J	0.280 J	0.0930 J	<0.390	<0.360 [<0.350]	6.60 J
Fluorene	500	<1.40	<0.340	<0.370	<0.390	0.0710 J [<0.350]	13.0 J
Indeno(1,2,3-cd)pyrene	5.6	<1.40	0.0480 J	<0.370	<0.390	<0.360 [<0.350]	<19.0
Isophorone	--	<1.40	<0.340	<0.370	<0.390	<0.360 [<0.350]	<19.0
Naphthalene	500	<1.40	<0.340	<0.370	<0.390	<0.360 [<0.350]	110
Phenanthrene	500	0.280 J	0.180 J	0.120 J	<0.390	<0.360 [<0.350]	18.0 J
Phenol	500	<1.40	<0.340	<0.370	<0.390	<0.360 [<0.350]	<19.0
Pyrene	500	0.350 J	0.240 J	0.0730 J	<0.390	<0.360 [<0.350]	5.20 J
Total PAHs	--	7.22 J	2.38 J	2.07 J	<3.32	3.30 J [2.99 J]	282 J

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	AOC8-1 129.10 0 - 1 02/19/04	AOC8-2 129.00 0 - 1 02/19/04	AOC9-1 132.80 0 - 1 02/19/04	AOC9-2 128.50 0 - 1 02/19/04	AOC12-1 128.70 1 - 2 02/16/04	AOC13-1 129.00 0 - 1 02/16/04	AOC15-3 130.10 0 - 1 02/16/04	AOC18-1 129.50 0 - 1 02/16/04	AOC18-2 129.40 0 - 1 02/16/04
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J	0.0450 J	<0.0110 J	0.0400 J	<0.0110 J	<0.0110 J
2-Hexanone	--	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.0120 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J
4-Methyl-2-pentanone (MIBK)	--	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.0120	<0.0110	<0.0110	<0.0110	<0.0110
Acetone	500	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J	0.210 J	<0.0110	<0.0200 J	<0.0110	<0.0110
Benzene	44	<0.00500	<0.00500	<0.00600	<0.00500	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500
Bromomethane	--	<0.00500 J	<0.00500 J	<0.00600 J	<0.00500 J	<0.00600 J	<0.00600 J	<0.00500 J	<0.00500 J	<0.00500 J
Carbon disulfide	--	<0.00500	<0.00500	<0.00600	<0.00500	0.00300 J	<0.00600	<0.00500	<0.00500	<0.00500
Chlorobenzene	500	<0.00500	<0.00500	<0.00600	<0.00500	0.00100 J	<0.00600	<0.00500	<0.00500	<0.00500
Chloroform	350	<0.00500	<0.00500	<0.00600	<0.00500	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500
cis-1,2-Dichloroethene	500	<0.00500	<0.00500	<0.00600	<0.00500	0.00900	0.000400 J	<0.00500	<0.00500	<0.00500
Ethylbenzene	--	<0.00500	<0.00500	<0.00600	<0.00500	0.00200 J	<0.00600	<0.00500	<0.00500	<0.00500
Methylene chloride	500	<0.00500 J	<0.00500 J	<0.00600 J	<0.00500 J	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00500	<0.00500	<0.00600	<0.00500	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500
Tetrachloroethene	150	0.0500	<0.00500	<0.00600	0.00600	0.0480	0.00600	<0.00500	0.00100 J	0.00300 J
Toluene	500	0.150	0.0260	0.0420	0.0760	0.180	0.160	0.0650	0.000600 J	0.0670
trans-1,2-Dichloroethene	500	<0.00500	<0.00500	<0.00600	<0.00500	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500
Trichloroethene	200	<0.00500	<0.00500	<0.00600	<0.00500	0.00200 J	0.000800 J	<0.00500	<0.00500	0.00100 J
Vinyl chloride	13	<0.00500	<0.00500	<0.00600	<0.00500	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500
Xylenes (total)	500	<0.00500 J	<0.00500	<0.00600	<0.00500	0.00800	<0.00600	<0.00500	<0.00500 J	<0.00500
SVOCs										
2-Methylnaphthalene	--	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	<0.340	<0.340	<0.350
Acenaphthene	500	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	<0.340	<0.340	<0.350
Acenaphthylene	500	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	<0.340	<0.340	<0.350
Anthracene	500	<1.40	<0.700	<0.360	<1.40	<1.50 J	<0.730 J	<0.340	0.0240 J	0.0170 J
Benzo(a)anthracene	5.6	<1.40	0.0700 J	<0.360	<1.40	<1.50 J	<0.730 J	0.0290 J	0.0820 J	0.0620 J
Benzo(a)pyrene	1	<1.40	0.0610 J	<0.360	<1.40	<1.50	<0.730	0.0300 J	0.0690 J	0.0540 J
Benzo(b)fluoranthene	5.6	<1.40	0.0850 J	<0.360	<1.40	<1.50	<0.730	<0.340	0.0710 J	0.0570 J
Benzo(ghi)perylene	500	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	0.0250 J	0.0540 J	0.0260 J
Benzo(k)fluoranthene	56	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	<0.340	0.0700 J	0.0720 J
Benzoic acid	--	<6.70	<3.40	<1.70	<6.60	<7.20	<3.50	<1.60	<1.60	<1.70
Bis(2-ethylhexyl)phthalate	--	<1.40	<0.700	0.140 J	0.550 J	<1.50	<0.730	<0.340	<0.340 J	0.830
Butyl benzyl phthalate	--	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	<0.340	<0.340	<0.350
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	<1.40	<0.700	<0.360	<1.40	<1.50 J	<0.730 J	<0.340	<0.340	<0.350
Chrysene	56	<1.40	0.0780 J	0.0240 J	<1.40	<1.50 J	<0.730 J	0.0390 J	0.0940 J	0.0860 J
Cresol (p)	500	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	<0.340	<0.340	<0.350
Dibenzo(a,h)anthracene	0.56	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	<0.340	0.0200 J	<0.350
Dibenzofuran	350	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	<0.340	<0.340	<0.350
Diethyl phthalate	--	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	<0.340	<0.340	<0.350
Dimethyl phthalate	--	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	<0.340	<0.340	0.0570 J
Di-n-butyl phthalate	--	<1.40	<0.700	<0.360 J	<1.40	<1.50	<0.730 J	<0.340	<0.340 J	<0.350 J
Di-n-octyl phthalate	--	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	<0.340	<0.340	0.0230 J
Fluoranthene	500	<1.40	0.0800 J	0.0290 J	<1.40	<1.50	<0.730	0.0540 J	0.150 J	0.110 J
Fluorene	500	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	<0.340	<0.340	<0.350
Indeno(1,2,3-cd)pyrene	5.6	<1.40	0.0440 J	<0.360	<1.40	<1.50	<0.730	0.0250 J	0.0550 J	0.0290 J
Isophorone	--	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	<0.340	<0.340	<0.350
Naphthalene	500	<1.40	<0.700	<0.360	<1.40	<1.50	<0.730	<0.340	<0.340	0.0590 J
Phenanthrene	500	<1.40	<0.700	<0.360	<1.40	<1.50 J	<0.730 J	0.0250 J	0.110 J	0.0880 J
Phenol	500	<1.40	<0.700	<0.360	<1.40	<1.50	0.200 J	<0.340	<0.340	<0.350
Pyrene	500	<1.40	0.0890 J	0.0350 J	<1.40	<1.50	<0.730	0.0530 J	0.140 J	0.110 J
Total PAHs	--	<11.9	4.01 J	2.61 J	<11.9	<12.8	<6.21	1.81 J	1.79 J	1.65 J

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	AOC18-3 129.90 0 - 1 02/16/04	AOC21A-1 130.00 0 - 1 02/16/04	AOC21A-2 129.70 0 - 1 02/16/04	AOC24-3 130.60 1 - 2 02/17/04	AOC24-4 130.10 0 - 1 02/17/04	AOC24-5 134.30 0 - 1 02/17/04	AOC27A-1 131.00 0 - 1 02/17/04	AOC27A-2 130.70 0 - 1 02/17/04
VOCs									
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0110 J	<0.0100	<0.0110	<0.0100 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J
2-Hexanone	--	<0.0110 J	<0.0100	<0.0110	<0.0100 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J
4-Methyl-2-pentanone (MIBK)	--	<0.0110	<0.0100	<0.0110	<0.0100 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J
Acetone	500	<0.0140 J	<0.0180	<0.0110	<0.0160 J	<0.0140 J	<0.0120 J	<0.0110	<0.0110 J
Benzene	44	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Bromomethane	--	<0.00500 J	<0.00500 J	<0.00500 J	<0.00500 J	<0.00500 J	<0.00500 J	<0.00500 J	<0.00500 J
Carbon disulfide	--	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Chlorobenzene	500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Chloroform	350	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
cis-1,2-Dichloroethene	500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Ethylbenzene	--	0.000500 J	0.00200 J	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Methylene chloride	500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 J	<0.00500	<0.00500 J
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	0.00200 J	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Tetrachloroethene	150	<0.00500	0.000700 J	0.00200 J	0.00200 J	0.0130	<0.00500	<0.00500	<0.00500
Toluene	500	0.0750	0.0660	0.00900	0.000800 J	0.0950	0.0860	0.0570	0.0860
trans-1,2-Dichloroethene	500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Trichloroethene	200	<0.00500	0.00200 J	0.00200 J	<0.00500	0.0230	<0.00500	<0.00500	<0.00500
Vinyl chloride	13	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 J	<0.00500 J
Xylenes (total)	500	0.00200 J	0.0360	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SVOCs									
2-Methylnaphthalene	--	<5.40	<1.40	<0.340	<0.670	<2.80	<0.710	<0.340	<140
Acenaphthene	500	3.50 J	<1.40	<0.340	<0.670	<2.80	<0.710	<0.340	<140
Acenaphthylene	500	<5.40	<1.40	<0.340	<0.670	<2.80	<0.710	<0.340	<140
Anthracene	500	5.00 J	<1.40	<0.340	<0.670	<2.80	<0.710	<0.340	<140
Benzo(a)anthracene	5.6	12.0	<1.40	<0.340	<0.670	<2.80	0.0540 J	0.0550 J	<140
Benzo(a)pyrene	1	10.0	<1.40	<0.340	<0.670	<2.80	0.0500 J	0.0650 J	<140
Benzo(b)fluoranthene	5.6	9.90	<1.40	<0.340	<0.670	<2.80	<0.710	0.0640 J	<140
Benzo(ghi)perylene	500	6.70	<1.40	<0.340	<0.670	<2.80	<0.710	0.0420 J	<140
Benzo(k)fluoranthene	56	10.0	<1.40	<0.340	<0.670	<2.80	<0.710	0.0630 J	<140
Benzoic acid	--	<26.0	<6.60	<1.70	<3.20	<13.0	<3.40	<1.60	<690
Bis(2-ethylhexyl)phthalate	--	1.50 J	0.780 J	<0.340 J	0.150 J	0.480 J	0.170 J	0.350	720
Butyl benzyl phthalate	--	<5.40	<1.40	<0.340	<0.670	<2.80	<0.710	<0.340	<140
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	2.90 J	<1.40	<0.340	<0.670	<2.80	<0.710	<0.340	<140
Chrysene	56	12.0	<1.40	<0.340	<0.670	<2.80	0.0790 J	0.0740 J	<140
Cresol (p)	500	<5.40	<1.40	<0.340	<0.670	<2.80	<0.710	<0.340	<140
Dibenzo(a,h)anthracene	0.56	3.00 J	<1.40	<0.340	<0.670	<2.80	<0.710	0.0180 J	<140
Dibenzofuran	350	1.50 J	<1.40	<0.340	<0.670	<2.80	<0.710	<0.340	<140
Diethyl phthalate	--	<5.40	<1.40	<0.340	<0.670	<2.80	<0.710	<0.340	<140
Dimethyl phthalate	--	<5.40	<1.40	<0.340	<0.670	<2.80	<0.710	<0.340	<140
Di-n-butyl phthalate	--	0.360 J	<1.40	<0.340	<0.670	<2.80	<0.710	0.0190 J	<140
Di-n-octyl phthalate	--	<5.40	<1.40	<0.340	0.0250 J	<2.80	<0.710	<0.340	<140
Fluoranthene	500	24.0	<1.40	<0.340	<0.670	<2.80	0.100 J	0.100 J	<140
Fluorene	500	1.90 J	<1.40	<0.340	<0.670	<2.80	<0.710	<0.340	<140
Indeno(1,2,3-cd)pyrene	5.6	6.70	<1.40	<0.340	<0.670	<2.80	<0.710	0.0370 J	<140
Isophorone	--	<5.40	<1.40	<0.340	<0.670	<2.80	<0.710	<0.340	<140
Naphthalene	500	0.770 J	<1.40 J	<0.340	<0.670	<2.80	<0.710	<0.340	<140
Phenanthrene	500	20.0	<1.40	<0.340	<0.670	<2.80	0.0860 J	0.0420 J	<140
Phenol	500	<5.40	<1.40	<0.340	<0.670	<2.80	0.0970 J	<0.340	<140
Pyrene	500	22.0	<1.40	<0.340	0.0420 J	<2.80	0.110 J	0.110 J	<140
Total PAHs	--	153 J	<11.9	<2.89	5.40 J	<23.8	4.38 J	1.69 J	<1,190

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	AOC27B-1 129.90 0 - 1 02/17/04	AOC27B-2 130.40 0 - 1 02/17/04	AOC27C-1 129.00 0 - 1 02/17/04	AOC27C-2 133.30 0 - 1 02/17/04	AOC27D-1 128.00 0 - 1 02/17/04	AOC27F-1 130.50 0 - 1 02/17/04	AOC27F-2 130.60 0 - 1 02/18/04	AOC27G-1 130.50 0 - 1 02/18/04
VOCs									
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.00900	<0.0110
2-Hexanone	--	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.00900	<0.0110
4-Methyl-2-pentanone (MIBK)	--	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.00900	<0.0110
Acetone	500	<0.0110 J	<0.0170 J	<0.0110 J	<0.0110 J	<0.0110	<0.0110	<0.0170 J	<0.0110 J
Benzene	44	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00600
Bromomethane	--	<0.00600 J	<0.00600 J	<0.00500 J	<0.00500 J	<0.00500 J	<0.00500 J	<0.00500 J	<0.00600 J
Carbon disulfide	--	<0.00600	<0.00600	<0.00500	<0.00500	0.00100 J	<0.00500	<0.00500	<0.00600
Chlorobenzene	500	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00600
Chloroform	350	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00600
cis-1,2-Dichloroethene	500	<0.00600	<0.00600	<0.00500	<0.00500	0.000400 J	0.00700	<0.00500	<0.00600
Ethylbenzene	--	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500	0.000700 J	<0.00500	<0.00600
Methylene chloride	500	<0.00600	<0.00600	<0.00500	<0.00500 J	<0.00500	<0.00500	<0.00500 J	<0.00600
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00600
Tetrachloroethene	150	<0.00600	<0.00600	<0.00500	<0.00500	0.00300 J	0.00100 J	<0.00500	0.000700 J
Toluene	500	0.0640	0.0760	0.0760	0.00400 J	0.0660	0.0100	0.0170	0.110
trans-1,2-Dichloroethene	500	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00600
Trichloroethene	200	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500	0.0220	0.00200 J	0.0180
Vinyl chloride	13	<0.00600 J	<0.00600 J	<0.00500 J	<0.00500 J	<0.00500 J	<0.00500 J	<0.00500	<0.00600
Xylenes (total)	500	<0.00600	<0.00600	<0.00500	<0.00500	0.00200 J	<0.00500	<0.00500	<0.00600
SVOCs									
2-Methylnaphthalene	--	<0.360	<0.370	<0.690	<1.40	<1.30	<0.350	<0.340	<0.740
Acenaphthene	500	0.0360 J	<0.370	<0.690	<1.40	<1.30	<0.350	<0.340	<0.740
Acenaphthylene	500	<0.360	<0.370	<0.690	<1.40	<1.30	<0.350	<0.340	<0.740
Anthracene	500	0.0520 J	<0.370	<0.690	0.0780 J	0.0750 J	<0.350	<0.340	0.0380 J
Benzo(a)anthracene	5.6	0.200 J	<0.370	<0.690	0.510 J	0.220 J	<0.350	0.0380 J	0.200 J
Benzo(a)pyrene	1	0.160 J	<0.370	0.0340 J	0.520 J	0.180 J	<0.350	0.0440 J	0.220 J
Benzo(b)fluoranthene	5.6	0.230 J	<0.370	<0.690	0.500 J	0.320 J	<0.350	0.0460 J	0.260 J
Benzo(ghi)perylene	500	0.0850 J	<0.370	<0.690	0.400 J	0.310 J	<0.350	<0.340	0.110 J
Benzo(k)fluoranthene	56	0.220 J	<0.370	<0.690	0.660 J	0.280 J	<0.350	0.0460 J	0.210 J
Benzoic acid	--	2.50	<1.80	<3.30	<6.80	<6.50	<1.70	<1.70	<3.60
Bis(2-ethylhexyl)phthalate	--	0.700	0.370 J	0.840	6.70	6.70	0.190 J	<0.340 J	1.40
Butyl benzyl phthalate	--	<0.360	<0.370	<0.690	<1.40	<1.30	<0.350	<0.340	<0.740
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	<0.360	<0.370	<0.690	<1.40	<1.30	<0.350	<0.340	<0.740
Chrysene	56	0.260 J	<0.370	0.0520 J	0.640 J	0.380 J	0.0240 J	0.0580 J	0.260 J
Cresol (p)	500	<0.360	<0.370	<0.690	<1.40	<1.30	<0.350	<0.340	<0.740
Dibenzo(a,h)anthracene	0.56	0.0360 J	<0.370	<0.690	0.110 J	<1.30	<0.350	<0.340	0.0470 J
Dibenzofuran	350	0.0170 J	<0.370	<0.690	<1.40	<1.30	<0.350	<0.340	<0.740
Diethyl phthalate	--	<0.360	<0.370	<0.690	<1.40	<1.30	<0.350	<0.340	<0.740
Dimethyl phthalate	--	<0.360	<0.370	<0.690	<1.40	<1.30	<0.350	<0.340	0.150 J
Di-n-butyl phthalate	--	0.0290 J	0.0180 J	<0.690	<1.40	0.570 J	0.0350 J	<0.340 J	<0.740 J
Di-n-octyl phthalate	--	<0.360	<0.370	0.0680 J	<1.40	0.640 J	<0.350	<0.340	<0.740
Fluoranthene	500	0.410	<0.370	0.0600 J	1.10 J	0.530 J	0.0240 J	0.0590 J	0.410 J
Fluorene	500	0.0320 J	<0.370	<0.690	<1.40	<1.30	<0.350	<0.340	<0.740
Indeno(1,2,3-cd)pyrene	5.6	0.0920 J	<0.370	<0.690	0.340 J	0.230 J	<0.350	<0.340	0.110 J
Isophorone	--	<0.360	<0.370	<0.690	<1.40	<1.30	<0.350	<0.340	<0.740
Naphthalene	500	0.0660 J	<0.370	<0.690	<1.40	<1.30	<0.350	<0.340	<0.740 J
Phenanthrene	500	0.280 J	<0.370	<0.690	0.450 J	0.350 J	<0.350	0.0340 J	0.200 J
Phenol	500	0.0920 J	<0.370	0.100 J	<1.40	<1.30	<0.350	<0.340	<0.740
Pyrene	500	0.320 J	<0.370	0.0670 J	1.00 J	0.440 J	0.0220 J	0.0550 J	0.390 J
Total PAHs	--	2.84 J	<3.15	4.70 J	9.81 J	7.22 J	2.52 J	1.91 J	4.31 J

9/25/2017

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TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	AOC27G-2 131.40 0 - 1 02/18/04	AOC27H-1 132.50 0 - 1 02/18/04	AOC27H-2 132.20 0 - 1 02/18/04	AOC27I-1 130.00 0 - 1 02/18/04	AOC31-1 122.00 0 - 0.8 02/09/04	AOC35-0 129.50 12 - 14 10/23/06	AOC35A-1 133.30 12 - 14 02/23/04
VOCs								
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA
1,3,5,- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0110	<0.0110 [<0.0110]	<0.0130	<0.0110	<0.0150	0.00220 JB [<0.0100]	<0.00900
2-Hexanone	--	<0.0110	<0.0110 [<0.0110]	<0.0130	<0.0110	<0.0150 J	<0.0100 [<0.0100]	<0.00900 J
4-Methyl-2-pentanone (MIBK)	--	<0.0110	<0.0110 [<0.0110]	<0.0130	<0.0110	<0.0150 J	<0.0100 [<0.0100]	<0.00900
Acetone	500	<0.0110 J	<0.0110 J [<0.0110 J]	<0.0130 J	<0.0110 J	<0.0150	0.00510 JB [<0.00760 J]	<0.00900
Benzene	44	<0.00500	<0.00600 [<0.00600]	<0.00600	<0.00600	<0.00800	<0.00520 [<0.00510]	<0.00400
Bromomethane	--	<0.00500 J	<0.00600 J [<0.00600]	<0.00600	<0.00600	0.00600 J	<0.00520 [<0.00510]	<0.00400
Carbon disulfide	--	<0.00500	<0.00600 [<0.00600]	<0.00600	<0.00600	0.000500 J	<0.00520 [<0.00510]	<0.00400
Chlorobenzene	500	<0.00500 J	<0.00600 [<0.00600]	<0.00600	<0.00600	<0.00800	<0.00520 [<0.00510]	<0.00400
Chloroform	350	<0.00500	<0.00600 [<0.00600]	<0.00600	<0.00600	<0.00800	<0.00520 [<0.00510]	<0.00400
cis-1,2-Dichloroethene	500	<0.00500	<0.00600 [<0.00600]	<0.00600	<0.00600	<0.00800 J	<0.00520 [<0.00510]	<0.00400
Ethylbenzene	--	<0.00500 J	<0.00600 [<0.00600]	<0.00600	<0.00600	<0.00800 J	<0.00520 [<0.00510]	<0.00400
Methylene chloride	500	<0.00500	<0.00600 [<0.00600]	<0.00600	<0.00600	<0.00800	0.00550 JB [<0.00460 JB]	<0.00400
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00500 J	<0.00600 [<0.00600]	<0.00600	<0.00600	<0.00800 J	<0.00520 [<0.00510]	<0.00400
Tetrachloroethene	150	<0.00500	<0.00600 [<0.00600]	<0.00600	<0.00600	<0.00800 J	<0.00520 [<0.00510]	<0.00400
Toluene	500	0.100	0.0700 [<0.0790]	0.0440	0.00800	<0.00800 J	0.000900 JB [<0.00510]	0.0120
trans-1,2-Dichloroethene	500	<0.00500	<0.00600 [<0.00600]	<0.00600	<0.00600	<0.00800 J	<0.00520 [<0.00510]	<0.00400
Trichloroethene	200	<0.00500	<0.00600 [<0.00600]	<0.00600	0.00200 J	0.00600 J	<0.00520 [<0.00510]	<0.00400
Vinyl chloride	13	<0.00500	<0.00600 [<0.00600]	<0.00600	<0.00600	<0.00800	<0.00520 [<0.00510]	<0.00400
Xylenes (total)	500	<0.00500 J	<0.00600 [<0.00600]	<0.00600	<0.00600	<0.00800 J	<0.00520 [<0.00510]	<0.00400
SVOCs								
2-Methylnaphthalene	--	<0.350	<0.360 [<0.350]	<0.820	<0.730	<10.0	<0.330	<0.330
Acenaphthene	500	<0.350 J	0.0780 J [<0.0460 J]	<0.820	0.120 J	<10.0	<0.330	<0.330
Acenaphthylene	500	<0.350	<0.360 [<0.350]	<0.820	0.0530 J	0.580 J	<0.330	<0.330
Anthracene	500	<0.350	0.110 J [<0.0590 J]	<0.820	0.200 J	0.670 J	<0.330	<0.330
Benzo(a)anthracene	5.6	0.0160 J	0.330 J [<0.160 J]	0.0430 J	0.760	1.90 J	0.0720 J	<0.330
Benzo(a)pyrene	1	<0.350	0.320 J [<0.150 J]	0.0480 J	0.790	2.40 J	0.0660 J	<0.330
Benzo(b)fluoranthene	5.6	<0.350	0.290 J [<0.140 J]	<0.820	0.740	2.70 J	<0.330	<0.330
Benzo(ghi)perylene	500	<0.350	0.130 J [<0.0940 J]	<0.820	0.410 J	4.30 J	<0.330	<0.330
Benzo(k)fluoranthene	56	<0.350	0.410 [<0.140 J]	<0.820	0.840	2.10 J	0.0600 JM	<0.330
Benzoic acid	--	<1.70	<1.80 [<1.70]	<4.00	<3.50	<48.0	<1.60	<1.60
Bis(2-ethylhexyl)phthalate	--	<0.350	<0.360 [<0.350]	<0.820	0.800	7.40 J	<0.330	<0.330
Butyl benzyl phthalate	--	<0.350	<0.360 [<0.350]	<0.820	<0.730	<10.0	<0.330	<0.330
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	<0.350	0.0610 J [<0.0370 J]	<0.820	0.0590 J	0.720 J	<0.330	<0.330
Chrysene	56	0.0240 J	0.370 [<0.180 J]	0.0540 J	0.830	4.00 J	0.0650 J	<0.330
Cresol (p)	500	<0.350	<0.360 [<0.350]	<0.820	<0.730	<10.0	<0.330	<0.330
Dibenzo(a,h)anthracene	0.56	<0.350	0.0600 J [<0.0360 J]	<0.820	0.180 J	<10.0	<0.330	<0.330
Dibenzofuran	350	<0.350	0.0290 J [<0.0180 J]	<0.820	0.0340 J	<10.0	<0.330	<0.330
Diethyl phthalate	--	<0.350	<0.360 [<0.350]	<0.820	<0.730	<10.0	<0.330	<0.330
Dimethyl phthalate	--	<0.350	<0.360 [<0.350]	<0.820	<0.730	<10.0	<0.330	<0.330
Di-n-butyl phthalate	--	<0.350	<0.360 [<0.350]	<0.820	0.190 J	<10.0	<0.330	<0.330 J
Di-n-octyl phthalate	--	<0.350	<0.360 [<0.350]	<0.820	<0.730	<10.0	<0.330	<0.330
Fluoranthene	500	0.0330 J	0.670 [<0.340 J]	0.0860 J	1.30	3.70 J	0.110 J	<0.330
Fluorene	500	<0.350	0.0550 J [<0.0330 J]	<0.820	0.0690 J	<10.0	<0.330	<0.330
Indeno(1,2,3-cd)pyrene	5.6	<0.350	0.140 J [<0.0860 J]	<0.820	0.410 J	3.20 J	0.0410 J	<0.330
Isophorone	--	<0.350	<0.360 [<0.350]	<0.820	<0.730	<10.0	<0.330	<0.330
Naphthalene	500	<0.350	<0.360 [<0.350 J]	<0.820 J	<0.730 J	1.20 J	<0.330	<0.330
Phenanthrene	500	<0.350	0.490 [<0.280 J]	0.0630 J	0.680 J	2.20 J	0.0630 J	<0.330
Phenol	500	<0.350	<0.360 [<0.350]	<0.820	<0.730	<10.0	<0.330	<0.330
Pyrene	500	0.0300 J	0.620 [<0.350]	0.0850 J	1.20	3.80 J	0.120 J	<0.330
Total PAHs	--	2.38 J	4.61 J [<2.62 J]	4.89 J	9.31 J	52.8 J	2.08 J	<2.81

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	AOC35A-2 132.80 12 - 14 02/23/04	AOC35B-1 129.00 12 - 14 02/23/04	AOC35B-2 129.00 12 - 14 02/23/04	AOC35C-1 129.00 12 - 14 02/23/04	AOC35C-2 129.30 12 - 14 02/23/04	AOC35C-3 133.10 12 - 14 02/23/04	AOC35D-1 129.00 6 - 8 02/23/04
VOCs								
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0120	<0.0100 [<0.0100]	<0.0100	<0.00900	<0.0120	<0.0100	<0.0130
2-Hexanone	--	<0.0120 J	<0.0100 J [<0.0100]	<0.0100 J	<0.00900	<0.0120	<0.0100	<0.0130
4-Methyl-2-pentanone (MIBK)	--	<0.0120	<0.0100 [<0.0100]	<0.0100	<0.00900	<0.0120	<0.0100	<0.0130
Acetone	500	<0.0120	<0.0100 [<0.0100]	<0.0100	<0.00900 J	<0.0120	<0.0100	<0.0130
Benzene	44	<0.00600	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00600	<0.00500	<0.00700
Bromomethane	--	<0.00600	<0.00500 [<0.00500 J]	<0.00500	<0.00500 J	<0.00600 J	<0.00500 J	<0.00700 J
Carbon disulfide	--	<0.00600	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00600	<0.00500	<0.00700
Chlorobenzene	500	<0.00600	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00600	<0.00500	<0.00700
Chloroform	350	<0.00600	<0.00500 [0.000900 J]	<0.00500	<0.00500	<0.00600	<0.00500	<0.00700
cis-1,2-Dichloroethene	500	<0.00600	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00600	<0.00500	<0.00700
Ethylbenzene	--	<0.00600	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00600	<0.00500	<0.00700
Methylene chloride	500	<0.00600	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00600	<0.00500	<0.00700
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00600	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00600	<0.00500	<0.00700
Tetrachloroethene	150	<0.00600	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00600	<0.00500	<0.00700
Toluene	500	0.00900	0.0100 [0.000900 J]	0.00100 J	0.00300 J	<0.00600	0.00800	0.00100 J
trans-1,2-Dichloroethene	500	<0.00600	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00600	<0.00500	<0.00700
Trichloroethene	200	<0.00600	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00600	<0.00500	<0.00700
Vinyl chloride	13	<0.00600	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00600	<0.00500	<0.00700
Xylenes (total)	500	<0.00600	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00600	<0.00500	<0.00700
SVOCs								
2-Methylnaphthalene	--	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Acenaphthene	500	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Acenaphthylene	500	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Anthracene	500	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Benzo(a)anthracene	5.6	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Benzo(a)pyrene	1	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Benzo(b)fluoranthene	5.6	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Benzo(ghi)perylene	500	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Benzo(k)fluoranthene	56	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Benzoic acid	--	<1.60	<1.50 [<1.60]	<1.60	<1.60	<1.50	<1.60	<1.60
Bis(2-ethylhexyl)phthalate	--	<0.330	0.0670 J [<0.330]	<0.330	<0.330	0.0560 J	<0.340	<0.330
Butyl benzyl phthalate	--	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Chrysene	56	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Cresol (p)	500	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Dibenzo(a,h)anthracene	0.56	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Dibenzofuran	350	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Diethyl phthalate	--	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Dimethyl phthalate	--	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Di-n-butyl phthalate	--	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Di-n-octyl phthalate	--	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Fluoranthene	500	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Fluorene	500	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Indeno(1,2,3-cd)pyrene	5.6	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Isophorone	--	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Naphthalene	500	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Phenanthrene	500	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Phenol	500	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Pyrene	500	<0.330	<0.320 [<0.330]	<0.330	<0.330	<0.320	<0.340	<0.330
Total PAHs	--	<2.81	<2.72 [<2.81]	<2.81	<2.81	<2.72	<2.89	<2.81

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	AOC35D-2 129.10 12 - 14 02/23/04	AOC35E-1 129.00 6 - 8 02/24/04	AOC35E-2 132.10 12 - 14 02/24/04	AOC35F-1 128.80 6 - 8 02/24/04	AOC35F-2 128.50 12 - 14 02/24/04	AOC35F-3S 128.46 6 - 8 10/20/04	AOC35G-1 131.30 6 - 8 02/24/04	AOC35G-2 131.90 12 - 14 02/24/04
VOCs									
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0120	<0.0100	<0.0100	<0.0100	<0.00900	<0.0100	<0.0120	<0.0120 J
2-Hexanone	--	<0.0120	<0.0100	<0.0100	<0.0100	<0.00900 J	<0.0100	<0.0120 J	<0.0120 J
4-Methyl-2-pentanone (MIBK)	--	<0.0120	<0.0100	<0.0100	<0.0100	<0.00900	<0.0100	<0.0120	<0.0120
Acetone	500	<0.0120	<0.0100 J	<0.0100 J	<0.0100 J	<0.00900	<0.0100	<0.0120	<0.0120
Benzene	44	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00520	<0.00600	<0.00600
Bromomethane	--	<0.00600 J	<0.00500 J	<0.00500 J	<0.00500 J	<0.00500	<0.00520 J	<0.00600	<0.00600
Carbon disulfide	--	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00520	<0.00600	<0.00600
Chlorobenzene	500	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00520	<0.00600	<0.00600
Chloroform	350	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00520 J	<0.00600	<0.00600
cis-1,2-Dichloroethene	500	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00520	<0.00600	<0.00600
Ethylbenzene	--	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00520	<0.00600	<0.00600
Methylene chloride	500	<0.00600	0.00300 J	<0.00500	0.00300 J	<0.00500	<0.00570 J	<0.00600	<0.00600
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00520	<0.00600	<0.00600
Tetrachloroethene	150	0.000900 J	<0.00500	<0.00500	<0.00500	<0.00500	<0.00520 J	<0.00600	<0.00600
Toluene	500	0.0240	0.00300 J	0.00900	0.00200 J	0.00200 J	<0.00520	0.00300 J	0.00800
trans-1,2-Dichloroethene	500	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00520	<0.00600	<0.00600
Trichloroethene	200	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00520	<0.00600	<0.00600
Vinyl chloride	13	<0.00600	<0.00500	<0.00500	<0.00500	<0.00500	<0.00520 J	<0.00600	<0.00600
Xylenes (total)	500	<0.00600	<0.00500 J	<0.00500 J	<0.00500 J	<0.00500	<0.00520	<0.00600	<0.00600
SVOCs									
2-Methylnaphthalene	--	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Acenaphthene	500	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Acenaphthylene	500	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Anthracene	500	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Benzo(a)anthracene	5.6	0.0770 J	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Benzo(a)pyrene	1	0.0650 J	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Benzo(b)fluoranthene	5.6	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Benzo(ghi)perylene	500	0.0650 J	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Benzo(k)fluoranthene	56	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Benzoic acid	--	<3.20	<1.60	<1.60	<1.60	<1.60	<1.60	<1.60	<1.60
Bis(2-ethylhexyl)phthalate	--	<0.660	<0.330	0.0490 J	<0.340	<0.330	<0.340	<0.330	<0.340
Butyl benzyl phthalate	--	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Chrysene	56	0.100 J	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Cresol (p)	500	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Dibenzo(a,h)anthracene	0.56	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Dibenzofuran	350	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Diethyl phthalate	--	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Dimethyl phthalate	--	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Di-n-butyl phthalate	--	<0.660	<0.330	<0.340	<0.340	<0.330 J	<0.340	<0.330 J	<0.340 J
Di-n-octyl phthalate	--	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Fluoranthene	500	0.150 J	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Fluorene	500	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Indeno(1,2,3-cd)pyrene	5.6	0.0500 J	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Isophorone	--	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Naphthalene	500	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Phenanthrene	500	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Phenol	500	<0.660	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Pyrene	500	0.170 J	<0.330	<0.340	<0.340	<0.330	<0.340	<0.330	<0.340
Total PAHs	--	3.98 J	<2.81	<2.89	<2.89	<2.81	<2.89	<2.81	<2.89

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	AOC35H-1S 129.43 12 - 14 10/19/04	AOC35I-1S 131.33 12 - 14 10/19/04	AOC35I-2S 131.00 12 - 14 10/19/04	AOC35J-1S 130.83 12 - 14 10/19/04	AOC35K-1S 129.48 12 - 14 10/19/04	AOC35L-1S 128.50 12 - 14 10/20/04	AOC35M-1S 128.17 12 - 14 10/19/04
VOCs								
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0100	<0.0110	<0.0110	<0.0110	<0.0100	<0.0100	<0.0100
2-Hexanone	--	<0.0100	<0.0110	<0.0110	<0.0110	<0.0100	<0.0100	<0.0100
4-Methyl-2-pentanone (MIBK)	--	<0.0100	<0.0110	<0.0110	<0.0110	<0.0100	<0.0100	<0.0100
Acetone	500	<0.0100	<0.0110	<0.0110	0.0100 J	<0.0100	<0.0100	<0.0100
Benzene	44	<0.00520	<0.00530	<0.00540	<0.00530	<0.00520	<0.00520	<0.00520
Bromomethane	--	<0.00520	<0.00530 J	<0.00540 J	<0.00530 J	<0.00520	<0.00520 J	<0.00520 J
Carbon disulfide	--	<0.00520	<0.00530	<0.00540	<0.00530	<0.00520	<0.00520	<0.00520
Chlorobenzene	500	<0.00520	<0.00530	<0.00540	<0.00530	<0.00520	<0.00520	<0.00520
Chloroform	350	<0.00520	<0.00530	<0.00540	<0.00530	<0.00520	<0.00520	<0.00520
cis-1,2-Dichloroethene	500	<0.00520	<0.00530	<0.00540	<0.00530	<0.00520	<0.00520	<0.00520
Ethylbenzene	--	<0.00520	<0.00530	<0.00540	<0.00530	<0.00520	<0.00520	<0.00520
Methylene chloride	500	<0.00560	<0.00540 J	<0.00620 J	<0.00690 J	<0.00630	<0.00280 J	<0.00560 J
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00520	<0.00530	<0.00540	<0.00530	<0.00520	<0.00520	<0.00520
Tetrachloroethene	150	<0.00520	<0.00530 J	<0.00540 J	<0.00530 J	<0.00520	<0.00520 J	<0.00520 J
Toluene	500	0.000780 J	<0.00530	<0.00540	0.00650	<0.00520	<0.00520	<0.00520
trans-1,2-Dichloroethene	500	<0.00520	<0.00530	<0.00540	<0.00530	<0.00520	<0.00520	<0.00520
Trichloroethene	200	<0.00520	<0.00530	<0.00540	<0.00530	<0.00520	<0.00520	<0.00520
Vinyl chloride	13	<0.00520	<0.00530 J	<0.00540 J	<0.00530 j	<0.00520	<0.00520 J	<0.00520 J
Xylenes (total)	500	<0.00520	<0.00530	<0.00540	<0.00530	<0.00520	<0.00520	<0.00520
SVOCs								
2-Methylnaphthalene	--	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Acenaphthene	500	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Acenaphthylene	500	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Anthracene	500	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Benzo(a)anthracene	5.6	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Benzo(a)pyrene	1	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Benzo(b)fluoranthene	5.6	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Benzo(ghi)perylene	500	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Benzo(k)fluoranthene	56	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Benzoic acid	--	<1.60	<1.70	<1.60	<1.70	<1.60	<1.60	<1.60
Bis(2-ethylhexyl)phthalate	--	<0.330	<0.350	<0.340	0.260 J	<0.340	<0.330	<0.340
Butyl benzyl phthalate	--	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Chrysene	56	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Cresol (p)	500	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Dibenzo(a,h)anthracene	0.56	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Dibenzofuran	350	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Diethyl phthalate	--	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Dimethyl phthalate	--	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Di-n-butyl phthalate	--	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Di-n-octyl phthalate	--	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Fluoranthene	500	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Fluorene	500	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Indeno(1,2,3-cd)pyrene	5.6	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Isophorone	--	<0.330	<0.350	<0.340	0.270 J	<0.340	<0.330	<0.340
Naphthalene	500	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Phenanthrene	500	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Phenol	500	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Pyrene	500	<0.330	<0.350	<0.340	<0.350	<0.340	<0.330	<0.340
Total PAHs	--	<2.81	<2.98	<2.89	<2.98	<2.89	<2.81	<2.89

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	AOC35N-1S 131.06 12 - 14 10/20/04	AOC39-1 129.46 0 - 1 02/18/04	AOC41-4 132.00 0 - 1 02/19/04	AOC41-5 129.90 0 - 1 02/19/04	AOC41-6 130.20 0 - 1 02/19/04	AOC41-7 129.90 0 - 1 02/19/04	AOC41-8 129.60 0 - 1 02/19/04	AOC46-4 130.00 0 - 1 02/19/04
VOCs									
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0100 [<0.0100]	NA	<0.0120 J	<0.0130 J	<0.0110 J	<0.0110 J	<0.0110 J	<0.0100 J
2-Hexanone	--	<0.0100 [<0.0100]	NA	<0.0120	<0.0130	<0.0110	<0.0110	<0.0110	<0.0100
4-Methyl-2-pentanone (MIBK)	--	<0.0100 [<0.0100]	NA	<0.0120	<0.0130	<0.0110	<0.0110	<0.0110	<0.0100
Acetone	500	<0.0100 [<0.0100]	NA	<0.0240 J	<0.0230 J	<0.0110 J	<0.0520 J	<0.0110 J	<0.0100 J
Benzene	44	<0.00510 [<0.00520]	NA	<0.00600	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500
Bromomethane	--	<0.00510 J [<0.00520 J]	NA	<0.00600 J	<0.00600 J	<0.00600 J	<0.00500 J	<0.00500 J	<0.00500 J
Carbon disulfide	--	<0.00510 [<0.00520]	NA	<0.00600	<0.00600	<0.00600	0.00100 J	<0.00500	<0.00500
Chlorobenzene	500	<0.00510 [<0.00520]	NA	<0.00600	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500
Chloroform	350	<0.00510 [<0.00520]	NA	<0.00600	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500
cis-1,2-Dichloroethene	500	<0.00510 [<0.00520]	NA	<0.00600	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500
Ethylbenzene	--	<0.00510 [<0.00520]	NA	<0.00600	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500
Methylene chloride	500	<0.00370 J [<0.00620 J]	NA	<0.00700	<0.00700	0.00800	<0.00600	0.00800	<0.00600
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00510 [<0.00520]	NA	<0.00600	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500
Tetrachloroethene	150	<0.00510 J [<0.00520 J]	NA	0.00100 J	0.00100 J	0.00300 J	<0.00500	0.00100 J	<0.00500
Toluene	500	<0.00510 [0.00130 J]	NA	0.150	0.0590	0.0840	0.0160	0.0580	0.0450
trans-1,2-Dichloroethene	500	<0.00510 [<0.00520]	NA	<0.00600	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500
Trichloroethene	200	<0.00510 [<0.00520]	NA	<0.00600	0.000500 J	<0.00600	<0.00500	<0.00500	0.00200 J
Vinyl chloride	13	<0.00510 J [<0.00520 J]	NA	<0.00600	<0.00600	<0.00600	<0.00500	<0.00500	<0.00500
Xylenes (total)	500	<0.00510 [<0.00520]	NA	<0.00600	<0.00600	<0.00600	<0.00500 J	<0.00500 J	<0.00500
SVOCs									
2-Methylnaphthalene	--	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Acenaphthene	500	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Acenaphthylene	500	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Anthracene	500	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Benzo(a)anthracene	5.6	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Benzo(a)pyrene	1	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Benzo(b)fluoranthene	5.6	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Benzo(ghi)perylene	500	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Benzo(k)fluoranthene	56	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Benzoic acid	--	<1.60 [<1.60]	<1.70	<4.00	<4.10	<3.70	<17.0	<17.0	<6.70
Bis(2-ethylhexyl)phthalate	--	<0.320 [<0.330]	<0.350	0.120 J	<0.840	0.930	3.70	5.80	<1.40
Butyl benzyl phthalate	--	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Chrysene	56	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	0.230 J	0.330 J	<1.40
Cresol (p)	500	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Dibenzo(a,h)anthracene	0.56	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Dibenzofuran	350	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Diethyl phthalate	--	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Dimethyl phthalate	--	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Di-n-butyl phthalate	--	<0.320 [<0.330]	<0.350	<0.820 J	<0.840 J	<0.750	<3.60	<3.50	<1.40
Di-n-octyl phthalate	--	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Fluoranthene	500	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	0.250 J	<1.40
Fluorene	500	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Indeno(1,2,3-cd)pyrene	5.6	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Isophorone	--	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Naphthalene	500	<0.320 [<0.330]	<0.350 J	<0.820	<0.840	<0.750	<3.60	<3.50	0.210 J
Phenanthrene	500	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Phenol	500	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	<3.50	<1.40
Pyrene	500	<0.320 [<0.330]	<0.350	<0.820	<0.840	<0.750	<3.60	0.230 J	<1.40
Total PAHs	--	<2.72 [<2.81]	<2.98	<6.97	<7.14	<6.38	29.0 J	25.3 J	11.4 J

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	AOC50-1S 129.50 10 - 12 10/19/04	AOC50-2S 129.50 10 - 12 10/19/04	P1-S1 131.60 8 - 8.5 05/03/06	P1-S2 131.90 6 - 6.5 02/01/06	P1-S3 131.50 6 - 6.5 05/03/06	P1-S4 131.50 4 - 4.5 02/01/06	P1-S5 131.60 4 - 4.5 01/31/06	P1-S6 131.80 4 - 4.5 01/31/06	P1-S8 131.80 6 - 6.5 05/03/06
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0100	<0.0100	<0.0100	<0.0560	<0.0110	<0.0110	<0.0220	<0.0230	<0.0100
2-Hexanone	--	<0.0100	<0.0100	<0.0100	<0.0560	<0.0110	<0.0110	<0.0220	<0.0230	<0.0100
4-Methyl-2-pentanone (MIBK)	--	<0.0100	<0.0100	<0.0100	0.160	<0.0110	0.00320 J	<0.0220	0.0180 J	<0.0100
Acetone	500	<0.0100	<0.0100	0.00660 JB	0.140	0.00620 JB	0.0790	<0.0440	<0.0450	0.00690 JB
Benzene	44	<0.00520	<0.00520	<0.00520	<0.0280	<0.00550	<0.00560	<0.0110	<0.0110	<0.00520
Bromomethane	--	<0.00520	<0.00520	<0.00520	<0.0280	<0.00550	<0.00560	<0.0110	<0.0110	<0.00520
Carbon disulfide	--	<0.00520	<0.00520	<0.00520	<0.0280	<0.00550	<0.00560	<0.0110	0.00280 J	<0.00520
Chlorobenzene	500	<0.00520	<0.00520	<0.00520	0.00550 J	<0.00550	<0.00560	<0.0110	0.00710 J	<0.00520
Chloroform	350	<0.00520	<0.00520	<0.00520	<0.0280	<0.00550	<0.00560	<0.0110	<0.0110	<0.00520
cis-1,2-Dichloroethene	500	<0.00520	<0.00520	<0.00520	0.0780	<0.00550	0.00780	<0.0110	0.0770	<0.00520
Ethylbenzene	--	<0.00520	<0.00520	<0.00520	<0.0280	<0.00550	<0.00560	<0.0110	<0.0110	<0.00520
Methylene chloride	500	<0.00710	<0.00640	0.00430 JB	0.0260 J	0.00420 JB	0.00590 J	0.0180 J	0.0230 J	0.00480 JB
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00520	<0.00520	<0.00520	<0.0280	<0.00550	<0.00560	<0.0110	<0.0110	<0.00520
Tetrachloroethene	150	<0.00520	<0.00520	<0.00520	0.0680	0.00170 J	0.0100	0.0410	0.0290	<0.00520
Toluene	500	0.00230 J	<0.00520	<0.00520	<0.0280	<0.00550	<0.00560	<0.0110	<0.0110	<0.00520
trans-1,2-Dichloroethene	500	<0.00520	<0.00520	<0.00520	<0.0280	<0.00550	<0.00560	<0.0110	0.00660 J	<0.00520
Trichloroethene	200	<0.00520	<0.00520	<0.00520	0.00510 J	<0.00550	0.00140 J	<0.0110	0.00230 J	<0.00520
Vinyl chloride	13	<0.00520	<0.00520	<0.00520	<0.0280	<0.00550	<0.00560	<0.0110	<0.0110	<0.00520
Xylenes (total)	500	<0.00520	<0.00520	<0.00520	<0.0280	<0.00550	<0.00560	<0.0110	<0.0110	<0.00520
SVOCs										
2-Methylnaphthalene	--	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	500	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Anthracene	500	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	5.6	0.0500 J	0.0580 J	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	0.0540 J	0.0630 J	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	5.6	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	500	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	56	0.0450 J	0.0610 J	NA	NA	NA	NA	NA	NA	NA
Benzoic acid	--	<1.60	<1.60	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	0.0580 J	0.0620 J	NA	NA	NA	NA	NA	NA	NA
Cresol (p)	500	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	350	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	0.120 J	0.130 J	NA	NA	NA	NA	NA	NA	NA
Fluorene	500	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Isophorone	--	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	500	0.0570 J	0.0770 J	NA	NA	NA	NA	NA	NA	NA
Phenol	500	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	0.0940 J	0.100 J	NA	NA	NA	NA	NA	NA	NA
Total PAHs	--	2.13 J	2.20 J	NA	NA	NA	NA	NA	NA	NA

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCO's Commercial	P1-S9 131.90 6 - 6.5 05/03/06	P1-S10 132.00 4 - 4.5 01/31/06	P1-S10 132.00 6 - 6.5 05/03/06	P1-S12 132.00 6 - 6.5 05/03/06	P1-S13 132.50 6 - 6.5 05/03/06	P1-S14 132.00 6 - 6.5 05/03/06	P1-S15 132.10 4 - 4.5 01/31/06	P1-S16 132.20 4 - 4.5 01/31/06	P1-S17 130.20 4 - 4.5 05/03/06
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0120	0.450 J	<0.0110	<0.0120	<0.0560	<0.0620	<0.0570	<0.0580	<0.0100
2-Hexanone	--	<0.0120	<0.580	<0.0110	<0.0120	<0.0560	<0.0620	<0.0570	<0.0580	<0.0100
4-Methyl-2-pentanone (MIBK)	--	<0.0120	<0.580	<0.0110	<0.0120	<0.0560	<0.0620	0.0720	0.0630	<0.0100
Acetone	500	0.0230 B	2.80	<0.0220 B	0.00780 JB	0.990 B	0.0720 JB	<0.110	0.480	0.00660 JB
Benzene	44	<0.00580	<0.580	<0.00560	<0.00620	<0.0280	<0.0310	<0.0290	<0.0290	<0.00510
Bromomethane	--	<0.00580	<0.580	<0.00560	<0.00620	<0.0280	<0.0310	<0.0290	<0.0290	<0.00510
Carbon disulfide	--	0.000790 J	<0.580	<0.00560	<0.00620	<0.0280	0.00860 J	<0.0290	<0.0290	<0.00510
Chlorobenzene	500	<0.00580	<0.580	<0.00560	<0.00620	<0.0280	0.0130 J	<0.0290	<0.0290	<0.00510
Chloroform	350	<0.00580	<0.580	<0.00560	<0.00620	<0.0280	<0.0310	<0.0290	<0.0290	<0.00510
cis-1,2-Dichloroethene	500	0.00500 J	8.10	<0.00560	0.0130	0.0560	0.770	0.110	0.0110 J	<0.00510
Ethylbenzene	--	<0.00580	<0.580	<0.00560	<0.00620	<0.0280	<0.0310	<0.0290	<0.0290	<0.00510
Methylene chloride	500	0.00510 JB	0.0630 J	0.00550 JB	0.00530 JB	0.0420 JB	0.0390 JB	0.0500 J	0.0450 J	0.00530 JB
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00580	<0.580	<0.00560	<0.00620	<0.0280	<0.0310	<0.0290	<0.0290	<0.00510
Tetrachloroethene	150	0.0440	5.40	<0.00560	0.0970	0.0640	0.960	0.0490	0.0980	<0.00510
Toluene	500	<0.00580	<0.580	<0.00560	<0.00620	<0.0280	0.00760 J	<0.0290	<0.0290	<0.00510
trans-1,2-Dichloroethene	500	<0.00580	0.440 J	<0.00560	<0.00620	<0.0280	0.0240 J	0.00590 J	<0.0290	<0.00510
Trichloroethene	200	0.00180 J	2.00	<0.00560	0.00790	<0.0280	0.0610	0.00560 J	<0.0290	<0.00510
Vinyl chloride	13	<0.00580	<0.580	<0.00560	<0.00620	<0.0280	<0.0310	<0.0290	<0.0290	<0.00510
Xylenes (total)	500	<0.00580	<0.580	<0.00560	<0.00620	<0.0280	<0.0310	<0.0290	<0.0290	<0.00510
SVOCs										
2-Methylnaphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	56	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cresol (p)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PAHs	--	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	P1-S18 131.20 4 - 4.5 05/03/06	P1-S19 130.90 4 - 4.5 05/03/06	P1-S20 132.00 4 - 4.5 05/03/06	P1-S21 129.40 4 - 4.5 05/03/06	P1-S22 131.80 4 - 4.5 05/03/06	P1-S23 132.50 4 - 4.5 05/03/06	P1-S24 132.50 4 - 4.5 05/03/06	P1-S25 131.90 2 - 2.5 05/03/06	P1-S25 131.90 4 - 4.5 05/03/06
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0110	<0.0110	<0.0110	<0.0100	<0.0510	<0.0110	<0.0110	NA	<0.0120
2-Hexanone	--	<0.0110	<0.0110	<0.0110	<0.0100	<0.0510	<0.0110	<0.0110	NA	<0.0120
4-Methyl-2-pentanone (MIBK)	--	<0.0110	<0.0110	<0.0110	<0.0100	<0.0510	<0.0110	<0.0110	NA	<0.0120
Acetone	500	0.00730 JB	0.00580 JB	0.00770 JB	0.00700 JB	0.460 B	0.0150 JB	0.0130 JB	NA	0.110 B
Benzene	44	<0.00530	<0.00530	<0.00540	<0.00520	<0.0250	<0.00540	<0.00570	NA	<0.00610
Bromomethane	--	<0.00530	<0.00530	<0.00540	<0.00520	<0.0250	<0.00540	<0.00570	NA	<0.00610
Carbon disulfide	--	<0.00530	<0.00530	<0.00540	<0.00520	<0.0250	<0.00540	<0.00570	NA	<0.00610
Chlorobenzene	500	<0.00530	<0.00530	<0.00540	<0.00520	<0.0250	<0.00540	<0.00570	NA	<0.00610
Chloroform	350	<0.00530	<0.00530	<0.00540	<0.00520	<0.0250	<0.00540	<0.00570	NA	<0.00610
cis-1,2-Dichloroethene	500	<0.00530	0.0100	<0.00540	<0.00520	<0.0250	<0.00540	<0.00570	NA	0.00680
Ethylbenzene	--	<0.00530	<0.00530	<0.00540	<0.00520	<0.0250	<0.00540	<0.00570	NA	<0.00610
Methylene chloride	500	0.00570 JB	0.00660 JB	0.00660 JB	0.00810 JB	0.0290 JB	0.00710 JB	0.00820 JB	NA	0.00810 JB
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00530	<0.00530	<0.00540	<0.00520	<0.0250	<0.00540	<0.00570	NA	<0.00610
Tetrachloroethene	150	0.0200	0.0440	<0.00540	<0.00520	<0.0250	<0.00540	0.0750	NA	0.00350 J
Toluene	500	<0.00530	<0.00530	<0.00540	<0.00520	<0.0250	<0.00540	<0.00570	NA	<0.00610
trans-1,2-Dichloroethene	500	<0.00530	<0.00530	<0.00540	<0.00520	<0.0250	<0.00540	<0.00570	NA	<0.00610
Trichloroethene	200	<0.00530	0.00560	<0.00540	<0.00520	<0.0250	<0.00540	0.00180 J	NA	<0.00610
Vinyl chloride	13	<0.00530	<0.00530	<0.00540	<0.00520	<0.0250	<0.00540	<0.00570	NA	<0.00610
Xylenes (total)	500	<0.00530	<0.00530	<0.00540	<0.00520	<0.0250	<0.00540	<0.00570	NA	<0.00610
SVOCs										
2-Methylnaphthalene	--	NA	NA	NA	NA	NA	NA	NA	<1.40	NA
Acenaphthene	500	NA	NA	NA	NA	NA	NA	NA	1.20 J	NA
Acenaphthylene	500	NA	NA	NA	NA	NA	NA	NA	<1.40	NA
Anthracene	500	NA	NA	NA	NA	NA	NA	NA	2.90	NA
Benzo(a)anthracene	5.6	NA	NA	NA	NA	NA	NA	NA	10.0	NA
Benzo(a)pyrene	1	NA	NA	NA	NA	NA	NA	NA	9.60	NA
Benzo(b)fluoranthene	5.6	NA	NA	NA	NA	NA	NA	NA	12.0	NA
Benzo(ghi)perylene	500	NA	NA	NA	NA	NA	NA	NA	6.20	NA
Benzo(k)fluoranthene	56	NA	NA	NA	NA	NA	NA	NA	4.10	NA
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	<7.00	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	1.80 B	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	<1.40	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA	1.50	NA
Chrysene	56	NA	NA	NA	NA	NA	NA	NA	9.60	NA
Cresol (p)	500	NA	NA	NA	NA	NA	NA	NA	<1.40	NA
Dibenzo(a,h)anthracene	0.56	NA	NA	NA	NA	NA	NA	NA	1.60	NA
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA	0.640 J	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	<1.40	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	<1.40	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	0.230 J	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	<1.40	NA
Fluoranthene	500	NA	NA	NA	NA	NA	NA	NA	20.0	NA
Fluorene	500	NA	NA	NA	NA	NA	NA	NA	1.40 JH	NA
Indeno(1,2,3-cd)pyrene	5.6	NA	NA	NA	NA	NA	NA	NA	6.30	NA
Isophorone	--	NA	NA	NA	NA	NA	NA	NA	<1.40	NA
Naphthalene	500	NA	NA	NA	NA	NA	NA	NA	<1.40	NA
Phenanthrene	500	NA	NA	NA	NA	NA	NA	NA	12.0	NA
Phenol	500	NA	NA	NA	NA	NA	NA	NA	<1.40	NA
Pyrene	500	NA	NA	NA	NA	NA	NA	NA	15.0	NA
Total PAHs	--	NA	NA	NA	NA	NA	NA	NA	114 J	NA

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	P1-S25 131.90 6 - 6.5 05/03/06	P1-S26 132.50 4 - 4.5 05/03/06	P1-S27 132.80 4 - 4.5 05/03/06	P1-S28 132.50 4 - 4.5 05/03/06	P1-S29 132.50 4 - 4.5 05/03/06	P1-S30 132.50 4 - 4.5 05/03/06	P1-S32 132.00 4 - 4.5 05/03/06	P1-S33 131.40 4 - 4.5 05/02/06	P1-S35 129.40 4 - 4.5 05/02/06
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	NA	<0.0110	<0.0110	<0.0100	0.0230	<0.620	<0.0110	<0.0110	<0.0100
2-Hexanone	--	NA	<0.0110	<0.0110	<0.0100	<0.0120	<0.620	<0.0110	<0.0110	<0.0100
4-Methyl-2-pentanone (MIBK)	--	NA	<0.0110	<0.0110	<0.0100	0.0560	0.760	<0.0110	<0.0110	<0.0100
Acetone	500	NA	0.0150 JB	0.00500 JB	0.0680 B	0.130 B	3.60	0.00940 JB	0.00600 J	0.00570 J
Benzene	44	NA	<0.00560	<0.00560	<0.00520	<0.00590	<0.620	<0.00540	<0.00550	<0.00520
Bromomethane	--	NA	<0.00560	<0.00560	<0.00520	<0.00590	<0.620	<0.00540	<0.00550	<0.00520
Carbon disulfide	--	NA	<0.00560	<0.00560	<0.00520	0.00140 J	<0.620	<0.00540	<0.00550	<0.00520
Chlorobenzene	500	NA	<0.00560	<0.00560	<0.00520	<0.00590	<0.620	<0.00540	<0.00550	<0.00520
Chloroform	350	NA	<0.00560	<0.00560	<0.00520	<0.00590	<0.620	<0.00540	<0.00550	<0.00520
cis-1,2-Dichloroethene	500	NA	<0.00560	<0.00560	0.0110	0.0160	<0.620	<0.00540	<0.00550	<0.00520
Ethylbenzene	--	NA	<0.00560	<0.00560	<0.00520	<0.00590	<0.620	<0.00540	<0.00550	<0.00520
Methylene chloride	500	NA	0.0380 B	0.00850 JB	0.00680 JB	0.0100 JB	0.130 J	0.00790 JB	0.00560 JB	0.00680 JB
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	NA	<0.00560	<0.00560	<0.00520	<0.00590	<0.620	<0.00540	<0.00550	<0.00520
Tetrachloroethene	150	NA	0.0220	0.0300	0.0860	0.00100 J	<0.620	0.0350	0.0160	<0.00520
Toluene	500	NA	<0.00560	<0.00560	<0.00520	<0.00590	<0.620	<0.00540	<0.00550	<0.00520
trans-1,2-Dichloroethene	500	NA	<0.00560	<0.00560	<0.00520	<0.00590	<0.620	<0.00540	<0.00550	<0.00520
Trichloroethene	200	NA	0.000770 J	<0.00560	0.00960	<0.00590	<0.620	<0.00540	<0.00550	<0.00520
Vinyl chloride	13	NA	<0.00560	<0.00560	<0.00520	<0.00590 M	<0.620	<0.00540	<0.00550	<0.00520
Xylenes (total)	500	NA	<0.00560	<0.00560	<0.00520	<0.00590	<0.620	<0.00540	<0.00550	<0.00520
SVOCs										
2-Methylnaphthalene	--	<0.330	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	0.0970 J	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	500	<0.330	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	500	0.310 J	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	5.6	1.30	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	1.30	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	5.6	1.50	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	500	1.00	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	56	0.550	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic acid	--	<1.60	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	0.790 B	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	<0.330	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	0.220 J	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	1.40	NA	NA	NA	NA	NA	NA	NA	NA
Cresol (p)	500	<0.330	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	0.270 J	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	350	0.0710 J	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	<0.330	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	<0.330	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	<0.330	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	<0.330	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	2.70	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	500	0.190 J	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	1.00	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	--	<0.330	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	<0.330	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	500	1.80	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	500	<0.330	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	2.20	NA	NA	NA	NA	NA	NA	NA	NA
Total PAHs	--	16.1 J	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	P1-S36 129.30 4 - 4.5 05/02/06	P1-S37 129.50 4 - 4.5 05/02/06	P1-S38 129.50 4 - 4.5 05/02/06	P1-S39 129.60 4 - 4.5 05/02/06	P1-S40 130.60 4 - 4.5 05/02/06	P1-S40 130.60 6 - 6.5 05/02/06	P1-S43 129.70 4 - 4.5 05/02/06	P1-S44 129.40 4 - 4.5 05/02/06	P1-S48 128.80 4 - 4.5 05/02/06
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0110	<0.0110	<0.0110	<0.0110	<0.0100
2-Hexanone	--	<0.0100	<0.0100	<0.0100	<0.0100	<0.0110	<0.0110	<0.0110	<0.0110	<0.0100
4-Methyl-2-pentanone (MIBK)	--	<0.0100	<0.0100	<0.0100	<0.0100	<0.0110	<0.0110	<0.0110	<0.0110	<0.0100
Acetone	500	0.00730 J	0.00470 J	0.00860 J	0.00460 J	0.00560 J	<0.0220	<0.0230 B	0.00720 JB	0.00400 JB
Benzene	44	<0.00520	<0.00510	<0.00510	<0.00520	<0.00530	<0.00540	<0.00570	<0.00570	<0.00510
Bromomethane	--	<0.00520	<0.00510	<0.00510	<0.00520	<0.00530	<0.00540	<0.00570	<0.00570	<0.00510
Carbon disulfide	--	<0.00520	<0.00510	<0.00510	<0.00520	<0.00530	<0.00540	<0.00570	<0.00570	<0.00510
Chlorobenzene	500	<0.00520	<0.00510	<0.00510	<0.00520	<0.00530	<0.00540	<0.00570	<0.00570	<0.00510
Chloroform	350	<0.00520	<0.00510	<0.00510	<0.00520	<0.00530	<0.00540	<0.00570	<0.00570	<0.00510
cis-1,2-Dichloroethene	500	<0.00520	0.00210 J	<0.00510	<0.00520	<0.00530	<0.00540	<0.00570	<0.00570	<0.00510
Ethylbenzene	--	<0.00520	<0.00510	<0.00510	<0.00520	<0.00530	<0.00540	<0.00570	<0.00570	<0.00510
Methylene chloride	500	0.00700 JB	0.00640 JB	0.00550 JB	0.00680 JB	0.00680 JB	0.00330 JB	0.0170 JB	0.00430 JB	0.00860 JB
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00520	<0.00510	<0.00510	<0.00520	<0.00530	<0.00540	<0.00570	<0.00570	<0.00510
Tetrachloroethene	150	<0.00520	0.00320 J	<0.00510	<0.00520	0.00860	0.00830	0.00630	0.0300	0.00490 J
Toluene	500	<0.00520	<0.00510	<0.00510	<0.00520	<0.00530	<0.00540	<0.00570	<0.00570	<0.00510
trans-1,2-Dichloroethene	500	<0.00520	<0.00510	<0.00510	<0.00520	<0.00530	<0.00540	<0.00570	<0.00570	<0.00510
Trichloroethene	200	<0.00520	<0.00510	<0.00510	<0.00520	<0.00530	<0.00540	<0.00570	<0.00570	<0.00510
Vinyl chloride	13	<0.00520	<0.00510	<0.00510	<0.00520	<0.00530	<0.00540	<0.00570	<0.00570	<0.00510
Xylenes (total)	500	<0.00520	<0.00510	<0.00510	<0.00520	<0.00530	<0.00540	<0.00570	<0.00570	<0.00510
SVOCs										
2-Methylnaphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	56	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cresol (p)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PAHs	--	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	P1-S62 128.80 2 - 2.5 08/22/06	P1-S62 128.80 4 - 4.5 08/22/06	P1-S62 128.80 6 - 6.5 08/22/06	P1-S71 129.00 0 - 0.2 08/22/06	P1-S71 129.00 2 - 2.5 08/22/06	P1-S72 129.00 0 - 0.2 08/22/06	P1-S72 129.00 2 - 2.5 08/22/06	P1-S81 129.00 2 - 2.5 10/24/06	P1-S83 128.30 0 - 0.2 10/24/06
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	<0.0110	<0.0110	<0.0110	NA	NA	NA	NA	NA	0.0340
2-Hexanone	--	<0.0110	<0.0110	<0.0110	NA	NA	NA	NA	NA	0.00580 J
4-Methyl-2-pentanone (MIBK)	--	<0.0110	<0.0110	<0.0110	NA	NA	NA	NA	NA	0.0170
Acetone	500	0.00360 JB	<0.0220 B	0.00340 J	NA	NA	NA	NA	NA	0.0790 B
Benzene	44	<0.00530	<0.00540	<0.00530	NA	NA	NA	NA	NA	<0.00520
Bromomethane	--	<0.00530	<0.00540	<0.00530	NA	NA	NA	NA	NA	<0.00520
Carbon disulfide	--	<0.00530	<0.00540	<0.00530	NA	NA	NA	NA	NA	<0.00520
Chlorobenzene	500	<0.00530	<0.00540	<0.00530	NA	NA	NA	NA	NA	<0.00520
Chloroform	350	<0.00530	<0.00540	<0.00530	NA	NA	NA	NA	NA	<0.00520
cis-1,2-Dichloroethene	500	<0.00530	<0.00540	<0.00530	NA	NA	NA	NA	NA	<0.00520
Ethylbenzene	--	<0.00530	<0.00540	<0.00530	NA	NA	NA	NA	NA	<0.00520
Methylene chloride	500	0.0150 JB	0.00950 JB	0.00780 JB	NA	NA	NA	NA	NA	0.0100 JB
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00530	<0.00540	<0.00530	NA	NA	NA	NA	NA	<0.00520
Tetrachloroethene	150	<0.00530	<0.00540	<0.00530	NA	NA	NA	NA	NA	0.00580
Toluene	500	<0.00530	<0.00540	<0.00530	NA	NA	NA	NA	NA	0.00100 J
trans-1,2-Dichloroethene	500	<0.00530	<0.00540	<0.00530	NA	NA	NA	NA	NA	<0.00520
Trichloroethene	200	<0.00530	<0.00540	<0.00530	NA	NA	NA	NA	NA	<0.00520
Vinyl chloride	13	<0.00530	<0.00540	<0.00530	NA	NA	NA	NA	NA	<0.00520
Xylenes (total)	500	<0.00530	<0.00540	<0.00530	NA	NA	NA	NA	NA	<0.00520
SVOCs										
2-Methylnaphthalene	--	NA	NA	NA	<0.330	<0.340 [<0.330]	<0.330	<0.340	<0.370	<6.90
Acenaphthene	500	NA	NA	NA	<0.330	<0.340 [<0.330]	0.0790 J	<0.340	<0.370	<6.90
Acenaphthylene	500	NA	NA	NA	<0.330	<0.340 [<0.330]	<0.330	<0.340	<0.370	<6.90
Anthracene	500	NA	NA	NA	<0.330	<0.340 [<0.330]	0.250 J	0.160 J	<0.370	<6.90
Benzo(a)anthracene	5.6	NA	NA	NA	0.0600 JH	<0.340 [<0.330]	0.710	0.660	0.0740 J	<6.90
Benzo(a)pyrene	1	NA	NA	NA	0.0760 JM	<0.340 [<0.330]	0.800	0.980	0.0640 J	<6.90
Benzo(b)fluoranthene	5.6	NA	NA	NA	<0.330	<0.340 [<0.330]	0.750	0.770 M	<0.370	<6.90
Benzo(ghi)perylene	500	NA	NA	NA	0.0740 J	0.0480 J [<0.330]	0.840	1.20 M	<0.370	<6.90
Benzo(k)fluoranthene	56	NA	NA	NA	0.0520 J	<0.340 [<0.330]	0.600	0.720	0.0530 J	<6.90
Benzoic acid	--	NA	NA	NA	<1.60	<1.60 [<1.60]	<1.60	<1.70	<1.80	<34.0
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	0.140 J	0.140 J [<0.330]	0.250 J	0.220 J	0.230 J	96.0
Butyl benzyl phthalate	--	NA	NA	NA	<0.330	<0.340 [<0.330]	<0.330	<0.340	<0.370	1.10 J
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	<0.330	<0.340 [<0.330]	0.110 J	0.0710 J	<0.370	<6.90
Chrysene	56	NA	NA	NA	0.0700 J	<0.340 [<0.330]	0.730	0.870	0.0850 J	<6.90
Cresol (p)	500	NA	NA	NA	<0.330	<0.340 [<0.330]	<0.330	<0.340	<0.370	<6.90
Dibenzo(a,h)anthracene	0.56	NA	NA	NA	<0.330	<0.340 [<0.330]	<0.330	0.270 J	<0.370	<6.90
Dibenzofuran	350	NA	NA	NA	<0.330	<0.340 [<0.330]	<0.330	<0.340	<0.370	<6.90
Diethyl phthalate	--	NA	NA	NA	<0.330	<0.340 [<0.330]	0.140 JBM	0.170 JBM	<0.370	<6.90
Dimethyl phthalate	--	NA	NA	NA	<0.330	<0.340 [<0.330]	<0.330	<0.340	<0.370	<6.90
Di-n-butyl phthalate	--	NA	NA	NA	<0.330	<0.340 [<0.330]	0.0590 J	0.640	<0.370	2.90 J
Di-n-octyl phthalate	--	NA	NA	NA	<0.330	<0.340 [<0.330]	<0.330	<0.340	<0.370	1.60 J
Fluoranthene	500	NA	NA	NA	0.0880 J	<0.340 [<0.330]	1.30	1.00	0.160 J	<6.90
Fluorene	500	NA	NA	NA	<0.330	<0.340 [<0.330]	0.0730 J	0.0490 J	<0.370	<6.90
Indeno(1,2,3-cd)pyrene	5.6	NA	NA	NA	0.0770 JH	<0.340 [<0.330]	0.790	1.20	0.0620 JM	<6.90
Isophorone	--	NA	NA	NA	<0.330	<0.340 [<0.330]	<0.330	<0.340	<0.370	<6.90
Naphthalene	500	NA	NA	NA	<0.330	<0.340 [<0.330]	<0.330	<0.340	<0.370	<6.90
Phenanthrene	500	NA	NA	NA	<0.330	<0.340 [<0.330]	0.780	0.480	0.120 J	<6.90
Phenol	500	NA	NA	NA	<0.330	<0.340 [<0.330]	<0.330	<0.340	<0.370	<6.90
Pyrene	500	NA	NA	NA	0.0790 J	<0.340 [<0.330]	1.50	1.30	0.160 J	<6.90
Total PAHs	--	NA	NA	NA	2.06 J	2.77 J [<2.81]	9.86 J	10.3 J	2.44 J	<58.7

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	P1-S83 128.30 2 - 2.5 10/24/06	P1-S83 128.30 4 - 4.5 10/24/06	P1-S83 128.30 6 - 6.5 10/24/06	P1-S95 129.50 2 - 2.5 10/23/06	P1-S96 129.00 0 - 0.2 10/23/06	P1-S96 129.00 2 - 2.5 10/23/06	P1-S121 129.50 2 - 2.5 04/24/07	P1-S125 128.80 4 - 4.5 04/24/07	P1-S125 128.80 6 - 6.5 04/24/07
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	0.0220	0.0140	0.00720 J	NA	NA	NA	NA	<0.0110	<0.0110
2-Hexanone	--	0.00480 J	<0.0100	<0.0100	NA	NA	NA	NA	<0.0110	<0.0110
4-Methyl-2-pentanone (MIBK)	--	<0.0110	<0.0100	<0.0100	NA	NA	NA	NA	<0.00540	<0.00530
Acetone	500	0.0510 B	0.0600 B	0.0270 B	NA	NA	NA	NA	0.00480 J	<0.0210
Benzene	44	<0.00530	<0.00520	<0.00510	NA	NA	NA	NA	<0.00540	<0.00530
Bromomethane	--	<0.00530	<0.00520	<0.00510	NA	NA	NA	NA	<0.00540	<0.00530
Carbon disulfide	--	<0.00530	<0.00520	<0.00510	NA	NA	NA	NA	<0.00540	<0.00530
Chlorobenzene	500	<0.00530	<0.00520	<0.00510	NA	NA	NA	NA	<0.00540	<0.00530
Chloroform	350	<0.00530	<0.00520	<0.00510	NA	NA	NA	NA	<0.00540	<0.00530
cis-1,2-Dichloroethene	500	<0.00530	<0.00520	<0.00510	NA	NA	NA	NA	0.0130	0.00650
Ethylbenzene	--	<0.00530	<0.00520	<0.00510	NA	NA	NA	NA	<0.00540	<0.00530
Methylene chloride	500	0.0120 JB	0.00980 JB	0.0100 JB	NA	NA	NA	NA	0.00850 JB*	0.00640 JB*
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	<0.00530	<0.00520	<0.00510	NA	NA	NA	NA	<0.00540	<0.00530
Tetrachloroethene	150	0.00280 J	<0.00520	0.000900 J	NA	NA	NA	NA	0.0530	0.0500
Toluene	500	0.00150 J	0.00150 J	0.00120 J	NA	NA	NA	NA	<0.00540	<0.00530
trans-1,2-Dichloroethene	500	<0.00530	<0.00520	<0.00510	NA	NA	NA	NA	<0.00540	<0.00530
Trichloroethene	200	0.00130 J	0.000920 J	<0.00510	NA	NA	NA	NA	0.0280	0.0180
Vinyl chloride	13	<0.00530	<0.00520	<0.00510	NA	NA	NA	NA	<0.00540	<0.00530
Xylenes (total)	500	0.00310 J	0.00300 J	0.00220 J	NA	NA	NA	NA	<0.00540	<0.00530
SVOCs										
2-Methylnaphthalene	--	<3.40	NA	NA	<0.340	<0.320	<0.330	<0.360	NA	NA
Acenaphthene	500	<3.40	NA	NA	<0.340	<0.320	<0.330	0.0780 J	NA	NA
Acenaphthylene	500	<3.40	NA	NA	<0.340	<0.320	<0.330	<0.360	NA	NA
Anthracene	500	<3.40	NA	NA	<0.340	<0.320	<0.330	0.180 J	NA	NA
Benzo(a)anthracene	5.6	<3.40	NA	NA	0.0920 J	<0.320	<0.330	1.10	NA	NA
Benzo(a)pyrene	1	<3.40	NA	NA	0.0980 J	<0.320	<0.330	1.10	NA	NA
Benzo(b)fluoranthene	5.6	<3.40	NA	NA	<0.340	<0.320	<0.330	1.60	NA	NA
Benzo(ghi)perylene	500	<3.40	NA	NA	0.130 JM	<0.320	<0.330	0.690	NA	NA
Benzo(k)fluoranthene	56	<3.40	NA	NA	0.0910 J	<0.320	<0.330	0.560	NA	NA
Benzoic acid	--	<16.0	NA	NA	<1.60	<1.50	<1.60	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	41.0	NA	NA	1.60	0.120 J	0.0880 J	0.310 J	NA	NA
Butyl benzyl phthalate	--	<3.40	NA	NA	<0.340	<0.320	<0.330	<0.360	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	0.600	NA	NA
Carbazole	--	<3.40	NA	NA	<0.340	<0.320	<0.330	0.110 J	NA	NA
Chrysene	56	<3.40	NA	NA	0.110 J	<0.320	<0.330	1.20	NA	NA
Cresol (p)	500	<3.40	NA	NA	<0.340	<0.320	<0.330	<0.360	NA	NA
Dibenzo(a,h)anthracene	0.56	<3.40	NA	NA	<0.340	<0.320	<0.330	0.170 J	NA	NA
Dibenzofuran	350	<3.40	NA	NA	<0.340	<0.320	<0.330	<0.360	NA	NA
Diethyl phthalate	--	<3.40	NA	NA	<0.340	<0.320	<0.330	<0.360	NA	NA
Dimethyl phthalate	--	<3.40	NA	NA	<0.340	<0.320	<0.330	<0.360	NA	NA
Di-n-butyl phthalate	--	1.80 J	NA	NA	0.110 J	<0.320	<0.330	0.0680 J	NA	NA
Di-n-octyl phthalate	--	0.770 J	NA	NA	0.0600 J	<0.320	<0.330	<0.360	NA	NA
Fluoranthene	500	<3.40	NA	NA	0.130 J	<0.320	<0.330	2.10	NA	NA
Fluorene	500	<3.40	NA	NA	<0.340	<0.320	<0.330	<0.360	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	<3.40	NA	NA	0.140 J	<0.320	<0.330	0.860	NA	NA
Isophorone	--	<3.40	NA	NA	<0.340	<0.320	<0.330	<0.360	NA	NA
Naphthalene	500	<3.40	NA	NA	<0.340	<0.320	<0.330	<0.360	NA	NA
Phenanthrene	500	<3.40	NA	NA	0.0670 J	<0.320	<0.330	0.700	NA	NA
Phenol	500	<3.40	NA	NA	<0.340	<0.320	<0.330	<0.360	NA	NA
Pyrene	500	<3.40	NA	NA	0.170 J	<0.320	<0.330	1.20	NA	NA
Total PAHs	--	<28.9	NA	NA	2.39 J	<2.72	<2.81	12.3 J	NA	NA

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	P1-S129 128.50 0 - 0.2 04/24/07	P1-S129 128.50 2 - 2.5 04/24/07	SB-5 131.78 0 - 0.2 05/14/13	SB-15 130.26 0 - 0.2 05/14/13	SB-17 130.22 8 - 10 05/14/13	SB-24 129.79 0 - 0.2 05/23/13	SB-37 130.19 0 - 0.2 05/16/13	SB-39 129.13 0 - 0.2 05/23/13	SB-44 128.65 0 - 0.5 05/23/13
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	<0.310	NA	NA	NA	<0.260
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	<0.310	NA	NA	NA	<0.260
2-Butanone (MEK)	500	NA	NA	NA	NA	<0.310	NA	NA	NA	<0.260
2-Hexanone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	500	NA	NA	NA	NA	<0.620	NA	NA	NA	<0.520
Benzene	44	NA	NA	NA	NA	0.0316	NA	NA	NA	<0.0260
Bromomethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	500	NA	NA	NA	NA	<0.120	NA	NA	NA	<0.100
Chloroform	350	NA	NA	NA	NA	<0.120	NA	NA	NA	NA
cis-1,2-Dichloroethene	500	NA	NA	NA	NA	<0.120	NA	NA	NA	<0.100
Ethylbenzene	--	NA	NA	NA	NA	21.8	NA	NA	NA	4.16
Methylene chloride	500	NA	NA	NA	NA	<0.120	NA	NA	NA	<0.100
n-Butylbenzene	500	NA	NA	NA	NA	0.416	NA	NA	NA	<0.260
n-Propylbenzene	500	NA	NA	NA	NA	2.90	NA	NA	NA	<0.260
sec-Butylbenzene	500	NA	NA	NA	NA	0.451	NA	NA	NA	<0.260
Styrene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	150	NA	NA	NA	NA	<0.120	NA	NA	NA	2.92
Toluene	500	NA	NA	NA	NA	<0.310	NA	NA	NA	<0.260
trans-1,2-Dichloroethene	500	NA	NA	NA	NA	<0.120	NA	NA	NA	<0.100
Trichloroethene	200	NA	NA	NA	NA	<0.120	NA	NA	NA	<0.100
Vinyl chloride	13	NA	NA	NA	NA	<0.120	NA	NA	NA	<0.100
Xylenes (total)	500	NA	NA	NA	NA	2.61	NA	NA	NA	40.0
SVOCs										
2-Methylnaphthalene	--	<0.340 [<u><0.320</u>]	<0.340	<2.60	<2.60	NA	<0.100	<0.560	<0.520	<0.490
Acenaphthene	500	<0.340 [<u><0.320</u>]	<0.340	<2.60	<2.60	NA	<0.100	<0.560	<0.520	<0.490
Acenaphthylene	500	<0.340 [<u><0.320</u>]	<0.340	<2.60	<2.60	NA	<0.100	<0.560	<0.520	<0.490
Anthracene	500	0.0550 J [0.0660 J]	<0.340	<2.60	<2.60	NA	<0.100	<0.560	<0.520	<0.490
Benzo(a)anthracene	5.6	0.230 J [0.370]	<0.340	3.03	8.37	NA	0.325	0.699	2.37	<0.490
Benzo(a)pyrene	1	0.250 J [0.400]	<0.340	3.07	8.32	NA	0.362	0.742	2.60	<0.490
Benzo(b)fluoranthene	5.6	0.410 [0.640]	<0.340	2.97	8.24	NA	0.356	0.756	2.40	<0.490
Benzo(ghi)perylene	500	0.150 J [0.220 J]	<0.340	<2.60	7.11	NA	0.272	<0.560	1.83	<0.490
Benzo(k)fluoranthene	56	0.150 J [0.260 J]	<0.340	2.69	6.86	NA	0.290	0.569	1.97	<0.490
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	0.270 J [0.440]	0.490	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	<0.340 [<u><0.320</u>]	<0.340	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	0.450 [0.300 J]	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	<0.340 [<u><0.320</u>]	<0.340	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	0.280 J [0.450]	<0.340	3.07	8.56	NA	0.370	0.766	2.46	<0.490
Cresol (p)	500	<0.340 [<u><0.320</u>]	<0.340	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	<0.340 [0.0580 J]	<0.340	<2.60	<2.60	NA	<0.100	<0.560	0.627	<0.490
Dibenzofuran	350	<0.340 [<u><0.320</u>]	<0.340	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	<0.340 [<u><0.320</u>]	<0.340	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	<0.340 [<u><0.320</u>]	<0.340	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	<0.340 [<u><0.320</u>]	<0.340	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	<0.340 [<u><0.320</u>]	<0.340	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	0.520 [0.730]	<0.340	5.48	15.0	NA	0.629	1.32	4.49	0.503
Fluorene	500	<0.340 [<u><0.320</u>]	<0.340	<2.60	<2.60	NA	<0.100	<0.560	<0.520	<0.490
Indeno(1,2,3-cd)pyrene	5.6	0.190 J [0.270 J]	<0.340	<2.60	5.75	NA	0.253	<0.560	1.69	<0.490
Isophorone	--	<0.340 [<u><0.320</u>]	<0.340	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	<0.340 [<u><0.320</u>]	<0.340	<2.60	<2.60	NA	<0.100	<0.560	<0.520	<0.490
Phenanthrene	500	0.210 J [0.260 J]	<0.340	<2.60	6.82	NA	0.274	0.656	1.98	<0.490
Phenol	500	<0.340 [<u><0.320</u>]	<0.340	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	0.270 J [0.390]	<0.340	4.94	13.1	NA	0.542	1.11	3.78	<0.490
Total PAHs	--	3.74 J [4.91 J]	<2.89	38.3	97.2	NA	4.02	9.14	27.8	4.42

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	SB-44 128.65 0.5 - 2 05/23/13	SB-51 132.38 0 - 0.2 05/17/13	SB-65 131.03 0 - 0.2 05/17/13	SB-70 130.18 0 - 0.2 05/21/13	SB-73 129.00 0 - 0.2 05/22/13	SB-83 129.84 0 - 0.2 05/20/13	SB-85 129.99 0 - 0.2 05/20/13	SB-87 129.00 0 - 0.2 05/21/13	SB-95 130.13 0 - 0.2 05/21/13
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	44	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	150	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	200	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs										
2-Methylnaphthalene	--	<0.110	<0.600	<0.510 [<0.520]	<0.100	<0.510	<0.120	<0.130	<0.540	<0.570
Acenaphthene	500	<0.110	<0.600	<0.510 [<0.520]	<0.100	<0.510	<0.120	<0.130	<0.540	<0.570
Acenaphthylene	500	<0.110	<0.600	<0.510 [<0.520]	<0.100	<0.510	<0.120	<0.130	<0.540	<0.570
Anthracene	500	<0.110	<0.600	<0.510 [<0.520]	<0.100	<0.510	<0.120	<0.130	0.569	0.612
Benzo(a)anthracene	5.6	<0.110	<0.600	1.60 [<0.520]	<0.100	<0.510	<0.120	<0.130	2.61	1.14
Benzo(a)pyrene	1	<0.110	<0.600	1.03 [<0.520]	<0.100	<0.510	<0.120	<0.130	2.60	1.03
Benzo(b)fluoranthene	5.6	<0.110	<0.600	1.07 [<0.520]	<0.100	<0.510	<0.120	<0.130	3.21	2.25
Benzo(ghi)perylene	500	<0.110	<0.600	0.571 [<0.520]	<0.100	<0.510	<0.120	<0.130	1.72	0.874
Benzo(k)fluoranthene	56	<0.110	<0.600	0.962 [<0.520]	<0.100	<0.510	<0.120	<0.130	1.92	1.58
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	<0.110	<0.600	1.56 [<0.520]	<0.100	<0.510	<0.120	<0.130	2.89	1.80
Cresol (p)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	<0.110	<0.600	<0.510 [<0.520]	<0.100	<0.510	<0.120	<0.130	0.553	<0.570
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	<0.110	0.695	3.22 [<0.520]	<0.100	<0.510	0.149	0.150	5.95	1.96
Fluorene	500	<0.110	<0.600	<0.510 [<0.520]	<0.100	<0.510	<0.120	<0.130	<0.540	<0.570
Indeno(1,2,3-cd)pyrene	5.6	<0.110	<0.600	<0.510 [<0.520]	<0.100	<0.510	<0.120	<0.130	1.49	0.819
Isophorone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	<0.110	<0.600	<0.510 [<0.520]	<0.100	<0.510	<0.120	0.168	<0.540	<0.570
Phenanthrene	500	<0.110	<0.600	0.632 [<0.520]	<0.100	<0.510	<0.120	<0.130	2.77	<0.570
Phenol	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	<0.110	0.604	2.64 [<0.520]	<0.100	<0.510	0.124	<0.130	4.57	1.85
Total PAHs	--	<0.935	5.80	15.3 [<4.42]	<0.850	<4.34	1.17	1.29	32.2	15.9

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TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	SB-180 127.30 0 - 0.2 09/09/13	SB-180 127.30 0.5 - 2 09/09/13	SB-180 127.30 2 - 4 09/09/13	SB-181 127.42 2 - 4 09/09/13	SB-234 130.48 0 - 0.2 09/03/13	SB-235 130.16 0 - 0.2 09/03/13	SB-236 129.55 0 - 0.2 09/03/13	SB-237 128.91 0 - 0.2 09/03/13	SB-238 128.00 0 - 0.2 09/03/13
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	44	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	150	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	200	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs										
2-Methylnaphthalene	--	<0.120	<1.10	<1.10	<0.110	NA	NA	NA	NA	NA
Acenaphthene	500	<0.120	<1.10	<1.10	<0.110	0.0443	<0.0350 [<0.0330]	0.0170 J	<0.0320	0.0155 J
Acenaphthylene	500	<0.120	<1.10	<1.10	<0.110	0.0233 J	<0.0350 [<0.0330]	0.0184 J	<0.0320	0.0348 J
Anthracene	500	<0.120	<1.10	<1.10	<0.110	0.103	0.0178 J [0.0165 J]	0.0461	0.0153 J	0.0646
Benzo(a)anthracene	5.6	0.164	<1.10	<1.10	<0.110	0.826	0.114 [0.0955]	0.170	0.0946	0.350
Benzo(a)pyrene	1	0.188	<1.10	<1.10	<0.110	1.34	0.144 [0.118]	0.203	0.120	0.519
Benzo(b)fluoranthene	5.6	0.221	<1.10	<1.10	0.133	1.43	0.213 [0.170]	0.306	0.186	0.891
Benzo(ghi)perylene	500	0.123	<1.10	<1.10	<0.110	1.12	0.137 [0.0998]	0.176	0.110	0.470
Benzo(k)fluoranthene	56	0.152	<1.10	<1.10	<0.110	1.05	0.0713 [0.0630]	0.0945	0.0721	0.296
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	0.221	<1.10	<1.10	0.118	1.17	0.163 [0.129]	0.226	0.150	0.594
Cresol (p)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	<0.120	<1.10	<1.10	<0.110	0.247	0.0330 J [0.0239 J]	0.0421	0.0284 J	0.114
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	0.369	<1.10	<1.10	0.156	1.50	0.269 [0.214]	0.377	0.250	0.891
Fluorene	500	<0.120	<1.10	<1.10	<0.110	0.0362	<0.0350 [<0.0330]	<0.0370	<0.0320	0.0173 J
Indeno(1,2,3-cd)pyrene	5.6	<0.120	<1.10	<1.10	<0.110	1.18	0.106 [0.0748]	0.136	0.0860	0.381
Isophorone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	<0.120	<1.10	<1.10	<0.110	0.0256 J	<0.0350 [<0.0330]	<0.0370	<0.0320	<0.0370
Phenanthrene	500	0.148	<1.10	<1.10	<0.110	0.476	0.0884 [0.0736]	0.149	0.0849	0.266
Phenol	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	0.292	<1.10	<1.10	0.137	1.38	0.282 [0.208]	0.398	0.239	0.889
Total PAHs	--	2.36	<9.35	<9.35	1.26	12.0 J	1.71 J [1.35 J]	2.40 J	1.50 J	5.81 J

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TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	SB-260 128.50 0.5 - 1 11/20/13	SB-261 128.50 0.5 - 1 11/20/13	SB-337 132.00 0 - 0.2 12/10/14	SB-338 132.19 0 - 0.2 12/10/14	SB-339 132.32 0 - 0.2 12/10/14	SB-340 132.02 0 - 0.2 12/10/14	SB-341 132.06 0 - 0.2 12/10/14	SB-342 132.01 0 - 0.2 12/10/14	V-A11-S1 132.30 3 06/03/09
VOCs										
1,2,4-Trimethylbenzene	190	0.0138	<0.00200	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	NA
1,3,5- Trimethylbenzene	190	0.00750	<0.00200	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	0.0569	0.00850	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	<0.520 [<0.520]
2-Hexanone	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.520 [<0.520]
4-Methyl-2-pentanone (MIBK)	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.520 [<0.520]
Acetone	500	0.0840	<0.00400	0.0150	0.0190	0.0240	0.0120	0.0180 B [0.0140]	0.0220	<1.30 [<1.30]
Benzene	44	0.00110	<0.000200	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	<0.520 [<0.520]
Bromomethane	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.520 * [<0.520]
Carbon disulfide	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.520 [<0.520]
Chlorobenzene	500	<0.00110	<0.000800	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	<0.520 [<0.520]
Chloroform	350	NA	<0.000800	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	
cis-1,2-Dichloroethene	500	0.276 E	0.00280	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	<0.520 [<0.520]
Ethylbenzene	--	0.00630	0.00100	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	<0.520 [<0.520]
Methylene chloride	500	<0.00110	<0.000800	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	<0.520 * [<0.520 *]
n-Butylbenzene	500	0.00280	<0.00200	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	NA
n-Propylbenzene	500	<0.00280	<0.00200	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	NA
sec-Butylbenzene	500	<0.00280	<0.00200	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	NA
Styrene	--	NA	NA	NA	NA	NA	NA	NA	NA	<0.520 [<0.520]
Tetrachloroethene	150	0.550 E	0.0150	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	<0.520 [<0.520]
Toluene	500	0.00280	<0.00200	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	<0.520 [<0.520]
trans-1,2-Dichloroethene	500	0.00780	<0.000800	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	<0.520 [<0.520]
Trichloroethene	200	0.199	0.00110	NA	NA	NA	NA	NA	NA	<0.520 [<0.520]
Vinyl chloride	13	0.0122	<0.000800	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	<0.520 [<0.520]
Xylenes (total)	500	0.0415	0.0239	<0.00440	<0.00390	<0.00440	<0.00460	<0.00360 [<0.00390]	<0.00440	0.230 J [<0.520]
SVOCs										
2-Methylnaphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	NA	NA	<0.390	<0.360	<0.380	<0.380	<0.380 [<0.380]	<0.400	NA
Acenaphthylene	500	NA	NA	<0.390	<0.360	<0.380	<0.380	<0.380 [<0.380]	<0.400	NA
Anthracene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	5.6	NA	NA	<0.390	<0.360	0.840	<0.380	<0.380 [<0.380]	<0.400	NA
Benzo(a)pyrene	1	NA	NA	<0.390	<0.360	0.390	<0.380	<0.380 [<0.380]	<0.400	NA
Benzo(b)fluoranthene	5.6	NA	NA	<0.390	<0.360	0.540	<0.380	<0.380 [<0.380]	<0.400	NA
Benzo(ghi)perylene	500	NA	NA	<0.390	<0.360	<0.380	<0.380	<0.380 [<0.380]	<0.400	NA
Benzo(k)fluoranthene	56	NA	NA	<0.390	<0.360	<0.380	<0.380	<0.380 [<0.380]	<0.400	NA
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	NA	NA	<0.390	<0.360	0.710	<0.380	<0.380 [<0.380]	<0.400	NA
Cresol (p)	500	NA	NA	<0.260	<0.240	<0.250	<0.250	<0.250 [<0.250]	<0.270	NA
Dibenzo(a,h)anthracene	0.56	NA	NA	<0.390	<0.360	<0.380	<0.380	<0.380 [<0.380]	<0.400	NA
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	NA	NA	<0.390	<0.360	2.30	<0.380	<0.380 [<0.380]	<0.400	NA
Fluorene	500	NA	NA	<0.390	<0.360	<0.380	<0.380	<0.380 [<0.380]	<0.400	NA
Indeno(1,2,3-cd)pyrene	5.6	NA	NA	<0.390	<0.360	<0.380	<0.380	<0.380 [<0.380]	<0.400	NA
Isophorone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	NA	NA	<0.390	<0.360	<0.380	<0.380	<0.380 [<0.380]	<0.400	NA
Phenanthrene	500	NA	NA	<0.390	<0.360	1.70	<0.380	<0.380 [<0.380]	<0.400	NA
Phenol	500	NA	NA	<0.260	<0.240	<0.250	<0.250	<0.250 [<0.250]	<0.270	NA
Pyrene	500	NA	NA	<0.390	<0.360	1.70	<0.380	<0.380 [<0.380]	<0.400	NA
Total PAHs	--	NA	NA	<2.93	<2.70	9.70	<2.85	<2.85 [<2.85]	<3.00	NA

9/25/2017

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TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	V-RD-9 132.67 0.5 - 2 04/05/13	V-RD-10 132.52 0.5 - 2 04/05/13	V-RD-11 133.00 0.5 - 2 04/05/13	V-RD-12 132.76 0.5 - 2 04/05/13	V-RD-13 132.71 0.5 - 2 04/05/13	V-RD-15 132.55 0.5 - 2 04/09/13	V-RD-66 129.40 0 - 0.5 05/20/13	V-RD-113A 128.15 8 - 8.5 06/13/13
VOCs									
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
2-Butanone (MEK)	500	NA	NA	NA	NA	NA	NA	NA	<0.00740 [<0.00740]
2-Hexanone	--	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	--	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	500	NA	NA	NA	NA	NA	NA	NA	0.0249 [0.0189 J]
Benzene	44	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
Bromomethane	--	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	--	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	500	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
Chloroform	350	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
cis-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
Ethylbenzene	--	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
Methylene chloride	500	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
Styrene	--	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	150	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
Toluene	500	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
trans-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
Trichloroethene	200	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
Vinyl chloride	13	NA	NA	NA	NA	NA	NA	NA	<0.000490 [<0.000490]
Xylenes (total)	500	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs									
2-Methylnaphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	<0.170	<0.180	<0.180	<0.180	<0.180	<0.190 [<0.190]	3.20 [6.80]	NA
Acenaphthylene	500	<0.170	<0.180	<0.180	<0.180	<0.180	<0.190 [<0.190]	<0.190 [<0.190]	NA
Anthracene	500	<0.170	<0.180	<0.180	<0.180	<0.180	<0.190 [<0.190]	6.50 [11.9]	NA
Benzo(a)anthracene	5.6	<0.170	<0.180	<0.180	<0.180	<0.180	0.310 J [0.610]	11.8 [16.4 D]	NA
Benzo(a)pyrene	1	<0.170	<0.180	<0.180	<0.180	<0.180	0.320 J [0.660]	9.50 [13.2]	NA
Benzo(b)fluoranthene	5.6	<0.170	<0.180	<0.180	<0.180	0.160 J	0.490 [0.920]	6.40 [17.1 D]	NA
Benzo(ghi)perylene	500	<0.170	<0.180	<0.180	<0.180	<0.180	0.290 J [0.690]	5.40 [7.90]	NA
Benzo(k)fluoranthene	56	<0.170	<0.180	<0.180	<0.180	<0.180	0.160 J [0.350 J]	9.40 [6.80]	NA
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	<0.170	<0.180	<0.180	<0.180	<0.180	0.410 [0.810]	10.0 [16.3 D]	NA
Cresol (p)	500	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	<0.170	<0.180	<0.180	<0.180	<0.180	<0.190 [<0.190]	1.40 J [2.20]	NA
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	<0.170	<0.180	<0.180	<0.180	0.180 J	0.790 [1.40]	22.7 D [37.4 D]	NA
Fluorene	500	<0.170	<0.180	<0.180	<0.180	<0.180	<0.190 [<0.190]	3.30 [6.20]	NA
Indeno(1,2,3-cd)pyrene	5.6	<0.170	<0.180	<0.180	<0.180	<0.180	0.300 J [0.840]	5.80 [7.00]	NA
Isophorone	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	<0.170	<0.180	<0.180	<0.180	<0.180	<0.190 [<0.190]	1.50 J [4.70]	NA
Phenanthrene	500	<0.170	<0.180	<0.180	<0.180	0.160 J	0.480 [0.750]	18.8 D [35.0 D]	NA
Phenol	500	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	<0.170	<0.180	<0.180	<0.180	<0.180	0.710 [1.40]	18.7 D [26.6 D]	NA
Total PAHs	--	<1.36	<1.44	<1.44	<1.44	1.67 J	4.83 J [9.00 J]	134 J [216]	NA

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	V-RD-135 128.60 0 - 0.5 04/25/13	V-RD-136 128.61 0 - 0.5 04/25/13	V-RD-138 129.22 0 - 0.5 04/25/13	V-RD-139 128.93 0 - 0.5 04/25/13	V-RD-140 128.72 0 - 0.5 06/17/13	V-RD-141 128.88 0 - 0.5 06/17/13	V-RD-142 128.67 0 - 0.5 06/17/13	V-RD-143 128.52 0 - 0.5 06/17/13
VOCs									
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	--	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	44	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	--	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	--	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	350	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	500	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	150	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	500	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	200	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	13	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	500	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs									
2-Methylnaphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	<0.180	<0.180	<0.180 [≤ 0.170]	<0.180	<0.0375	0.190 J	<0.0373	<0.0371 [≤ 0.190]
Acenaphthylene	500	<0.180	<0.180	<0.180 [≤ 0.170]	<0.180	<0.0375	<0.0368	<0.0373	<0.0371 [≤ 0.190]
Anthracene	500	<0.180	<0.180	0.170 J [≤ 0.170]	0.200 J	0.170 J	0.170 J	<0.0373	<0.0371 [≤ 0.190]
Benzo(a)anthracene	5.6	<0.180	<0.180	0.400 [0.220 J]	0.600	0.410	0.490	0.150 J	0.320 J [≤ 0.190]
Benzo(a)pyrene	1	<0.180	<0.180	0.330 J [0.190 J]	0.550	0.410	0.390	<0.0373	0.390 [≤ 0.190]
Benzo(b)fluoranthene	5.6	<0.180	<0.180	0.440 [0.280 J]	0.800	0.510	0.580	0.180 J	0.550 [≤ 0.190]
Benzo(ghi)perylene	500	<0.180	<0.180	0.210 J [≤ 0.170]	0.340 J	0.280 J	0.300 J	<0.0373	0.280 J [≤ 0.190]
Benzo(k)fluoranthene	56	<0.180	<0.180	0.180 J [≤ 0.170]	0.210 J	0.180 J	<0.0368	<0.0373	0.250 J [≤ 0.190]
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	<0.180	<0.180	0.430 [0.230 J]	0.620	0.440	0.420	<0.0373	0.400 [≤ 0.190]
Cresol (p)	500	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	<0.180	<0.180	<0.180 [≤ 0.170]	<0.180	<0.0375	<0.0368	<0.0373	<0.0371 [≤ 0.190]
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	<0.180	<0.180	0.900 [0.510]	1.20	0.940	0.700	0.240 J	0.620 [≤ 0.190]
Fluorene	500	<0.180	<0.180	<0.180 [≤ 0.170]	<0.180	<0.0375	<0.0368	<0.0373	<0.0371 [≤ 0.190]
Indeno(1,2,3-cd)pyrene	5.6	<0.180	<0.180	0.170 J [≤ 0.170]	0.280 J	0.220 J	0.240 J	<0.0373	0.230 J [≤ 0.190]
Isophorone	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	<0.180	<0.180	<0.180 [≤ 0.170]	<0.180	<0.0375	0.700	<0.0373	<0.0371 [≤ 0.190]
Phenanthrene	500	<0.180	<0.180	0.670 [0.340 J]	0.780	0.570	0.400	<0.0373	0.190 J [≤ 0.190]
Phenol	500	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	<0.180	<0.180	0.770 [0.430]	1.10	0.720	0.720	0.240 J	0.530 [≤ 0.190]
Total PAHs	--	<1.44	<1.44	5.12 J [2.97 J]	7.13 J	4.94 J	5.37 J	1.03 J	3.87 J [≤ 1.52]

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	V-RD-144 128.65 2 - 2.5 06/17/13	V-RD-148 132.50 0 - 0.5 03/18/13	V-RD-149 132.83 0 - 0.5 03/18/13	V-RD-150 132.64 0 - 0.5 03/18/13	V-RD-153 131.97 0 - 0.5 03/20/13	V-RD-154 132.03 0 - 0.5 03/20/13	V-RD-155 132.21 0 - 0.5 03/20/13	V-RD-156 132.50 0 - 0.5 03/20/13	V-RD-158 130.49 0 - 0.5 03/19/13
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	44	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	150	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	200	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs										
2-Methylnaphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	<0.0351	<0.205	<0.900	<0.900	<0.950	<0.190	<0.190	0.830	<0.950
Acenaphthylene	500	<0.0351	<0.205	<0.900	<0.900	<0.950	<0.190	<0.190	<0.185	<0.950
Anthracene	500	<0.0351	0.280 J	1.30 J	1.30 J	1.00 J	0.160 J	<0.190	1.10	<0.950
Benzo(a)anthracene	5.6	0.170 J	0.870	6.90	6.20	4.50	1.30	1.70	4.80 D	1.40 J
Benzo(a)pyrene	1	0.160 J	1.20	8.50	7.50	5.40	1.40	1.60	4.70 D	1.30 J
Benzo(b)fluoranthene	5.6	0.170 J	1.60	9.20	7.70	5.80	1.90	2.30	5.60 D	1.40 J
Benzo(ghi)perylene	500	<0.0351	0.670	7.70	7.10	5.10	1.30	1.40	4.00 D	1.20 J
Benzo(k)fluoranthene	56	<0.0351	0.730	3.20	3.10	2.60	0.720	0.640	1.70	<0.950
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	<0.0351	1.00	7.30	6.70	5.60	2.10	2.00	5.10 D	1.30 J
Cresol (p)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	<0.0351	<0.205	1.50 J	1.40 J	1.40 J	0.280 J	0.280 J	0.670	<0.950
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	0.270 J	1.70	8.90	7.40	7.30	4.50 D	3.00	9.20 D	1.90
Fluorene	500	<0.0351	<0.205	<0.900	<0.900	<0.950	<0.190	<0.190	0.440	<0.950
Indeno(1,2,3-cd)pyrene	5.6	<0.0351	0.440	12.6	12.3	9.80	2.20	2.40	6.10 D	2.00
Isophorone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	<0.0351	<0.205	<0.900	<0.900	<0.950	<0.190	<0.190	0.270 J	<0.950
Phenanthrene	500	0.170 J	0.540	3.50	3.60	4.00	2.20	1.80	6.00 D	0.980 J
Phenol	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	0.240 J	1.10	7.70	7.90	6.60	2.70	2.80	8.60 D	2.30
Total PAHs	--	1.36 J	10.6 J	80.1 J	74.0 J	61.0 J	21.1 J	20.4 J	59.2 J	17.1 J

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TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	V-RD-159 130.50 0 - 0.5 03/19/13	V-RD-170 132.09 0 - 0.5 06/17/13	V-RD-171 131.11 0 - 0.5 06/17/13	V-RD-172 130.42 0 - 0.5 06/17/13	V-RD-173 128.37 0 - 0.5 06/17/13	V-RD-174 130.51 0 - 0.5 06/17/13	V-RD-175 131.50 0 - 0.5 06/17/13	V-RD-176 131.50 0 - 0.5 06/17/13	V-RD-177 131.53 0 - 0.5 06/17/13
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	44	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	150	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	200	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs										
2-Methylnaphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	<0.175	<0.0372	<0.0365	<0.0399	<0.0373	<0.180	<0.220	<0.0472	<0.0427
Acenaphthylene	500	<0.175	<0.0372	<0.0365	<0.0399	<0.0373	<0.180	<0.220	<0.0472	<0.0427
Anthracene	500	<0.175	<0.0372	<0.0365	<0.0399	<0.0373	0.950 J	<0.220	<0.0472	<0.0427
Benzo(a)anthracene	5.6	<0.175	<0.0372	<0.0365	0.180 J	0.330 J	3.90	<0.220	0.190 J	<0.0427
Benzo(a)pyrene	1	<0.175	0.150 J	<0.0365	0.180 J	0.320 J	3.80	<0.220	0.230 J	0.180 J
Benzo(b)fluoranthene	5.6	<0.175	0.220 J	<0.0365	0.210 J	0.440	3.80	<0.220	0.290 J	0.230 J
Benzo(ghi)perylene	500	<0.175	<0.0372	<0.0365	<0.0399	0.220 J	2.60	<0.220	<0.0472	<0.0427
Benzo(k)fluoranthene	56	<0.175	<0.0372	<0.0365	<0.0399	<0.0373	2.90	<0.220	<0.0472	<0.0427
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	<0.175	<0.0372	<0.0365	0.190 J	0.340 J	3.80	<0.220	0.230 J	0.190 J
Cresol (p)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	<0.175	<0.0372	<0.0365	<0.0399	<0.0373	0.930 J	<0.220	<0.0472	<0.0427
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	<0.175	0.250 J	0.150 J	0.420	0.610	6.80	<0.220	0.500	0.400 J
Fluorene	500	<0.175	<0.0372	<0.0365	<0.0399	<0.0373	<0.180	<0.220	<0.0472	<0.0427
Indeno(1,2,3-cd)pyrene	5.6	<0.175	<0.0372	<0.0365	<0.0399	<0.0373	2.30	<0.220	<0.0472	<0.0427
Isophorone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	<0.175	<0.0372	<0.0365	0.220 J	0.710	<0.180	<0.220	0.240 J	0.430
Phenanthrene	500	<0.175	<0.0372	<0.0365	0.290 J	0.410	3.30	<0.220	0.270 J	0.260 J
Phenol	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	<0.175	0.210 J	<0.0365	0.320 J	0.540	5.70	<0.220	0.360 J	0.300 J
Total PAHs	--	<1.40	1.05 J	0.424 J	2.17 J	4.05 J	41.1 J	<1.76	2.50 J	2.18 J

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	V-RD-178 131.67 0 - 0.5 06/17/13	V-RD-179 129.90 0 - 0.5 03/25/13	V-RD-180 129.66 0 - 0.5 03/25/13	V-RD-181 129.50 0 - 0.5 03/25/13	V-RD-182 129.80 0 - 0.5 03/25/13	V-RD-183 129.96 0 - 0.5 03/25/13	V-RD-184 130.02 0 - 0.5 03/25/13	V-RD-185 130.00 0 - 0.5 03/22/13	V-RD-186 130.05 0 - 0.5 03/22/13
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	44	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	150	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	200	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs										
2-Methylnaphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	<0.0437	0.160 J	0.200 J	0.390	<0.180	<1.40	<4.55	<0.900	5.10 J
Acenaphthylene	500	<0.0437	<0.180	<0.170	<0.180	<0.180	<1.40	<4.55	<0.900	<4.60
Anthracene	500	<0.0437	0.240 J	0.270 J	0.550	<0.180	<1.40	<4.55	1.00 J	8.40 J
Benzo(a)anthracene	5.6	0.360 J	1.00	0.860	2.00	<0.180	<1.40	<4.55	3.70	19.4
Benzo(a)pyrene	1	0.360 J	1.10	0.860	2.00	<0.180	<1.40	<4.55	3.30	18.7
Benzo(b)fluoranthene	5.6	0.450	1.40	1.10	2.50	<0.180	<1.40	<4.55	4.40	25.1
Benzo(ghi)perylene	500	0.250 J	0.990	0.720	1.90	<0.180	<1.40	<4.55	1.80	10.8
Benzo(k)fluoranthene	56	0.280 J	0.330 J	0.320 J	0.810	<0.180	<1.40	<4.55	2.00	9.70
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	0.370 J	1.00	0.890	2.30	<0.180	<1.40	<4.55	3.90	22.0
Cresol (p)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	<0.0437	0.200 J	0.150 J	0.410	<0.180	<1.40	<4.55	<0.900	<4.60
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	0.810	1.70	1.50	3.00 D	0.150 J	<1.40	<4.55	4.70	42.4
Fluorene	500	<0.0437	<0.180	<0.170	0.220 J	<0.180	<1.40	<4.55	<0.900	3.90 J
Indeno(1,2,3-cd)pyrene	5.6	0.220 J	1.50	0.810	2.80	<0.180	<1.40	<4.55	1.90	11.1
Isophorone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	<0.0437	<0.180	<0.170	<0.180	<0.180	<1.40	<4.55	<0.900	<4.60
Phenanthrene	500	0.480	0.980	1.10	2.30	<0.180	<1.40	<4.55	3.50	29.6
Phenol	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	0.600	1.40	1.40	2.80	<0.180	<1.40	<4.55	6.10	35.5
Total PAHs	--	4.31 J	12.3 J	10.4 J	24.2 J	1.50 J	<11.2	<36.4	38.6 J	249 J

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	V-RD-187 130.14 0 - 0.5 03/22/13	V-RD-188 130.12 0 - 0.5 03/22/13	V-RD-189 129.50 0 - 0.5 03/25/13	V-RD-190 129.50 0 - 0.5 03/25/13	V-RD-191 129.47 0 - 0.5 03/22/13	V-RD-192 129.70 0 - 0.5 03/22/13	V-RD-193 130.00 0 - 0.5 03/22/13	V-RD-194 129.92 0 - 0.5 03/25/13	V-RD-195 129.50 0 - 0.5 05/01/13
VOCs										
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	44	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	150	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	200	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	13	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs										
2-Methylnaphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	<0.900	<0.950	0.570	0.170 J	<0.180	<0.175	1.70 J	0.150 J	<0.170
Acenaphthylene	500	<0.900	<0.950	<0.180	<0.180	<0.180	<0.175	<0.900	<0.175	<0.170
Anthracene	500	1.20 J	1.30 J	0.990	0.320 J	<0.180	0.150 J	2.50	0.270 J	<0.170
Benzo(a)anthracene	5.6	5.00	7.40	3.80 D	1.40	<0.180	0.630	6.90	1.30	<0.170
Benzo(a)pyrene	1	5.70	7.30	4.30 D	1.70	<0.180	0.690	7.10	1.60	<0.170
Benzo(b)fluoranthene	5.6	5.40	9.80	5.10 D	1.80	<0.180	1.20	9.70	1.80	<0.170
Benzo(ghi)perylene	500	2.80	4.30	4.20 D	1.70	<0.180	0.710	6.80	1.50	<0.170
Benzo(k)fluoranthene	56	1.90	3.20	1.70	0.760	<0.180	0.700	4.00	0.720	<0.170
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	5.60	7.70	4.10 D	1.60	<0.180	1.40	7.70	1.50	<0.170
Cresol (p)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	<0.900	0.920 J	0.790	0.350 J	<0.180	0.140 J	1.40 J	0.310 J	<0.170
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	9.60	12.0 D	5.90 D	2.30	<0.180	1.10	10.8	2.30	0.200 J
Fluorene	500	<0.900	<0.950	0.350 J	<0.180	<0.180	<0.175	1.20 J	<0.175	<0.170
Indeno(1,2,3-cd)pyrene	5.6	3.20	4.10	5.30 D	2.50	<0.180	0.560	6.30	2.10	<0.170
Isophorone	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	<0.900	<0.950	0.150 J	<0.180	<0.180	<0.175	<0.900	<0.175	<0.170
Phenanthrene	500	4.00	3.50	4.10 D	1.20	<0.180	0.480	9.40	1.10	<0.170
Phenol	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	8.90	11.5 D	7.30 D	2.40	<0.180	1.20	13.1	1.90	0.170 J
Total PAHs	--	55.6 J	74.9 J	48.7 J	18.5 J	<1.44	9.31 J	89.5 J	16.8 J	1.56 J

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TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	V-RD-196 129.27 0 - 0.5 05/01/13	V-RD-197 129.00 0 - 0.5 05/01/13	V-RD-198 129.40 0 - 0.5 05/01/13	V-RD-199 129.50 0 - 0.5 05/01/13	V-RD-200 129.50 0 - 0.5 05/01/13	V-RD-263 129.07 0 - 0.5 04/30/13	V-RD-264 129.30 0 - 0.5 04/30/13	V-RD-265 129.50 0 - 0.5 04/30/13
VOCs									
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	--	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	44	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	--	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	--	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	350	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	--	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	500	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	--	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	150	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	500	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	500	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	200	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	13	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	500	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs									
2-Methylnaphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	<4.30	<4.20	<4.30	<4.40 [<4.30]	<4.40	<0.200	<8.60 [<8.50]	<0.840
Acenaphthylene	500	<4.30	<4.20	<4.30	<4.40 [<4.30]	<4.40	<0.200	<8.60 [<8.50]	<0.840
Anthracene	500	<4.30	<4.20	5.00 J	<4.40 [<4.30]	7.40 J	<0.200	<8.60 [<8.50]	<0.840
Benzo(a)anthracene	5.6	5.20 J	<4.20	15.0	<4.40 [<4.30]	18.4	<0.200	<8.60 [<8.50]	<0.840
Benzo(a)pyrene	1	5.60 J	<4.20	15.3	<4.40 [<4.30]	17.4	<0.200	<8.60 [<8.50]	<0.840
Benzo(b)fluoranthene	5.6	7.70 J	3.50 J	18.0	3.90 J [<4.30]	21.9	<0.200	<8.60 [<8.50]	<0.840
Benzo(ghi)perylene	500	3.80 J	<4.20	9.50	<4.40 [<4.30]	10.1	<0.200	<8.60 [<8.50]	<0.840
Benzo(k)fluoranthene	56	<4.30	<4.20	7.10 J	<4.40 [<4.30]	6.90 J	<0.200	<8.60 [<8.50]	<0.840
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	5.60 J	<4.20	15.1	<4.40 [<4.30]	18.0	<0.200	<8.60 [<8.50]	<0.840
Cresol (p)	500	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	<4.30	<4.20	<4.30	<4.40 [<4.30]	<4.40	<0.200	<8.60 [<8.50]	<0.840
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	10.9	4.60 J	29.9	4.80 J [<4.30]	37.8	<0.200	<8.60 [<8.50]	<0.840
Fluorene	500	<4.30	<4.20	<4.30	<4.40 [<4.30]	<4.40	<0.200	<8.60 [<8.50]	<0.840
Indeno(1,2,3-cd)pyrene	5.6	<4.30	<4.20	8.20 J	<4.40 [<4.30]	8.60 J	<0.200	<8.60 [<8.50]	<0.840
Isophorone	--	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	<4.30	<4.20	<4.30	<4.40 [<4.30]	<4.40	<0.200	<8.60 [<8.50]	<0.840
Phenanthrene	500	5.60 J	<4.20	15.5	<4.40 [<4.30]	25.8	<0.200	<8.60 [<8.50]	<0.840
Phenol	500	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	9.20	4.00 J	26.0	4.30 J [<4.30]	32.9	<0.200	<8.60 [<8.50]	<0.840
Total PAHs	--	70.8 J	39.4 J	175 J	41.6 J [<34.4]	216 J	<1.60	<68.8 [<68.0]	<6.72

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	V-RD-266 129.50 0 - 0.5 04/30/13	VS-39-1 129.50 2.5 - 4 06/15/05	VS-P1-S41 131.60 4 - 4.5 02/13/09	VS-P1-S42 132.10 4 - 4.5 02/13/09	VS-P1-S43 132.00 4 - 4.5 02/13/09	VS-P2-2S 130.00 0 - 0.2 05/09/06	VS-P2-3S 130.00 0 - 0.2 05/09/06
VOCs								
1,2,4-Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	500	NA	<0.0100	<0.0100	<0.0120	<0.0120 [<0.0110]	<0.0100	<0.0100
2-Hexanone	--	NA	<0.0100	<0.0100	<0.0120	<0.0120 [<0.0110]	<0.0100	<0.0100
4-Methyl-2-pentanone (MIBK)	--	NA	<0.0100	<0.00520	<0.00590	<0.00590 [<0.00570]	<0.0100	<0.0100
Acetone	500	NA	0.00420 J	0.00750 J	0.00360 J	<0.0240 [<0.0230]	<0.0210	0.00520 J
Benzene	44	NA	<0.00510	<0.00520	<0.00590	<0.00590 [<0.00570]	<0.00520	<0.00520
Bromomethane	--	NA	<0.00510	<0.00520	<0.00590	<0.00590 [<0.00570]	<0.00520	<0.00520
Carbon disulfide	--	NA	<0.00510	<0.00520	<0.00590	<0.00590 [<0.00570]	<0.00520	<0.00520
Chlorobenzene	500	NA	<0.00510	<0.00520	<0.00590	<0.00590 [<0.00570]	<0.00520	<0.00520
Chloroform	350	NA	<0.00510	<0.00520	<0.00590	<0.00590 [<0.00570]	<0.00520	<0.00520
cis-1,2-Dichloroethene	500	NA	<0.00510	<0.00520	<0.00590	<0.00590 [<0.00570]	<0.00520	<0.00520
Ethylbenzene	--	NA	<0.00510	<0.00520	<0.00590	<0.00590 [<0.00570]	<0.00520	<0.00520
Methylene chloride	500	NA	0.00510 J	0.00150 JB	<0.0240	0.00130 JB [<0.0230]	0.00340 JB	0.00370 JB
n-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	500	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	500	NA	NA	NA	NA	NA	NA	NA
Styrene	--	NA	<0.00510	<0.00520	<0.00590	<0.00590 [<0.00570]	<0.00520	<0.00520
Tetrachloroethene	150	NA	<0.00510	<0.00520	0.00290 J	0.00110 J [0.00120 J]	<0.00520	<0.00520
Toluene	500	NA	<0.00510	<0.00520	0.000200 JB	0.000240 JB [0.000150 JB]	<0.00520	<0.00520
trans-1,2-Dichloroethene	500	NA	<0.00510	<0.00520	<0.00590	<0.00590 [<0.00570]	<0.00520	<0.00520
Trichloroethene	200	NA	<0.00510	<0.00520	<0.00590	<0.00590 [<0.00570]	<0.00520	<0.00520
Vinyl chloride	13	NA	<0.00510	<0.00520	<0.00590	<0.00590 [<0.00570]	<0.00520	<0.00520
Xylenes (total)	500	NA	<0.00510	<0.00520	<0.00590	<0.00590 [<0.00570]	<0.00520	<0.00520
SVOCs								
2-Methylnaphthalene	--	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500	<0.850	NA	NA	NA	NA	NA	NA
Acenaphthylene	500	<0.850	NA	NA	NA	NA	NA	NA
Anthracene	500	<0.850	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	5.6	<0.850	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	<0.850	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	5.6	<0.850	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	500	<0.850	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	56	<0.850	NA	NA	NA	NA	NA	NA
Benzoic acid	--	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	--	NA	NA	NA	NA	NA	NA	NA
Caprolactam	--	NA	NA	NA	NA	NA	NA	NA
Carbazole	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	56	<0.850	NA	NA	NA	NA	NA	NA
Cresol (p)	500	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.56	<0.850	NA	NA	NA	NA	NA	NA
Dibenzofuran	350	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	--	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	--	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	--	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500	<0.850	NA	NA	NA	NA	NA	NA
Fluorene	500	<0.850	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	<0.850	NA	NA	NA	NA	NA	NA
Isophorone	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500	<0.850	NA	NA	NA	NA	NA	NA
Phenanthrene	500	<0.850	NA	NA	NA	NA	NA	NA
Phenol	500	NA	NA	NA	NA	NA	NA	NA
Pyrene	500	<0.850	NA	NA	NA	NA	NA	NA
Total PAHs	--	<6.80	NA	NA	NA	NA	NA	NA

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	VS-P2-4S 130.00 0 - 0.2 05/09/06	VS-P2-5S 130.00 0 - 0.2 05/09/06
VOCs			
1,2,4-Trimethylbenzene	190	NA	NA
1,3,5- Trimethylbenzene	190	NA	NA
2-Butanone (MEK)	500	<0.0100	<0.0100
2-Hexanone	--	<0.0100	<0.0100
4-Methyl-2-pentanone (MIBK)	--	<0.0100	<0.0100
Acetone	500	0.00420 J	0.00340 J
Benzene	44	<0.00520	<0.00520
Bromomethane	--	<0.00520	<0.00520
Carbon disulfide	--	<0.00520	<0.00520
Chlorobenzene	500	<0.00520	<0.00520
Chloroform	350	<0.00520	<0.00520
cis-1,2-Dichloroethene	500	<0.00520	<0.00520
Ethylbenzene	--	<0.00520	<0.00520
Methylene chloride	500	0.00360 JB	0.00370 JB
n-Butylbenzene	500	NA	NA
n-Propylbenzene	500	NA	NA
sec-Butylbenzene	500	NA	NA
Styrene	--	<0.00520	<0.00520
Tetrachloroethene	150	<0.00520	<0.00520
Toluene	500	<0.00520	<0.00520
trans-1,2-Dichloroethene	500	<0.00520	<0.00520
Trichloroethene	200	<0.00520	<0.00520
Vinyl chloride	13	<0.00520	<0.00520
Xylenes (total)	500	<0.00520	<0.00520
SVOCs			
2-Methylnaphthalene	--	NA	NA
Acenaphthene	500	NA	NA
Acenaphthylene	500	NA	NA
Anthracene	500	NA	NA
Benzo(a)anthracene	5.6	NA	NA
Benzo(a)pyrene	1	NA	NA
Benzo(b)fluoranthene	5.6	NA	NA
Benzo(ghi)perylene	500	NA	NA
Benzo(k)fluoranthene	56	NA	NA
Benzoic acid	--	NA	NA
Bis(2-ethylhexyl)phthalate	--	NA	NA
Butyl benzyl phthalate	--	NA	NA
Caprolactam	--	NA	NA
Carbazole	--	NA	NA
Chrysene	56	NA	NA
Cresol (p)	500	NA	NA
Dibenzo(a,h)anthracene	0.56	NA	NA
Dibenzofuran	350	NA	NA
Diethyl phthalate	--	NA	NA
Dimethyl phthalate	--	NA	NA
Di-n-butyl phthalate	--	NA	NA
Di-n-octyl phthalate	--	NA	NA
Fluoranthene	500	NA	NA
Fluorene	500	NA	NA
Indeno(1,2,3-cd)pyrene	5.6	NA	NA
Isophorone	--	NA	NA
Naphthalene	500	NA	NA
Phenanthrene	500	NA	NA
Phenol	500	NA	NA
Pyrene	500	NA	NA
Total PAHs	--	NA	NA

TABLE 5
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED VOCs AND SVOCs (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Notes:

1. **Sample depths are prior to the installation of 1-foot thick soil cover system.**
2. Surface elevations were at the time of sampling.
3. The 2013 samples were collected by Preferred Environmental Services on the dates indicated, all others were collected by ARCADIS on the dates indicated.
4. PCBs = Polychlorinated biphenyls.
5. -- = No cleanup level applicable.
6. bgs = Below ground surface.
7. Samples were analyzed by TestAmerica Laboratories, Inc. located in Shelton, Connecticut, Accutest Laboratories in Marlborough, Massachusetts, Accutest Laboratories in Dayton New Jersey, CHEMTECH in Mountainside, New Jersey and PACE ANALYTICAL in Melville, NY for VOCs using United States Environmental Protection Agency (USEPA) SW-846 Method 8260 and SVOCs using USEPA SW-846 Method 8270.
8. All concentrations reported in dry weight parts per million (ppm), which is equivalent to milligrams per kilogram (mg/kg).
9. Data qualifiers are defined as follows:
 - < = Constituent not detected at a concentration above the reported detection limit.
 - * = LCS or LCSD exceeds the control limits.
 - B = The compound has been found in the sample as well as its associated blank.
 - D = Concentration is based on a diluted sample analysis.
 - E = The compound was quantitated above the calibration range.
 - H = Sample analyzed outside of holding time.
 - J = The associated numerical value is an estimated concentration.
 - M = Manually Integrated Compound..
10. 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs) are from Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375-6.8(b).
11. Bold font and shading indicates that the result exceeds the Restricted Use SCO Commercial.
12. -- = No 6 NYCRR Part 375 SCO listed.
13. NA = Not Analyzed.
14. Total PAHs were calculated as the sum of the following, which is consistent with the NYSDEC list from: <http://www.dec.ny.gov/chemical/24922.html>:

2-Methylnaphthalene	Chrysene
Acenaphthene	Dibenzo(a,h)anthracene
Acenaphthylene	Fluoranthene
Anthracene	Fluorene
Benzo(a)anthracene	Indeno(1,2,3-cd)pyrene
Benzo(a)pyrene	Naphthalene
Benzo(b)fluoranthene	Phenanthrene
Benzo(g,h,i)perylene	Pyrene
Benzo(k)fluoranthene	

TABLE 6
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED INORGANICS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID:		AOC3-3	AOC3-4	AOC4-2	AOC12-1	AOC13-1	AOC15-3	AOC31-1	AOC35-0	AOC35A-1	AOC35A-2	AOC35B-1
Surface Elevation (Feet):	Restricted Use	132.20	131.70	129.00	128.70	129.00	130.10	122.00	129.50	133.30	132.80	129.00
Sample Depth(Feet bgs):	SCOs	0 - 1	0 - 1	0 - 1	1 - 2	0 - 1	0 - 1	0 - 2	12 - 14	12 - 14	12 - 14	12 - 14
Date Collected:	Commercial	02/12/04	02/12/04	02/12/04	02/16/04	02/16/04	02/16/04	02/09/04	05/04/06	02/23/04	02/23/04	02/23/04
Metals												
Aluminum	--	4,800	15,200	5,890 [5.270]	10,800	9,630	1,710	15,300 J	676	770 J	1,830 J	1,450 J [1,390 J]
Antimony	--	<17.0 J	<16.0 J	<15.0 J [<14.3 J]	2.90 BJ	<16.1 J	<14.8 J	<21.6 J	<11.8 N*	<13.1 J	<13.2 J	<13.7 J [<14.4 J]
Arsenic	16	13.9	7.10 B	2.80 B [2.80 B]	9.20 B	7.50 B	<10.1	8.00 BJ	<4.50 N*	<9.00	<9.10	<9.40 [<9.90]
Barium	400	46.6	33.7	16.7 [14.2]	31.7	27.1	112	84.3	3.10	4.70 J	4.60 J	5.60 J [4.70 J]
Beryllium	590	<2.90	<2.70	<2.60 [<2.40]	<2.50	<2.80	<2.50	1.10 B	<2.00	<2.20	<2.30	<2.30 [<2.50]
Cadmium	9.3	<4.40	<4.10	<3.90 [<3.70]	<3.80	<4.10	<3.80	9.60	<1.10	<3.40	<3.40	<3.50 [<3.70]
Calcium	--	1,720	678	472 [394]	674 J	440 J	1,400 J	9,190 J	60.5 B*	27.6 B	26.7 B	48.1 B [29.2 B]
Chromium, Total	--	8.50	16.9	7.80 [15.5]	13.1	11.3	3.50 B	89.8	1.20 B	5.70	3.10 B	4.50 [3.70 B]
Chromium, trivalent	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	14.7 J	16.7 J	11.5 J [7.10 J]	4.90	4.60	5.80	10.9	0.630 B	0.480 B	1.20 B	0.810 B [1.10 B]
Copper	270	<15.2 J	<16.9 J	<9.30 J [<8.10 J]	15.7	9.10	5.40 B	409	1.10 BN*	1.80 B	1.90 B	1.80 B [2.20 B]
Iron	--	9,330	17,800	8,090 [9,130]	13,100	12,500	6,720	17,900	2,140 *	4,210	3,850	3,230 [2,050]
Lead	1,000	6.50 B	10.4 B	7.10 B [6.70 B]	16.6	9.90 B	70.5	161 J	1.60 B*	<10.1	1.10 B	0.970 B [1.10 B]
Magnesium	--	726	1,890	861 [736]	1,460	1,220	335	7,360	106 *	189	207	147 [153]
Manganese	10,000	102	194	48.4 [42.3]	120	149	66.9	109	45.0 *	16.2	42.4	40.2 [41.6]
Mercury	2.8	<2.20	<2.40	0.150 B [0.0590 B]	0.0660 B	0.0740 B	<2.00	0.500 B	<0.670	<1.80	<1.90	<1.90 [<1.60]
Nickel	310	7.60	13.0	8.40 [7.20]	8.80	6.80 B	2.20 B	53.8	0.980 B	1.50 B	1.50 B	1.50 B [1.70 B]
Potassium	--	377	415	208 B [176 B]	312 J	402 J	109 BJ	710	49.6 B*	73.4 B	80.7 B	74.5 B [73.1 B]
Selenium	1,500	<23.3	<21.9	<20.6 [<19.5]	<20.0	<22.1	<20.2	<29.6	<5.00	<18.0	<18.1	<18.8 [<19.8]
Silver	1,500	<4.40	<4.10	<3.90 [<3.70]	<3.80	<4.10	<3.80	<5.50	<3.00	<3.40	<3.40	<3.50 [<3.70]
Sodium	--	76.5 B	131	35.6 B [27.3 B]	41.3 B	45.7 B	<119	268	<94.6 *	<106	<106	<110 [<116]
Vanadium	--	10.3	24.5	13.1 [14.8]	27.3	17.9	3.80 B	56.9	2.20 BN*	2.60 BJ	3.70 BJ	2.60 BJ [2.60 BJ]
Zinc	10,000	10.9 B	25.7 B	56.7 [42.1]	26.3	18.2 B	28.6	1,610 J	6.00 B*	<22.5	<22.6	6.00 B [<24.7]

9/25/2017

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TABLE 6
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED INORGANICS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID:	Restricted Use	AOC35B-2	AOC35C-1	AOC35C-2	AOC35C-3	AOC35D-1	AOC35D-2	AOC35E-1	AOC35E-2	AOC35F-1	AOC35F-2	AOC35F-3S	AOC35G-1	AOC35G-2	AOC35H-1S	AOC35I-1S
Surface Elevation (Feet):	SCOs	129.00	129.00	129.30	133.10	129.00	129.10	129.00	132.10	128.80	128.50	128.46	131.30	131.90	129.43	131.33
Sample Depth(Feet bgs):		12 - 14	12 - 14	12 - 14	12 - 14	6 - 8	12 - 14	6 - 8	12 - 14	6 - 8	12 - 14	6 - 8	6 - 8	12 - 14	12 - 14	12 - 14
Date Collected:	Commercial	02/23/04	02/23/04	02/23/04	02/23/04	02/23/04	02/23/04	02/24/04	02/24/04	02/24/04	02/24/04	10/20/04	02/24/04	02/24/04	10/19/04	10/19/04
Metals																
Aluminum	--	1,560 J	1,460 J	1,490 J	1,570 J	2,130 J	2,170 J	1,060	1,460	2,370	1,330 J	979	1,370 J	1,570 J	2,690 J	1,470
Antimony	--	<13.9 J	<13.9 J	<14.2 J	<13.0 J	<13.7 J	<15.0 J	<14.0 J	<14.5 J	<14.3 J	<13.9 J	<13.9 J	<14.6 J	<13.2 J	<14.1 J	<11.6 J
Arsenic	16	<9.50	<9.50	<9.70	<8.90	<9.30	<10.3	<9.50	<9.90	<9.80	<9.50	<9.50	<10.0	<9.00	<5.40	<4.50
Barium	400	5.10 J	5.00 J	5.90 J	4.90 J	6.90 J	11.5 J	6.10	7.60	11.1	4.30 J	5.80	7.70 J	6.90 J	12.5 J	5.30
Beryllium	590	<2.40	<2.40	<2.40	<2.20	<2.30	<2.60	<2.40	<2.50	<2.40	<2.40	<2.40	<2.50	<2.30	<2.40	<2.00
Cadmium	9.3	<3.60	<3.60	<3.70	<3.30	<3.50	<3.80	<3.60	<3.70	<3.70	<3.60	<3.60	<3.70	<3.40	<1.30	<1.10
Calcium	--	36.1 B	35.0 B	57.2 B	29.4 B	126	2,520	87.9 B	334	113	46.9 B	64.1 B	52.7 B	40.8 B	73.7 B	73.0 BJ
Chromium, Total	--	2.50 B	2.70 B	3.50 B	2.40 B	8.60	6.20	2.80 B	22.8	4.80	2.60 B	3.00 B	3.40 B	4.00	4.80 J	2.70 BJ
Chromium, trivalent	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	1.10 B	0.840 B	1.10 B	0.650 B	2.50	1.50 B	1.30 BJ	0.950 BJ	1.70 BJ	0.800 B	1.70 B	1.70 B	1.10 B	1.20 B	0.790 B
Copper	270	1.80 B	1.50 B	1.60 B	1.40 B	6.10	4.90 B	1.90 BJ	4.90 BJ	3.00 BJ	1.50 B	1.90 B	2.70 B	2.10 B	3.10 B	1.20 B
Iron	--	1,830	2,800	3,210	2,120	7,710	4,400	4,350	5,410	5,890	1,830	3,600	6,660	3,020	4,210 J	2,670
Lead	1,000	1.00 B	<10.7	1.00 B	<10.0	1.10 B	2.00 B	1.30 BJ	1.60 BJ	1.50 BJ	<10.7	1.50 BJ	1.60 B	1.10 B	1.10 BJ	1.90 B
Magnesium	--	234	129	155	122	125	1,570	325	198	581	165	198	405	173	466 J	173
Manganese	10,000	40.2	58.9	88.1	50.1	139	86.6	64.3	77.8	131	31.1	123 J	166	54.6	45.8 J	43.2
Mercury	2.8	<2.10	<1.90	<2.00	<1.80	<1.90	<1.70	<1.90	<1.80	<1.80	<1.70	<1.70	<1.80	<1.90	<0.0620	<0.0650
Nickel	310	1.70 B	1.40 B	1.30 B	1.10 B	3.00 B	2.40 B	1.60 BJ	3.70 BJ	2.50 BJ	1.70 B	2.20 B	3.40 B	1.60 B	2.90 B	1.20 B
Potassium	--	92.5 B	63.0 B	60.6 B	50.6 B	67.1 B	166 B	179 B	99.5 B	348	80.3 B	69.0 B	117 B	88.6 B	473 J	99.8 BJ
Selenium	1,500	<19.1	<19.0	<19.5	<17.7	<18.7	<20.5	<19.1	<19.8	<19.6	<19.1	<19.0	<20.0	<18.1	<6.00	<5.00
Silver	1,500	<3.60	<3.60	<3.70	<3.30	<3.50	<3.80	<3.60	<3.70	<3.70	<3.60	<3.60	<3.70	<3.40	<3.60	<3.00
Sodium	--	<112	<111	<114	<104	<110	<121	<112	<116	<115	<112	<112	<117	<106	<113	<93.6
Vanadium	--	2.60 BJ	2.80 BJ	2.80 BJ	2.10 BJ	5.20 J	7.70 J	3.60 B	3.00 B	9.90	2.00 BJ	2.60 B	4.50 BJ	2.90 BJ	5.60 J	2.80 B
Zinc	10,000	<23.8	<23.7	<24.3	<22.2	8.90 B	7.40 B	4.80 B	11.4 B	8.00 B	<23.8	<23.7	9.00 B	<22.6	6.70 B	8.40 BJ

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TABLE 6
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED INORGANICS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID:		AOC35I-2S	AOC35J-1S	AOC35K-1S	AOC35L-1S	AOC35M-1S	AOC35N-1S	AOC41-4	AOC41-5	AOC41-6	AOC41-7	AOC41-8	AOC46-4	M-S1	M-S1	M-S1
Surface Elevation (Feet):	Restricted Use	131.00	130.83	129.48	128.50	128.17	131.06	132.00	129.90	130.20	129.90	129.60	130.00	132.50	132.50	132.50
Sample Depth(Feet bgs):	SCOs	12 - 14	12 - 14	12 - 14	12 - 14	12 - 14	12 - 14	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 0.5	0.5 - 2	2 - 4
Date Collected:	Commercial	10/19/04	10/19/04	10/19/04	10/20/04	10/19/04	10/20/04	02/19/04	02/19/04	02/19/04	02/19/04	02/19/04	02/19/04	07/15/11	07/15/11	07/15/11
Metals																
Aluminum	--	1,320	4,030	1,880 J	1,600	1,240	888 [1,170]	10,400	11,500	8,330	5,280	5,730	2,340	NA	NA	NA
Antimony	--	<14.6 J	<10.9 J	<11.2 J	<14.5 J	<12.2 J	<13.4 J [<12.3 J]	1.80 BJ	<17.4 J	<15.8 J	<15.1 J	<14.0 J	<14.3 J	NA	NA	NA
Arsenic	16	<5.60	1.80 B	<4.30	<9.90	<4.70	<9.20 [<4.70]	7.10 BJ	8.90 BJ	14.9 J	7.70 BJ	6.40 BJ	2.70 BJ	4.30 J	2.20 J	2.00 J
Barium	400	5.70	15.4	5.30 J	5.50	6.20	4.20 [5.50]	27.5	24.0	28.9	49.5	40.7	7.70	NA	NA	NA
Beryllium	590	<2.50	<1.90	<1.90	<2.50	<2.10	<2.30 [<2.10]	<2.70	<3.00	<2.70	<2.60	<2.40	<2.50	NA	NA	NA
Cadmium	9.3	<1.40	<1.00	<1.10	<3.70	<1.10	<3.40 [<1.20]	<4.00	<4.50	<4.00	<3.90	<3.60	<3.70	<1.30	<1.30	<1.30
Calcium	--	39.1 BJ	2,170 J	48.0 B	65.5 B	155 J	30.7 B [51.3 BJ]	416	213	5,040	41,200	24,700	1,510	NA	NA	NA
Chromium, Total	--	3.40 BJ	7.70 J	3.90 J	2.70 B	11.3 J	2.90 B [4.30 J]	15.9	14.4	18.1	8.80	7.20	3.40 B	NA	NA	NA
Chromium, trivalent	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	<2.50	1.60 B	1.10 B	0.860 B	1.10 B	1.00 B [1.30 B]	5.20 J	4.10 J	17.6 J	4.20 J	4.20 J	19.7 J	NA	NA	NA
Copper	270	<6.30	4.00 B	1.60 B	2.80 B	1.80 B	1.40 B [2.00 B]	10.3 J	11.6 J	42.4 J	35.9 J	40.7 J	15.6 J	NA	NA	NA
Iron	--	2,820	6,570	3,370 J	3,990	4,630	3,490 [4,150]	13,300	13,700	11,700	13,000	11,600	7,150	NA	NA	NA
Lead	1,000	1.70 B	4.70 B	0.890 BJ	1.10 BJ	2.20 B	<10.3 J [2.00 B]	14.6 J	11.9 BJ	24.8 J	17.4 J	19.5 J	4.10 BJ	NA	NA	NA
Magnesium	--	146	723	191 J	147	454	139 [204]	1,310	1,360	1,080	25,100	14,600	926	NA	NA	NA
Manganese	10,000	43.8	95.5	57.9 J	59.3 J	49.1	80.6 J [107]	191	134	136	156	148	79.8	NA	NA	NA
Mercury	2.8	<0.0670	<0.0780	<0.0600	<1.80	<0.0670	<1.80 [<0.0810]	0.0820 B	<2.30	0.180 B	0.0630 B	0.0890 B	<2.00	NA	NA	NA
Nickel	310	0.770 B	3.10 B	1.80 B	1.50 B	1.60 B	1.40 B [1.80 B]	6.90 J	7.60 J	7.10 J	9.80 J	10.0 J	3.80 BJ	NA	NA	NA
Potassium	--	96.1 BJ	200 J	98.9 BJ	108 B	195 BJ	<230 [111 BJ]	320	315	287	280	365	146 B	NA	NA	NA
Selenium	1,500	<6.30	<4.70	<4.80	<19.8	<5.20	<18.4 [<5.30]	<21.4	<23.8	<21.6	<20.6	<19.2	<19.6	NA	NA	NA
Silver	1,500	<3.80	<2.80	<2.90	<3.70	<3.10	<3.40 [<3.20]	<4.00	<4.50	<4.00	<3.90	<3.60	0.450 B	NA	NA	NA
Sodium	--	<118 J	18.7 B	<90.4	<117	<98.1	<108 [<99.1]	28.2 B	<140	50.3 B	153	179	163	NA	NA	NA
Vanadium	--	2.20 B	8.30	2.70 BJ	2.80 B	4.00 B	2.40 B [3.60 B]	18.2	18.9	16.4	37.2	31.8	10.7	NA	NA	NA
Zinc	10,000	<25.0	11.6 BJ	3.80 B	<24.8	5.40 BJ	<23.0 [6.50 BJ]	38.6	26.7 B	49.8	144	168	26.1	NA	NA	NA

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TABLE 6
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED INORGANICS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID: Surface Elevation (Feet): Sample Depth(Feet bgs): Date Collected:	Restricted Use SCOs Commercial	M-S2 132.90 0 - 0.5 07/14/11	M-S2 132.90 0.5 - 2 07/14/11	M-S2 132.90 2 - 4 07/14/11	M-S3 133.00 2 - 4 07/14/11	M-S4 132.60 2 - 4 07/14/11	M-S5 132.90 2 - 4 07/14/11	M-S6 133.20 0 - 0.5 07/14/11	M-S6 133.20 0.5 - 2 07/14/11	M-S6 133.20 2 - 4 07/14/11	M-S7 132.40 0 - 0.5 07/14/11	M-S7 132.40 0.5 - 2 07/14/11	M-S7 132.40 2 - 4 07/14/11	M-S8 132.10 2 - 4 07/13/11	M-S9 130.40 0 - 0.5 07/13/11	M-S9 130.40 0.5 - 2 07/13/11	M-S9 130.40 2 - 4 07/13/11	M-S10 130.70 0 - 0.5 07/13/11
Metals																		
Aluminum	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	16	6.20	6.10	<5.00	2.10 J	3.90 J	3.60 J	7.10	4.40 J	1.90 J	4.80 J	4.00 J [4.90 J]	<5.10	4.80 J	5.40	<5.20	<5.30	4.80 J
Barium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	9.3	<1.30	<1.40	<1.20	<1.30	<1.30	<1.30	<1.20	<1.30	<1.30	<1.30	<1.30 [1.40]	<1.20	0.770 J	<1.30	<1.20	<1.30	0.660 J
Calcium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Total	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, trivalent	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED INORGANICS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID:	Restricted Use	M-S10	M-S10	M-S11	M-S11	M-S11	M-S12	M-S12	M-S12	M-S13	M-S13	M-S13	M-S14	M-S15	M-S16	M-S17	M-S18	M-S19
Surface Elevation (Feet):	SCOs	130.70	130.70	131.20	131.20	131.20	130.70	130.70	130.70	130.60	130.60	130.60	130.00	132.70	133.20	133.10	133.10	133.00
Sample Depth(Feet bgs):		0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4	0 - 0.5
Date Collected:	Commercial	07/13/11	07/13/11	07/13/11	07/13/11	07/13/11	07/13/11	07/13/11	07/13/11	07/13/11	07/13/11	07/13/11	07/12/11	07/15/11	07/15/11	07/15/11	07/14/11	07/14/11
Metals																		
Aluminum	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	16	4.10 J [4.70 J]	<5.00	4.10 J	3.40 J	2.60 J	11.4	2.40 J	2.40 J	2.60 J	1.70 J	2.10 J	2.40 J	4.00 J	4.10 J	5.60	4.30 J	5.80
Barium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	9.3	1.10 J [1.40]	<1.20	0.850 J	1.70	1.00 J	0.450 J	0.310 J	5.10	2.10	<1.30	<1.30	<1.40	<1.30	<1.30	<1.20	<1.30	6.20
Calcium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Total	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, trivalent	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED INORGANICS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID:	Restricted Use	M-S19	M-S19	M-S20	M-S21	M-S21	M-S21	M-S22	M-S23	M-S23	M-S23	M-S25	M-S25	M-S25	M-S26	M-S26	SB-1	SB-1	SB-1
Surface Elevation (Feet):	SCOs	133.00	133.00	129.30	133.20	133.20	133.20	131.00	130.30	130.30	130.30	128.10	128.10	128.10	132.20	132.20	132.49	132.49	132.49
Sample Depth(Feet bgs):	0.5 - 2	2 - 4	2 - 4	0 - 0.5	0.5 - 2	2 - 4	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	2 - 4	2 - 4	4 - 6	0 - 0.2	0.5 - 2	2 - 4
Date Collected:	Commercial	07/14/11	07/14/11	07/13/11	07/13/11	07/13/11	07/13/11	07/12/11	07/12/11	07/12/11	07/12/11	07/12/11	07/12/11	07/12/11	07/12/11	07/12/11	05/13/13	05/13/13	05/13/13
Metals																			
Aluminum	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	16	6.10	5.10 J	2.10 J	6.10	13.4	3.90 J	3.10 J	4.00 J	3.90 J [4.20 J]	4.40 J	4.70 J	1.70 J	3.30 J	6.00	2.80 J	7.50	3.70	1.10
Barium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	9.3	1.50	0.600 J	<1.20	<1.30	<1.30	<1.20	<1.30	<1.30	<1.20 [<1.30]	<1.30	<1.30	<1.30	<1.30	<1.40	<1.30	NA	NA	NA
Calcium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Total	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, trivalent	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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TABLE 6
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED INORGANICS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID:	Restricted Use	SB-3	SB-3	SB-12	SB-19	SB-110	SB-111	SB-114	SB-115	SB-117	SB-118	SB-119	SB-121	SB-122	SB-122	SB-123	SB-124	SB-125	SB-126
Surface Elevation (Feet):	SCOs	133.75	133.75	133.00	132.30	132.67	133.03	133.00	133.19	132.84	132.50	133.00	133.09	134.00	134.00	134.00	133.06	133.33	132.68
Sample Depth(Feet bgs):		4 - 6	6 - 8	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4	0 - 0.2	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4
Date Collected:	Commercial	05/16/13	05/16/13	05/15/13	05/16/13	05/15/13	05/13/13	05/15/13	05/15/13	05/13/13	05/16/13	05/15/13	09/04/13	09/03/13	09/03/13	09/03/13	09/03/13	09/04/13	09/03/13
Metals																			
Aluminum	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	16	<0.950	1.20	11.9	<0.950	1.10	4.80	4.20	1.40	5.80	1.10	4.00	3.30	3.10	11.3	13.0	2.90	3.60	16.1
Barium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	9.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Total	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, trivalent	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED INORGANICS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID:		SB-127	SB-127	SB-128	SB-128	SB-129	SB-130	SB-130	SB-141	SB-141	SB-239	SB-239	SB-242	SB-243	SB-281	SB-281	SB-282	SB-282	SB-283
Surface Elevation (Feet):	Restricted Use	132.43	132.43	132.38	132.38	132.50	133.91	133.91	132.75	132.75	132.50	132.50	132.64	132.40	133.57	133.57	131.95	131.95	131.50
Sample Depth(Feet bgs):	SCOs	0 - 0.2	2 - 4	0 - 0.2	2 - 4	2 - 4	0 - 0.2	0.5 - 2	0 - 0.3	0.5 - 2	0 - 0.2	0.5 - 2	2 - 4	2 - 4	0 - 0.2	0.5 - 2	0 - 0.2	0.5 - 2	0 - 0.2
Date Collected:	Commercial	09/03/13	09/03/13	09/03/13	09/03/13	09/03/13	09/04/13	09/04/13	08/28/13	08/28/13	08/30/13	08/30/13	08/30/13	08/30/13	03/11/14	03/11/14	03/11/14	03/11/14	03/11/14
Metals																			
Aluminum	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	16	13.5	2.80	14.3 [10.7]	<2.10	<2.00	8.20	4.50	7.40	10.8	14.1	11.1	2.20	<2.00	6.60	4.50	4.30	8.70	6.00
Barium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	9.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Total	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, trivalent	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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TABLE 6
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED INORGANICS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID:	Restricted Use	SB-283	SB-285	SB-285	SB-286	SB-286	SB-288	SB-290	SB-290	SB-291	SB-291	SB-292	SB-292	SB-296	SB-301	SB-302	SB-303	SB-303
Surface Elevation (Feet):	SCOs	131.50	131.35	131.35	131.09	131.09	132.50	130.63	130.63	132.50	132.50	131.58	131.58	132.00	132.38	132.04	131.85	131.85
Sample Depth(Feet bgs):		0.5 - 2	0 - 0.2	0.5 - 2	0 - 0.2	0.5 - 2	0 - 0.2	0 - 0.2	0.5 - 2	0 - 0.2	0.5 - 2	0 - 0.2	0.5 - 2	2 - 4	2 - 4	2 - 4	0 - 0.2	0.5 - 2
Date Collected:	Commercial	03/11/14	03/11/14	03/11/14	03/11/14	03/11/14	03/11/14	03/12/14	03/12/14	03/11/14	03/11/14	03/11/14	03/11/14	03/12/14	03/11/14	03/12/14	03/11/14	03/11/14
Metals																		
Aluminum	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	16	6.10	11.0	1.00 B	3.70	2.00	8.60	4.90	4.10	6.60	5.20	8.90	5.20	2.20	1.40	3.90 [4.50]	4.60	12.9
Barium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	9.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Total	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, trivalent	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED INORGANICS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID:	Restricted Use	SB-305	SB-305	SB-311	SB-312	SB-313	SB-314	SB-315	SB-316	SB-316	SB-316	SB-317	SB-317	SB-324	SB-324	SB-324	SB-325	SB-325	SB-325
Surface Elevation (Feet):	SCOs	131.28	131.28	132.00	131.85	131.99	132.02	132.00	131.95	131.95	131.95	131.53	131.53	131.72	131.72	131.72	131.61	131.61	131.61
Sample Depth(Feet bgs):		0 - 0.2	0.5 - 2	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4	0 - 0.2	0.5 - 2	2 - 4	0 - 0.2	0.5 - 2	0 - 0.2	0.5 - 2	2 - 4	0 - 0.2	0.5 - 2	2 - 4
Date Collected:	Commercial	03/11/14	03/11/14	03/14/14	03/14/14	03/11/14	03/14/14	03/14/14	03/14/14	03/14/14	03/14/14	03/14/14	03/14/14	03/13/14	03/13/14	03/13/14	03/13/14	03/13/14	03/13/14
Metals																			
Aluminum	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	16	8.90	3.00	2.70	1.90	0.500 B	0.530 B	3.50	9.70	13.5	3.70	9.30	9.90	12.8	11.7	1.50	12.7	1.70	1.00 B
Barium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	9.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Total	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, trivalent	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED INORGANICS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID:	Restricted Use	SB-326	SB-327	SB-328	SB-329	SB-330	SB-331	SB-331	SB-336	SB-336	SB-337	SB-338	SB-339	SB-340	SB-341	SB-342	V-RD-1
Surface Elevation (Feet):	SCOs	131.14	131.55	131.61	131.70	131.57	131.24	131.24	130.35	130.35	132.00	132.19	132.32	132.02	132.06	132.01	132.51
Sample Depth(Feet bgs):	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4	0 - 0.2	0.5 - 2	0 - 0.2	0.5 - 2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.5
Date Collected:	Commercial	03/13/14	03/13/14	03/13/14	03/13/14	03/13/14	03/13/14	03/13/14	04/14/14	04/14/14	12/10/14	12/10/14	12/10/14	12/10/14	12/10/14	12/10/14	04/09/13
Metals																	
Aluminum	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	16	2.40	0.730 B	0.770 B	3.00	2.10 [6.10]	10.0	14.7	8.50	10.8	6.50	5.30	10.7	6.40	5.40 [5.90]	8.40	8.80
Barium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	32.4	<21.7	26.5	32.1	24.6 [23.7]	<23.9	NA
Beryllium	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.578	<0.544	<0.567	<0.570	<0.573 [<0.561]	<0.598	NA
Cadmium	9.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.70	1.80	2.30	2.10	1.90 [2.10]	1.80	<0.160
Calcium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Total	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.7	12.1	14.6	15.0	12.5 [15.0]	11.7	NA
Chromium, trivalent	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.7	12.1	14.6	15.0	12.5 [15.0]	11.7	NA
Cobalt	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.3	11.3	19.1	13.2	13.7 [13.0]	16.4	NA
Iron	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	28.6	18.4	41.8	14.3	116 [1,110]	23.8	NA
Magnesium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	179	115	139	114	127 [150]	149	NA
Mercury	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.190	0.0700	0.160	0.130	0.140 [0.130]	0.130	NA
Nickel	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.30	5.30	6.00	7.30	5.70 [5.20]	<4.78	NA
Potassium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.578	<0.544	<0.567	<0.570	<0.573 [<0.561]	<0.598	NA
Silver	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.16	<1.09	<1.13	<1.14	<1.15 [<1.12]	<1.20	NA
Sodium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	32.5	24.8	41.9	22.0	25.0 [22.9]	21.0	NA

TABLE 6
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED INORGANICS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID:		V-RD-2	V-RD-3	V-RD-5	V-RD-7	V-RD-8	V-RD-9	V-RD-10	V-RD-11	V-RD-12	V-RD-13	V-RD-15	V-RD-20	V-RD-21	V-RD-22	V-RD-24	V-RD-25	V-RD-26
Surface Elevation (Feet):	Restricted Use	132.50	132.50	132.50	132.50	132.50	132.67	132.52	133.00	132.76	132.71	132.55	133.01	132.51	132.49	132.88	132.36	132.69
Sample Depth(Feet bgs):	SCOs	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Date Collected:	Commercial	04/09/13	04/09/13	04/09/13	04/09/13	04/09/13	04/05/13	04/05/13	04/05/13	04/05/13	04/05/13	04/09/13	04/05/13	04/09/13	04/09/13	04/09/13	04/09/13	04/09/13
Metals																		
Aluminum	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	16	6.59	5.47	10.3	66.0	17.6	1.18	3.21	3.04	7.03	12.3	12.8 [14.2]	35.3	3.59	8.57	3.55	50.6	8.81
Barium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	9.3	<0.155	0.0900 J	<0.150	<0.160	<0.150	<0.135	<0.140	<0.145	7.36	7.27	<0.165 [0.430]	0.390	0.760	0.910	<0.145	0.300 J	2.75
Calcium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Total	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, trivalent	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 6
SUMMARY OF REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED INORGANICS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Location ID:		V-RD-29	V-RD-42	V-RD-43	V-RD-44	V-RD-45
Surface Elevation (Feet):	Restricted Use	132.55	131.80	131.52	131.42	131.60
Sample Depth(Feet bgs):	SCOs	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Date Collected:	Commercial	04/09/13	04/18/13	04/18/13	04/18/13	04/18/13
Metals						
Aluminum	--	NA	NA	NA	NA	NA
Antimony	--	NA	NA	NA	NA	NA
Arsenic	16	7.72	4.67 [4.34]	4.02	3.12	10.1
Barium	400	NA	NA	NA	NA	NA
Beryllium	590	NA	NA	NA	NA	NA
Cadmium	9.3	<0.145	1.67 [1.38]	<0.135	<0.140	<0.150
Calcium	--	NA	NA	NA	NA	NA
Chromium, Total	--	NA	NA	NA	NA	NA
Chromium, trivalent	1,500	NA	NA	NA	NA	NA
Cobalt	--	NA	NA	NA	NA	NA
Copper	270	NA	NA	NA	NA	NA
Iron	--	NA	NA	NA	NA	NA
Lead	1,000	NA	NA	NA	NA	NA
Magnesium	--	NA	NA	NA	NA	NA
Manganese	10,000	NA	NA	NA	NA	NA
Mercury	2.8	NA	NA	NA	NA	NA
Nickel	310	NA	NA	NA	NA	NA
Potassium	--	NA	NA	NA	NA	NA
Selenium	1,500	NA	NA	NA	NA	NA
Silver	1,500	NA	NA	NA	NA	NA
Sodium	--	NA	NA	NA	NA	NA
Vanadium	--	NA	NA	NA	NA	NA
Zinc	10,000	NA	NA	NA	NA	NA

TABLE 6
SUMMARY REMAINING SOIL ANALYTICAL RESULTS FOR DETECTED INORGANICS (ppm)

SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Notes:

1. **Sample depths are prior to the installation of 1-foot thick soil cover system.**
2. Surface elevations were at the time of sampling.
3. The 2013 samples were collected by The Environmental Quality Company (EQ) on the dates indicated, all others were collected by ARCADIS on the dates indicated.
4. bgs = Below ground surface.
5. Samples were analyzed by TestAmerica Laboratories, Inc. (formerly Severn Trent Laboratories, Inc) located in Shelton, Connecticut for Inorganics using USEPA SW-846 Methods 6010, 7471, 7473, 7196, 9012 and 9014.
6. All concentrations reported in dry weight parts per million (ppm), which is equivalent to milligrams per kilogram (mg/kg).
7. Data qualifiers are defined as follows:
 - < = Constituent not detected at a concentration above the reported detection limit.
 - * = LCS or LCSD exceeds the control limits.
 - B = Indicates an estimated value between the instrument detection limit and the Reporting Limit (RL).
 - J = The associated numerical value is an estimated concentration.
 - N = Spiked sample recovery is not within control limits.
 - ND = Not detected
8. 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs) are from Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375-6.8(b).
9. Bold font and shading indicates that the result exceeds the Restricted Use SCO Commercial.
10. - - = No 6 NYCRR Part 375 SCO listed.
11. NA = Not Analyzed.

**TABLE 7
EXCAVATION AREA DETAIL SUMMARY**

**SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK**

Excavation Area ID	Excavation Rationale	Surface Area (SF)	Excavation Depth (ft)	Volume of Excavated Soil (CY)	Volume of Backfill Material (CY)	Backfill Material
2005 Interim Corrective Measure						
AOC-39 (2005)	PCB Impacts	380	2.0	30	30	Non-impact (exempt) crushed concrete and masonry
AOC-51 UST Removal (2006)	UST Removal	81	6.5	--	--	NA
NAPL Excavation (2006)	NAPL impacted soil	100	4.5	17	17	Not required. Final elevation was consistent with surrounding grade
2005 ICM Subtotal:				47	47	--
2006 Interim Corrective Measure						
1	PCB Impacts	25	6.5	10	10	Non-impact (exempt) crushed concrete
2	PCB Impacts	784	10.0 (Western Section)	660	660	Imported Repurposed Fill, Non-impact (exempt) crushed concrete
			30.0 (Middle Section)			
			20.0 (Eastern Section)			
2006 ICM Subtotal:				670	670	--
2009 Interim Corrective Measure						
1	PCB Impacts	3,274	4.0	485	485	Reuse soil and Non-impact (exempt) crushed concrete and masonry
2	PCB Impacts	557	28.0 - 28.5	583	583	Non-impact (exempt) crushed concrete and masonry
3	PCB Impacts	999 (inside sheet pile) 473 (for pre-trenching)	32.0 (majority) 4.0 (for pre-trenching)	1,254	1,254	
4	PCB Impacts	773	2.0 - 3.0	72	72	Reuse soil
5	PCB Impacts	2,410 97	2.0 (majority) 4.0 (part of east end)	193	193	
6	PCB Impacts	4,258 2,320	4.0 - 4.5 (east/west section) 6.0 (north section)	1,186	1,186	Non-impact (exempt) crushed concrete and masonry
7	PCB Impacts	768 579	4.0 - 4.5 (south section) 6.0 (north section)	250	250	Reuse soil
8	PCB Impacts	1,446	2.0 - 2.5	121	121	Non-impact (exempt) crushed concrete and masonry
9	PCB Impacts	1,281 1,792	4.0 (south section) 6.5 (north section)	621	621	
10	PCB, VOC and SVOC Impacts	424	8.0 - 8.5	130	130	Reuse soil
11	PCB, VOC and SVOC Impacts	2,820	6.0 - 6.5 (east section)	698	--	Not required. Final elevation was consistent with surrounding grade
		148	8.0 - 8.5 (northwest corner)			
12	PCB, VOC and SVOC Impacts	4,100	4.0 - 4.5 (majority) 7.5 (southwest corner)	645	--	
13	PCB Impacts	1,537	2.0 - 2.25	128	128	Non-impact (exempt) crushed concrete and masonry
14	VOC and SVOC Impacts	531	4.5 - 5.0	84	--	Not required. Final elevation was consistent with surrounding grade
15	VOC and SVOC Impacts	1,136	1.0	42	--	
2009 ICM Subtotal:				6,490	5,021	--

**TABLE 7
EXCAVATION AREA DETAIL SUMMARY**

**SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK**

Excavation Area ID	Excavation Rationale	Surface Area (SF)	Excavation Depth (ft)	Volume of Excavated Soil (CY)	Volume of Backfill Material (CY)	Backfill Material
Phase 1 OU4 (2013)						
1A	Arsenic Impacts	4,431	1	165	0	Imported clean fill during Phase 2 OU4
2A	PCB Impacts	5,118	2	380	0	
3A	Arsenic Impacts	3,736	1	139	0	
4A	Arsenic Impacts	2,373	1	88	0	
5A	Arsenic Impacts	900	1	34	0	
6A	PCB Impacts	3,138	4	465	0	
7A	Arsenic Impacts	1,213	1	45	0	
8A	PCB Impacts	1,128	4	168	0	
9A	PCB Impacts	1,453	4	216	0	
10A	PCB Impacts	1,487	8	441	220	
11A	PCB Impacts	1,208	4	179	0	Imported clean fill
12A	PCB Impacts	782	2	58	0	Imported clean fill during Phase 2 OU4
13A	PCB Impacts	1,114	6	248	0	
14A	PCB and Chromium Impacts	1,714	4	254	0	Imported clean fill
15A	PCB Impacts	801	2	60	0	
16A	PCB Impacts	398	8.5	126	37	Imported clean fill
17A	PCB Impacts	2,215	4	329	0	Imported clean fill during Phase 2 OU4
18A	PCB Impacts	765	2	57	0	
19A	PCB Impacts	900	6	200	67	Imported clean fill
20A	PCB Impacts	1,127	10	418	250	
21A	PCB Impacts	2,758	2	205	0	Imported clean fill during Phase 2 OU4
22A	PCB Impacts	578	10	215	128	Imported clean fill
23A	PCB Impacts	1,517	6	338	112	
24A	PCB Impacts	392	6	88	29	
25A	PCB Impacts	999	10	370	222	
26A	PCB Impacts	1,025	4	152	0	Imported clean fill during Phase 2 OU4
27A	PCB Impacts	645	8	192	96	Imported clean fill
28A	SVOC Impacts	496	1	19	0	Imported clean fill during Phase 2 OU4
29A	PCB Impacts	2,325	4	345	0	
30A	PCB Impacts	864	6	192	64	Imported clean fill
31A	PCB Impacts	388	2	29	0	Imported clean fill during Phase 2 OU4
32A	PCB Impacts	1,629	2	121	0	
33A	PCB Impacts	1,238	6	276	92	Imported clean fill
34A	PCB Impacts	1,509	6	336	112	
35A	SVOC Impacts	900	2	67	0	Imported clean fill during Phase 2 OU4
36A	PCB Impacts	395	4	59	0	
37A	PCB Impacts	443	4	66	0	
1B	SVOC Impacts	1,085	1	41	0	
2B	PCB Impacts	1,025	1	38	0	
3B	SVOC Impacts	2,140	1	80	0	
4B	SVOC Impacts	900	1	34	0	
5B	PCB Impacts	3,265	1	121	0	
6B	PCB Impacts	915	1	34	0	
7B	SVOC Impacts	2,250	1	84	0	
8B	PCB Impacts	1,000	1	38	0	
10B	SVOC Impacts	2,065	1	77	0	
11B	SVOC Impacts	900	1	34	0	
12B	PCB Impacts	855	1	32	0	
13B	PCB Impacts	6,900	1	256	0	
15B	PCB Impacts	760	1	29	0	
16B	PCB Impacts	7,840	1	291	0	
18B	PCB Impacts	795	1	30	0	
19B	PCB Impacts	490	1	19	0	
20B	PCB Impacts	650	1	25	0	
21B	PCB Impacts	1,640	1	61	0	
22B	PCB Impacts	440	1	17	0	
23B	PCB and SVOC Impacts	900	1	34	0	
24B	PCB Impacts	900	1	34	0	
Uncompleted Backfill Volume Addressed During Phase 2 OU4:				--	7,120	--
Phase 1 OU4 Subtotal:				8,549	1,429	--

**TABLE 7
EXCAVATION AREA DETAIL SUMMARY**

**SITE MANAGEMENT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK**

Excavation Area ID	Excavation Rationale	Surface Area (SF)	Excavation Depth (ft)	Volume of Excavated Soil (CY)	Volume of Backfill Material (CY)	Backfill Material
Phase 2 OU4 (2014)						
13A-1	PCB Impacts	750	8 (NW Quadrant) 10 (NE Quadrant) 12 (Main Section)	167	167	Imported clean fill
13A-2	PCB Impacts	115	14	35	35	
21A	PCB Impacts	922	6	137	137	
24A	Arsenic Impacts	272	8 (N Section) 10 (SW Quadrant) 12 (SE Quadrant)	60.44	60.44	
16B-1	PCB Impacts	480	2	36	36	
16B-2	PCB Impacts	77	1	3	3	
16B-3	PCB Impacts	930	4	138	138	
16B-4	PCB Impacts	2,405	1	90	90	
17B-1	PCB Impacts	1,940	1	72	72	
17B-2	Arsenic Impacts	1,530	1	57	57	
17B-3	PCB Impacts	115	1	5	5	
1C	PCB Impacts	1,040	2	78	78	
2C	PCB Impacts	295	2	22	22	
3C	PCB Impacts	4,790	1	178	178	
4C	PCB Impacts	1,350	1	50	50	
5C	PCB Impacts	180	1	7	7	
6C	PCB Impacts	435	2	33	33	
7C	PCB Impacts	14,660	2	1,086	1,086	
8C	PCB Impacts	950	1	36	36	
9C	PCB Impacts	910	1	34	34	
10C	PCB Impacts	2,255	1	84	84	
11C	PCB Impacts	920	1	35	35	
12C	PCB Impacts	865	2	65	65	
13C	PCB Impacts	900	2	67	67	
14C	PCB Impacts	1,350	2	100	100	
15C	PCB Impacts	9,180	1	340	340	
16C	PCB Impacts	1,155	2	86	86	
17C	PCB Impacts	4,355	1	162	162	
18C	PCB Impacts	1,135	8	337	337	
19C	PCB Impacts	1,290	2	96	96	
20C	Arsenic Impacts	2,180	1	81	81	
21C	Arsenic Impacts	4,255	2	316	316	
22C	Arsenic Impacts	990	4	147	147	
23C	Arsenic Impacts	11,300	1	419	419	
24C	Arsenic Impacts	29,860	2	2,212	2,212	
25C	PCB Impacts	1,741	1	65	65	
26C	PCB Impacts	1,499	1	56	56	
27C	PCB Impacts	3,220	1	120	120	
Phase 1 OU4 Remaining Open Excavation Areas:				--	7,120	--
Phase 2 OU4 Grading Plan Backfill Reduction:				--	(2,100)	--
Phase 2 OU4 Subtotal:				7,112	12,132	--
Total:				22,822	19,299	--

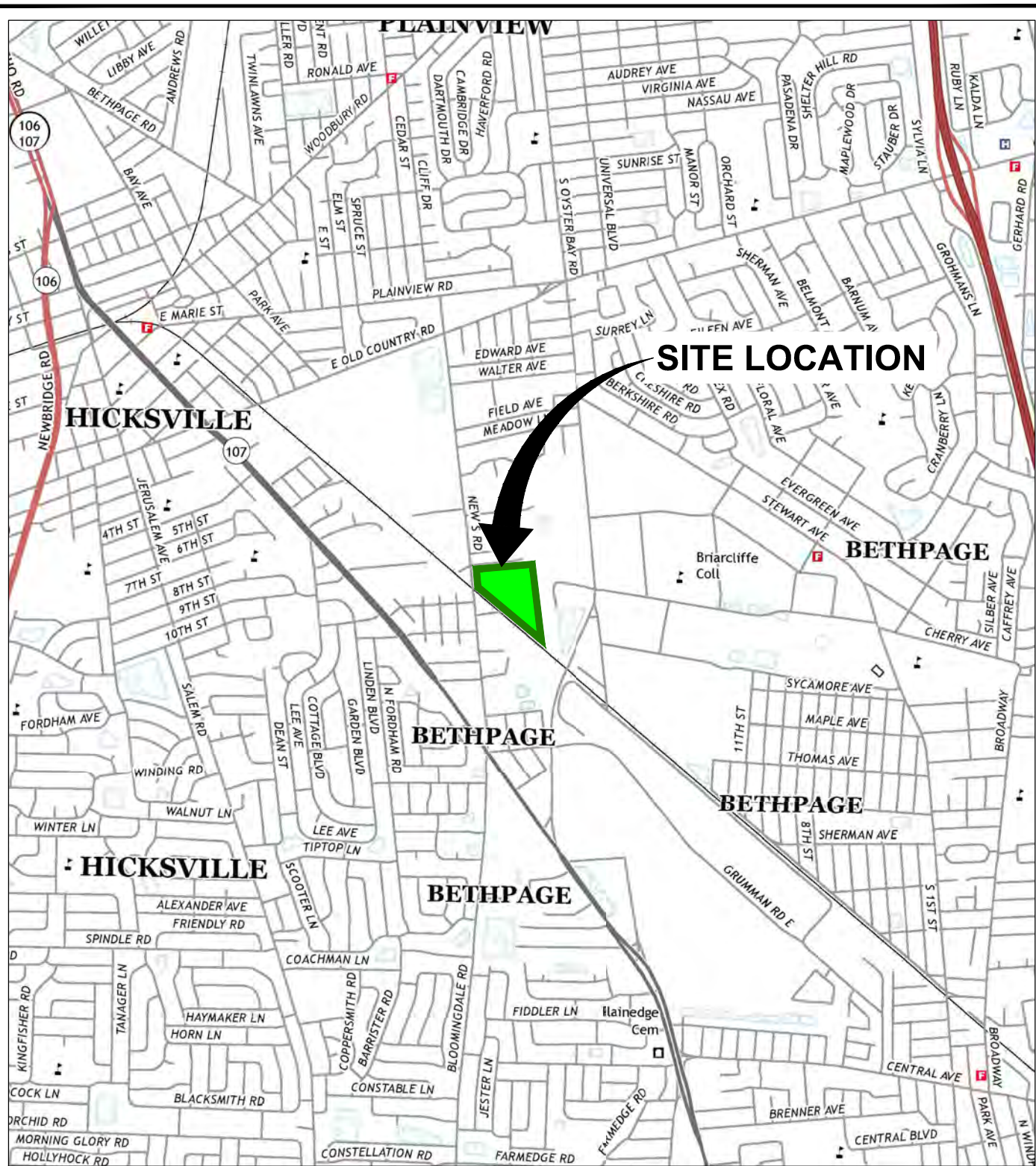
Notes:

- See Tables 1, 2, 3 and 4 of this Site Management Plan for reuse concrete results, reuse soil results, imported clean fill results and imported repurposed backfill material results, respectively.
- Excavations completed as part of the OU4 remedial activities had a demarcation layer (i.e., orange construction fencing) placed at the final excavation depth prior to backfilling.
- AOC = Area of Concern.
- CY = Cubic Yards.
- ft = Feet.
- ICM = Interim Corrective Measure.
- NA = Not Applicable.
- NYS = New York State.
- NAPL = Non-aqueous Phase Liquid.
- PCBs = Polychlorinated Biphenyls.
- TSCA = Toxic Substance Control Act.
- SF = Square Feet.
- OU = Operable Unit.
- UST = Underground Storage Tank.

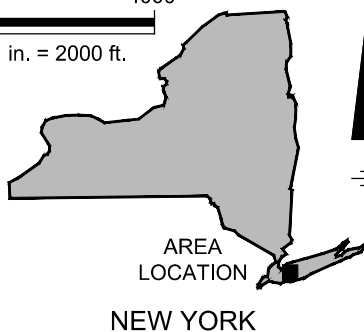
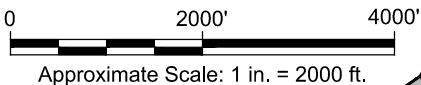
FIGURES



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REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., HICKSVILLE, HUNTINGTON, FREEPORT & AMITYVILLE, NY, 2016.



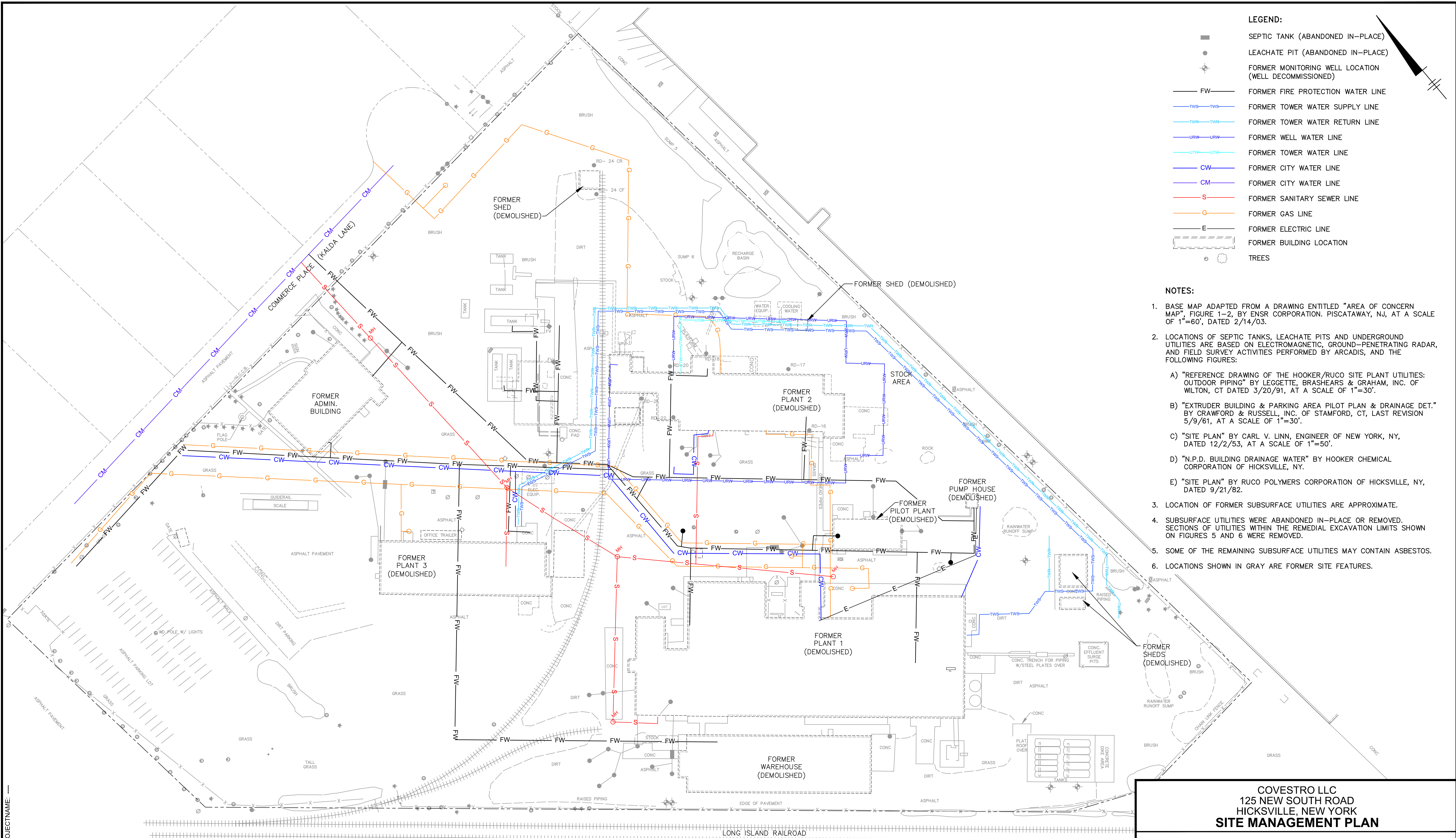
COVESTRO LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK
SITE MANAGEMENT PLAN

SITE LOCATION MAP

CITY: SYRACUSE, NY DIV: GROUP: ENV/CADD DB: R.Basset, P.LISTER A.Schilling, K.SARTORI LD: K.SARTORI PIC: T.RATCHFORD PW: TM: J.BRUSSEL LYRON: "OFF=REF"
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PROJECT NAME: COVESTRO LLC 125 NEW SOUTH ROAD HICKSVILLE, NEW YORK

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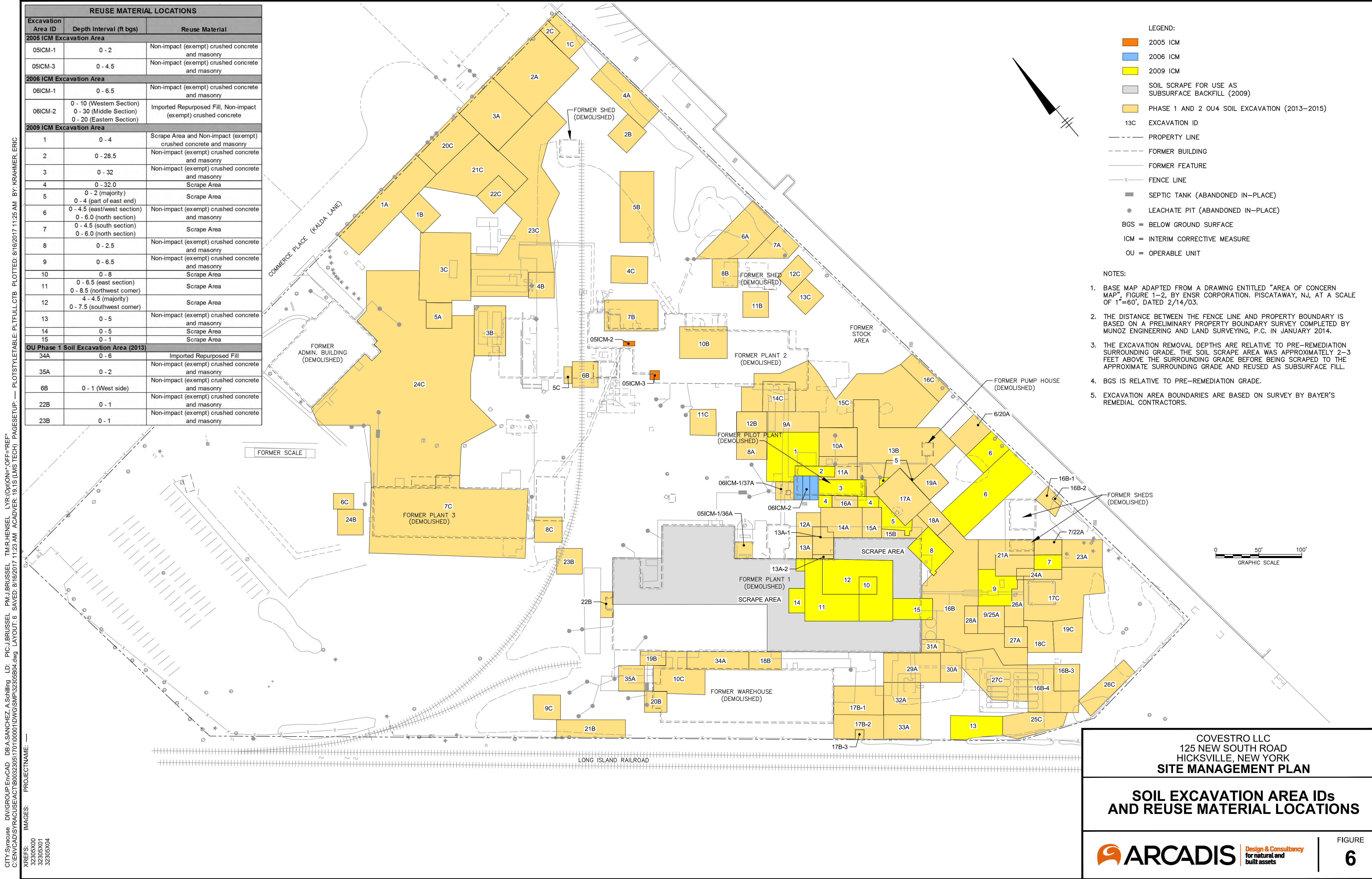


COVESTRO LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK
SITE MANAGEMENT PLAN

SUBSURFACE UTILITIES



Design & Consultancy
for natural and
built assets



CITY:Syracuse DIV:GROUP:EnvCAD DBA SANCHEZ A Schilling LD: PIC:J.BRUSSEL TMR:HENSEL LYR:(OBJ)ON*OFF=REF: C:ENVCAD\SYRACUSE\ACT\B0032305170100001\DWG\SMP\32305B04.dwg LAYOUT: 6 SAVED: 8/16/2017 11:23 AM ACADVER: 19.1S (LMS TECH) PAGES: 6 PLOT SETUP: --- PLOT STYLE: TABLE: PLT: FULL CTB PLOTTED: 8/16/2017 11:25 AM BY: KRAHMER, ERIC

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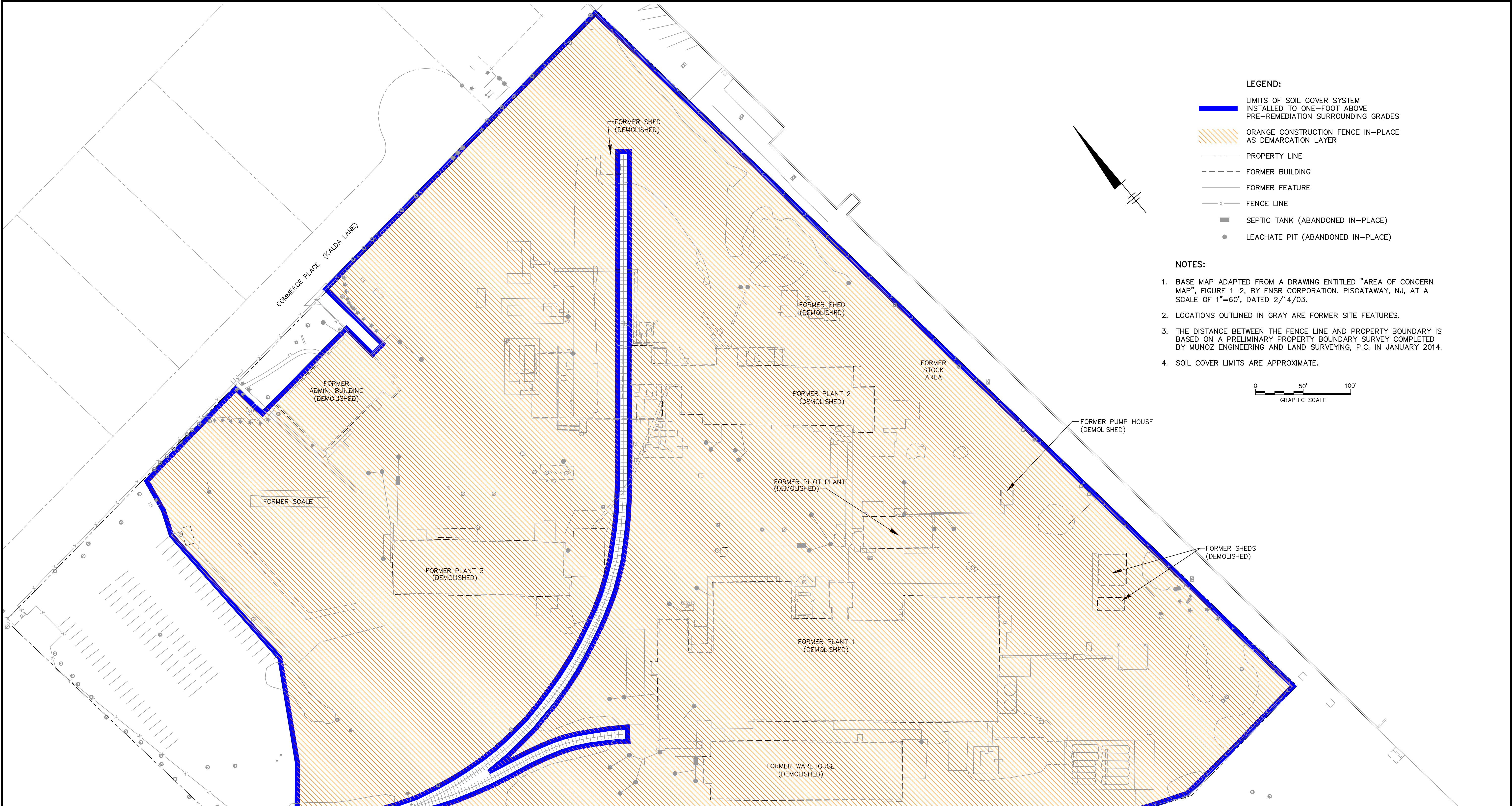
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COVESTRO LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK
SITE MANAGEMENT PLAN

**SOIL COVER SYSTEM
AND DEMARCATION LAYER LIMITS**

APPENDIX A

Environmental Easement



**ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36
OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW**

THIS INDENTURE made this 20th day of June, 2017 between Owner, Covestro LLC, having an office at 1 Covestro Circle, Pittsburgh, Pennsylvania 15205, County of Allegheny, State of Pennsylvania (the "Grantor"), and The People of the State of New York (the "Grantee"), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233;

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 125 New South Road in the Hamlet of Hicksville, Town of Oyster Bay, County of Nassau and State of New York, known and designated on the tax map of the County Clerk of Nassau as tax map parcel numbers: Section 46 Block N Lots 30 and 31, being the same as that property conveyed to Grantor by deed dated April 25, 2003 and recorded in the Nassau County Clerk's Office in Liber and Page 11655/448, being the same property conveyed to Grantor by confirmation deed dated October 29, 2015 and recorded in the Nassau County Clerk's Office as Instrument # 2015-25354. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 15.1 +/- acres, and is hereinafter more fully described in the Land Title Survey dated February, 2014 and last revised January 21, 2016 prepared by Matthew Ziolkowski, P.L.S. of Munoz Engineering, P.C., which will be attached to the Site Management Plan ("SMP"). The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Controlled Property is part of the Hooker Chemical/Ruco Polymer

Superfund Site, which was placed on the National Priorities List (NPL) established under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA) in 1986; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Order on Consent Index Number: A1-0781-11-11 dated June 21, 2012, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a commercial and/or industrial use (consistent with the allowable uses outlined in the SMP) while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the SMP;

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Nassau County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the Controlled Property must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential or Restricted Residential purposes as defined in 6 NYCRR 375-1.8(g)(2)(i) and (ii), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

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 Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the Controlled Property to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such Controlled Property:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such Controlled Property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her 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

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Controlled Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to: Site Number: 130004
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to: Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway

Albany, New York 12233-5500

All notices and correspondence shall be delivered by hand, by registered mail or by Certified Mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Controlled Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Controlled Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Controlled Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

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IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

Covestro LLC:

By: _____

Print Name: John Lemmex

Title: CFO Date: June 9, 2017

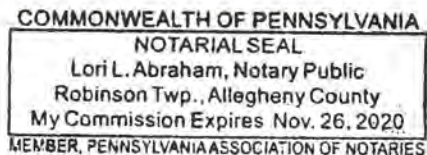
Grantor's Acknowledgment

COMMONWEALTH OF PENNSYLVANIA)
) ss
COUNTY OF ALLEGHENY)

On the 9th day of June, in the year 20 17, before me, the undersigned, personally appeared John Lemmex, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Lori L. Abraham

Notary Public - Commonwealth of Pennsylvania



CO-MONW 7 TH OF PENNSYLVANIA
 ARIAL SEAL
 Notary Public
 p. Allegheny County
 My Comm. Expires Nov. 20, 2020
 REASSOCIATION OF NOTARIES

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner,

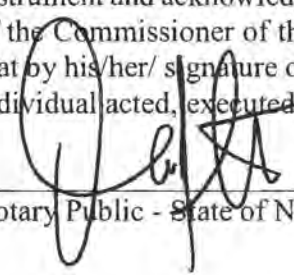
By:


Robert W. Schick, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 19 day of June, in the year 2017 before me, the undersigned, personally appeared Robert W. Schick, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.


Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2018

SCHEDULE "A" PROPERTY DESCRIPTION

Address: 125 New South Road
Hicksville, Nassau County, New York

Tax Map Nos.: 46-N-30 & 46-N-31

SURVEYOR'S DESCRIPTION OF TOTAL ENVIRONMENTAL EASEMENT:

All that tract or parcel of land situated in the Town of Oyster Bay, County of Nassau, and State of New York, and being bounded and described as follows:

BEGINNING at a point formed by the intersection of the northeasterly line of the Long Island Railroad right of way with the easterly side of New South Road (Ketcham Road);

Running thence along said easterly side of New South Road North 05 Degrees 47 Minutes 25 Seconds East a distance of 25.81 feet to a point;

Thence still along said easterly side of New South Road North 04 Degrees 27 Minutes 15 Seconds East a distance of 271.88 feet to land now or formerly Zirk;

Thence along the last mentioned line, South 84 Degrees 37 Minutes 30 Seconds East a distance of 892.43 feet to a point;

Thence along the land now or formerly K & T Realty Corporation, South 05 Degrees 03 Minutes 22 Seconds West a distance of 1,019.86 feet to a point;

Thence North 85 Degrees 00 Minutes 00 Seconds West a distance of 160 feet, to a point.

Thence North 55 Degrees 35 Minutes 00 Seconds West a distance of 90.86 feet to a point on the northeasterly line of the Long Island Railroad right of way;

Thence along said Long Island Railroad right of way North 38 Degrees 32 Minutes 45 Seconds West a distance of 942.85 feet to the easterly side of New South Road and the point or place of BEGINNING.

The above described parcels contain 657,138 square feet or 15.1 acres, more or less.

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. The engineering and institutional controls for this Easement are set forth in more detail 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 www.derweb@dec.ny.gov.

SURVEYOR'S DESCRIPTION - ENVIRONMENTAL EASEMENT,
ENTIRE PROPERTY - TAX MAP PARCEL #S: 46-N-30 & 31

ON ALL THAT CERTAIN PLOT, PIECES OR PARCELS OF LAND, situate in the Town of Oyster Bay, County of Nassau, and State of New York, being bounded and described as follows;

BEGINNING at a point formed by the intersection of the northeasterly line of the Long Island Railroad right of way with the easterly side of New South Road (Ketcham Road);

Running thence along said easterly side of New South Road North 05 Degrees 47 Minutes 25 Seconds East a distance of 25.81 feet to a point;

Thence still along said easterly side of New South Road North 04 Degrees 27 Minutes 15 Seconds East a distance of 271.88 feet to land now or formerly Zirk;

Thence along the last mentioned line, South 84 Degrees 37 Minutes 30 Seconds East a distance of 892.43 feet to a point;

Thence along the land now or formerly K & T Realty Corporation, South 05 Degrees 03 Minutes 22 Seconds West a distance of 1,019.86 feet to a point;

Thence North 85 Degrees 00 Minutes 00 Seconds West a distance of 160 feet, to a point;

Thence North 55 Degrees 35 Minutes 00 Seconds West a distance of 90.86 feet to a point on the northeasterly line of the Long Island Railroad right of way; and

Thence along said Long Island Railroad right of way North 38 Degrees 32 Minutes 45 Seconds West a distance of 942.85 feet to the easterly side of New South Road and the point or place of BEGINNING.

The above described parcel contains 657,138 Square Feet or 15.1 Acres.

ABBREVIATION:

L.I.R.R.	LONG ISLAND RAIL ROAD
P.O.B.	POINT OF BEGINNING
F.K.A.	FORMERLY KNOWN AS
Sq. Ft.	SQUARE FEET
O/H	OVERHEAD UTILITIES

LEGEND:

ENVIRONMENTAL EASEMENT AREA

ENVIRONMENTAL EASEMENT LINE

LOT LINE

CHAIN LINK FENCE

RAILROAD TRACKS

CURB

OVERHEAD UTILITIES (O/H)

PROPERTY LINE BEARING

UTILITY POLE

GUY WIRE

WATER VALVE

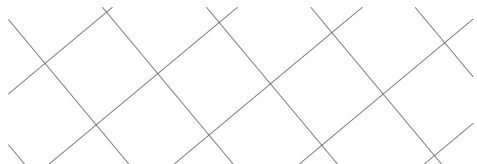
FIRE HYDRANT

SIGN

UNKNOWN UTILITY MANHOLE

GAS VALVE

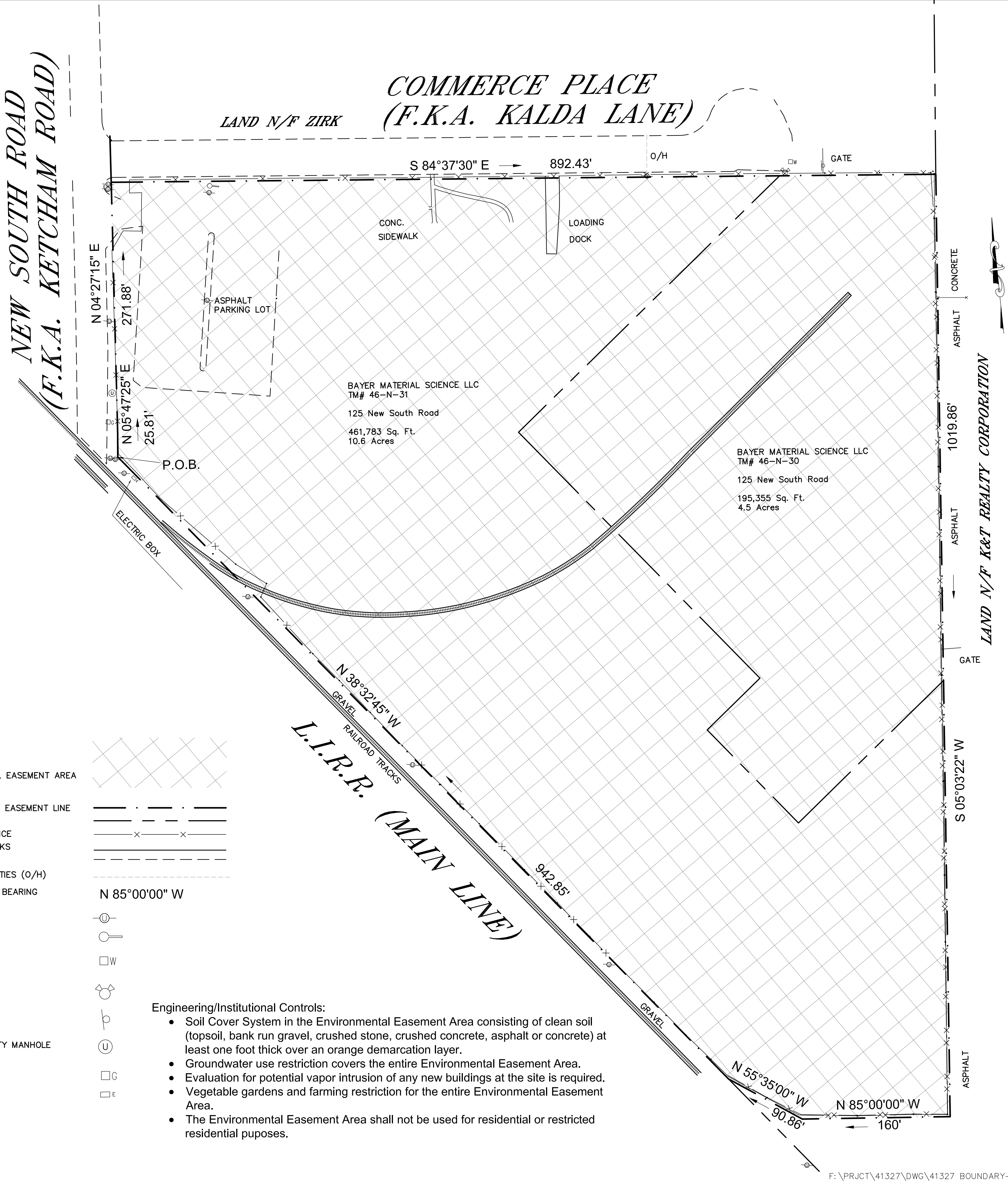
ELECTRIC BOX



N 85°00'00" W

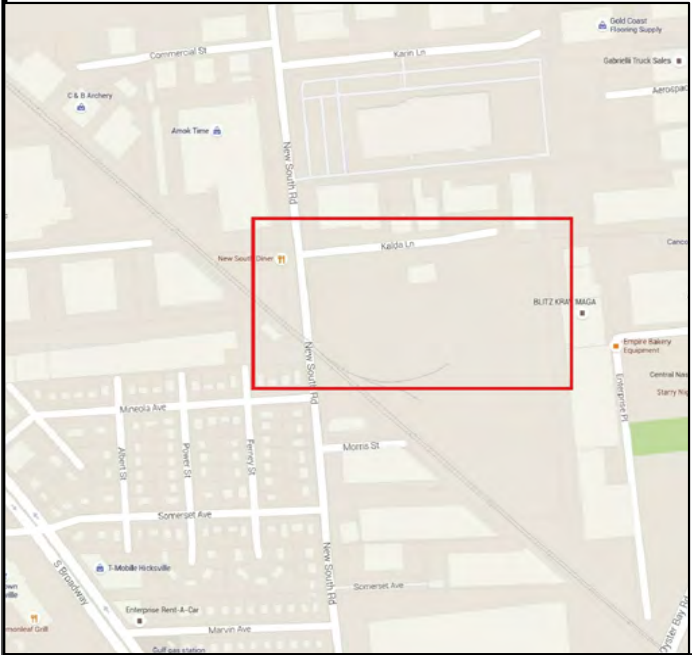
Engineering/Institutional Controls:

- Soil Cover System in the Environmental Easement Area consisting of clean soil (topsoil, bank run gravel, crushed stone, crushed concrete, asphalt or concrete) at least one foot thick over an orange demarcation layer.
- Groundwater use restriction covers the entire Environmental Easement Area.
- Evaluation for potential vapor intrusion of any new buildings at the site is required.
- Vegetable gardens and farming restriction for the entire Environmental Easement Area.
- The Environmental Easement Area shall not be used for residential or restricted residential puposes.

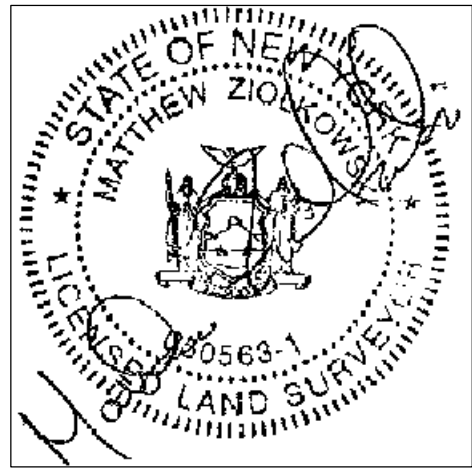
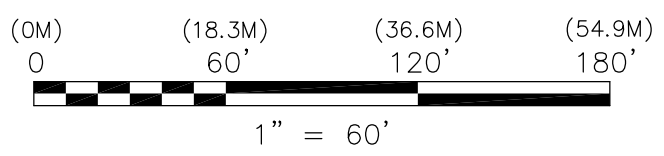


F:\PRJCT\41327\DWG\41327 BOUNDARY-SURVEY.DWG

VICINITY MAP



SCALE



CERTIFIED BY

ZIOLKOWSKI MATTHEW
PROFESSIONAL LAND SURVEYOR
NY STATE LIC No. 050563-1
NJ STATE LIC No. 246504223800

"UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF ARTICLE 134 SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW"

"Copies from the original of this survey map not marked with an original of the land surveyor's inked seal or his embossed seal shall not be considered a valid true copy."

1	1/21	LAND N/F OWNER	BR	MZ
NO.	DATE	DESCRIPTION	BY	APPR'D

REVISIONS

MUÑOZ
ENGINEERING P.C.
505 EIGHTH AVENUE
NEW YORK, N.Y. 10018
TEL. (212) 967-6588

**ENVIRONMENTAL
EASEMENT PLAN
NYSDEC SITE #130004
125 NEW SOUTH ROAD
HICKSVILLE,
TOWN OF OYSTER BAY,
NASSAU COUNTY, NEW YORK**

Date 1/21/16	Project No. 41327	Drawn CFA	Approv. MZ
Survey Date: FEBRUARY, 2014		Drawing No. B-1	
Survey Crew:		Sheet No. 1 OF 1	

APPENDIX B

List of Site Contacts



APPENDIX B – LIST OF SITE CONTACTS¹

FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE 125 NEW SOUTH ROAD HICKSVILLE, NEW YORK

Name/Affiliation	Address	Phone/E-mail
Covestro LLC (Responsible Party)		
Tim Troutman, P.E. Environmental Governance Project Manager	1 Covestro Circle Pittsburgh, PA 15205	Tel: 412.413.2236 tim.troutman@covestro.com
New South Road Realty (NSRR; Future Site Owner)		
Joseph Kelleher, RPA	Simone Development 1250 Waters Place PH1 Bronx, NY 10461	Tel: 718.215.3000
New York State Department of Environmental Conservation (Lead Regulatory Agency)		
Steven M. Scharf, P.E. Project Engineer	NYSDEC Remedial Bureau A 625 Broadway 12 th Floor Albany, NY 12233-7015	Tel: 518.402.9620 steven.scharf@dec.ny.gov
Carl Fritz Regional Engineer	NYSDEC Region 1 SUNY Stonybrook Building 40 Stonybrook, NY 11790-2356	Tel: 631.444.0232 carl.fritz@dec.ny.gov
New York State Department of Health		
Renata Ockerby Public Health Specialist	NYSDOH Empire State Plaza Corning Tower Room 1787 Albany, NY 12237	Tel: 518.402.7860 renata.ockerby@health.ny.gov
United States Environmental Protection Agency		
Mike Negrelli Remedial Project Manager	USEPA Region 2 Emergency and Remedial Response Division 290 Broadway, 20 th Floor New York, NY 10007-1866	Tel: 212.637.4278 negrelli.mike@epa.gov
Arcadis of New York, Inc. (Consultant to Covestro)		
John C. Brussel, P.E. Principal Engineer	One Lincoln Center 110 West Fayette Street Suite 300 Syracuse, NY 13202	Tel: 315.671.9441 john.brussel@arcadis.com
Impact Environmental (Consultant to NSRR)		
Joel M. Rogers, P.E. Vice President	1000 Page Avenue Lyndhurst, NJ 07071	Tel: 201.268.5686 jrogers@impactenvironmental.com

¹ List of Site contacts subject to change upon change of title and/or role change

APPENDIX C

Site Responsibilities



APPENDIX C – SITE RESPONSIBILITIES

FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE 125 NEW SOUTH ROAD HICKSVILLE, NEW YORK

The current Site owner, and then upon change of title, the subsequent Site owner(s) (referred to hereafter as the Current Site Owner) retains the following responsibilities related to the Site:

Item #	Responsibility
1	Complying with the Environmental Easement at the Site.
2	Assuring security of remedial components of the Site.
3	Following the Site Management Plan (SMP) provisions regarding construction/excavation (for any ground-intrusive activities below the demarcation layer), maintenance, and monitoring/sampling at the Site, including complying with the following documents: • Excavation Work Plan included as Appendix D to the SMP. • Health and Safety Plan (HASP) included as Appendix F to the SMP (this includes complying with the minimum requirements of the HASP and the Site Owner's own HASP to be prepared covering specific work activities by the Site Owner/Site Owner's contractors). • Field Sampling Plan included as Appendix H to the SMP. • Quality Assurance Project Plan included as Appendix I to the SMP. • Community Air Monitoring Plan included as Appendix J to the SMP.
4	Conducting a Site-wide inspection of all remedial components at the Site on an annual (minimum) basis, referring to and using the Site-Wide Inspection Form included as Appendix G to the SMP.
5	Maintaining and repairing the soil cover system, including making New York State Department of Environmental Conservation- (NYSDEC-) mandated repairs to the soil cover system for damage caused by the Current Site Owner's tenants or its operations at the Site.
6	Granting Site access to the NYSDEC and its agents.
7	Providing reports and certifications for the Site as required by the NYSDEC pursuant to Sections 2 (Engineering and Institutional Control Plan), 3 (Site Monitoring Plan), and 5 (Inspections, Reporting and Certifications) of the SMP. This includes preparing the Periodic Review Report and certification to the NYSDEC that the Engineering Controls (ECs) and Institutional Controls (ICs) identified in the SMP remain in-place and are complied with.
8	Developing and submitting to NYSDEC a Corrective Measures Plan as described in Section 5.4 of the SMP if any component of the remedy at the Site is found to have failed, or if the periodic certification cannot be provided due to the failure of an EC or IC.
9	Performing the work outlined in the Corrective Measures Plan following plan approval by the NYSDEC. If an emergency condition exists, the Current Site Owner shall conduct the repair work immediately.
10	Providing a summary of any work performed pursuant to the Corrective Measures Plan to the NYSDEC.
11	Submitting an amended SMP to the NYSDEC for site use changes or proposed modifications to the maintenance or monitoring program at the Site. Changes to the SMP by

APPENDIX C – SITE RESPONSIBILITIES

FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE 125 NEW SOUTH ROAD HICKSVILLE, NEW YORK

The current Site owner, and then upon change of title, the subsequent Site owner(s) (referred to hereafter as the Current Site Owner) retains the following responsibilities related to the Site:

Item #	Responsibility
	the Current Site Owner will require certification by the Current Site Owner's licensed professional engineer.
12	Preparing and sending notices to the NYSDEC as required by Section 2.4.2 of the SMP, including: • In the event of an emergency that reduces or has the potential to reduce the effectiveness of the soil cover system (and other parties as identified in Table 2-1 of the SMP). • If remedial components are damaged. • If Site ownership changes. • If Site use changes. • If ground-intrusive activities will be performed pursuant to the Excavation Work Plan.
13	Conducting any vapor intrusion investigation required by the New York State Department of Health (NYSDOH) or NYSDEC pursuant to Section 2.3 of the SMP.
14	Designing, installing, operating, maintaining, and monitoring any soil vapor mitigation system(s) required for any future development on the Site pursuant to Section 2.3 of the SMP.

APPENDIX D

Excavation Work Plan



APPENDIX D – EXCAVATION WORK PLAN

D-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining impacts, the Current Site Owner or their representative will notify the New York State Department of Environmental Conservation (NYSDEC). Currently, this notification will be made to:

Steven Scharf
Project Manager
NYSDEC
Division of Environmental Remediation
Remedial Bureau A
625 Broadway, 12th Floor
Albany, New York 12233-7016
steven.scharf@dec.ny.gov

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 impacted 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 constituents of interest (COIs), potential presence of grossly impacted 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 Excavation Work Plan (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 (HASP), in electronic format, if it differs from the HASP provided in Appendix F of the SMP;
- Identification of disposal or authorized beneficial use facilities (hereinafter "disposal facilities")¹ for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

D-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 known to contain or potentially contain impacted material (remaining impacts). 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).

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.

D-3 STOCKPILE METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be covered using polyethylene sheeting to reduce potential infiltration of precipitation, migration of wind-blown dust, and direct contact exposures. Stockpiles will be routinely inspected and damaged polyethylene sheeting will be

¹ The Current Site Owner must submit an application to the NYSDEC for a Beneficial Use Determination (BUD) for excavated impacted soils to be considered for a BUD, as outlined in Section 2.3.1 of the SMP. A case-specific BUD petition must be submitted using a NYSDEC petition form and include all the information required by 6 NYCRR Part 360-1.15(d)(1), unless otherwise directed by the NYSDEC. The NYSDEC will determine whether the proposed use constitutes a beneficial use, considering the area from which the soil is removed and existing/additional characterization analytical data for that soil. Pursuant to Table 5.4(e)4 of DER-10, off-site export and reuse of soil from the Site not meeting unrestricted SCOs is not allowed, unless it will be sent to a site with an Institutional Control and is subject to a BUD.

promptly replaced. The stockpiles will be kept covered, except when excavation is taking place and material is being added to the stockpile.

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.

D-4 MATERIALS EXCAVATION AND LOAD OUT

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

The Current Site Owner and its contractors are responsible for safe execution of invasive and other work performed under this Plan.

Even though all of the utilities have been deactivated at the Site, the presence of utilities and easements along the perimeter of 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 New York State Department of Transportation (NYSDOT) requirements (and all other applicable transportation requirements). All dump trailers, dump truck boxes, and roll-off waste containers (collectively referred to as “waste transport containers”) used to transport hazardous (if any) waste material for offsite treatment/disposal will be lined with polyethylene sheeting (covering the inside of the entire container) prior to waste loading. The ground surface of any truck loading area that is not paved will be covered in 6 mil (minimum thickness) polyethylene sheeting to protect the area from incidental spilling. In addition, plastic tarps equipped with shepherd hooks placed over the side of the waste transport container may be used while loading, as needed, to minimize contact of materials containing site impacts with the outsides of the containers.

A truck wash will be operated on-site, as appropriate. The Current Site Owner and its contractors will be responsible for ensuring that outbound trucks (at least the truck

wheels/tires) will be adequately cleaned 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 Current Site Owner and its contractors 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.

D-5 MATERIALS TRANSPORT OFF-SITE

All transport of solid or hazardous waste materials or wastewater 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. Prior to waste loading, polyethylene sheeting will be used to line the inside of the entire container for each hazardous waste shipment.

Solid and hazardous waste 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 (e.g., from precipitation), such loads must be stabilized prior to loading for offsite transportation and disposal.

All truck wheels/tires will be adequately cleaned prior to leaving the Site to prevent off-site tracking of material onto public roadways. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

All trucks loaded with site materials will travel to the designated disposal facility taking into account: (a) limiting transport through residential areas and past sensitive sites; (b) using 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) providing for overall safety in transport.

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, to the extent practicable, in order to minimize off-site disturbance.

D-6 MATERIALS DISPOSAL OFF-SITE

All subsurface (>12 inches below ground surface at completion of remediation) soil/fill/solid waste excavated and removed from the Site, except for imported clean backfill material previously placed above a demarcation layer during remediation, will be treated as impacted and regulated material (or beneficial use material, if authorized) and will be transported and disposed (or beneficially reused [“disposed”], if authorized) in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. Characterization sampling will be performed as needed and will follow the guidelines presented in DER-10 and requirements of the proposed disposal facility. 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, construction and demolition debris 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 impacted soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2 or a beneficial use material, if authorized. 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).

Surface soil (<12 inches from ground surface) that is excavated in connection with future site redevelopment and is not needed to restore the cover system (e.g., because the soil cover will be replaced with asphalt/concrete pavement or buildings) may be re-used onsite or transported for offsite for beneficial re-use.

D-7 MATERIALS REUSE ON-SITE

It is anticipated that soils excavated from the Site for future redevelopment, construction, or maintenance may be reused on-site provided there is sufficient space for backfilling with soil and the criteria below are met (refer to Table 7 for a summary of backfill materials used in the remedial excavation areas and Figure 5 for locations of reuse soil placed as backfill in remedial excavations):

- Surface soil excavated anywhere onsite may be re-used as surface or subsurface soil.
- Subsurface soil excavated from within the limits of the previous remedial excavation areas that were backfilled with imported clean material can be reused anywhere on-site (as surface or subsurface fill) provided there is no NAPL, staining, or odor that would suggest potential impacts following the remedial activities.
- Subsurface soil excavated from within the limits of previous remedial excavations that were backfilled with “reuse” soils can be used on-site only as subsurface fill with a demarcation layer placed above it (provided there is no visible NAPL or staining) or it may be transported offsite for treatment/disposal.
- Subsurface soil excavated from outside the previous remedial limits, but within the boundaries of the Site can be used onsite only as subsurface fill with a demarcation layer placed above it (provided there is no visible NAPL or staining) or it may be transported offsite for treatment/disposal.

The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain

on-site. On-site material that contains site impacts and/or historic fill and is acceptable for reuse 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.

Demolition material (from potential remaining subsurface structures) proposed for reuse on-site will be sampled for asbestos, as appropriate, and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site (e.g., for remaining foundations/footers) will not be performed without prior NYSDEC approval. Woody organic matter from cutting trees above ground surface at the Site may be processed through chippers, and the resulting mulch may be spread onsite. The stumps and roots of the trees will be transported for proper offsite disposal at a facility permitted to accept these items.

D-8 FLUIDS MANAGEMENT

Efforts will be made to minimize the amount of water that could enter the excavation (e.g., installing a berm around the excavation or covering the excavation to prevent runoff from entering during precipitation). Water accumulated in excavations within the Site will be pumped out during or after precipitation events (as appropriate), containerized, and characterized as discussed below. Groundwater is not anticipated to be encountered during excavation because the groundwater table is approximately 50 feet below ground surface and excavations are unlikely to extend that deep.

At a minimum, water removed from excavations (e.g., storm water that does not infiltrate and has been in contact with impacted soil) will be sampled and analyzed for the COIs known to be in the area as determined by previous analytical results, which may include PCBs, VOCs, SVOCs, and/or inorganic constituents. Results will be compared to the groundwater standards/guidance values set forth in NYSDEC Division of Water, Technical and Operational Guidance Series document titled “Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations” (TOGS 1.1.1), dated June 1998 (last revised June 2004). If only small amounts of water are generated (e.g. 55 gallons or less) and the water meets the groundwater quality standards/guidance values, it may be discharged to the ground surface. If the water does not meet the

groundwater quality standards/guidance values or if more than 55 gallons are generated, it will be transported offsite for proper disposal or treated on-site via a treatment system that has been approved by the NYSDEC, as appropriate. Runoff from surface discharges (if any) will be controlled. If large scale wastewater is likely to be generated, a water treatment system will be installed on site, and the treated water will be discharged to the appropriate public wastewater system (if authorized).

All excavation dewatering liquids to be removed from the Site, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering fluids will not be recharged back to the land surface or subsurface of the Site, but will be managed off-site.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

D-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 ROD. The demarcation layer, consisting of orange snow/construction fencing material or equivalent material will be replaced to provide a visual reference to the top of the 'Remaining Impacted Zone', the zone that requires adherence to special conditions for disturbance of remaining impacted soils defined in this SMP. 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 Impacted Zone'. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the SMP.

D-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 clean areas of industrial sites, spill sites, or other environmental remediation sites will not be imported to the Site unless prior approval is provided by the NYSDEC.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). 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.

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, as needed.

Offsite soil sources 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. Offsite borrow soils cannot otherwise be defined as a solid waste in accordance with 6 NYCRR Part 360-1.2(a). If an offsite source is designated as “virgin” soil, 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. All soil brought on-site must meet the lower of the restricted commercial use SCOs and the protection of groundwater values for each constituent presented in 6 NYCRR Part 375-6.8(b) for subsurface fill or the soil cover layer. Unless the proposed fill material is gravel, rock or stone, consisting of virgin material from a permitted mine or quarry, containing less than 10% by weight material which would pass through a size 80 sieve, it shall be sampled before being brought onsite. At least one sample from each backfill source will be required, with a sampling frequency as follows:

- For material being imported from a virgin mine/pit (not meeting the sampling exemption identified above), one representative characterization sample will be required for each backfill type to be obtained from the mine/pit.
- For material sources other than a virgin mine/pit, characterization samples will be required for each backfill type to be obtained from the mine/pit. The characterization

sampling frequency will be in accordance with Section 5.4 (e) of DER-10, or at a reduced frequency authorized by the NYSDEC.

A characterization sample includes: (1) one composite sample analyzed for SVOCs, inorganic constituents (including cyanide), PCBs, and pesticides; and (2) multiple discrete samples (per DER-10) analyzed for VOCs. Protocols for soil sampling and for laboratory analysis are provided in the attached Field Sampling Plan (Appendix H) and Quality Assurance Project Plan (Appendix I).

D-11 STORMWATER POLLUTION PREVENTION

If required due to disturbance of Site soils greater than 5,000 square feet, a soil erosion and sediment control plan will be prepared. If the soil disturbance will be greater than 1 acre, a State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities will be required.

All erosion and sediment controls will be installed and maintained in accordance with the New York Standards and Specifications for Erosion and Sediment Control prepared for the NYSDEC by the New York State Soil and Water Conservation Society (NYS Standards and Specifications) (NYSDEC 2005 including any updates), unless otherwise noted. Additional erosion and sediment control measures beyond those described below may need to be provided to achieve the stormwater management objectives.

Refer to the NYS Standards and Specifications and the Remedial Design (RD) and Remedial Design Addendum (RDA) for additional information pertaining to material and installation requirements for the following erosion and sediment controls. Minimum requirements under the RD and RDA include:

Barriers and hay bale checks will be installed around the entire perimeter of the construction area 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.

- Catch basin inlet protection will be installed and maintained around any catch basins, which have the potential for receiving construction-related stormwater until alternative precautions (e.g., grouting, plugging, or otherwise sealing prior to abandonment/removal) are in-place to reduce the potential loss of sediment-laden water through the existing municipal storm sewer system.
- Excavated materials will be staged and covered with polyethylene tarps to reduce the potential for migration of stockpiled excavation materials (i.e., via stormwater runoff) to clean areas of the Site and/or offsite areas. Stormwater runoff from stockpiled excavation materials will be collected in sumps, located within the material staging/containment areas, and will be sampled and managed in accordance with Section D-8 – Fluids Management.
- Decontamination Areas will be used for the decontamination of personnel and equipment prior to entering clean areas of the Site and/or offsite areas.
- Stabilized Construction Entrances/Exits will be constructed to minimize the potential for tracking of sediments onto offsite areas.
- Dust Controls will be implemented to reduce the potential for the generation of fugitive dust. Appropriate dust controls will be implemented on an as needed basis, throughout the duration of the work, in accordance with the procedures outlined in Appendix J – the Community Air Monitoring Plan (CAMP), and Section D-15 – Dust Control Plan of the EWP.

Good housekeeping practices will be implemented at the Site to reduce the potential for construction materials from becoming entrained in stormwater discharges from the Site. Throughout construction, the Site will be maintained in a neat and orderly condition.

D-12 CONTINGENCY PLAN

If underground tanks or other previously unidentified impacted 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 full 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 impacted 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.

D-13 COMMUNITY AIR MONITORING PLAN

Air monitoring will be performed during future intrusive activities at the Site in accordance with the project-specific CAMP included as Appendix J to the SMP. This CAMP was originally developed for the OU4 remedial activities. The CAMP will involve real-time monitoring for organic vapors and particulate matter less than 10 micrometers in diameter (PM₁₀). Monitoring will be performed at upwind and downwind locations and at the nearest occupied building. The number of monitoring stations outlined in the CAMP (currently four) may be reduced for smaller-sized excavations/disturbances.

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

D-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site and for on-site personnel. Specific odor control methods to be used on a routine basis will include water/BioSolve[®] spray, polyethylene sheeting (for covering excavation faces, material stockpiles, etc.), a perimeter misting system (e.g., Piion Flexi-Fog system), and/or vapor suppression foam. These products will be used on a routine basis as needed. In addition, steps will be taken to minimize the excavation surface area exposed at any one time. 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 Current Site Owner's Remediation Engineer, 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 may include: (a) direct load-out of soils to trucks for off-site disposal; (b) use of chemical odorants in spray or misting systems; and (c) use of staff to monitor odors in surrounding neighborhoods.

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.

D-15 DUST CONTROL PLAN

Dust monitoring will be performed in accordance with Section D-13 of this Appendix and the project-specific CAMP. 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 through the use of a dedicated on-site equipment (i.e., water truck) for wetting haul roads, excavation faces, and stockpiles. 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.
- Crushed stone/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.
- Travel speeds over haul roads will be limited.
- The number and size of excavation areas open at one time will be limited.
- Excavations and materials in on-site staging areas will be covered using polyethylene sheeting.

D-16 OTHER NUISANCES

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

APPENDIX E

Current and Future Use Restrictions



APPENDIX E – CURRENT AND FUTURE USE RESTRICTIONS

FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE 125 NEW SOUTH ROAD HICKSVILLE, NEW YORK

Use Category	Specific Use	Use Type
Allowable Uses		
Recreation	Country clubs (§ 246-5.5.10)	PP
	Active recreation uses, including bowling, tennis, golf driving ranges, miniature golf, batting ranges, skating and similar uses	SP (TB)
	Fitness centers, 1,500 square feet and larger	SP (TB)
	Fitness centers under 1,500 square feet	PP
	Private membership clubs (§ 246-5.5.21)	SP (TB)
	Public parks	PP
	Tennis courts (§ 246-5.5.27)	PA
	Theaters	SP (TB)
Public/Semi-Public	Colleges or universities or private schools (§ 246-5.5.8)	PP
	Municipal uses of Town of Oyster Bay (§ 246-4.1.4.1)	PP
	Museums	PP
	Other governmental uses of federal, state or county agencies, or special purpose districts thereof (§246-4.1.4.2)	PP (TB)
	Technical or trade schools	PP
Business	Accessory outdoor sales and display (§ 246-5.5.1)	PA
	Banks	PP
	Bars (§ 246-5.5.6)	SP (TB)
	Boatyards	SP (TB)
	Business services	PP
	Catering services (§ 246-5.5.7)	SP (TB)
	Cabarets, discotheques, dance halls, night clubs (§ 246-5.5.30)	PP
	Drive-through services, fast food (§ 246-5.5.13)	PA (TB)
	Drive-through services, other (§ 246- 5.5.13)	PA
	Public Markets (§ 246-5.5.22)	PP
	Fast-food restaurants (in multiple-use building)	PP
	Fast-food restaurants (in freestanding building)	SP (TB)
	Lodging places	SP (TB)
	Office	PP
	Professional, real estate and insurance offices	PP

APPENDIX E – CURRENT AND FUTURE USE RESTRICTIONS

FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE 125 NEW SOUTH ROAD HICKSVILLE, NEW YORK

Use Category	Specific Use	Use Type
Business	Restaurants (maximum permitted occupancy of 75 persons)	SP (TB)
	Restaurants (maximum occupancy of 76 or more persons)	SP (TB)
	Retail stores	SP (TB)
	Self-service storage facility	PP
	Undertaking establishments (§ 246-5.5.29)	PP
Automotive	Motor vehicle fuel sales and service, motor vehicle repair, auto body, tow car operations, car washing establishments and public garages (§ 246-5.5.17)	SP (TB)
	Motor vehicle rental facilities	SP (TB)
	Motor vehicle dealership	PP
	Parking structures (§ 246-7.5.3)	PA
	Outdoor motor vehicle sales	SP (TB)
	Storage of registered commercial vehicles	PP
	Taxi or limousine service	PP
Industrial	Helipads	SP (TB)
	Light manufacturing uses	PP
	Lumber yards	PP
	Research and development uses	PP
	Warehouse, distribution and storage uses	PP
Utility	Antennas (§ 246-5.5.4)	PA
	Communication and cellular telephone towers (§ 246-5.5.9)	SP (ZBA)
	Electric substations	PP
	Public utility buildings or structures	SP (ZBA)
	Radio and television broadcasting studios	SP (TB)
Prohibited Uses		
Residential	Congregate care assisted living facilities	Not Allowed
Recreation	Marinas	
	Swimming pools (§ 246-5.5.26)	
Public/Semi-Public	Cemeteries	
	Day care, play care, nursery schools and similar facilities (§ 246-5.5.11)	
	Eleemosynary institutions	
	Hospitals, convalescent or nursing homes	
	Places of worship (§ 246-5.5.19)	
	Public schools	

APPENDIX E – CURRENT AND FUTURE USE RESTRICTIONS

FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER SITE 125 NEW SOUTH ROAD HICKSVILLE, NEW YORK

Use Category	Specific Use	Use Type
Business	Animal boarding facility	Not Allowed
	Animal hospitals (§ 246-5.5.3)	
	Commercial greenhouses	
	Landscape nursery, garden center	
	Fishing stations	
	Fish markets	
	Mariculture	
	Veterinary offices	
Utility	Solid waste management facilities	

Notes:

1. The specific uses listed above are from the Town of Oyster Bay § 246-5.2 Schedule of Use Regulations - Nonresidence Districts, Amended 7-22-2003 by L.L. No. 7-2003; 1-20-2004 by L.L. No. 2-2004; 9-21-2004 by L.L. No. 11-2004; 4-5-2005 by L.L. No. 4-2005; 4-25-2006 by L.L. No. 5-2006; 4-8-2008 by L.L. No. 5-2008; 3-31-2009 by L.L. No. 3-2009; 10-16-2012 by L.L. No. 3-2012].
2. Permitted uses may require site plan approval. (See Section 246-6.2.)
3. Use types are as follows:
 - (PP) = Permitted Principal Use
 - (PA) = Permitted Accessory Use
 - (SP) = Special Permit Use
 - (TB) = Town Board Approval
 - (ZBA) = Zoning Board of Appeals Approval

APPENDIX F

Health and Safety Plan



Site Specific Health and Safety Plan

Revision 14, 1/16/2017

Project Name: Former Hooker Chemical/Oxy/Ruco Polymer
Site, Hicksville, NY

Project Number: B0032305.1701
Client Name: Covestro LLC
Date: 6/6/2017
HASP Expires 6/6/2018
Revision: 2

Approvals:

HASP Developer: L. Carey Healy

Project Manager: John Brussel

HASP Reviewer: X 
Daniel Zuck, CPG
AUS HASP Reviewer
Signed by: Daniel Zuck

Emergency Information

Site Address: 125 New South Road
Hicksville, New York

Emergency Phone Numbers:

Emergency (fire, police, ambulance)	911
Emergency (facility specific, if applicable):	
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362
Emergency Other (specify) Poison Control Center:	(800) 222-1222
Client Contact Tim Troutman	412-413-2236
WorkCare (non-life-threatening injury/illness)	1-888-449-7787
Project H&S Daniel Zuck	516-369-2741
Task Manager L. Carey Healy	315-671-9338
Project Manager John C. Brussel	315-671-9441
Corporate H&S Specialist Julie Santaniello	978-551-0033
Corporate H&S Director Denis Balcer	614-778-9171

Hospital Name and Address: North Shore LIJ Plainview Hospital
888 Old Country Road
Plainview, New York 11803

Hospital Phone Number: 516-719-2336

Incident Notification Process

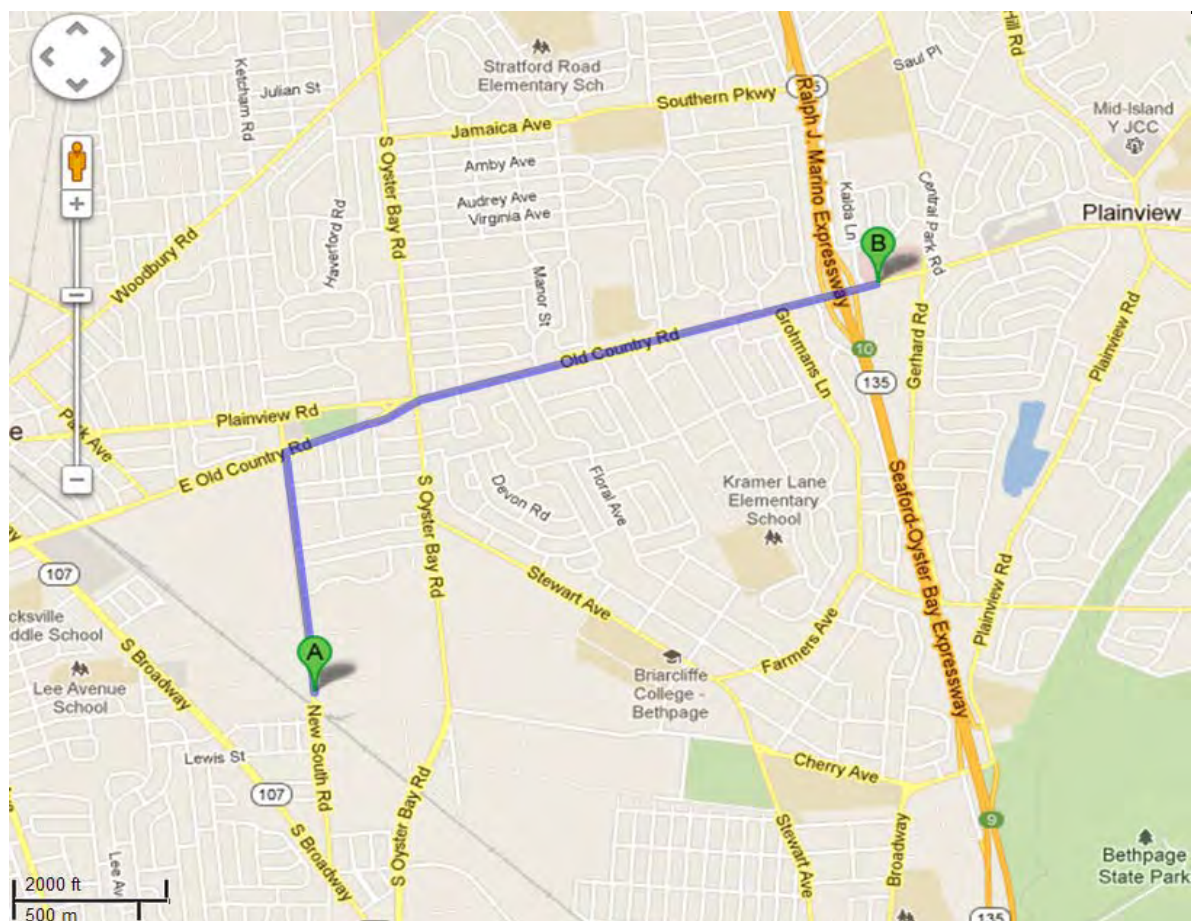
1 Dial 911/Facility Emergency Number/WorkCare as applicable	
2 Contact PM/Supervisor	John C. Brussel
3 Contact Corporate H&S	Denis Balcer
4 Contact Client	Tim Troutman

Complete below, as applicable, or clear cell contents:

Location of Assembly Area(s): Located at the construction entrance off of New South Road

Nearest AED location: NA
Nearest Storm Shelter: Personal Vehicles

Route to the Hospital



125 New South Rd

Hicksville, NY 11801

**1. Head north on New South Rd toward
Commerce St/Kalda Ln**

0.6 mi



2. Turn right onto E Old Country Rd

Destination will be on the left

1.5 mi



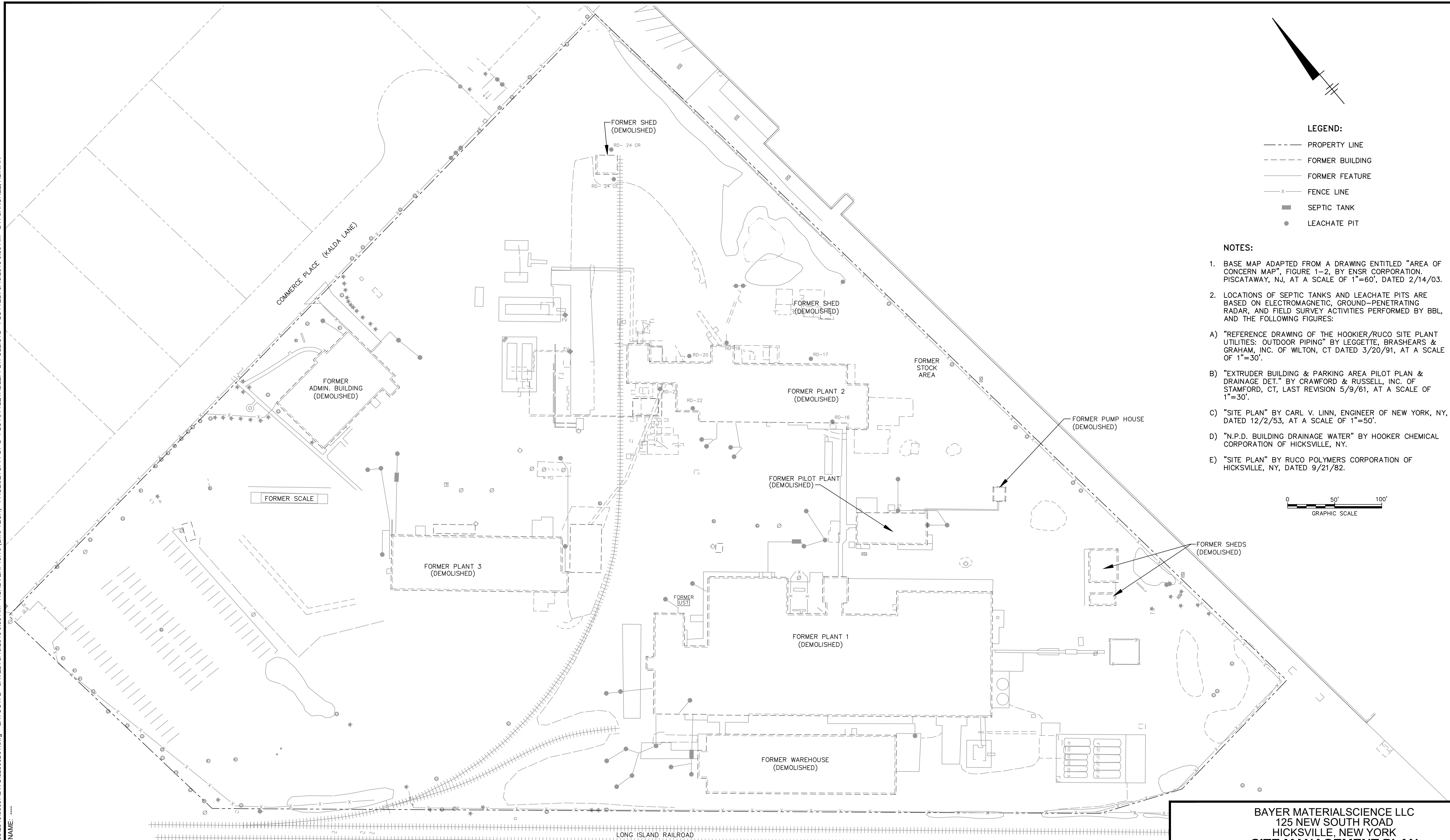
888 Old Country Rd

Plainview, NY 11803

Site Map Showing Assembly Areas

See Attached Map(To be Discussed at the beginning of each field day)

CITY:Syracuse DIV:GROUP:ENCAD DB:A SANCHEZ A Scalling LD: PIC:J.BRUSSEL PM:J.BRUSSEL TMR:HENSEL LYR:(OPTION="OFF"=REF" G:\ENVCAD\SYRACUSE\ACTB0032305\2013\00007\DWG\3230501.dwg LAYOUT: 2 SAVED: 5/13/2015 9:38 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: PDF D PLOTSTYLETABLE: PLTFILE.CTB PLOTTED: 5/13/2015 9:56 AM BY: SANCHEZ, ADRIAN XREFS: 32305X00 32305X01 IMAGES: PROJECTNAME: ---



BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK
SITE MANAGEMENT PLAN

FORMER SITE LAYOUT



General Information

Site Type (select all applicable where work will be conducted):

☐ Active	☐ Railroad
☐ Bridge	☐ Remote Area
☐ Buildings	☐ Residential
☐ Commercial	☐ Retail
☒ Construction	☐ Roadway (public, including right-of-way)
☐ Military Installation	☐ Water Treatment Plant
☒ Inactive Industrial	☐ Unknown
☐ Active Industrial	☐ Security Risk Site/Location
☐ Landfill	☐ Utility
☐ Marine	☒ Other (specify): _____
☐ Mining	
☒ Parking Lot/Private Roadway	

Work with exposure to vehicular traffic on private property requires preparation of a Site Traffic Awareness and Response (STAR) Plan.

Surrounding Area and Topography (select one):

- ☒ Surrounding area and topography are presented in the project work plan
- ☐ Surrounding area and topography (*briefly describe*):

Simultaneous Operations (SimOps)

- ☒ Not applicable
- ☐ SimOps will exist on this project

Site Background (select one):

- ☒ Site background is presented in the project work plan
- ☐ Site background (*briefly describe*):

Project Tasks

The following tasks are identified for this project:

Examples: "Drilling/soil sampling", "Surveying", "General Inspections", "Construction Management/Inspections"

- 1 Construction Oversight
- 2 Vapor Intrusion Air Sampling
- 3 Soil Sampling
- 4 Soil Excavation
- 5 Air Monitoring

- ☐ Subcontractor H&S information is attached
- ☐ Utility clearance required.
- ☐ Journey Management Plan attached
- ☐ State specific H&S required:

Comments:

Review FHSB: Section III, Part(I,M,E,G);

The following H&S Standards are attached:

- 1) Utility Clearance HS Standard
- 2) Heavy Equipment HS Standard
- 3) Hazwoper HS Standard
- 4) First Aid HS Standard
- 5) Hearing Conservation Standard
- 6) PPE HS Standard
- 7) Tailgate Meeting HS Standard
- 8) Stop Work HS Standard
- 9) Excavation and Trenching

Roles and Responsibilities

Name	Role	Additional Responsibilities (Describe)
1 John Brussel	PM	- Overall management of project - Obtain client-specific health and safety information and communicate with the client on health and safety issues. - Report all injuries, illnesses and near-misses to the client representative, lead incident investigations, and ensure that any recommendations are implemented.
2 Daniel Zuck	APM/TM	- Coordinate all field work - Review all applicable H&S Standards, and ensure that project activities conform to all requirements. - Communicate with the field lead on health and safety issues.
3 Greg McDermott	SSO/ Field Lead	- On-site contact for field activities & H&S Issues - Ensure that work is performed in a safe manner and that necessary safety equipment is maintained and used at the Site. - Communicate with the task manager on health and safety issues. - Ensure that necessary site-specific training is performed (initial safety briefings, "tailgate" safety briefings, and client specific training).
4 To Be Established	Field staff	- Conduct work in a safe manner and that equipment is maintained and used safely. - Communicate with the SSO on health and safety issues. - Ensure that necessary site-specific training is up to date.

Training

<i>All Arcadis employees are required to have the following training to be on site:</i> H&S Program Orientation HAZCOM GHS/EAP Defensive Driving - Smith On-Line PPE Hawoper 8-Hour Annual Refresher Defensive Driving - Smith On-Line Client specific: Other: _____ _____	<i>Selected Arcadis employees are required to have the following additional training:</i> <table> <thead> <tr> <th></th> <th>Names or Numbers from above</th> </tr> </thead> <tbody> <tr> <td>First Aid/CPR</td> <td>3 & 4 onsite staff</td> </tr> <tr> <td>DOT HazMat #1</td> <td>3 or 4 onsite staff</td> </tr> <tr> <td>Asbestos Awareness</td> <td>3 or 4 onsite staff</td> </tr> <tr> <td>Fire Extinguisher</td> <td>3 or 4 onsite staff</td> </tr> <tr> <td>BBP (Bloodborne Pathogens)</td> <td>3 or 4 onsite staff</td> </tr> <tr> <td>Construction Safety - 10 Hour</td> <td>3</td> </tr> <tr> <td>None</td> <td>_____</td> </tr> <tr> <td>None</td> <td>_____</td> </tr> <tr> <td>Other:</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> </tbody> </table>		Names or Numbers from above	First Aid/CPR	3 & 4 onsite staff	DOT HazMat #1	3 or 4 onsite staff	Asbestos Awareness	3 or 4 onsite staff	Fire Extinguisher	3 or 4 onsite staff	BBP (Bloodborne Pathogens)	3 or 4 onsite staff	Construction Safety - 10 Hour	3	None	_____	None	_____	Other:	_____	_____	_____
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None	_____																						
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Other:	_____																						
_____	_____																						

Hazard Analysis

Risk Assessment Matrix		Likelihood Ratings** (likelihood that incident would occur)			
Consequences Ratings*		A	B	C	D
People	Property	0 Almost impossible	1 Possible but unlikely	2 Likely to happen	3 Almost certain to happen
1 - Slight or no health	Slight or no damage	0 - Low	1 - Low	2 - Low	3 - Low
2 - Minor health effect	Minor damage	0 - Low	2 - Low	4 - Medium	6 - Medium
3 - Major health effect	Local damage	0 - Low	3 - Low	6 - Medium	9 - High
4 - Fatalities	Major damage	0 - Low	4 - Medium	8 - High	12 - High

Business Line

All Categories

Business Unit

All Categories

Task 1: Construction Oversight

Hazardous Activity #1

Field-Ambient environment - exposure heat, cold, sun, weather, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-
Environmental	L
Personal Safety	M

Chemical	-
Gravity	H
Pressure	-

Driving	M
Mechanical	-
Radiation	-

Suggested FHSB Ref:

Electrical	L
Motion	L
Sound	-

III I, III M

Overall Unmitigated Risk:

Medium

Mitigated Risk:

Medium

if utilizing:

Controls that should be Considered:

Primary: TRACK Field H&S Handbook (see ref. above) Secondary: H&S Standards Engineering Controls (specify below) Admin. Controls (specify below) Specialized Equipment (specify below) PPE (see HASP "PPE" section)

Enter Required Controls:

Admin Control - Check weather reports to determine necessary PPE and precautions, download appropriate application/weather notifications to track severe weather. Consider shorter work hours if necessary based on hot or cold conditions.
Engineering Control - Use a tent or vehicle to protect workers from the elements during the breaks.
PPE - See "PPE" section of the applicable JSA.

Hazardous Activity #2

Field-Contaminated media (contact with impacted soil, water, air, sediment, etc)

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-
Environmental	M
Personal Safety	-

Chemical	H
Gravity	-
Pressure	-

Driving	-
Mechanical	-
Radiation	M

Suggested FHSB Ref:

Electrical	-
Motion	-
Sound	-

III E, III F, III AH

Overall Unmitigated Risk:

High

Mitigated Risk:

Low

if utilizing:

Controls that should be Considered:

Primary: TRACK JSAs Engineering Controls (specify below) Secondary: H&S Standards HASP Admin. Controls (specify below) HAZWOPER Training PPE (see HASP "PPE" section)

Enter Required Controls:

Admin Controls - Review work plan and historical analytical results.
Engineering Controls - Utilize tools such as a trowel or scoop to prevent direct contact with impacted media.
PPE - See "PPE" section of the applicable JSA

Hazardous Activity #3

Field-Biological - insects, spiders, snakes, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	M
Environmental	-
Personal Safety	-

Chemical	-
Gravity	-
Pressure	-

Driving	-
Mechanical	-
Radiation	-

Suggested FHSB Ref:

Electrical	-
Motion	-
Sound	-

III N

Overall Unmitigated Risk:

Medium

Mitigated Risk:

Medium

if utilizing:

Controls that should be Considered:

Primary: TRACK Engineering Controls (specify below) Secondary: JSAs HASP Job Briefing/Site Awareness PPE (see HASP "PPE" section) Housekeeping

Enter Required Controls:

Admin Controls - Tick training.
Engineering Control - Work area will be mowed prior to work activities.
PPE - Use proper PPE per applicable JSA and use bug spray (ideally containing both Deet and permethrin), if needed.

Hazardous Activity #4

Field-Walking - uneven or slippery terrain

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-
Environmental	-
Personal Safety	-

Chemical	-
Gravity	M
Pressure	-

Driving	-
Mechanical	-
Radiation	-

Suggested FHSHB Ref:

Electrical	-
Motion	-
Sound	-

III E, III F

Overall Unmitigated Risk:

Medium

Mitigated Risk:

Medium

if utilizing:

Controls that should be Considered:

Primary: TRACK

Secondary: Housekeeping PPE (see HASP "PPE" section)

Enter Required Controls:**Admin Control** - Familiarize field crew with site layout and trip hazards.**Engineering Control** - Work area will be mowed prior to work activities. Slip and trip hazards will be flagged and marked, as needed.**PPE** - See "PPE" section of the applicable JSA

Risk Assessment Matrix		Likelihood Ratings** (likelihood that incident would occur)			
Consequences Ratings*		A	B	C	D
People	Property	0 Almost impossible	1 Possible but unlikely	2 Likely to happen	3 Almost certain to happen
1 - Slight or no health	Slight or no damage	0 - Low	1 - Low	2 - Low	3 - Low
2 - Minor health effect	Minor damage	0 - Low	2 - Low	4 - Medium	6 - Medium
3 - Major health effect	Local damage	0 - Low	3 - Low	6 - Medium	9 - High
4 - Fatalities	Major damage	0 - Low	4 - Medium	8 - High	12 - High

Task 2: Vapor Intrusion Air Sampling

Hazardous Activity #1

Field-Contaminated media (contact with impacted soil, water, air, sediment, etc)

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-
Environmental	M
Personal Safety	-

Chemical	H
Gravity	-
Pressure	-

Driving	-
Mechanical	-
Radiation	M

Suggested FHSHB Ref: III E, III F, III AH

Electrical	-
Motion	-
Sound	-

Overall Unmitigated Risk:

High

Mitigated Risk:

Low

if utilizing:

Controls that should be Considered:

Primary: TRACK JSAs Engineering Controls (specify below) Secondary: H&S Standards HASP Admin. Controls (specify below) HAZWOPER Training PPE (see HASP "PPE" section)

Enter Required Controls:

Admin Controls - Review work plan and historical analytical results.

Engineering Controls - Utilize tools such as a trowel or scoop to prevent direct contact with impacted media.

PPE - See "PPE" section of the applicable JSA.

Hazardous Activity #2

Field-Ambient environment - exposure heat, cold, sun, weather, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-
Environmental	L
Personal Safety	M

Chemical	-
Gravity	H
Pressure	-

Driving	M
Mechanical	-
Radiation	-

Suggested FHSHB Ref: III I, III M

Electrical	L
Motion	L
Sound	-

Overall Unmitigated Risk:

Medium

Mitigated Risk:

Medium

if utilizing:

Controls that should be Considered:

Primary: TRACK Field H&S Handbook (see ref. above) Secondary: H&S Standards Engineering Controls (specify below) Admin. Controls (specify below) Specialized Equipment (specify below) PPE (see HASP "PPE" section)

Enter Required Controls:

Admin Control - Check weather reports to determine necessary PPE and precautions, download appropriate application/weather notifications to track severe weather. Consider shorter work hours if necessary based on hot or cold conditions.

Engineering Control - Use a tent or vehicle to protect workers from the elements during the breaks.

PPE - See "PPE" section of the applicable JSA.

Hazardous Activity #3

Field-Sampling - subslab vapor screening/sampling

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-
Environmental	-
Personal Safety	-

Chemical	M
Gravity	L
Pressure	L

Driving	-
Mechanical	M
Radiation	-

Suggested FHSHB Ref: III F, III L, III S

Electrical	M
Motion	L
Sound	M

Overall Unmitigated Risk:

Medium

Mitigated Risk:

Low

if utilizing:

Controls that should be Considered:

Primary: TRACK JSAs Engineering Controls (specify below) See HASP "Monitoring" section Secondary: Job Briefing/Site Awareness Admin. Controls (specify below) Work Plan PPE (see HASP "PPE" section)

Enter Required Controls:

Admin Controls - Review work plan. Require equipment inspection checklists be provided each day.

Engineering Controls - Use vacuume and water to elimiaate dust hazard.

PPE - See "PPE" section of the "Building Decommissioning" JSA

Hazardous Activity #4

Field-Measurement - personal air monitoring

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-
Environmental	-
Personal Safety	-

Chemical	M
Gravity	-
Pressure	-

Driving	-
Mechanical	L
Radiation	-

Suggested FHSB Ref:

Electrical	-
Motion	-
Sound	-

V I

Overall Unmitigated Risk:

Medium

Mitigated Risk:

Low

if utilizing:

Controls that should be Considered:

Primary: TRACK See HASP "Monitoring" section Inspections Secondary: JSAs Work Plan TKI SOP (as applicable)

Enter Required Controls:

Admin Controls - Ensure workers are trained to use and calibrate equipment. Review work plan.

Engineering Controls - Use caution when storing and handling compressed gasses, do not use excessive force to over tighten fittings.

PPE - See "PPE" section of the applicable JSA.

Risk Assessment Matrix		Likelihood Ratings** (likelihood that incident would occur)			
Consequences Ratings*		A	B	C	D
People	Property	0 Almost impossible	1 Possible but unlikely	2 Likely to happen	3 Almost certain to happen
1 - Slight or no health	Slight or no damage	0 - Low	1 - Low	2 - Low	3 - Low
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3 - Major health effect	Local damage	0 - Low	3 - Low	6 - Medium	9 - High
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Task 3: Soil Sampling																											
Hazardous Activity #1																											
Field-Contaminated media (contact with impacted soil, water, air, sediment, etc)																											
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSB Ref: III E, III F, III AH <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Biological</td><td style="width: 10%; border: 1px solid black; text-align: center;">-</td> <td style="width: 25%;">Chemical</td><td style="width: 10%; border: 1px solid black; text-align: center;">H</td> <td style="width: 25%;">Driving</td><td style="width: 10%; border: 1px solid black; text-align: center;">-</td> <td style="width: 25%;">Electrical</td><td style="width: 10%; border: 1px solid black; text-align: center;">-</td> </tr> <tr> <td>Environmental</td><td style="border: 1px solid black; text-align: center;">M</td> <td>Gravity</td><td style="border: 1px solid black; text-align: center;">-</td> <td>Mechanical</td><td style="border: 1px solid black; text-align: center;">-</td> <td>Motion</td><td style="border: 1px solid black; text-align: center;">-</td> </tr> <tr> <td>Personal Safety</td><td style="border: 1px solid black; text-align: center;">-</td> <td>Pressure</td><td style="border: 1px solid black; text-align: center;">H</td> <td>Radiation</td><td style="border: 1px solid black; text-align: center;">M</td> <td>Sound</td><td style="border: 1px solid black; text-align: center;">-</td> </tr> </table>				Biological	-	Chemical	H	Driving	-	Electrical	-	Environmental	M	Gravity	-	Mechanical	-	Motion	-	Personal Safety	-	Pressure	H	Radiation	M	Sound	-
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Overall Unmitigated Risk: High Mitigated Risk: Low if utilizing: Controls that should be Considered: Primary: TRACK JSAs Engineering Controls (specify below) Secondary: H&S Standards HASP Admin. Controls (specify below) HAZWOPER Training PPE (see HASP "PPE" section) Enter Required Controls: Admin Controls - Review work plan and historical analytical results. Engineering Controls - Utilize tools such as a trowel or scoop to prevent direct contact with impacted media. PPE - See "PPE" section of the applicable JSA.																											
Hazardous Activity #2																											
Field-Sampling - manual soil sampling (hand auger, trowel, etc)																											
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSB Ref: III F, III AF <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Biological</td><td style="width: 10%; border: 1px solid black; text-align: center;">-</td> <td style="width: 25%;">Chemical</td><td style="width: 10%; border: 1px solid black; text-align: center;">M</td> <td style="width: 25%;">Driving</td><td style="width: 10%; border: 1px solid black; text-align: center;">-</td> <td style="width: 25%;">Electrical</td><td style="width: 10%; border: 1px solid black; text-align: center;">-</td> </tr> <tr> <td>Environmental</td><td style="border: 1px solid black; text-align: center;">L</td> <td>Gravity</td><td style="border: 1px solid black; text-align: center;">L</td> <td>Mechanical</td><td style="border: 1px solid black; text-align: center;">-</td> <td>Motion</td><td style="border: 1px solid black; text-align: center;">M</td> </tr> <tr> <td>Personal Safety</td><td style="border: 1px solid black; text-align: center;">-</td> <td>Pressure</td><td style="border: 1px solid black; text-align: center;">-</td> <td>Radiation</td><td style="border: 1px solid black; text-align: center;">-</td> <td>Sound</td><td style="border: 1px solid black; text-align: center;">-</td> </tr> </table>				Biological	-	Chemical	M	Driving	-	Electrical	-	Environmental	L	Gravity	L	Mechanical	-	Motion	M	Personal Safety	-	Pressure	-	Radiation	-	Sound	-
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Environmental	L	Gravity	L	Mechanical	-	Motion	M																				
Personal Safety	-	Pressure	-	Radiation	-	Sound	-																				
Overall Unmitigated Risk: Medium Mitigated Risk: Low if utilizing: Controls that should be Considered: Primary: TRACK JSAs Job Rotation Job Briefing/Site Awareness Secondary: Inspections Specialized Equipment (specify below) PPE (see HASP "PPE" section) Enter Required Controls: Admin Controls - Review work plan and historical analytical results. Engineering Controls - Utilize tools such as a trowel or scoop to prevent direct contact with impacted media. Layout polysheeting in sampling area, as needed. PPE - See "PPE" section of the applicable JSA																											
Hazardous Activity #3																											
Field-Drilling - Mechanical method (drill rig, DPT, etc)																											
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSB Ref: III E, III F, III AD, III AN <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Biological</td><td style="width: 10%; border: 1px solid black; text-align: center;">-</td> <td style="width: 25%;">Chemical</td><td style="width: 10%; border: 1px solid black; text-align: center;">L</td> <td style="width: 25%;">Driving</td><td style="width: 10%; border: 1px solid black; text-align: center;">-</td> <td style="width: 25%;">Electrical</td><td style="width: 10%; border: 1px solid black; text-align: center;">M</td> </tr> <tr> <td>Environmental</td><td style="border: 1px solid black; text-align: center;">-</td> <td>Gravity</td><td style="border: 1px solid black; text-align: center;">H</td> <td>Mechanical</td><td style="border: 1px solid black; text-align: center;">H</td> <td>Motion</td><td style="border: 1px solid black; text-align: center;">H</td> </tr> <tr> <td>Personal Safety</td><td style="border: 1px solid black; text-align: center;">-</td> <td>Pressure</td><td style="border: 1px solid black; text-align: center;">M</td> <td>Radiation</td><td style="border: 1px solid black; text-align: center;">-</td> <td>Sound</td><td style="border: 1px solid black; text-align: center;">H</td> </tr> </table>				Biological	-	Chemical	L	Driving	-	Electrical	M	Environmental	-	Gravity	H	Mechanical	H	Motion	H	Personal Safety	-	Pressure	M	Radiation	-	Sound	H
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Personal Safety	-	Pressure	M	Radiation	-	Sound	H																				
Overall Unmitigated Risk: High Mitigated Risk: Medium if utilizing: Controls that should be Considered: Primary: TRACK Engineering Controls (specify below) Admin. Controls (specify below) JSAs Inspections Secondary: Job Briefing/Site Awareness H&S Standards Cont./Emerg. Planning PPE (see HASP "PPE") Enter Required Controls: Admin Controls - Ensure workers are trained in proper lifting techniques (lifting with the legs and not the back, and use 2 people to lift when equipment is heavy). Review work plan. Engineering Controls - Use field vehicle to move equipment when possible. Check all tools and equipment for possible failure sources. Ensure equipment guards are operational and intact. PPE - See "PPE" section of the drilling, soil sampling, and well installation JSA.																											

Hazardous Activity #4

Field-Sampling - sample cooler preparation

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-
Environmental	-
Personal Safety	M

Chemical	M
Gravity	-
Pressure	H

Driving	-
Mechanical	-
Radiation	L

Suggested FHSB Ref:

Electrical	-
Motion	-
Sound	L

III AD, V G

Overall Unmitigated Risk:

Medium

Mitigated Risk:

Low

if utilizing:

Controls that should be Considered:

Primary: TRACK JSAs Engineering Controls (specify below) Secondary: Hazcom Training MSDS/SDS (see also HASP Hazcom/GHS section) Job Briefing/Site Awareness Cont./Emerg. Planning Admin. Controls (specify below) Specialized Equipment (specify below) Housekeeping PPE (see HASP "PPE" section)

Enter Required Controls:

Admin Control - Ensure workers are trained in proper lifting techniques (lifting with the legs and not the back), use 2 people to carry heavy equipment.

Engineering Control - Use field vehicle to facilitate moving equipment when possible. Set up site to reduce the risk of bending and reaching for equipment.

PPE - See "PPE" section of the Sample Cooler Handling JSA.

Risk Assessment Matrix		Likelihood Ratings** (likelihood that incident would occur)			
Consequences Ratings*		A	B	C	D
People	Property	0 Almost impossible	1 Possible but unlikely	2 Likely to happen	3 Almost certain to happen
1 - Slight or no health	Slight or no damage	0 - Low	1 - Low	2 - Low	3 - Low
2 - Minor health effect	Minor damage	0 - Low	2 - Low	4 - Medium	6 - Medium
3 - Major health effect	Local damage	0 - Low	3 - Low	6 - Medium	9 - High
4 - Fatalities	Major damage	0 - Low.	4 - Medium.	8 - High	12 - High

Task 4: Soil Excavation																									
Hazardous Activity #1																									
Field-Equipment - working on ground in the vicinity of heavy equipment																									
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Personal Safety	-	Pressure	-																						
Driving	-	Electrical	-																						
Mechanical	H	Motion	H																						
Radiation	-	Sound	M																						
Overall Unmitigated Risk: High Mitigated Risk: Medium. if utilizing: Controls that should be Considered: Primary: TRACK JSAs Job Briefing/Site Awareness Site Awareness Secondary: HASP H&S Standards Field H&S Handbook (see ref. above) Engineering Controls (specify below) Admin. Controls (specify below) Specialized Equipment (specify below) Inspections																									
Enter Required Controls: Admin Controls - Ensure workers are trained for working near equipment. Review work plan. Engineering Controls - Use flagging and fencing to delineate excavation and demo areas to prevent slip/trip/falls. Ensure equipment warning sounds and lights are operational. PPE - See "PPE" section of the applicable JSA.																									
Hazardous Activity #2																									
Field-Excavations - working adjacent to or within trenches and excavations																									
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Biological</td><td>-</td> <td>Chemical</td><td>-</td> </tr> <tr> <td>Environmental</td><td>-</td> <td>Gravity</td><td>H</td> </tr> <tr> <td>Personal Safety</td><td>-</td> <td>Pressure</td><td>-</td> </tr> </table> Suggested FHSB Ref: IV D <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Driving</td><td>-</td> <td>Electrical</td><td>-</td> </tr> <tr> <td>Mechanical</td><td>-</td> <td>Motion</td><td>-</td> </tr> <tr> <td>Radiation</td><td>-</td> <td>Sound</td><td>-</td> </tr> </table>		Biological	-	Chemical	-	Environmental	-	Gravity	H	Personal Safety	-	Pressure	-	Driving	-	Electrical	-	Mechanical	-	Motion	-	Radiation	-	Sound	-
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Overall Unmitigated Risk: High Mitigated Risk: Medium. if utilizing: Controls that should be Considered: Primary: TRACK Competent Person Required (designated person) H&S Standards Excavation Awareness Training Engineering Controls (specify below) Secondary: JSAs Job Briefing/Site Awareness Specialized Equipment (specify below) Housekeeping Inspections																									
Enter Required Controls: Admin Controls - Ensure workers are trained for working near equipment. Review anticipated construction activities at the beginning of each day. Engineering Controls - Use flagging and fencing to delineate excavation and demo areas to prevent slip/trip/falls. Ensure equipment warning sounds and lights are operational. Ensure proper sidewall support and stability. PPE - See "PPE" section of the applicable JSA.																									
Hazardous Activity #3																									
Field-Excavation - soil removal, installation or removal piping, tanks or utilities, geologic investigations, etc																									
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Biological</td><td>-</td> <td>Chemical</td><td>-</td> </tr> <tr> <td>Environmental</td><td>-</td> <td>Gravity</td><td>H</td> </tr> <tr> <td>Personal Safety</td><td>-</td> <td>Pressure</td><td>-</td> </tr> </table> Suggested FHSB Ref: IV D <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Driving</td><td>-</td> <td>Electrical</td><td>-</td> </tr> <tr> <td>Mechanical</td><td>H</td> <td>Motion</td><td>H</td> </tr> <tr> <td>Radiation</td><td>-</td> <td>Sound</td><td>M</td> </tr> </table>		Biological	-	Chemical	-	Environmental	-	Gravity	H	Personal Safety	-	Pressure	-	Driving	-	Electrical	-	Mechanical	H	Motion	H	Radiation	-	Sound	M
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Radiation	-	Sound	M																						
Overall Unmitigated Risk: High Mitigated Risk: Medium if utilizing: Controls that should be Considered: Primary: TRACK H&S Standards Excavation Awareness Training Excavation Competent Person Training (designated person) Engineering Controls (specify below) Secondary: JSAs HASP Job Briefing/Site Awareness Client Training/Briefing Cont./Emerg. Planning PPE (see HASP "PPE" section) Specialized Equipment (specify below) Housekeeping Inspections																									

Enter Required Controls:	Admin Controls - Review anticipated construction activities at the beginning of each day. Ensure a qualified person inspects excavations at the start and end of each work day. Engineering Controls - Use flagging and fencing to delineate excavation and demo areas to prevent slip/trip/falls. Ensure equipment warning sounds and lights are operational. Ensure proper egress and ingress points if entering excavation 4 feet or deeper. Use appropriate excavation sidewall support. PPE - See "PPE" section of the applicable JSA.			
Hazardous Activity #4				
Field-Contaminated media (contact with impacted soil, water, air, sediment, etc)				
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):				
Biological	-	Chemical	H	Suggested FHSHB Ref: III E, III F, III AH
Environmental	M	Gravity	-	
Personal Safety	-	Pressure	-	
		Driving	-	Electrical
		Mechanical	-	Motion
		Radiation	M	Sound
Overall Unmitigated Risk:	High		Mitigated Risk:	Low
Controls that should be Considered:	Primary: TRACK JSAs Engineering Controls (specify below) Secondary: H&S Standards HASP Admin. Controls (specify below) HAZWOPER Training PPE (see HASP "PPE" section)			
Enter Required Controls:	Admin Controls - Review work plan and historical analytical results. Engineering Controls - Utilize tools such as a trowel or scoop to prevent direct contact with impacted media. PPE - See "PPE" section of the applicable JSA.			

Risk Assessment Matrix		Likelihood Ratings** (likelihood that incident would occur)			
Consequences Ratings*		A	B	C	D
People	Property	0 Almost impossible	1 Possible but unlikely	2 Likely to happen	3 Almost certain to happen
1 - Slight or no health	Slight or no damage	0 - Low	1 - Low	2 - Low	3 - Low
2 - Minor health effect	Minor damage	0 - Low	2 - Low	4 - Medium	6 - Medium
3 - Major health effect	Local damage	0 - Low	3 - Low	6 - Medium	9 - High
4 - Fatalities	Major damage	0 - Low.	4 - Medium.	8 - High	12 - High

Task 5: Air Monitoring

Hazardous Activity #1

Field-Measurement - personal air monitoring

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-
Environmental	-
Personal Safety	-

Chemical	M
Gravity	-
Pressure	-

Driving	-
Mechanical	L
Radiation	-

Suggested FHSB Ref:

V I

Electrical	-
Motion	-
Sound	-

Overall Unmitigated Risk:

Medium

Mitigated Risk:

Low

if utilizing:

Controls that should be Considered:

Primary: TRACK See HASP "Monitoring" section Inspections Secondary: JSAs Work Plan TKI SOP (as applicable)

Enter Required Controls:

Admin Controls - Review work plan and historical analytical results.

Engineering Controls - Calibrate equipment before use. Move equipment via truck or vehicle, when available. Use tripod stand at breathing level when staging equipment.

PPE - See "PPE" section of the applicable JSA.

Hazardous Activity #2

General-Lifting and movement of equipment of varying weights at varying frequencies by manual methods

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-
Environmental	-
Personal Safety	M

Chemical	-
Gravity	-
Pressure	-

Driving	-
Mechanical	-
Radiation	-

Suggested FHSB Ref:

III AF

Electrical	-
Motion	-
Sound	-

Overall Unmitigated Risk:

High

Mitigated Risk:

Medium

if utilizing:

Controls that should be Considered:

Primary: TRACK Engineering Controls (specify below) Job Rotation Secondary: JSAs Job Briefing/Site Awareness Specialized Equipment (specify below) Admin. Controls (specify below) Engineering Controls (specify below)

Enter Required Controls:

Admin Control - Ensure workers are trained in proper lifting techniques (lifting with the legs and not the back), use 2 people to carry heavy equipment.

Engineering Control - Use field vehicle to facilitate moving equipment when possible. Set up site to reduce the risk of bending and reaching for equipment.

Hazardous Activity #3

Field-Walking - uneven or slippery terrain

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-
Environmental	-
Personal Safety	-

Chemical	-
Gravity	M
Pressure	-

Driving	-
Mechanical	-
Radiation	-

Suggested FHSB Ref:

III E, III F

Electrical	-
Motion	-
Sound	-

Overall Unmitigated Risk:

Medium

Mitigated Risk:

Medium

if utilizing:

Controls that should be Considered:

Primary: TRACK Secondary: Housekeeping PPE (see HASP "PPE" section)

Enter Required Controls:

Admin Control - Familiarize field crew with site layout and trip hazards.

Engineering Control - Work area will be mowed prior to work activities. Slip and trip hazards will be flagged and marked, as needed.

PPE - See "PPE" section of the applicable JSA.

Hazardous Activity #4

Field-Ambient environment - exposure heat, cold, sun, weather, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-
Environmental	L
Personal Safety	M

Chemical	-
Gravity	H
Pressure	-

Driving	M
Mechanical	-
Radiation	-

Suggested FHSHB Ref:

Electrical	L
Motion	L
Sound	-

III I, III M

Overall Unmitigated Risk:

Medium

Mitigated Risk:

Medium

if utilizing:

Controls that should be Considered:

Primary: TRACK Field H&S Handbook (see ref. above) Secondary: H&S Standards Engineering Controls
(specify below) Admin. Controls (specify below) Specialized Equipment (specify below) PPE (see HASP "PPE"
section)

Enter Required Controls:

Admin Control - Check weather reports to determine necessary PPE and precautions, download appropriate application/weather notifications to track severe weather. Consider shorter work hours if necessary based on hot or cold conditions

Engineering Control - Use a tent or vehicle to protect workers from the elements during the breaks

PPE - See "PPE" section of the applicable JSA.

Hazard Communication (HazCom)/Global Harmonization System (GHS)

☐ HAZCOM/GHS for this project is managed by the client or general contractor

List the chemicals anticipated to be used by Arcadis on this project per HazCom/GHS requirements.

(Modify quantities as needed)

Preservatives ☐ Not applicable ☒ Hydrochloric acid <500 ml ☒ Nitric acid <500 ml ☐ Sulfuric acid <500 ml ☐ Sodium hydroxide <500 ml ☐ Zinc acetate <500 ml ☐ Ascorbic acid <500 ml ☐ Acetic acid <500 ml ☐ Isopropyl alcohol < 4 gal. ☐ Formalin (<10%) < 4 gal. ☐ Methanol <500 ml ☐ Sodium bisulfate <500 ml	Decontamination ☐ Not applicable ☒ Alconox ≤ 5 lbs ☒ Liquinox ≤ 1 gal ☐ Acetone ≤ 1 gal ☐ Methanol ≤ 1 gal ☒ Hexane ≤ 1 gal ☐ Isopropyl alcohol ≤ 4 gal ☒ Nitric acid ≤ 1 L ☐ Other: _____ _____ _____	Calibration ☐ Not applicable ☒ Isobutylene/air 1 cyl ☐ Methane/air 1 cyl ☐ Pentane/air 1 cyl ☐ Hydrogen/air 1 cyl ☐ Propane/air 1 cyl ☐ Hydrogen sulfide/air 1 cyl ☐ Carbon monoxide/air 1 cyl ☐ pH standards (4,7,10) ≤ 1 gal ☐ Conductivity standards ≤ 1 gal ☐ Other: _____ _____
Fuels ☐ Not applicable ☒ Gasoline ≤ 5 gal ☐ Diesel ≤ 5 gal ☐ Kerosene ≤ 5 gal ☐ Propane 1 cyl ☐ Other: _____ _____	Kits ☐ Not applicable ☐ Hach (specify): _____ ☐ DTECH (specify): _____ ☐ Other: _____ _____ _____	_____ _____ _____ _____
Remediation ☒ Not applicable ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____	Other: ☐ Not applicable ☒ Spray paint ≤ 6 cans ☐ WD-40 ≤ 1 can ☐ Pipe cement ≤ 1 can ☐ Pipe primer ≤ 1 can ☐ Mineral spirits ≤ 1 gal ☐ _____ _____	DOT(1): MOT eligible soils MOT eligible water MOT eligible solids MOT eligible liquids _____ _____ _____

(1) Attach applicable Materials of Trade (MOT) generic shipping determination. SDS not generally applicable to this category.

Safety Data Sheets (SDSs) must be available to field staff. Indicate below how SDS information will be provided:

☐ Not applicable ☐ Printed copy in company vehicle ☐ Printed copy in the project trailer/office ☒ Printed copy attached ☒ Electronic copy on field computer	☐ Contractor SDSs are not applicable ☐ Contractor SDSs are attached ☐ Contractor SDSs will be on site and located: _____ _____
☐ Bulk quantities of the following materials will be stored: _____	

Contact the project H&S contact for information in determining code and regulatory requirements associated with bulk storage of materials.

Monitoring

☒ Chemical air monitoring is not required for this project or is the responsibility of contractor.

For projects requiring air monitoring, list the relevant constituents representing a hazard to site workers.

Constituent	Max. Conc.	TWA		STEL		IDLH		LEL/UEL	RGD	IP	
		Units	Units	Units	Units	(%)	Air=1	(eV)			
Carbon monoxide	10	ppm	25	p	200	p,c,N	1200	p,N	12.5/74	0.97	14.01
Hydrogen sulfide	10	ppm	1	p	5	p	100	p,N	4.0/44.0	1.19	10.46
Benzene	10	ppm	0.5	p	2.5	p	500	p,N	1.2/7.8	NA	9.24
Toluene	10	ppm	20	p	150	p,N	500	p,N	1.1/7.1	NA	8.82
Ethylbenzene	10	ppm	20	p	125	p	800	p,N	0.8/6.7	NA	8.76
Xylenes	10	ppm	100	p	150	p	900	p,N	1.1/7.0	NA	8.44
PCBs	10	ppm	0.5	m,s	NA	-	5	m,N	NA/NA	NA	NA
Arsenic	10	ppm	0.01	m	NA	-	5	m	NA/NA	NA	NA
Cadmium	10	ppm	0.005	m,O	NA	-	9	m,N	NA/NA	NA	NA
Tetrachloroethene	10	ppm	25	p	100	p	150	p,N	NA/NA	NA	9.32
Trichloroethylene	10	ppm	10	p	25	p	1000	p,N	8/10.5	NA	9.45
cis 1,2-Dichloroethene	10	ppm	200	p	NA	-	1000	p,N	5.6/12.8	NA	9.65
Silica	0.1	mg/m3	0.025	m,r	NA	-	25	m,N	NA/NA	NA	NA
Benzo(a)anthracene	10	ppm	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	10	ppm	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	10	ppm	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	10	ppm	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	10	ppm	--	--	--	--	--	--	--	--	--

Notes: TWAs are ACGIH 8 hr.-TLVs unless noted.

p-ppm m-mg/m3
s- skin c-ceiling
r- respirable i-inhalable

c2- ceiling (2 hr.) se-sensitizer
"9999" - NA O-OSHA PEL
N-NIOSH 10 hr. REL

A - Arcadis specific
TWA*
"#N/A"-Manually
enter

Monitoring Equipment and General Protocols

Air monitoring is required for any task or activity where employees have potential exposure to vapors or particulates above the TWA. Action levels below are appropriate for most situations. Contact the project H&S contact for all stop work situations. Select monitoring frequency and instruments to be used.

Monitoring

Monitoring Frequency:

None

Indicator Tube/Chip Frequency:

Indicator tube/chip monitoring not required

	Instrument	Action Levels	Actions
☒	Photoionization Detector	< 0.250 0.250 - 0.500 > 0.500	Continue work Sustained >5 min. continuous monitor, review eng. controls and PPE, proceed with caution Sustained >5 min. stop work, contact SSO
☐	Lamp (eV): 10.6		
☐	Flame Ionization Detector (FID)	< 0.0 0.0 - 0.0 > 0.0	Continue work Sustained >5 min. continuous monitor, review eng. controls and PPE, use caution Sustained >5 min. stop work, contact SSO
☒	LEL/O2 Meter	0-5% LEL >5-10% LEL >10% LEL 19.5%-23.5% O2 <19.5% O2 >23.5% O2	Continue work Continuous monitor, review eng. controls, proceed with caution Stop work, evacuate, contact SSO Normal, continue work O2 deficient, stop work, evacuate, cont. O2 enriched, stop work, evacuate, contact
☐	Indicator: ☐ tube ☐ chip	≤PEL/TLV >PEL/TLV	Continue work Stop work, review eng. controls and PPE, contact SSO
	Compound(s):		
☒	Particulate Monitor (mists, aerosols, dusts in mg/m ³)	< 1.5 1.5 - 3.000 > 3.000	Continue work Use engineering controls, monitor continuous Stop work, review controls, contact SSO
☐	Other:	Specify:	Specify:
* Arcadis administrative TWAs ensure mixture component TWAs are not exceeded that would require additional monitoring or medical surveillance. One or more constituents above is listed with a skin notation. Avoid conditions where dusts, mists, or aerosols are created. Avoid skin contact with impacted media.			

Air Monitoring Acronyms and Definitions

Arcadis Acronym	Meaning	Definition
Action Levels		
A	Arcadis Specific TWA	An Arcadis administrative TWA.
c	Ceiling (TLV-C)	The concentration that shall not be exceeded during any part of the working exposure.
i	Inhalable	Particles that enter the respiratory system via the nose or mouth.
IDLH	Immediately Dangerous to Life and Health	The exposure concentration which is likely to cause significant injury/illness or death.
PEL	Permissible Exposure Limit (OSHA)	OSHA exposure limit and is legally enforceable in the United States.
r	Respirable	The portion of inhalable particles that enter the deepest part of the lung, the nonciliated alveoli.
REL	Recommended Exposure Limit (NIOSH)	The NIOSH TWA for an exposure up to a 10-hour workday during a 40-hour work week.
s	Skin	Potential for dermal absorption
se	Sensitizer	Potential for dermal or respirable sensitization resulting from the interaction of an absorbed agent.
STEL	Short Term Exposure Limit (TLV-STEL)	Usually a 15-minute TWA exposure that should not be exceeded at any time during the workday, even if the 8-hour TWA is within the TLV, PEL, or REL TWAs.
TLV	Threshold Limit Value (ACGIH)	The ACGIH TWA for an exposure up to a 8-hour workday during a 40-hour work week.
TWA	Time Weighted Average (TLV-TWA)	Time-weighted average exposure concentration for a conventional 8-hour (TLV, PEL) or up to 10-hour (REL) workday and a 40-hour week.
Chemical and Physical Properties		
IP	Ionization Potential	Ionization potential, eV (electron volts) [Ionization potentials are given as a guideline for the selection of photoionization detector lamps used in some direct-reading instruments.]
LEL	Lower Explosive Limit	The minimum concentration of a vapor in air below which propagation of a flame will not occur in the presence of an ignition source.
UEL	Upper Explosive Limit	The maximum concentration of a vapor in air below which propagation of a flame will not occur in the presence of an ignition source.
RGD	Relative Gas Density	Weight of a vapor or gas compared to an equal volume of air (air = 1). If greater than 1.0, the vapor or gas is heavier than air and will concentrate in the low places. If less than 1.0, the vapor or gas will rise.

<i>Arcadis Acronym</i>	<i>Meaning</i>	<i>Definition</i>
<u>Units</u>		
eV	Electron volt	A unit of energy equal to the energy acquired by an electron falling through a potential difference of one volt.
m	mg/m ³	Milligrams per cubic meter
p	ppm	Parts per million
<u>Organizations/Agencies</u>		
ACGIH	American Conference of Governmental Industrial Hygienists	
NIOSH	National Institute for Occupational Safety and Health	
OSHA	Occupational Safety and Health Administration	

Personal Protective Equipment (PPE)

See JSA or Permit for the task being performed for required PPE. If work is not conducted under a JSA or Permit, refer to the governing document for PPE requirements. At a minimum, the following checked PPE is required for all tasks during field work (outside of field office trailers and vehicles) not covered by a JSA or Permit on this project:

Minimum PPE required to be worn by all staff on project:

Specify Type:

☒ Hard hat	☐ Snake chaps/guards	☐ Coveralls:	
☒ Safety glasses	☐ Briar chaps	☐ Apron:	
☒ Safety goggles	☐ Chainsaw chaps	☒ Chem. resistant gloves:	Nitrile Gloves
☒ Face shield	☐ Sturdy boot	☐ Gloves other:	
☒ Hearing protection	☒ Steel or comp. toe boot	☐ Chemical boot:	
☐ Rain suit	☐ Metatarsal boot	☐ Boot other:	
☐ Other:		☒ Traffic vest, shirt or coat:	Class II
		☐ Life vest:	

Task specific PPE:

Comments:

Medical Surveillance (check all that apply)

- ☐ Medical Surveillance is not required for this project.
- ☒ HAZWOPER medical surveillance applies to all Arcadis site workers on the project.
- ☒ HAZWOPER medical surveillance applies to all subcontractors on the project.
- ☐ HAZWOPER medical surveillance applies to all site workers on the project except:
- ☐ Other medical surveillance required (describe type and who is required to participate):
- ☐ Client drug and/or alcohol testing required.

Hazardous Materials Shipping and Transportation (check all that apply)

- ☒ Not applicable, no materials requiring a Shipping Determination (SD) will be transported or shipped
- ☐ A SD has been reviewed and provided to field staff
- ☐ A SD is attached
- ☐ All HazMat will be transported under Materials of Trade by Arcadis (see generic MOT SD Form)
- ☐ Other (specify):

WARNING - SELECTION CONFLICTS WITH YOUR HAZARD ANALYSIS ACTIVITY REQUIRING SHIPPING DETERMINATION!

Roadway Work Zone Safety (check all that apply)

- ☒ Not applicable for this project
- ☐ All or portions of the work conducted under a TCP
- ☐ All or portions of the work conducted under a STAR Plan
- ☐ TCP or STAR Plan provided to field staff
- ☐ TCP or STAR Plan attached
- ☐ Other (specify):

Warning -selection conflicts with entries on the General worksheet indicating STAR Plan is required.

Arcadis Commercial Motor Vehicles (CMVs)

This section is applicable to Arcadis operated vehicles only

- ☐ This project will **not** utilize CMV drivers
 - ☒ This project will utilize CMV drivers
- This project will utilize one or more vehicles (alone or in combination with a trailer) with a gross vehicle weight rating (GVWR) of 10,001 pounds or more. GVWR Truck + GVWR Trailer = ≥10,001 pounds

AUS Personal Protective Equipment List by Business Line

This matrix outlines **basic** PPE requirements for each Business Line. **Specific client, task, or regulatory requirements may dictate the type of PPE beyond what is listed in this matrix.** Additionally, task specific PPE requirements may also be included in the HASP or JSA. Hazard/task specific PPE or emergency supply recommendations are outlined by hazard/task in the Field H&S Handbook. PPE and equipment should be charged to the project. For any supplies that the PM determines cannot be billed, the equipment should be charged to the employee's overhead charge number. PPE associated with specialized training such as NFPA 70E Arc Flash is not included in this matrix. Refer to the specific training program for a description of the necessary PPE for tasks involving such requirements.

Listed "General PPE" is required for field staff, the last column specifies PPE for Arcadis staff visiting project sites.					
	Environment ¹	Infrastructure ¹	Buildings ¹	Water ¹	Staff Visiting Project Sites
Minimum PPE Required to Be Worn					
Hard Hat	R	R	R	R	R
Reflective Traffic Vest (Minimum Class 2)	R	R	R	R	R
Safety Glasses - Clear and Tinted	R	R	R	R	R
ANSI Compliant Safety -Toe Boots	R	R	R	R	R
Minimum PPE Required to Have On Hand					
Hearing Protection - Ear plugs (Need for ear muffs TBD)	R	R	R	R	R
Leather gloves and glove clip	R	R	R	R	R
First Aid Supplies ²					
Small first aid kit	R	R	R	R	O
16 oz. Bottle of Eye Wash	R	R	R	R	O
Tick Remover (fine tip tweezers) (See THA for high risk locations)	O	O	O	O	O
PPE Supplies Required As Appropriate					
PPE duffel bag with logo, or equivalent	O	O	O	O	O
Half Face or Full-Face Respirator ³ (See THA)	O ³	O ³	O ³	O ³	O ³
Insect Repellent (See THA.) (Recommended 20-30% DEET)	O	O	O	O	O
Sunscreen	O	O	O	O	O
Hand sanitizer	O	O	O	O	O
Cut Resistant or Chemical Resistant Gloves ⁴	O	O	O	O	O
Poison Ivy pre-exposure wipes or post exposure cleanser (i.e. Tecnu or Zanol) (See THA for high risk locations)	O	O	O	O	O
Other specialized protective equipment (See THA for Work Tasks)	O	O	O	O	O
Outdoor wilderness survival kit ⁵	O	O	O	O	O



Notes:

R - Required

O - Optional. Based on HASP Task Hazard Analysis (THA) or geographic location of work.

THA - Task Hazard Analysis.

Review the HASP Task Hazard Analysis (THA) in making this determination. Certain specific factors can influence the determination for requiring this PPE for the site or task. For example, certain geographic regions may have a higher incidence of the hazard or associated risk, the proximity of the site relative to emergency services may require such, previous observations of the hazard at the site, or where unknown hazard conditions apply. Modifications to the minimum required PPE are required to be communicated via the HASP and/or JSA.

1 The Business Line Director, Operations Manager, Project Manager or Employee Supervisor is responsible for making the decision to provide Arcadis branded shirts to employees. Billing of such shirts is related to the authority level of the decision maker.

2 For project sites with an office/trailer, First Aid/emergency response supplies can be kept in a central location, and may not be required to be carried by each Arcadis employee.

3 Staff must comply with the Arcadis Respiratory Protection H&S Standard before a respirator can be worn. The H&S Standard is available on the H&S Team webpage via the H&S Standards Library link.

[Link to ANA H&S Standard Library](#)

⁴ Determination for use of cut resistant, chemical resistant gloves or other specialized hand protection are to be based on THA in the project HASP.

⁵ Outdoor survival kits are generally required when working in remote wilderness locations. See the HASP THA and the Field H&S Handbook for requirements and supply list.

Site Control (check all that apply)

- ☐ Not applicable for this project.
- ☒ Site control protocols are addressed in JSA or other supporting document (attach)
- ☐ Maintain an exclusion zone of _____ ft. around the active work area
- ☐ Site control is integrated into the STAR Plan or TCP for the project
- ☐ Level C site control - refer to Level C Supplement attached
- ☐ Other (specify):

Decontamination (check all that apply)

- ☐ Not applicable for this project.
- ☐ Decontamination protocols are addressed in JSA or other governing document (attach)
- ☐ Wash hands and face prior to consuming food, drink or tobacco.
- ☒ Remove gloves and coveralls and contain, wash hands and face prior to consuming food, drink or tobacco. Ensure footwear is clean of site contaminants
- ☐ Respiratory protection- refer to the Level C supplement attached.
- ☐ Other (specify):

Sanitation (check all that apply)

- ☒ Mobile operation with access to off-site restrooms and potable water
- ☐ Restroom facilities on site provided by client or other contractor
- ☐ Project to provide portable toilets (1 per 20 workers)
- ☐ Potable water available on site
- ☐ Project to provide potable water (assume 1 gal./person/day)
- ☐ Project requires running water (hot and cold, or tepid) with soap and paper towels

Safety Briefings (check all that apply)

- ☒ Safety briefing required daily
- ☐ Safety briefing required twice a day
- ☐ Safety briefings required at the following frequency: _____
- ☐ Subcontractors to participate in Arcadis safety briefings
- ☒ Arcadis to participate in client/contractor safety briefings
- ☐ Other (specify):

Safety Equipment and Supplies

Safety equipment/supply requirements are addressed in the JSA or Permit for the task being performed . If work is not performed under a JSA or Permit, the following safety equipment is required to be present on site in good condition (Check all that apply):

☒ First aid kit	☐ Insect repellent
☐ Bloodborne pathogens kit	☐ Sunscreen
☐ Fire extinguisher	☐ Air horn
☐ Eyewash (ANSI compliant)	☒ Traffic cones
☒ Eyewash (bottle)	☐ 2-way radios
☒ Drinking water	☐ Heat stress monitor
☐ Other:	
_____	_____

International Travel

- ☒ This project does not involve international travel
- ☐ This project involves international travel

Behavior Based Safety Program (check all that apply)

- ☒ TIP required at the following frequency on this project:
Select One: _____ mhrs 1 time(s) _____ per Define: Mobilization
- ☐ H&S Field Assessment required at the following frequency on this project:
Select One: _____ mhrs _____ time(s) _____ Define: _____
- ☐ Other (specify): _____

Signatures

I have read, understand and agree to abide by the requirements presented in this health and safety plan. I understand that I have the absolute right to stop work if I recognize an unsafe condition affecting my work until corrected.

Printed Name	Signature	Date
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Add additional sheets if necessary

You have an absolute right to STOP WORK if unsafe conditions exist!

Non-Arcadis Visitor Acknowledgement and Acceptance of HASP Signature Form

By signing below, I waive, release and discharge the owner of the site and Arcadis and their employees from any future claims for bodily and personal injuries which may result from my presence at, entering, or leaving the site and in any way arising from or related to any and all known and unknown conditions on the site.

Printed Name	Signature	Company	Date/Time On Site	Date/Time Off Site

Attachment A
JSAs

Job Safety Analysis

General

JSA ID	HASP 1	Status	Complete
Job Name	General Industry-Driving - passenger vehicles	Created Date	6/6/2017
Task Description	Driving a car, van, or truck on public roadways.	Completed Date	06/06/2017

Client / Project

Client	Covestro LLC
Project Number	B0032305.1701
Project Name	Former Hooker Chemical/Oxy/Ruco Polymer
Project Manager	John Brussel

User Roles

Role	Employee	Due Date	Completed Date
Developer	L. Carey Healy	6/6/2017	6/6/2017
HASP Reviewer	Zuck, Daniel	6/6/2017	6/6/2017
Quality Reviewer			

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Pre-Trip Inspection	1	Failing to perform pre-trip inspections may cause mechanical failure, accident or injury	Perform walk around of vehicle with particular attention to tire inflation and condition. Check lights, wipers, seatbelts for proper operating condition. Properly adjust seat and mirrors prior to vehicle operation. Use or review vehicle inspection checklist as required under the MVSP.	ARC HSGE024 Motor Vehicle Safety Standard (MVSP)
		2	Scrapes, cuts, burns to hand if inspecting engine fluids and/or tires. Eye splash hazard if inspecting engine fluids. Pinch or crush hazards when opening or closing hood, trunk or tailgate.	Wear protective gloves and safety glasses as described below when checking under hood or tires. Use TRACK and keep hands clear when opening/closing hood, trunk, or tailgate to avoid crush or pinch hazard.	
		3	Struck by other vehicles while walking around vehicle performing inspections	Wear high visibility vest, shirt, or coat while performing inspections in parking lots or other areas with a traffic hazard. Remain vigilant of moving vehicles or equipment in area, face oncoming vehicles to extent practical.	
		4	Improperly secured cargo may dislodge creating injury, property damage or road hazard.	Ensure all cargo is properly secured to prevent movement while the vehicle is in operation. This includes cargo in the cab of the vehicle.	

2	Driving a motor vehicle on public streets	1	Failing to observe traffic flow ahead increases risk of hard braking resulting in potential impact of vehicle ahead, being struck by another vehicle from behind and decreases decision making time.	Use Smith System Key #1, "Aim High in Steering". Look ahead (15 seconds if possible) to observe traffic flow and traffic signals. Adjust speed accordingly to keep vehicle moving and avoid frequent braking. Select lane of least traffic and adjust speed based on observed signal timing when possible. Avoid following directly behind large vehicles that obscure view ahead.	Smith System "5-Keys" is a registered trademark of Smith System Driver Improvement Institute, Inc.
		2	Failing to observe vehicles, pedestrians, bicyclists and other relevant objects in vicinity of your vehicle increases risk of side swipes, rear ending, and third party injury.	Use Smith System Key #2, "Get the Big Picture". Maintain 360 degrees of awareness around vehicle. Check a mirror every 6-8 seconds, maintain space around the vehicle, choose a lane that avoids being boxed in. Look for pedestrian activity ahead in crosswalks or sidewalks. Watch for construction zone approach signs and act early by executing lane changes and reducing speed.	
		3	Failing to keep your eyes moving increases risk of not seeing relevant vehicles, pedestrians and objects in your vicinity that may impair your ability to make timely and appropriate driving decisions and also increases risk of accident.	Use Smith System Key #3, "Keep Your Eyes Moving". Move your eyes every 2 seconds and avoid staring while evaluating relevant objects. Scan major and minor intersections prior to entering them. Check mirrors.	
		4	Failing to maintain space around and in front of your vehicle increases risk of striking another vehicle or being struck by another vehicle. Insufficient space shortens time for effective driving decision making resulting in increased accident risk.	Use Smith System #4, "Leave Yourself an Out". Use 4 second rule when following a vehicle. Avoid driving in vehicle clusters by adjusting speed and using lanes that permit maximum space and visibility. When stopped, keep one car length space in front of vehicle ahead or white line.	
		5	Failing to communicate with other drivers and pedestrians increases risk of striking vehicles, pedestrians, or being struck by other vehicles, especially from the rear.	Use Smith System Key #5, "Make Sure They See You". Brake early and gradually when stopping to reduce potential of being rear ended. Keep foot on brake while stopped. Use turn signals and horn effectively. Establish eye contact with other drivers and pedestrians to extent practical. Use vehicle positioning that promotes being seen.	
		6	Distractions within the vehicle takes focus off driving, increases risk of accident decreases time for making effective driving decisions.	Cell phone use (any type or configuration) is prohibited while the vehicle is in motion. Familiarize yourself with vehicle layout and controls (radio, temperature controls, etc.) prior to operating unfamiliar vehicles. Set controls prior to operating vehicle. Use GPS in unfamiliar areas to avoid use of paper maps/directions while driving. Set GPS prior to vehicle operation. Pull over and stop to modify GPS functions. Avoid consuming food or drink while driving.	

3	Parking	1	Parking vehicle in areas of clustered parked vehicles or near facility entrance may impair visibility to oncoming traffic in lot and increase exposure to pedestrian traffic.	Use pull through parking or back into parking space when permitted or practical. When practical and safe to do so, park away from other vehicles and avoid parking near the facility entrance or loading docks. If available, use a spotter to aid in backing activity. Back no further than necessary and back slowly. Get out and look (GOAL) if uncertain of immediate surroundings. Tap horn prior to backing.	

PPE Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required
Eye Protection	safety glasses	While checking engine or tires	Required
Hand Protection	work gloves (specify type)	Leather or equivalent checking engine or	Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone		Required
	other	Vehicle kit (applies to company trucks)	Required
Miscellaneous	fire extinguisher	Applies to company trucks	Required
	first aid kit	Applies to company trucks	Required

Job Safety Analysis

General

JSA ID	11614	Status	(3) Completed
Job Name	Construction-Site inspection/walkover - construction	Created Date	9/5/2014
Task Description	Site inspection/walk activities, including utility clearance, surveying, biological surveys, oversight of pest control	Completed Date	09/05/2014
Template	False	Auto Closed	False

Client / Project

Client	BAYER CORPORATION
Project Number	B00323052013
Project Name	BAYER 2014 SITE CLOSURE & CONSTRUCTION
PIC	RATCHFORD, TIMOTHY
Project Manager	BRUSSEL, JOHN

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Hensel, Rebecca	9/26/2014	9/5/2014	Brien, Jason	☒
HASP Reviewer	Gang, Bob	9/19/2014	9/5/2014	Cullen, Lucas	☒

Job Steps

Job Step No.	Job Step Description	Potential Hazard	Critical Action	H&S Reference
1	Mobilize with proper equipment and prepare work area.	1 Vehicle accident while approaching work area.	Follow safe driving procedures and use Smith System driving principles. Speed limit is 20 mph on paved areas and 15 mph on unpaved areas.	
2	Wildlife survey, site walk, survey, utility clearance and general site activities	1 Slips, trips or falls from uneven ground surface	Use caution when walking on un-even surfaces and plan path carefully. Use proper footwear with traction. Do not read site maps or talk on phone while walking. Stop walking when looking overhead. Communicate observed trip hazards to other personnel verbally or by marking.	
		2 Cuts and scrapes from contact with vegetation or debris.	Use caution when walking through areas with vegetation or debris. Wear proper eye protection. Wear leather gloves and long sleeves to protection arms and hands.	
		3 Heat or cold exposure	Monitor weather to prepare for site conditions and possible changes in weather forecast. Schedule rest breaks to replenish fluids in hot conditions or to warm up in cold conditions. Review health problems associated with weather conditions and watch for symptoms in other employees. Avoid long periods of direct sun or wind exposure.	
		4 Allergic reactions or injury due to exposure to hazardous plants, animals and insects.	Review characteristics of hazardous wildlife prior to activities. Wash areas exposed to vegetation with soap after completing tasks. Wear long sleeves if hazardous plants are discovered or if daily activities will require significant contact with vegetation. If activity allows, make a lot of noise when traveling through the site, and carry repellant spray. If a dangerous or aggravated animal is spotted, return to vehicle and contact animal control. Use insect repellant as needed.	
3	Demobilization from work site	1 Vehicle accident	Follow safe driving procedures; use Smith System driving principles. On-site speed limit is 20mph on paved roads and 15mph on unpaved areas. Do not drive if tired; if leaving site late, rest before a long drive.	

PPE Personal Protective Equipment			
Type	Personal Protective Equipment	Description	Required
Dermal Protection	long sleeve shirt/pants		Required
Eye Protection	safety glasses		Required
Foot Protection	steel-toe boots		Required
Hand Protection	work gloves (specify type)	Leather cut II resistant	Required
Head Protection	hard hat		Required
Miscellaneous PPE	traffic vest--Class II or III		Required

Supplies			
Type	Supply	Description	Required
Communication Devices	mobile phone		Required
Miscellaneous	fire extinguisher		Required
	first aid kit		Required
Personal	insect repellant	as needed	Recommended
	sunscreen	as needed	Recommended
	water/fluid replacement		Required
Traffic Control	traffic cones	as needed	Required

Review Comments		
Reviewer		Comments
Employee: Role Review Type Completed Date	Gang, Bob HASP Reviewer Approve 9/5/2014	

Job Safety Analysis

General

JSA ID	11615	Status	(3) Completed
Job Name	Environmental-Air Monitoring	Created Date	9/5/2014
Task Description	Air Monitoring	Completed Date	09/05/2014
Template	False	Auto Closed	False

Client / Project

Client	BAYER CORPORATION
Project Number	B00323052013
Project Name	BAYER 2014 SITE CLOSURE & CONSTRUCTION
PIC	RATCHFORD, TIMOTHY
Project Manager	BRUSSEL, JOHN

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Hensel, Rebecca	9/26/2014	9/5/2014	Brien, Jason	☒
HASP Reviewer	Gang, Bob	9/19/2014	9/5/2014	Cullen, Lucas	☒

Job Steps

Job Step No.	Job Step Description	Potential Hazard	Critical Action	H&S Reference
1	Inspect and Calibrate PID Meter.	1 Faulty/uncalibrated equipment leading to over exposure of VOC's.	Calibrate and document the calibration readings to confirm meter meets the manufacturers recommendations. Charge to PID Meter to use throughout the monitoring task.	
		2 Fire from pressurized calibration gas canister resulting in burns to skin.	Inspect canister and valve for damages, leaks and pressure. Keep a fire extinguisher within 20 ft of the calibration staging area.	
2	Survey the Area Where Air Monitoring will be Conducted.	1 Head and body injury by getting struck by vehicles and other heavy equipment that may be present in the area.	Delineate the work area with cones and barricades. Communicate with hand signals with heavy equipment operators that may be present in the work area. Wear a high visibility vest shall be worn during the survey of the area to make yourself more visible to the operators. Wear a hard hat to protect head from overhead hazards around heavy equipment.	
		2 Slips, trips or falls from uneven terrain resulting in broken bones, lacerations or sprains.	Remove all trip hazards from the walking path. Choose a walking path with even surfaces. Wear steel toe safety boots with rubber soles to maintain a non slip surface with the ground.	
		3 Hearing damage from high noise levels	Wear hearing protection when working in the work zone to protect ears from high noise.	
		4 Eye injury from flying debris in wind.	Position body with back facing the wind to avoid blowing debris in the eyes. Don goggles if visible dust or debris is in the air to protect eyes from debris entering the eye.	
		5 Over exposure to VOC's from drilling operations.	Stay upwind of drilling area. Initiate STOP WORK if action levels are exceeded. Refer to HASP for action levels and mitigation steps.	

PPE Personal Protective Equipment			
Type	Personal Protective Equipment	Description	Required
Dermal Protection	long sleeve shirt/pants		Required
Eye Protection	safety glasses		Required
	safety goggles	as needed	Recommended
Foot Protection	steel-toe boots		Required
Hand Protection	work gloves (specify type)	Leather cut II resistant	Required
Head Protection	hard hat		Required
Hearing Protection	ear muffs		Recommended
Miscellaneous PPE	traffic vest--Class II or III		Required
Respiratory Protection	dust mask	as needed	Recommended

Supplies			
Type	Supply	Description	Required
Communication Devices	mobile phone		Required
Miscellaneous	fire extinguisher		Required
	first aid kit		Required
Personal	insect repellant	as needed	Recommended
	sunscreen	as needed	Recommended
	water/fluid replacement		Required
Traffic Control	traffic cones	as needed	Required

Review Comments		
Reviewer		Comments
Employee: Role Review Type Completed Date	Gang, Bob HASP Reviewer Approve 9/5/2014	

Job Safety Analysis

General

JSA ID	11613	Status	(3) Completed
Job Name	Construction-Oversight - excavation and construction	Created Date	9/5/2014
Task Description	Oversight of Soil Excavation	Completed Date	09/05/2014
Template	False	Auto Closed	False

Client / Project

Client	BAYER CORPORATION
Project Number	B00323052013
Project Name	BAYER 2014 SITE CLOSURE & CONSTRUCTION
PIC	RATCHFORD, TIMOTHY
Project Manager	BRUSSEL, JOHN

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Hensel, Rebecca	9/26/2014	9/5/2014	Brien, Jason	☒
HASP Reviewer	Gang, Bob	9/19/2014	9/5/2014	Cullen, Lucas	☒

Job Steps

Job Step No.	Job Step Description	Potential Hazard	Critical Action	H&S Reference
1	Utility Clearance	1 Contact with utilities can cause injury, property damage, and cause releases of hazardous substances to the environment.	Establish a minimum of three lines of evidence, and obtain additional lines of evidence as needed for site specific conditions. Maintain utility markings, perform detailed site inspections, and keep open and constant communication between operators, onsite staff, and project management. Always Use Stop Work Authority if there is a question or concern about the location of a utility.	ARCHSFS019 - Utility Clearance HS Standard
		2 Slip trip and falls while performing site clearance activities	Focus on task at hand and do not hurry through task. Avoid reading maps/drawings while walking, stop walking when looking up for overhead utilities.	
2	Excavation/Trenching and Backfilling Oversight	1 Slips trips and falls from poor housekeeping around trench or excavation.	Maintain work area and minimize clutter near excavation. Place excavated material properly and at least 2 feet away from the edge of excavation. Remove potential hazards when possible. Mark hazards when it cannot be removed. Create and maintain awareness of hazard. Maintain barriers, fall hazard warning signage and traffic controls properly. Do not cross over caution tape, safety fencing etc. Follow Project specific STAR Plan	FHSHB IV(D)
		2 Excavation or trench collapse trapping workers or creating falls.	Excavation/Trench greater than five (5) feet deep in which subcontractor, employees or others will be entering must be properly sloped, benched, shored or have a trench box in place. Sloping, benching, shoring or use of trench box is not required IF an excavation is less than five (5) feet in depth and examination of the ground by a competent person provides no indication of a potential cave-in. Ensure a Competent Person is on site to inspect and oversee excavation/ trenching activities. Where feasible, stay six (6) feet from edge of excavation/trench. A safe means of egress, such as a stairway, ladder, or ramp, shall be located so that no more than twenty-five (25) feet of lateral travel is necessary for site workers conducting activities in trenches exceeding four (4) feet in depth.	

2	Excavation/Trenching and Backfilling Oversight	3	Potential high level of dust, fumes, vapors or particulates creating visibility or inhalation/contact hazards could result in exposure above occupational exposure limit or create an IDLH atmosphere.	Visually monitor air for dust, and wet excavated soil as needed to control dust. Monitor for chemical vapors if hazard exists. The atmosphere must be tested in excavations greater than four (4) feet in depth where oxygen deficiency or toxic or flammable gases are likely to be present, before workers will be permitted to enter. Ensure downwind and perimeter monitoring also performed, if atmospheric hazards exists.	
		4	Excessive noise from excavating equipment or pumps.	Make sure all authorized personnel including subcontractors are wearing hearing protection (ear plugs/muffs) when working around noisy equipment. Increase distance from noise hazard when practical.	
		5	Potential Leaks of Petroleum Fluids and Lubricants from excavating equipment and support equipment.	Make sure all authorized personnel including subcontractors perform equipment inspections looking for leaks, cracked hoses, and loose fittings. Promptly and properly repair all leaks.	
		6	Open Excavation, Unauthorized Entry, or Property Damage	Make sure all authorized personnel including subcontractors mark open excavation with demarcation tape, orange fencing, orange cones, etc. to prevent unauthorized / accidental entry. Make sure controls are adequate for traffic protection after dark or when the site is unstaffed. Backfill excavation area as soon as possible and fence off any excavation not backfilled at the end of the work day.	
		7	Contact with potentially impacted groundwater and soil.	Conduct task in a calm, cautious manner. Wear appropriate PPE as defined in this JSA (hard hat, chemically resistant gloves, safety vest and steel-toe boots). Ensure equipment is in working conditions before start of work every day. Stop work immediately and report to the site manager, if any conditions exist that could pose a danger to those onsite..	
		8	Working Around Heavy Machinery	Where feasible, maintain distance from excavation equipment in excess of the swing radius. Establish eye contact with operator and wait for operator to put equipment in neutral and remove hands and feet from controls prior to entering zone of influence of equipment. Ensure equipment is in good working condition before work begins. Wear appropriate PPE as defined in this JSA, including hard hat, gloves, safety vest, gloves and steel-toe boots. Do not wear loose clothing and pull back long hair. Be aware of and avoid standing in red zones (equipment operator "blind-spots"). No personnel are permitted to stand underneath suspended loads.	
3	Stockpile Maintenance and Sampling	1	Falls climbing on or during covering of stockpile.	Avoid climbing on stockpiles when possible, keep hands free, do not hurry through tasks such as pulling plastic sheeting up onto or over piles.	
		2	Overexertion placing plastic sheeting, weight, and straw bales.	Use proper lifting techniques, avoid twisting of body, and forceful pulling/pushing. Do not hurry through task.	
		3	Cuts, scrapes, impalement from debris in stockpiles.	Have excavation contractor remove/isolate large chunks of concrete, exposed rebar etc. from stockpile to extent practical. Inspect areas prior to kneeling or placing hands when sampling upon stockpile.	

PPE Personal Protective Equipment			
Type	Personal Protective Equipment	Description	Required
Dermal Protection	long sleeve shirt/pants		Required
Eye Protection	safety glasses		Required
Foot Protection	steel-toe boots		Required
Hand Protection	chemical resistant gloves (specify type)	Nitrile	Required
	work gloves (specify type)	Leather cut II resistant	Required
Head Protection	hard hat		Required
Hearing Protection	ear plugs	When working near heavy equipment	Required
Miscellaneous PPE	traffic vest--Class II or III		Required
Respiratory Protection	dust mask	as needed	Required

Supplies			
Type	Supply	Description	Required
Communication Devices	mobile phone	Remote area, check reception	Required
Decontamination	Decon supplies (specify type)	Alconox	Required
Miscellaneous	fire extinguisher		Required
	first aid kit		Required
	flashlight		Required
Personal	eye wash (specify type)		Required
	insect repellent	as needed	Recommended
	sunscreen	as needed	Recommended
	water/fluid replacement		Required
Traffic Control	Other	Cones/tape to delineate trenches prior to backfill	Required

Review Comments		
Reviewer		Comments
Employee: Role Review Type Completed Date	Gang, Bob HASP Reviewer Approve 9/5/2014	

Job Safety Analysis

General

JSA ID	11618	Status	(3) Completed
Job Name	Environmental-Soil sampling/well installation - manual	Created Date	9/5/2014
Task Description	Soil Sampling	Completed Date	09/08/2014
Template	False	Auto Closed	False

Client / Project

Client	BAYER CORPORATION
Project Number	B00323052013
Project Name	BAYER 2014 SITE CLOSURE & CONSTRUCTION
PIC	RATCHFORD, TIMOTHY
Project Manager	BRUSSEL, JOHN

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Hensel, Rebecca	9/19/2014	9/7/2014	Brien, Jason	☒
HASP Reviewer	Gang, Bob	9/21/2014	9/8/2014	Cullen, Lucas	☒

Job Steps

Job Step No.	Job Step Description	Potential Hazard	Critical Action	H&S Reference
1	Sampling set-up	1 Underground utilities could be encountered during hand augering	Follow the Utility Clearance HS Standard.	Utility Clearance HS Standard ARCHSF019
		2 Muscle strains can occur from lifting heavy equipment in and out of vehicle	Park as close as possible to the sampling locations. Use proper lifting techniques lift with legs, keep back straight, do not twist while lifting.	
		3 Slips/trips/falls could occur from uneven walking and working surfaces	Remove any gravel or debris from sample location. Gravel will get stuck in auger or will continue to fall back down in hole. A five gallon bucket with the bottom cut out will retain gravel from falling back down in the hole.	
2	Installation of hand auger boring	1 Muscle strains from pulling/pushing could occur when installing the boring, and when removing the auger from the hole	Stretch out arms/back/shoulder muscles prior to beginning. Using firm grip on handle, slowly turn auger and progress downward in 6" increments. Slowly pull auger from hole-use legs to pull auger out of hole. If water is encountered, a suction will be created when trying to remove the auger. Ask for assistance from another worker if you can't remove safely on your own.	
		2 Hand strain and blisters could develop from prolonged hand augering	Select proper gloves for task, usually leather type work gloves or mechanics style gloves. If hot spots develop on hands (Hot Spots are where blisters start to form) readjust gloves or change to better padded glove. If blisters begin to form, stop work so as not to worsen blistering.	
		3 Over-exertion could occur when trying to force an auger forward if there is refusal.	If refusal occurs, Stop Work. Remove auger from hole and check hole with flashlight if possible. DO NOT overexert by using excessive force.	
		4 Fatigue can occur due to strenuous nature of hand augering activities	Take rest breaks as needed or switch out task with another employee.	
3	Collect Sample Soil Sample	1 Staff can come into contact with impacted soils	Wear chemical protective gloves as outlined in the HASP, and wear safety glasses.	
		2 Sharp edges and broken glassware can cause lacerations	Wear cut II resistant gloves and discard any broken sample containers or glass. Do not overtighten sample containers.	

3	Collect Sample Soil Sample	3	Containerizing and moving soil cuttings can cause muscle strains	Dispose of left over soil cuttings in a drum or bucket and dispose properly. Only fill buckets half full due to weight and strength of bucket. Wear leather work gloves and use proper lifting techniques (lift with legs keep back straight, do not twist while lifting) when handling buckets.	
4	Decon Hand Auger	1	Exposure to COCs while deconing equipment.	Wear chemical protective gloves as outlined in the HASP, and wear safety glasses.	
		2	Cleaning solutions can splash while deconing equipment	Wear nitrile gloves, and try to minimize splashing.	
		3	The end of the hand auger has sharp edges, and lacerations can occur	Use brush to scrub off soils and not hands. Do not reach into the nose (the end with teeth) of the auger with hand.	
5	Fill in Sample Location	1	Open boreholes are a trip hazard	Fill in hole with sand or bentonite. Pack down chips as best as possible. Add a bit of DI Water to make chips swell and fill hole completely.	
		2	Muscle strain can occur from lifting bags of sand and/or bentonite.	Use proper lifting techniques as detailed in the Field H&S handbook	

PPE Personal Protective Equipment			
Type	Personal Protective Equipment	Description	Required
Dermal Protection	long sleeve shirt/pants		Required
Eye Protection	safety glasses		Required
Foot Protection	steel-toe boots		Required
Hand Protection	chemical resistant gloves (specify type)	Nitrile	Required
	work gloves (specify type)	Leather cut II resistant	Required
Head Protection	hard hat		Required
Hearing Protection	ear plugs		Required
Miscellaneous PPE	traffic vest--Class II or III		Required
Respiratory Protection	dust mask		Recommended

Supplies			
Type	Supply	Description	Required
Communication Devices	mobile phone		Required
Decontamination	Decon supplies (specify type)		Required
Miscellaneous	fire extinguisher		Required
	first aid kit		Required
Personal	eye wash (specify type)	bottle	Required
	insect repellent	as needed	Required
	sunscreen	as needed	Required
	water/fluid replacement		Required
Traffic Control	traffic cones	as needed	Required

Review Comments		
Reviewer	Comments	
Employee: Role Review Type Completed Date	Gang, Bob HASP Reviewer Revise 9/5/2014	just a few things Section 1.2 define proper lifting techniques "lift with legs, keep back straight, do not twist while lifting Section 3.2 Add "wear Cut II Resistant Gloves when tightening caps" Section 3.3, define proper lifting techniques
Employee: Role Review Type Completed Date	Gang, Bob HASP Reviewer Approve 9/8/2014	

Attachment B
Safety Data Sheets(SDS)

SAFETY DATA SHEET

K07307000

Section 1. Identification

Product name : KRYLON® PRO PROFESSIONAL Solvent-Based Fluorescent Marking Paint
Orange

Product code : K07307000

Other means of identification : Not available.

CAS # : Not applicable.

Product type : Aerosol.

Relevant identified uses of the substance or mixture and uses advised against
Not applicable.

Manufacturer : Krylon Products Group
Cleveland, OH 44115

Emergency telephone number of the company : (216) 566-2917

Product Information Telephone Number : (800) 457-9566

Regulatory Information Telephone Number : (216) 566-2902

Transportation Emergency Telephone Number : (800) 424-9300

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE AEROSOLS - Category 1
GASES UNDER PRESSURE - Compressed gas
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 1A
TOXIC TO REPRODUCTION (Fertility) - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
ASPIRATION HAZARD - Category 1
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 47.8%

GHS label elements

Hazard pictograms :



Signal word : Danger

Section 2. Hazards identification

Hazard statements	: Extremely flammable aerosol. - Contains gas under pressure; may explode if heated. - Causes serious eye irritation. - Causes skin irritation. - May cause cancer. - Suspected of damaging fertility or the unborn child. - May be fatal if swallowed and enters airways. - May cause respiratory irritation. - May cause drowsiness or dizziness. - Causes damage to organs through prolonged or repeated exposure.
<u>Precautionary statements</u>	
General	: Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.
Prevention	: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Use only outdoors or in a well-ventilated area. Do not breathe dust or mist. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Pressurized container: Do not pierce or burn, even after use.
Response	: Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
Storage	: Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F. Store in a well-ventilated place.
Disposal	: Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	DANGER: Rags, steel wool, other waste soaked with this product, and sanding residue may spontaneously catch fire if improperly discarded. Immediately place rags, steel wool, other waste soaked with this product, and sanding residue in a sealed, water-filled, metal container. Dispose of in accordance with local fire regulations. DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE. Contains solvents which can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal. WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Adequate ventilation required when sanding or abrading the dried film. If Adequate ventilation cannot be provided wear an approved particulate respirator (NIOSH approved). Follow respirator manufacturer's directions for respirator use. DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE. Abrading or sanding of the dry film may release Crystalline Silica which has been shown to cause lung damage and cancer under long term exposure. Please refer to the SDS for additional information. Keep out of reach of children. Keep upright in a cool, dry place. Do not discard empty can in trash compactor.
Hazards not otherwise classified	: None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture
Other means of identification : Not available.

CAS number/other identifiers

Ingredient name	% by weight	CAS number
Crystalline Silica, respirable powder	19.8	14808-60-7
Propane	14.65	74-98-6
Acetone	10.13	67-64-1
Hexane	8.42	110-54-3
Butane	6.9	106-97-8
Lt. Aliphatic Hydrocarbon Solvent	6.74	64742-89-8
2-Methylpentane	3.9	107-83-5
Xylene	1.87	1330-20-7
3-Methylpentane	1.45	96-14-0
2,3-Dimethylbutane	1.23	79-29-8
Toluene	0.48	108-88-3
Ethylbenzene	0.33	100-41-4

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Date of issue/Date of revision	: 8/11/2016	Date of previous issue	: 7/15/2016	Version	: 4.02	3/19

Section 4. First aid measures

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
- Skin contact** : Causes skin irritation.
- Ingestion** : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
nausea or vomiting
reduced fetal weight
increase in fetal deaths
skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

Section 5. Fire-fighting measures

Specific hazards arising from the chemical	: Extremely flammable aerosol. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion. Bursting aerosol containers may be propelled from a fire at high speed. Runoff to sewer may create fire or explosion hazard. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous thermal decomposition products	: Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides metal oxide/oxides
Special protective actions for fire-fighters	: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

Small spill	: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill	: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

: Put on appropriate personal protective equipment (see Section 8). Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Avoid breathing gas. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene

: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

: Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Protect from sunlight. Store locked up. Eliminate all ignition sources. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits (OSHA United States)

Ingredient name	Exposure limits
Crystalline Silica, respirable powder	OSHA PEL Z3 (United States, 2/2013). TWA: 250 mppcf / (%SiO ₂ +5) 8 hours. Form: Respirable TWA: 10 mg/m ³ / (%SiO ₂ +2) 8 hours. Form: Respirable ACGIH TLV (United States, 3/2015). TWA: 0.025 mg/m ³ 8 hours. Form: Respirable fraction NIOSH REL (United States, 10/2013). TWA: 0.05 mg/m ³ 10 hours. Form: respirable dust
Propane	NIOSH REL (United States, 10/2013). TWA: 1000 ppm 10 hours. TWA: 1800 mg/m ³ 10 hours. OSHA PEL (United States, 2/2013). TWA: 1000 ppm 8 hours. TWA: 1800 mg/m ³ 8 hours.
Acetone	ACGIH TLV (United States, 3/2015). TWA: 250 ppm 8 hours. STEL: 500 ppm 15 minutes. NIOSH REL (United States, 10/2013). TWA: 250 ppm 10 hours. TWA: 590 mg/m ³ 10 hours. OSHA PEL (United States, 2/2013). TWA: 1000 ppm 8 hours. TWA: 2400 mg/m ³ 8 hours.
Hexane	ACGIH TLV (United States, 3/2015). Absorbed through skin. TWA: 50 ppm 8 hours.

Section 8. Exposure controls/personal protection

Butane

NIOSH REL (United States, 10/2013).

TWA: 50 ppm 10 hours.

TWA: 180 mg/m³ 10 hours.

OSHA PEL (United States, 2/2013).

TWA: 500 ppm 8 hours.

TWA: 1800 mg/m³ 8 hours.

NIOSH REL (United States, 10/2013).

TWA: 800 ppm 10 hours.

TWA: 1900 mg/m³ 10 hours.

ACGIH TLV (United States, 3/2015).

STEL: 1000 ppm 15 minutes.

None.

ACGIH TLV (United States, 3/2015).

TWA: 500 ppm 8 hours.

TWA: 1760 mg/m³ 8 hours.

STEL: 1000 ppm 15 minutes.

STEL: 3500 mg/m³ 15 minutes.

NIOSH REL (United States, 10/2013).

TWA: 100 ppm 10 hours.

TWA: 350 mg/m³ 10 hours.

CEIL: 510 ppm 15 minutes.

CEIL: 1800 mg/m³ 15 minutes.

ACGIH TLV (United States, 3/2015).

TWA: 100 ppm 8 hours.

TWA: 434 mg/m³ 8 hours.

STEL: 150 ppm 15 minutes.

STEL: 651 mg/m³ 15 minutes.

OSHA PEL (United States, 2/2013).

TWA: 100 ppm 8 hours.

TWA: 435 mg/m³ 8 hours.

ACGIH TLV (United States, 3/2015).

TWA: 500 ppm 8 hours.

TWA: 1760 mg/m³ 8 hours.

STEL: 1000 ppm 15 minutes.

STEL: 3500 mg/m³ 15 minutes.

NIOSH REL (United States, 10/2013).

TWA: 100 ppm 10 hours.

TWA: 350 mg/m³ 10 hours.

CEIL: 510 ppm 15 minutes.

CEIL: 1800 mg/m³ 15 minutes.

ACGIH TLV (United States, 3/2015).

TWA: 500 ppm 8 hours.

TWA: 1760 mg/m³ 8 hours.

STEL: 1000 ppm 15 minutes.

STEL: 3500 mg/m³ 15 minutes.

NIOSH REL (United States, 10/2013).

TWA: 100 ppm 10 hours.

TWA: 350 mg/m³ 10 hours.

CEIL: 510 ppm 15 minutes.

CEIL: 1800 mg/m³ 15 minutes.

OSHA PEL Z2 (United States, 2/2013).

TWA: 200 ppm 8 hours.

CEIL: 300 ppm

AMP: 500 ppm 10 minutes.

NIOSH REL (United States, 10/2013).

TWA: 100 ppm 10 hours.

TWA: 375 mg/m³ 10 hours.

STEL: 150 ppm 15 minutes.

STEL: 560 mg/m³ 15 minutes.

Lt. Aliphatic Hydrocarbon Solvent
2-Methylpentane

Xylene

3-Methylpentane

2,3-Dimethylbutane

Toluene

Section 8. Exposure controls/personal protection

Ethylbenzene	ACGIH TLV (United States, 3/2015). TWA: 20 ppm 8 hours. ACGIH TLV (United States, 3/2015). TWA: 20 ppm 8 hours. NIOSH REL (United States, 10/2013). TWA: 100 ppm 10 hours. TWA: 435 mg/m³ 10 hours. STEL: 125 ppm 15 minutes. STEL: 545 mg/m³ 15 minutes. OSHA PEL (United States, 2/2013). TWA: 100 ppm 8 hours. TWA: 435 mg/m³ 8 hours.

Occupational exposure limits (Canada)

Ingredient name	Exposure limits
Crystalline Silica, respirable powder	CA British Columbia Provincial (Canada, 5/2015). TWA: 0.025 mg/m³ 8 hours. Form: Respirable CA Quebec Provincial (Canada, 1/2014). TWAEV: 0.1 mg/m³ 8 hours. Form: Respirable dust. CA Ontario Provincial (Canada, 7/2015). TWA: 0.1 mg/m³ 8 hours. Form: Respirable fraction. CA Alberta Provincial (Canada, 4/2009). 8 hrs OEL: 0.025 mg/m³ 8 hours. Form: Respirable particulate CA Saskatchewan Provincial (Canada, 7/2013). TWA: 0.05 mg/m³ 8 hours. Form: respirable fraction
Propane	CA Alberta Provincial (Canada, 4/2009). 8 hrs OEL: 1000 ppm 8 hours. CA British Columbia Provincial (Canada, 5/2015). TWA: 1000 ppm 8 hours. CA Quebec Provincial (Canada, 1/2014). TWAEV: 1000 ppm 8 hours. TWAEV: 1800 mg/m³ 8 hours. CA Ontario Provincial (Canada, 7/2015). TWA: 1000 ppm 8 hours. CA Saskatchewan Provincial (Canada, 7/2013). STEL: 1250 ppm 15 minutes. TWA: 1000 ppm 8 hours.
Acetone	CA Alberta Provincial (Canada, 4/2009). 8 hrs OEL: 1200 mg/m³ 8 hours. 15 min OEL: 1800 mg/m³ 15 minutes. 8 hrs OEL: 500 ppm 8 hours. 15 min OEL: 750 ppm 15 minutes. CA British Columbia Provincial (Canada, 5/2015). TWA: 250 ppm 8 hours. STEL: 500 ppm 15 minutes. CA Ontario Provincial (Canada, 7/2015).

Section 8. Exposure controls/personal protection

Hexane

TWA: 500 ppm 8 hours.
 STEL: 750 ppm 15 minutes.
CA Quebec Provincial (Canada, 1/2014).
 TWAEV: 500 ppm 8 hours.
 TWAEV: 1190 mg/m³ 8 hours.
 STEV: 1000 ppm 15 minutes.
 STEV: 2380 mg/m³ 15 minutes.
CA Saskatchewan Provincial (Canada, 7/2013).
 STEL: 750 ppm 15 minutes.
 TWA: 500 ppm 8 hours.
CA Alberta Provincial (Canada, 4/2009).
Absorbed through skin.
 8 hrs OEL: 50 ppm 8 hours.
 8 hrs OEL: 176 mg/m³ 8 hours.
CA British Columbia Provincial (Canada, 5/2015). Absorbed through skin.
 TWA: 20 ppm 8 hours.
CA Ontario Provincial (Canada, 7/2015).
Absorbed through skin.
 TWA: 50 ppm 8 hours.
CA Quebec Provincial (Canada, 1/2014).
Absorbed through skin.
 TWAEV: 50 ppm 8 hours.
 TWAEV: 176 mg/m³ 8 hours.
CA Saskatchewan Provincial (Canada, 7/2013). Absorbed through skin.
 STEL: 62.5 ppm 15 minutes.
 TWA: 50 ppm 8 hours.

2-Methylpentane

CA Alberta Provincial (Canada, 4/2009).
 15 min OEL: 3500 mg/m³ 15 minutes.
 8 hrs OEL: 1760 mg/m³ 8 hours.
 15 min OEL: 1000 ppm 15 minutes.
 8 hrs OEL: 500 ppm 8 hours.
CA British Columbia Provincial (Canada, 5/2015).
 TWA: 200 ppm 8 hours.
CA Ontario Provincial (Canada, 7/2015).
 TWA: 500 ppm 8 hours.
 STEL: 1000 ppm 15 minutes.
CA Quebec Provincial (Canada, 1/2014).
 TWAEV: 500 ppm 8 hours.
 TWAEV: 1760 mg/m³ 8 hours.
 STEV: 1000 ppm 15 minutes.
 STEV: 3500 mg/m³ 15 minutes.
CA Saskatchewan Provincial (Canada, 7/2013).
 STEL: 1000 ppm 15 minutes.
 TWA: 500 ppm 8 hours.

Toluene

CA Alberta Provincial (Canada, 4/2009).
Absorbed through skin.
 8 hrs OEL: 50 ppm 8 hours.
 8 hrs OEL: 188 mg/m³ 8 hours.
CA British Columbia Provincial (Canada, 5/2015).
 TWA: 20 ppm 8 hours.
CA Ontario Provincial (Canada, 7/2015).
 TWA: 20 ppm 8 hours.

Section 8. Exposure controls/personal protection

CA Quebec Provincial (Canada, 1/2014). Absorbed through skin.
TWA_{EV}: 50 ppm 8 hours.
TWA_{EV}: 188 mg/m³ 8 hours.
CA Saskatchewan Provincial (Canada, 7/2013). Absorbed through skin.
STEL: 60 ppm 15 minutes.
TWA: 50 ppm 8 hours.

- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Individual protection measures**
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state	: Liquid.
Color	: Not available.
Odor	: Not available.
Odor threshold	: Not available.
pH	: 7
Melting point	: Not available.
Boiling point	: Not available.
Flash point	: Closed cup: -29°C (-20.2°F) [Pensky-Martens Closed Cup]
Evaporation rate	: 9.1 (butyl acetate = 1)
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Lower: 0.9% Upper: 12.8%
Vapor pressure	: 13.5 kPa (101.325 mm Hg) [at 20°C]
Vapor density	: 1.55 [Air = 1]
Relative density	: 0.89
Solubility	: Not available.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Kinematic (room temperature): <0.205 cm ² /s (<20.5 cSt) Kinematic (40°C (104°F)): <0.205 cm ² /s (<20.5 cSt)
Molecular weight	: Not applicable.

Aerosol product

Type of aerosol	: Spray
Heat of combustion	: 23.77 kJ/g

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame).
Incompatible materials	: No specific data.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Acetone	LD50 Oral	Rat	5800 mg/kg	-
Hexane	LC50 Inhalation Gas.	Rat	48000 ppm	4 hours
	LD50 Oral	Rat	15840 mg/kg	-
Butane	LC50 Inhalation Vapor	Rat	658000 mg/m ³	4 hours
Xylene	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
	LD50 Oral	Rat	4300 mg/kg	-
Toluene	LC50 Inhalation Vapor	Rat	49 g/m ³	4 hours
	LD50 Oral	Rat	636 mg/kg	-
Ethylbenzene	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Acetone	Eyes - Mild irritant	Human	-	186300 parts per million	-
	Eyes - Mild irritant	Rabbit	-	10 microliters	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Eyes - Severe irritant	Rabbit	-	20 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Hexane	Skin - Mild irritant	Rabbit	-	395 milligrams	-
	Eyes - Mild irritant	Rabbit	-	10 milligrams	-
	Eyes - Mild irritant	Rabbit	-	87 milligrams	-
	Eyes - Severe irritant	Rabbit	-	24 hours 5 milligrams	-
	Skin - Mild irritant	Rat	-	8 hours 60 microliters	-
Xylene	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Moderate irritant	Rabbit	-	100 Percent	-
	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100 milligrams	-
	Eyes - Mild irritant	Rabbit	-	870 Micrograms	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
Toluene	Skin - Mild irritant	Pig	-	24 hours 250 microliters	-
	Skin - Mild irritant	Rabbit	-	435 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Moderate irritant	Rabbit	-	500 milligrams	-
	Eyes - Severe irritant	Rabbit	-	500 milligrams	-
Ethylbenzene	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-

Sensitization

Not available.

Mutagenicity

Section 11. Toxicological information

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
Crystalline Silica, respirable powder	-	1	Known to be a human carcinogen.
Xylene	-	3	-
Toluene	-	3	-
Ethylbenzene	-	2B	-

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Propane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Acetone	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Hexane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Butane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Lt. Aliphatic Hydrocarbon Solvent	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
2-Methylpentane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Xylene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
3-Methylpentane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
2,3-Dimethylbutane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Toluene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Ethylbenzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure)

Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
Crystalline Silica, respirable powder	Category 1	Inhalation	Not determined
Propane	Category 2	Not determined	Not determined
Acetone	Category 2	Not determined	Not determined
Hexane	Category 2	Not determined	Not determined
Butane	Category 2	Not determined	Not determined
Lt. Aliphatic Hydrocarbon Solvent	Category 2	Not determined	Not determined
2-Methylpentane	Category 2	Not determined	Not determined
Xylene	Category 2	Not determined	Not determined
3-Methylpentane	Category 2	Not determined	Not determined
2,3-Dimethylbutane	Category 2	Not determined	Not determined
Toluene	Category 2	Not determined	Not determined
Ethylbenzene	Category 2	Not determined	Not determined

Aspiration hazard

Name	Result
Propane	ASPIRATION HAZARD - Category 1
Hexane	ASPIRATION HAZARD - Category 1
Butane	ASPIRATION HAZARD - Category 1
Lt. Aliphatic Hydrocarbon Solvent	ASPIRATION HAZARD - Category 1
2-Methylpentane	ASPIRATION HAZARD - Category 1
Xylene	ASPIRATION HAZARD - Category 1
3-Methylpentane	ASPIRATION HAZARD - Category 1
2,3-Dimethylbutane	ASPIRATION HAZARD - Category 1
Toluene	ASPIRATION HAZARD - Category 1
Ethylbenzene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.

Skin contact : Causes skin irritation.

Ingestion : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations

- Skin contact** : Adverse symptoms may include the following:
 irritation
 redness
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
 nausea or vomiting
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

- General** : Causes damage to organs through prolonged or repeated exposure.
- Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : Suspected of damaging the unborn child.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : Suspected of damaging fertility.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	119917.5 mg/kg
Inhalation (gases)	139439 ppm

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Acetone	Acute EC50 7200000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute LC50 6000000 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 6900 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 5600 ppm Fresh water	Fish - Poecilia reticulata	96 hours
	Chronic NOEC 4.95 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.016 ml/L Fresh water	Crustaceans - Daphniidae	21 days
	Chronic NOEC 0.1 ml/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
Hexane Lt. Aliphatic Hydrocarbon Solvent Xylene	Acute LC50 2500 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute LC50 >100000 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute LC50 8500 µg/l Marine water	Crustaceans - Palaemonetes	48 hours

Date of issue/Date of revision : 8/11/2016 **Date of previous issue** : 7/15/2016 **Version** : 4.02 15/19

Section 12. Ecological information

Toluene	Acute LC50 13400 µg/l Fresh water	pugio	96 hours
	Acute EC50 12500 µg/l Fresh water	Fish - Pimephales promelas	72 hours
	Acute EC50 11600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	48 hours
	Acute EC50 6000 µg/l Fresh water	Crustaceans - Gammarus pseudolimnaeus - Adult	48 hours
Ethylbenzene	Acute LC50 5500 µg/l Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Chronic NOEC 1000 µg/l Fresh water	Fish - Oncorhynchus kisutch - Fry	21 days
	Acute EC50 4600 µg/l Fresh water	Daphnia - Daphnia magna	72 hours
	Acute EC50 3600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 6530 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	48 hours
	Acute EC50 2930 µg/l Fresh water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute LC50 4200 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	96 hours
		Fish - Oncorhynchus mykiss	96 hours

Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Acetone	-	-	Readily
Xylene	-	-	Readily
Toluene	-	-	Readily
Ethylbenzene	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Hexane	-	501.187	high
Lt. Aliphatic Hydrocarbon Solvent	-	10 to 2500	high
Xylene	-	8.1 to 25.9	low
Toluene	-	90	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IATA	IMDG
UN number	UN1950	UN1950	UN1950	UN1950	UN1950
UN proper shipping name	AEROSOLS	AEROSOLS	AEROSOLS	AEROSOLS, flammable	AEROSOLS
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.
Additional information	- <u>ERG No.</u> 126	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2). <u>ERG No.</u> 126	- <u>ERG No.</u> 126	-	<u>Emergency schedules (EmS)</u> F-D, S-U

Special precautions for user : Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Proper shipping name : Not available.

Ship type : Not available.

Pollution category : Not available.

Section 15. Regulatory information

SARA 313

SARA 313 (40 CFR 372.45) supplier notification can be found on the Environmental Data Sheet.

California Prop. 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	*	2
Flammability		3
Physical hazards		0

The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

Procedure used to derive the classification

Classification

FLAMMABLE AEROSOLS - Category 1
GASES UNDER PRESSURE - Compressed gas
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 1A
TOXIC TO REPRODUCTION (Fertility) - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
ASPIRATION HAZARD - Category 1

Justification

On basis of test data
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method

History

Date of printing : 8/11/2016

Date of issue/Date of revision : 8/11/2016

Date of previous issue : 7/15/2016

Version : 4.02

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Notice to reader

Section 16. Other information

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Products shall not be repackaged, modified, or tinted except as specifically instructed by Sherwin-Williams, including but not limited to the incorporation of non Sherwin-Williams products or the use or addition of products in proportions not specified by Sherwin-Williams. Regulatory requirements are subject to change and may differ between various locations and jurisdictions. The customer/buyer/user is responsible to ensure that his activities comply with all country, federal, state, provincial or local laws. The conditions for use of the product are not under the control of the manufacturer; the customer/buyer/user is responsible to determine the conditions necessary for the safe use of this product. The customer/buyer/user should not use the product for any purpose other than the purpose shown in the applicable section of this SDS without first referring to the supplier and obtaining written handling instructions. Due to the proliferation of sources for information such as manufacturer-specific SDS, the manufacturer cannot be responsible for SDSs obtained from any other source.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015**Revision :** 12.10.2015**Trade Name:** Alconox**1 Identification of the substance/mixture and of the supplier****1.1 Product identifier****Trade Name:** Alconox**Synonyms:****Product number:** Alconox**1.2 Application of the substance / the mixture :** Cleaning material/Detergent**1.3 Details of the supplier of the Safety Data Sheet****Manufacturer**Alconox, Inc.
30 Glenn Street
White Plains, NY 10603
1-914-948-4040**Supplier**

Not Applicable

Emergency telephone number:**ChemTel Inc**

North America: 1-800-255-3924

International: 01-813-248-0585

2 Hazards identification**2.1 Classification of the substance or mixture:**

In compliance with EC regulation No. 1272/2008, 29CFR1910/1200 and GHS Rev. 3 and amendments.

Hazard-determining components of labeling:Tetrasodium Pyrophosphate
Sodium tripolyphosphate
Sodium Alkylbenzene Sulfonate**2.2 Label elements:**

Skin irritation, category 2.

Eye irritation, category 2A.

Hazard pictograms:**Signal word:** Warning**Hazard statements:**

H315 Causes skin irritation.

H319 Causes serious eye irritation.

Precautionary statements:

P264 Wash skin thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352 If on skin: Wash with soap and water.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

P321 Specific treatment (see supplemental first aid instructions on this label).

P332+P313 If skin irritation occurs: Get medical advice/attention.

P362 Take off contaminated clothing and wash before reuse.

P501 Dispose of contents and container as instructed in Section 13.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015**Revision :** 12.10.2015**Trade Name:** Alconox**Additional information:** None.**Hazard description****Hazards Not Otherwise Classified (HNOC):** None**Information concerning particular hazards for humans and environment:**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

The classification is according to EC regulation No. 1272/2008, 29CFR1910/1200 and GHS Rev. 3 and amendments, and extended by company and literature data. The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

3 Composition/information on ingredients**3.1 Chemical characterization :** None**3.2 Description :** None**3.3 Hazardous components (percentages by weight)**

Identification	Chemical Name	Classification	Wt. %
CAS number: 7758-29-4	Sodium tripolyphosphate	Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	12-28
CAS number: 68081-81-2	Sodium Alkylbenzene Sulfonate	Acute Tox. 4; H303 Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	8-22
CAS number: 7722-88-5	Tetrasodium Pyrophosphate	Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	2-16

3.4 Additional Information : None.**4 First aid measures****4.1 Description of first aid measures****General information:** None.**After inhalation:**

Maintain an unobstructed airway.

Loosen clothing as necessary and position individual in a comfortable position.

After skin contact:

Wash affected area with soap and water.

Seek medical attention if symptoms develop or persist.

After eye contact:

Rinse/flush exposed eye(s) gently using water for 15-20 minutes.

Remove contact lens(es) if able to do so during rinsing.

Seek medical attention if irritation persists or if concerned.

After swallowing:

Rinse mouth thoroughly.

Seek medical attention if irritation, discomfort, or vomiting persists.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015**Revision :** 12.10.2015**Trade Name:** Alconox**4.2 Most important symptoms and effects, both acute and delayed**

None

4.3 Indication of any immediate medical attention and special treatment needed:

No additional information.

5 Firefighting measures**5.1 Extinguishing media****Suitable extinguishing agents:**

Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition.

For safety reasons unsuitable extinguishing agents : None**5.2 Special hazards arising from the substance or mixture :**

Thermal decomposition can lead to release of irritating gases and vapors.

5.3 Advice for firefighters**Protective equipment:**

Wear protective eye wear, gloves and clothing.

Refer to Section 8.

5.4 Additional information :

Avoid inhaling gases, fumes, dust, mist, vapor and aerosols.

Avoid contact with skin, eyes and clothing.

6 Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures :**

Ensure adequate ventilation.

Ensure air handling systems are operational.

6.2 Environmental precautions :

Should not be released into the environment.

Prevent from reaching drains, sewer or waterway.

6.3 Methods and material for containment and cleaning up :

Wear protective eye wear, gloves and clothing.

6.4 Reference to other sections : None**7 Handling and storage****7.1 Precautions for safe handling :**

Avoid breathing mist or vapor.

Do not eat, drink, smoke or use personal products when handling chemical substances.

7.2 Conditions for safe storage, including any incompatibilities :

Store in a cool, well-ventilated area.

7.3 Specific end use(s):

No additional information.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015**Revision :** 12.10.2015**Trade Name:** Alconox**8 Exposure controls/personal protection****8.1 Control parameters :**

7722-88-5, Tetrasodium Pyrophosphate, OSHA TWA 5 mg/m3.

8.2 Exposure controls**Appropriate engineering controls:**

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling.

Respiratory protection:

Not needed under normal conditions.

Protection of skin:

Select glove material impermeable and resistant to the substance.

Eye protection:

Safety goggles or glasses, or appropriate eye protection.

General hygienic measures:

Wash hands before breaks and at the end of work.

Avoid contact with skin, eyes and clothing.

9 Physical and chemical properties

Appearance (physical state, color):	White and cream colored flakes - powder	Explosion limit lower: Explosion limit upper:	Not determined or not available. Not determined or not available.
Odor:	Not determined or not available.	Vapor pressure at 20°C:	Not determined or not available.
Odor threshold:	Not determined or not available.	Vapor density:	Not determined or not available.
pH-value:	9.5 (aqueous solution)	Relative density:	Not determined or not available.
Melting/Freezing point:	Not determined or not available.	Solubilities:	Not determined or not available.
Boiling point/Boiling range:	Not determined or not available.	Partition coefficient (n-octanol/water):	Not determined or not available.
Flash point (closed cup):	Not determined or not available.	Auto/Self-ignition temperature:	Not determined or not available.
Evaporation rate:	Not determined or not available.	Decomposition temperature:	Not determined or not available.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015**Revision :** 12.10.2015**Trade Name:** Alconox

Flammability (solid, gaseous):	Not determined or not available.	Viscosity:	a. Kinematic: Not determined or not available. b. Dynamic: Not determined or not available.
Density at 20°C:	Not determined or not available.		

10 Stability and reactivity**10.1 Reactivity :** None**10.2 Chemical stability :** None**10.3 Possibility hazardous reactions :** None**10.4 Conditions to avoid :** None**10.5 Incompatible materials :** None**10.6 Hazardous decomposition products :** None**11 Toxicological information****11.1 Information on toxicological effects :****Acute Toxicity:****Oral:**

: LD50 > 5000 mg/kg oral rat - Product .

Chronic Toxicity: No additional information.**Skin corrosion/irritation:**

Sodium Alkylbenzene Sulfonate: Causes skin irritation. .

Serious eye damage/irritation:

Sodium Alkylbenzene Sulfonate: Causes serious eye irritation .

Tetrasodium Pyrophosphate: Rabbit - Risk of serious damage to eyes .

Respiratory or skin sensitization: No additional information.**Carcinogenicity:** No additional information.**IARC (International Agency for Research on Cancer):** None of the ingredients are listed.**NTP (National Toxicology Program):** None of the ingredients are listed.**Germ cell mutagenicity:** No additional information.**Reproductive toxicity:** No additional information.**STOT-single and repeated exposure:** No additional information.**Additional toxicological information:** No additional information.**12 Ecological information**

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015**Revision :** 12.10.2015**Trade Name:** Alconox**12.1 Toxicity:**

Sodium Alkylbenzene Sulfonate: Fish, LC50 1.67 mg/l, 96 hours.
 Sodium Alkylbenzene Sulfonate: Aquatic invertebrates, EC50 Daphnia 2.4 mg/l, 48 hours.
 Sodium Alkylbenzene Sulfonate: Aquatic Plants, EC50 Algae 29 mg/l, 96 hours.
 Tetrasodium Pyrophosphate: Fish, LC50 - other fish - 1,380 mg/l - 96 h.
 Tetrasodium Pyrophosphate: Aquatic invertebrates, EC50 - Daphnia magna (Water flea) - 391 mg/l - 48 h.

12.2 Persistence and degradability: No additional information.**12.3 Bioaccumulative potential:** No additional information.**12.4 Mobility in soil:** No additional information.**General notes:** No additional information.**12.5 Results of PBT and vPvB assessment:****PBT:** No additional information.**vPvB:** No additional information.**12.6 Other adverse effects:** No additional information.**13 Disposal considerations****13.1 Waste treatment methods (consult local, regional and national authorities for proper disposal)****Relevant Information:**

It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities. (US 40CFR262.11).

14 Transport information

14.1 UN Number: None
 ADR, ADN, DOT, IMDG, IATA

14.2 UN Proper shipping name: None
 ADR, ADN, DOT, IMDG, IATA

14.3 Transport hazard classes:
 ADR, ADN, DOT, IMDG, IATA

Class:	None
Label:	None
LTD. QTY:	None

US DOT
Limited Quantity Exception: None

Bulk:
RQ (if applicable): None
Proper shipping Name: None
Hazard Class: None
Packing Group: None
Marine Pollutant (if applicable): No additional information.

Non Bulk:
RQ (if applicable): None
Proper shipping Name: None
Hazard Class: None
Packing Group: None
Marine Pollutant (if applicable): No additional information.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015**Revision :** 12.10.2015

Trade Name: Alconox	
Comments: None	Comments: None
14.4 Packing group: ADR, ADN, DOT, IMDG, IATA	None
14.5 Environmental hazards :	None
14.6 Special precautions for user:	None
Danger code (Kemler):	None
EMS number:	None
Segregation groups:	None
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.	
14.8 Transport/Additional information:	
Transport category:	None
Tunnel restriction code:	None
UN "Model Regulation":	None

15 Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.**
North American**SARA****Section 313 (specific toxic chemical listings):** None of the ingredients are listed.**Section 302 (extremely hazardous substances):** None of the ingredients are listed.**CERCLA (Comprehensive Environmental Response, Clean up and Liability Act) Reportable****Spill Quantity:** None of the ingredients are listed.**TSCA (Toxic Substances Control Act):****Inventory:** All ingredients are listed.**Rules and Orders:** Not applicable.**Proposition 65 (California):****Chemicals known to cause cancer:** None of the ingredients are listed.**Chemicals known to cause reproductive toxicity for females:** None of the ingredients are listed.**Chemicals known to cause reproductive toxicity for males:** None of the ingredients are listed.**Chemicals known to cause developmental toxicity:** None of the ingredients are listed.**Canadian****Canadian Domestic Substances List (DSL):**

All ingredients are listed.

EU**REACH Article 57 (SVHC):** None of the ingredients are listed.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015**Revision :** 12.10.2015**Trade Name:** Alconox**Germany MAK:** Not classified.**Asia Pacific****Australia****Australian Inventory of Chemical Substances (AICS):** All ingredients are listed.**China****Inventory of Existing Chemical Substances in China (IECSC):** All ingredients are listed.**Japan****Inventory of Existing and New Chemical Substances (ENCS):** All ingredients are listed.**Korea****Existing Chemicals List (ECL):** All ingredients are listed.**New Zealand****New Zealand Inventory of Chemicals (NZOIC):** All ingredients are listed.**Philippines****Philippine Inventory of Chemicals and Chemical Substances (PICCS):** All ingredients are listed.**Taiwan****Taiwan Chemical Substance Inventory (TSCI):** All ingredients are listed.**16 Other information****Abbreviations and Acronyms:** None**Summary of Phrases****Hazard statements:**

H315 Causes skin irritation.

H319 Causes serious eye irritation.

Precautionary statements:

P264 Wash skin thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352 If on skin: Wash with soap and water.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

P321 Specific treatment (see supplemental first aid instructions on this label).

P332+P313 If skin irritation occurs: Get medical advice/attention.

P362 Take off contaminated clothing and wash before reuse.

P501 Dispose of contents and container as instructed in Section 13.

Manufacturer Statement:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

NFPA: 1-0-0

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015

Revision : 12.10.2015

Trade Name: Alconox

HMIS: 1-0-0

Acetone

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 11/12/1998

Revision date: 09/20/2016

Supersedes: 10/01/2013

Version: 1.2

SECTION 1: Identification

1.1. Identification

Product form : Substance
Substance name : Acetone
Chemical name : 2-Propanone
CAS No : 67-64-1
Product code : LC10420, LC10425
Formula : C₃H₆O
Synonyms : 2-propanone / beta-ketopropane / dimethyl formaldehyde / dimethyl ketone / dimethylketal / DMK (=dimethyl ketone) / keto propane / methyl ketone / pyroacetic acid / pyroacetic ether / pyroacetic spirit

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Solvent
Cleaning product
Chemical raw material

1.3. Details of the supplier of the safety data sheet

LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Flammable liquids Category 2 H225
Serious eye damage/eye irritation Category 2A H319
Specific target organ toxicity (single exposure) Category 3 H336

Full text of H statements : see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS02

GHS07

Signal word (GHS-US) : Danger
Hazard statements (GHS-US) : H225 - Highly flammable liquid and vapor
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
Precautionary statements (GHS-US) : P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical, lighting, ventilating equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P261 - Avoid breathing mist, spray, vapors
P264 - Wash exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear eye protection, face protection, protective clothing, protective gloves
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position

Acetone

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312 - Call a POISON CENTER or doctor/physician if you feel unwell
P337 + P313 - If eye irritation persists: Get medical advice/attention
P370 + P378 - In case of fire: Use dry chemical powder, alcohol-resistant foam, carbon dioxide (CO2) to extinguish
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to comply with local, state and federal regulations
P235 - Keep cool

2.3. Other hazards

Other hazards not contributing to the classification : None.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substance

Substance type : Mono-constituent

Name	Product identifier	%	GHS-US classification
Acetone (Main constituent)	(CAS No) 67-64-1	100	Flam. Liq. 2, H225 Eye Irrit. 2A, H319 STOT SE 3, H336

Full text of hazard classes and H-statements : see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Wash immediately with lots of water. Soap may be used. Do not apply (chemical) neutralizing agents. Remove clothing before washing. Take victim to a doctor if irritation persists.

First-aid measures after eye contact : Rinse immediately with plenty of water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not give milk/oil to drink. Do not induce vomiting. Give activated charcoal. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Doctor: gastric lavage.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/injuries after inhalation : EXPOSURE TO HIGH CONCENTRATIONS: Feeling of weakness. Irritation of the respiratory tract. Nausea. Vomiting. Headache. Central nervous system depression. Dizziness. Narcosis. Excited/restless. Drunkenness. Disturbed motor response. Respiratory difficulties. Disturbances of consciousness.

Symptoms/injuries after skin contact : ON CONTINUOUS EXPOSURE/CONTACT: Dry skin. Cracking of the skin.

Symptoms/injuries after eye contact : Irritation of the eye tissue.

Symptoms/injuries after ingestion : Dry/sore throat. Risk of aspiration pneumonia. Symptoms similar to those listed under inhalation. AFTER ABSORPTION OF LARGE QUANTITIES: Irritation of the gastric/intestinal mucosa. Change in the blood composition. Change in urine output. Renal disease. Enlargement/disease of the liver.

Symptoms/injuries upon intravenous administration : Not available.

Chronic symptoms : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Red skin. Skin rash/inflammation. Dry/sore throat. Headache. Nausea. Feeling of weakness. Loss of weight. Possible inflammation of the respiratory tract.

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4.3. Indication of any immediate medical attention and special treatment needed

Obtain medical assistance.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Preferably: alcohol resistant foam. Water spray. Polyvalent foam. Alcohol-resistant foam. BC powder. Carbon dioxide.

Unsuitable extinguishing media : Solid water jet ineffective as extinguishing medium.

5.2. Special hazards arising from the substance or mixture

Fire hazard : DIRECT FIRE HAZARD. Highly flammable. Gas/vapor flammable with air within explosion limits. INDIRECT FIRE HAZARD. May be ignited by sparks. Gas/vapor spreads at floor level: ignition hazard. Reactions involving a fire hazard: see "Reactivity Hazard".

Explosion hazard : DIRECT EXPLOSION HAZARD. Gas/vapour explosive with air within explosion limits. INDIRECT EXPLOSION HAZARD. Heat may cause pressure rise in tanks/drums: explosion risk. may be ignited by sparks. Reactions with explosion hazards: see "Reactivity Hazard".

Reactivity : Upon combustion: CO and CO₂ are formed. Violent to explosive reaction with many compounds. Prolonged storage: on exposure to light: release of harmful gases/vapours. Reacts violently with (strong) oxidizers: peroxidation resulting in increased fire or explosion risk.

5.3. Advice for firefighters

Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Physical explosion risk: extinguish/cool from behind cover. Do not move the load if exposed to heat. After cooling: persistent risk of physical explosion.

Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Gloves. Protective goggles. Protective clothing. Large spills/in enclosed spaces: compressed air apparatus. See "Material-Handling" to select protective clothing.

Emergency procedures : Keep upwind. Mark the danger area. Consider evacuation. Seal off low-lying areas. Close doors and windows of adjacent premises. Stop engines and no smoking. No naked flames or sparks. Spark- and explosion-proof appliances and lighting equipment. Keep containers closed. Wash contaminated clothes.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Measure the concentration of the explosive gas-air mixture. Dilute/disperse combustible gas/vapour with water curtain. Provide equipment/receptacles with earthing. Do not use compressed air for pumping over spills.

Methods for cleaning up : Take up liquid spill into inert absorbent material, e.g.: sand, earth, vermiculite. Scoop absorbed substance into closing containers. See "Material-handling" for suitable container materials. Spill must not return in its original container. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Handle uncleaned empty containers as full ones. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Do not use compressed air for pumping over. Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Avoid prolonged and repeated contact with skin. Keep container tightly closed. Measure the concentration in the air regularly. Work under local exhaust/ventilation.
- Hygiene measures : Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Heat sources, Direct sunlight, incompatible materials. Keep container closed when not in use.
- Incompatible products : Strong bases. Strong acids.
- Incompatible materials : Sources of ignition. Direct sunlight.
- Storage temperature : 15 - 20 °C
- Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
- Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents. reducing agents. strong acids. (strong) bases. halogens. amines.
- Storage area : Store in a cool area. Keep out of direct sunlight. Store in a dry area. Store in a dark area. Ventilation at floor level. Fireproof storeroom. Provide for an automatic sprinkler system. Provide for a tub to collect spills. Provide the tank with earthing. Meet the legal requirements.
- Special rules on packaging : SPECIAL REQUIREMENTS: closing. with pressure relief valve. clean. opaque. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
- Packaging materials : SUITABLE MATERIAL: steel. stainless steel. carbon steel. aluminium. iron. copper. nickel. bronze. glass. MATERIAL TO AVOID: synthetic material.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Acetone (67-64-1)		
ACGIH	ACGIH TWA (ppm)	500 ppm (Acetone; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
ACGIH	ACGIH STEL (ppm)	750 ppm (Acetone; USA; Short time value; TLV - Adopted Value)
OSHA	OSHA PEL (TWA) (mg/m³)	2400 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
IDLH	US IDLH (ppm)	2500 ppm
NIOSH	NIOSH REL (TWA) (mg/m³)	590 mg/m³
NIOSH	NIOSH REL (TWA) (ppm)	250 ppm

8.2. Exposure controls

- Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
- Personal protective equipment : Safety glasses. Gloves. Protective clothing. Face shield. High gas/vapor concentration: gas mask with filter type A.



- Materials for protective clothing : GIVE EXCELLENT RESISTANCE: No data available. GIVE GOOD RESISTANCE: butyl rubber. tetrafluoroethylene. GIVE LESS RESISTANCE: chlorosulfonated polyethylene. natural rubber. neoprene. polyurethane. PVA. styrene-butadiene rubber. GIVE POOR RESISTANCE: nitrile rubber. polyethylene. PVC. viton. nitrile rubber/PVC.
- Hand protection : Gloves.

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Eye protection	: Safety glasses.
Skin and body protection	: Head/neck protection. Protective clothing.
Respiratory protection	: Wear gas mask with filter type A if conc. in air > exposure limit.
Other information	: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Color	: Colourless
Odor	: Aromatic odour Sweet odour Fruity odour
Odor threshold	: 306 - 653 ppm 737 - 1574 mg/m ³
pH	: 7
Melting point	: -95 °C
Freezing point	: No data available
Boiling point	: 56 °C
Critical temperature	: 235 °C
Critical pressure	: 47010 hPa
Flash point	: -18 °C
Relative evaporation rate (butyl acetate=1)	: 6
Relative evaporation rate (ether=1)	: 2
Flammability (solid, gas)	: Non flammable.
Vapor pressure	: 247 hPa (20 °C)
Vapor pressure at 50 °C	: 828 hPa (50 °C)
Relative vapor density at 20 °C	: 2.0
Relative density	: 0.79
Relative density of saturated gas/air mixture	: 1.2
Specific gravity / density	: 786 kg/m ³
Molecular mass	: 58.08 g/mol
Solubility	: Soluble in water. Soluble in ethanol. Soluble in ether. Soluble in dimethyl ether. Soluble in petroleum spirit. Soluble in chloroform. Soluble in dimethylformamide. Soluble in oils/fats. Water: Complete Ethanol: Complete Ether: Complete
Log Pow	: -0.24 (Test data)
Auto-ignition temperature	: 465 °C
Decomposition temperature	: No data available
Viscosity, kinematic	: 0.417 mm ² /s
Viscosity, dynamic	: 32 mPa.s (20 °C; 0,27 mPa.s; 40 °C)
Explosion limits	: 2 - 12.8 vol % 60 - 310 g/m ³
Explosive properties	: No data available.
Oxidizing properties	: None.

9.2. Other information

Minimum ignition energy	: 1.15 mJ
Specific conductivity	: 500000 pS/m
Saturation concentration	: 589 g/m ³
VOC content	: 100 %
Other properties	: Gas/vapour heavier than air at 20°C. Clear. Highly volatile. Substance has neutral reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

Upon combustion: CO and CO₂ are formed. Violent to explosive reaction with many compounds. Prolonged storage: on exposure to light: release of harmful gases/vapours. Reacts violently with (strong) oxidizers: peroxidation resulting in increased fire or explosion risk.

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10.2. Chemical stability

Unstable on exposure to light.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure : Inhalation; Skin and eye contact

Acute toxicity : Not classified

Acetone (67-64-1)	
LD50 oral rat	5800 mg/kg (Rat; Equivalent or similar to OECD 401; Experimental value)
LD50 dermal rabbit	20000 mg/kg (Rabbit; Experimental value; Equivalent or similar to OECD 402; >7426 mg/kg bodyweight; Rabbit; Weight of evidence)
LC50 inhalation rat (mg/l)	71 mg/l/4h (Rat; Experimental value; 76 mg/l/4h; Rat; Experimental value)
LC50 inhalation rat (ppm)	30000 ppm/4h (Rat; Experimental value)
ATE US (oral)	5800.000 mg/kg body weight
ATE US (dermal)	20000.000 mg/kg body weight
ATE US (gases)	30000.000 ppmV/4h
ATE US (vapors)	71.000 mg/l/4h
ATE US (dust, mist)	71.000 mg/l/4h

Skin corrosion/irritation : Not classified

pH: 7

Serious eye damage/irritation : Causes serious eye irritation.

pH: 7

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Based on available data, the classification criteria are not met

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Based on available data, the classification criteria are not met

Specific target organ toxicity (single exposure) : May cause drowsiness or dizziness.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/injuries after inhalation : EXPOSURE TO HIGH CONCENTRATIONS: Feeling of weakness. Irritation of the respiratory tract. Nausea. Vomiting. Headache. Central nervous system depression. Dizziness. Narcosis. Excited/restless. Drunkenness. Disturbed motor response. Respiratory difficulties. Disturbances of consciousness.

Symptoms/injuries after skin contact : ON CONTINUOUS EXPOSURE/CONTACT: Dry skin. Cracking of the skin.

Symptoms/injuries after eye contact : Irritation of the eye tissue.

Symptoms/injuries after ingestion : Dry/sore throat. Risk of aspiration pneumonia. Symptoms similar to those listed under inhalation. AFTER ABSORPTION OF LARGE QUANTITIES: Irritation of the gastric/intestinal mucosa. Change in the blood composition. Change in urine output. Renal disease. Enlargement/disease of the liver.

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Symptoms/injuries upon intravenous administration	: Not available.
Chronic symptoms	: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Red skin. Skin rash/inflammation. Dry/sore throat. Headache. Nausea. Feeling of weakness. Loss of weight. Possible inflammation of the respiratory tract.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Not classified as dangerous for the environment according to the criteria of Directive 67/548/EEC. Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.
Ecology - air	: Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). Not included in the list of substances which may contribute to the greenhouse effect (Regulation (EC) No 842/2006). TA-Luft Klasse 5.2.5.
Ecology - water	: Not harmful to fishes (LC50(96h) >1000 mg/l). Not harmful to invertebrates (Daphnia). Not harmful to algae (EC50 >1000 mg/l). Not harmful to plankton. Inhibition of activated sludge.

Acetone (67-64-1)

LC50 fish 2	5540 mg/l (LC50; EU Method C.1; 96 h; Salmo gairdneri; Static system; Fresh water; Experimental value)
EC50 Daphnia 2	12600 mg/l (LC50; Other; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)

12.2. Persistence and degradability

Acetone (67-64-1)

Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Biodegradable in the soil under anaerobic conditions. No test data on mobility of the substance available.
Biochemical oxygen demand (BOD)	1.43 g O ₂ /g substance
Chemical oxygen demand (COD)	1.92 g O ₂ /g substance
ThOD	2.20 g O ₂ /g substance
BOD (% of ThOD)	0.872 (20 days; Literature study)

12.3. Bioaccumulative potential

Acetone (67-64-1)

BCF fish 1	0.69 (BCF)
BCF other aquatic organisms 1	3 (BCF; BCFWIN)
Log Pow	-0.24 (Test data)
Bioaccumulative potential	Not bioaccumulative.

12.4. Mobility in soil

Acetone (67-64-1)

Surface tension	0.0237 N/m

12.5. Other adverse effects

Other information	: Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations	: Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle by distillation. Remove to an authorized waste incinerator for solvents with energy recovery. Do not discharge into drains or the environment.
Additional information	: LWCA (the Netherlands): KGA category 03. Hazardous waste according to Directive 2008/98/EC.
Ecology - waste materials	: Avoid release to the environment.

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SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1090 Acetone, 3, II

UN-No.(DOT) : UN1090

Proper Shipping Name (DOT) : Acetone

Transport hazard class(es) (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

Packing group (DOT) : II - Medium Danger

Hazard labels (DOT) : 3 - Flammable liquid



DOT Packaging Non Bulk (49 CFR 173.xxx) : 202

DOT Packaging Bulk (49 CFR 173.xxx) : 242

DOT Special Provisions (49 CFR 172.102) : IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized
T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling

DOT Packaging Exceptions (49 CFR 173.xxx) : 150

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L

DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded

Other information : No supplementary information available.

SECTION 15: Regulatory information

15.1. US Federal regulations

Acetone (67-64-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

RQ (Reportable quantity, section 304 of EPA's List of Lists)	5000 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Fire hazard

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

15.2. International regulations

CANADA

Acetone (67-64-1)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision B - Toxic material causing other toxic effects

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EU-Regulations

No additional information available

National regulations

Acetone (67-64-1)

Listed on the Canadian IDL (Ingredient Disclosure List)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Revision date : 09/20/2016

Other information : None.

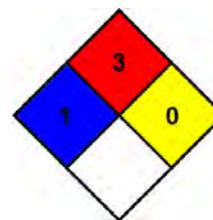
Full text of H-phrases: see section 16:

H225	Highly flammable liquid and vapor
H319	Causes serious eye irritation
H336	May cause drowsiness or dizziness

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard : 3 - Liquids and solids that can be ignited under almost all ambient conditions.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability : 3 Serious Hazard - Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 F and boiling points above 100 F. as well as liquids with flash points between 73 F and 100 F. (Classes IB & IC)

Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection : C
C - Safety glasses, Gloves, Synthetic apron

SDS US LabChem

Information in this SDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and LabChem Inc assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his application.

SAFETY DATA SHEET

Version 6.6
Revision Date 06/02/2016
Print Date 10/06/2016

1. PRODUCT AND COMPANY IDENTIFICATION**1.1 Product identifiers**

Product name : Hexane, mixture of isomers

Product Number : 293253

Brand : Sigma-Aldrich

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable liquids (Category 2), H225
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Specific target organ toxicity - repeated exposure, Oral (Category 2), H373
Specific target organ toxicity - repeated exposure, Inhalation (Category 2), H373
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H361 Suspected of damaging fertility or the unborn child.

H373	May cause damage to organs through prolonged or repeated exposure if swallowed.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.
H411	Toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Synonyms : Hexanes
Isohexane

Formula : C₆H₁₄
Molecular weight : 86.18 g/mol

Hazardous components

Component		Classification	Concentration
n-Hexane			
CAS-No.	110-54-3	Flam. Liq. 2; Skin Irrit. 2; Repr. 2; STOT SE 3; STOT RE 2; Asp. Tox. 1; Aquatic Acute 2; Aquatic Chronic 2; H225, H304, H315, H336, H361,	>= 50 - < 70 %
EC-No.	203-777-6		
Index-No.	601-037-00-0		

		H373, H411	
Hexanes, isomers			
CAS-No.	92112-69-1	Flam. Liq. 2; Skin Irrit. 2; Repr. 2; STOT SE 3; STOT RE 2; Asp. Tox. 1; Aquatic Acute 2; Aquatic Chronic 2; H225, H304, H315, H336, H361, H373, H411	>= 20 - < 30 %
Methylcyclopentane			
CAS-No.	96-37-7	Flam. Liq. 2; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; Asp. Tox. 1; H225, H302, H304, H315, H319, H335	>= 10 - < 20 %
EC-No.	202-503-2		
2-Methylpentane			
CAS-No.	107-83-5	Flam. Liq. 2; Skin Irrit. 2; STOT SE 3; Asp. Tox. 1; Aquatic Acute 2; Aquatic Chronic 2; H225, H304, H315, H336, H411	>= 1 - < 5 %
EC-No.	203-523-4		
Index-No.	601-007-00-7		
3-Methylpentane			
CAS-No.	96-14-0	Flam. Liq. 2; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; Asp. Tox. 1; Aquatic Acute 2; Aquatic Chronic 2; H225, H304, H315, H319, H336, H411	>= 1 - < 5 %
EC-No.	202-481-4		
Index-No.	601-007-00-7		

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Moisture sensitive.

Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
n-Hexane	110-54-3	TWA	50.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Eye irritation Peripheral neuropathy Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption		

		TWA	50.000000 ppm 180.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	500.000000 ppm 1,800.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	50 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Eye irritation Peripheral neuropathy Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption		
		TWA	50 ppm 180 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	500 ppm 1,800 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	50 ppm 180 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		PEL	50 ppm 180 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		
2-Methylpentane	107-83-5	TWA	500.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation		
		STEL	1,000.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation		
		TWA	100.000000 ppm 350.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Also see specific listing for n-Hexane.		
		C	510.000000 ppm 1,800.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Also see specific listing for n-Hexane. 15 minute ceiling value		

		STEL	1,000 ppm 3,600 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		PEL	500 ppm 1,800 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
3-Methylpentane	96-14-0	TWA	500.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation		
		STEL	1,000.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation		
		TWA	100.000000 ppm 350.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Also see specific listing for n-Hexane.		
		C	510.000000 ppm 1,800.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Also see specific listing for n-Hexane. 15 minute ceiling value		
		STEL	1,000 ppm 3,600 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		PEL	500 ppm 1,800 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Hazardous components without workplace control parameters

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
n-Hexane	110-54-3	2,5-Hexanedione	0.4 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

a) Appearance	Form: liquid
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	Melting point/range: 95 °C (203 °F) - lit.
f) Initial boiling point and boiling range	68 - 70 °C (154 - 158 °F) - lit.
g) Flash point	-23 °C (-9 °F) - closed cup
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	Upper explosion limit: 7.5 %(V) Lower explosion limit: 1.1 %(V)
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	0.672 g/mL at 25 °C (77 °F)
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY**10.1 Reactivity**

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Avoid moisture.

Heat, flames and sparks.

10.5 Incompatible materials

Oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

Central nervous system depression, Lung irritation, chest pain, pulmonary edema, giddiness, slowed reaction time, slurred speech, Headache, Dizziness, Drowsiness, Unconsciousness, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Testes. - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence (Hexanes, isomers)

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1208 Class: 3

Packing group: II

Proper shipping name: Hexanes

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG

UN number: 1208 Class: 3

Packing group: II

EMS-No: F-E, S-D

Proper shipping name: HEXANES

Marine pollutant:yes

IATA

UN number: 1208 Class: 3

Packing group: II

Proper shipping name: Hexanes

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

n-Hexane

CAS-No.

110-54-3

Revision Date

2007-07-01

Massachusetts Right To Know Components

	CAS-No.	Revision Date
n-Hexane	110-54-3	2007-07-01
Methylcyclopentane	96-37-7	1993-04-24
2-Methylpentane	107-83-5	1993-04-24
3-Methylpentane	96-14-0	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
n-Hexane	110-54-3	2007-07-01
Hexanes, isomers	92112-69-1	
Methylcyclopentane	96-37-7	1993-04-24
2-Methylpentane	107-83-5	1993-04-24
3-Methylpentane	96-14-0	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
n-Hexane	110-54-3	2007-07-01
Hexanes, isomers	92112-69-1	
Methylcyclopentane	96-37-7	1993-04-24
2-Methylpentane	107-83-5	1993-04-24
3-Methylpentane	96-14-0	1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION**Full text of H-Statements referred to under sections 2 and 3.**

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Asp. Tox.	Aspiration hazard
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs (/*_ORG_REP_ORAL*/) through prolonged or repeated exposure if swallowed.
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
Repr.	Reproductive toxicity
Skin Irrit.	Skin irritation
STOT RE	Specific target organ toxicity - repeated exposure
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2

Fire Hazard: 3
Reactivity Hazard: 0

Further information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 6.6

Revision Date: 06/02/2016

Print Date: 10/06/2016

SAFETY DATA SHEET

Version 5.11
Revision Date 05/23/2016
Print Date 10/04/2016

1. PRODUCT AND COMPANY IDENTIFICATION**1.1 Product identifiers**

Product name : Nitric acid

Product Number : 438073
Brand : Sigma-Aldrich
Index-No. : 007-004-00-1

CAS-No. : 7697-37-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Oxidizing liquids (Category 3), H272
Corrosive to metals (Category 1), H290
Skin corrosion (Category 1A), H314
Serious eye damage (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word : Danger

Hazard statement(s)

H272 : May intensify fire; oxidizer.
H290 : May be corrosive to metals.
H314 : Causes severe skin burns and eye damage.

Precautionary statement(s)

P210 : Keep away from heat.
P220 : Keep/Store away from clothing/ combustible materials.
P221 : Take any precaution to avoid mixing with combustibles.
P234 : Keep only in original container.
P264 : Wash skin thoroughly after handling.

P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P390	Absorb spillage to prevent material damage.
P405	Store locked up.
P406	Store in corrosive resistant stainless steel container with a resistant inner liner.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Formula	: HNO ₃
Molecular weight	: 63.01 g/mol

Hazardous components

Component	Classification	Concentration
Nitric acid		
CAS-No.	7697-37-2	>= 70 - < 90 %
EC-No.	231-714-2	
Index-No.	007-004-00-1	
Registration number	01-2119487297-23-XXXX	
		Ox. Liq. 3; Met. Corr. 1; Skin Corr. 1A; Eye Dam. 1; H272, H290, H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Storage class (TRGS 510): Oxidizing hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Nitric acid	7697-37-2	TWA	2.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Dental erosion		
		STEL	4.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Dental erosion		

		ST	4.000000 ppm 10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	2.000000 ppm 5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	2.000000 ppm 5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		PEL	2 ppm 5 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	4 ppm 10 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Inhalation	Acute local effects	2.6 mg/m3
Workers	Inhalation	Long-term local effects	1.3 mg/m3
Consumers	Inhalation	Acute local effects	1.3 mg/m3
Consumers	Inhalation	Long-term local effects	0.65 mg/m3

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Fluorinated rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact

Material: Nature latex/chloroprene

Minimum layer thickness: 0.6 mm

Break through time: 120 min

Material tested: Lapren® (KCL 706 / Aldrich Z677558, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

a) Appearance	Form: liquid Colour: colourless
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	< 1.0
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	120.5 °C (248.9 °F) - lit.
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	49 hPa (37 mmHg) at 50 °C (122 °F)
l) Vapour density	No data available
m) Relative density	1.413 g/cm ³ at 20 °C (68 °F)
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY**10.1 Reactivity**

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Alkali metals, Organic materials, Acetic anhydride, Acetonitrile, Alcohols, Acrylonitrile, Ammonia, Crotonaldehyde, Halogenated hydrocarbon, Acids, Bases, Metals, hexalithium disilicide, Hydrogen peroxide, Ketones, metal acetylides, Water, Fluorine, Amines, Thiols, cadmium, Bromine, Copper, Hydrazine, Hydrazinium nitrate, Nitro compounds, Cyanides, Phosphorus trihydride (phosphine), Diphosphine, Halides, Organic halides, May set fire to wood or paper., Polyethers, Methyl vinyl ether

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides (NOx)

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Inhalation may provoke the following symptoms:, spasm, inflammation and edema of the bronchi, spasm, inflammation and edema of the larynx, pneumonitis, pulmonary edema, Symptoms and signs of poisoning are:, burning sensation,

Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary edema. Effects may be delayed., Large doses may cause: conversion of hemoglobin to methemoglobin, producing cyanosis; marked fall in blood pressure, leading to collapse, coma, and possibly death.

Liver - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence (Nitric acid)

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Contact a licensed professional waste disposal service to dispose of this material. Offer surplus and non-recyclable solutions to a licensed disposal company. Dispose of as hazardous waste in compliance with local and national regulations.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2031 Class: 8 (5.1)

Packing group: II

Proper shipping name: Nitric acid

Reportable Quantity (RQ): 1429 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 2031 Class: 8 (5.1)

Packing group: II

EMS-No: F-A, S-Q

Proper shipping name: NITRIC ACID

IATA

UN number: 2031 Class: 8 (5.1)

Packing group: II

Proper shipping name: Nitric acid

IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

Nitric acid

CAS-No.

7697-37-2

Revision Date

2007-07-01

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

CAS-No.

Revision Date

Nitric acid 7697-37-2 2007-07-01

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Nitric acid	7697-37-2	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Nitric acid	7697-37-2	2007-07-01
Water	7732-18-5	

New Jersey Right To Know Components

	CAS-No.	Revision Date
Nitric acid	7697-37-2	2007-07-01
Water	7732-18-5	

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Eye Dam.	Serious eye damage
H272	May intensify fire; oxidizer.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
Met. Corr.	Corrosive to metals
Ox. Liq.	Oxidizing liquids
Skin Corr.	Skin corrosion

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	3

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	2
Special hazard.I:	OX

Further information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.11

Revision Date: 05/23/2016

Print Date: 10/04/2016

SAFETY DATA SHEET

Version 5.9
Revision Date 11/18/2015
Print Date 10/02/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Hydrochloric acid solution

Product Number : 72033

Brand : Fluka

CAS-No. : 7647-01-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Corrosive to metals (Category 1), H290
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Warning

Hazard statement(s)

H290 May be corrosive to metals.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s)

P234 Keep only in original container.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ eye protection/ face protection.

P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P390	Absorb spillage to prevent material damage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P406	Store in corrosive resistant stainless steel container with a resistant inner liner.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Formula : HCl
Molecular weight : 36.46 g/mol

Hazardous components

Component	Classification	Concentration
Hydrochloric acid		
CAS-No. 7647-01-0	Met. Corr. 1; Skin Corr. 1B;	>= 20 - < 30 %
EC-No. 231-595-7	Eye Dam. 1; STOT SE 3;	
Index-No. 017-002-01-X	H290, H314, H335	
Registration number 01-2119484862-27-XXXX		

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Hydrogen chloride gas
Hydrogen chloride gas

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Metal containers must be lined. Corrodes metal.

Storage class (TRGS 510): Non Combustible Liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Hydrochloric acid	7647-01-0	C	2.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
		C	5.000000 ppm 7.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Often used in an aqueous solution.		
		C	5.000000 ppm 7.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate. Ceiling limit is to be determined from breathing-zone air samples.		
		C	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation		

		Not classifiable as a human carcinogen		
		C	5 ppm 7 mg/m3	USA. NIOSH Recommended Exposure Limits
		Often used in an aqueous solution.		
		C	5 ppm 7 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate. Ceiling limit is to be determined from breathing-zone air samples.		
		C	5 ppm 7 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time: 480 min

Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 60 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: liquid
	Colour: colourless

b) Odour	No data available
c) Odour Threshold	No data available
d) pH	< 1
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	No data available
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	ca.1.1 g/cm ³ at 20 °C (68 °F)
n) Water solubility	completely miscible
o) Partition coefficient: n-octanol/water	Not applicable
p) Auto-ignition temperature	does not ignite
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	Not explosive
t) Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Bases, Amines, Alkali metals, Metals, permanganates, e.g. potassium permanganate, Fluorine, sulphuric acid, hexalithium disilicide, metal acetylides

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

No data available

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract.

Dermal: No data available

No data available

Skin corrosion/irritation

Irritating to skin and mucous membranes

Serious eye damage/eye irritation

Irritating to eyes. May cause irreversible eye damage.

Respiratory or skin sensitisation

Did not cause sensitisation on laboratory animals.

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Hydrochloric acid)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

No aspiration toxicity classification

Additional Information

RTECS: Not available

irritant effects, Effects due to ingestion may include:, Severe irritation, Burning pain in mouth, throat and stomach.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

May be harmful to aquatic organisms due to the shift of the pH. Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1789 Class: 8 Packing group: II
Proper shipping name: Hydrochloric acid
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG

UN number: 1789 Class: 8 Packing group: II EMS-No: F-A, S-B
Proper shipping name: HYDROCHLORIC ACID

IATA

UN number: 1789 Class: 8 Packing group: II
Proper shipping name: Hydrochloric acid

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Hydrochloric acid	7647-01-0	1993-04-24

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Hydrochloric acid	7647-01-0	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Hydrochloric acid	7647-01-0	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Hydrochloric acid	7647-01-0	1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Eye Dam.	Serious eye damage
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
Met. Corr.	Corrosive to metals
Skin Corr.	Skin corrosion
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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 The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
 Product Safety – Americas Region
 1-800-521-8956

Version: 5.9

Revision Date: 11/18/2015

Print Date: 10/02/2016

SAFETY DATA SHEET

Nonflammable Gas Mixture: Isobutylene / Nitrogen / Oxygen

Section 1. Identification

GHS product identifier	: Nonflammable Gas Mixture: Isobutylene / Nitrogen / Oxygen
Other means of identification	: Not available.
Product use	: Synthetic/Analytical chemistry.
SDS #	: 002103
Supplier's details	: Airgas USA, LLC and its affiliates 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
24-hour telephone	: 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms



Signal word	: Warning
Hazard statements	: Contains gas under pressure; may explode if heated.

Precautionary statements

General	: Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.
Prevention	: Not applicable.
Response	: Not applicable.
Storage	: Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.
Disposal	: Not applicable.
Hazards not otherwise classified	: None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Mixture
Other means of identification	: Not available.

CAS number/other identifiers

CAS number	: Not applicable.
Product code	: 002103

Section 3. Composition/information on ingredients

Ingredient name	%	CAS number
Nitrogen	75 - 80.5	7727-37-9
oxygen	19.5 - 23.5	7782-44-7
Isobutylene	0.0001 - 1.13	115-11-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Contact with rapidly expanding gas may cause burns or frostbite.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Contact with rapidly expanding gas may cause burns or frostbite.
- Frostbite** : Try to warm up the frozen tissues and seek medical attention.
- Ingestion** : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Section 7. Handling and storage

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Nitrogen
oxygen
Isobutylene

Oxygen Depletion [Asphyxiant]
None.

ACGIH TLV (United States, 3/2015).
TWA: 250 ppm 8 hours.

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state	: Gas.
Color	: Not available.
Melting/freezing point	: -140.7°C (-221.3°F) This is based on data for the following ingredient: isobutylene. Weighted average: -211.14°C (-348.1°F)
Critical temperature	: Lowest known value: -146.95°C (-232.5°F) (nitrogen).
Odor	: Not available.
Odor threshold	: Not available.
pH	: Not available.
Flash point	: Not available.
Burning time	: Not applicable.
Burning rate	: Not applicable.
Evaporation rate	: Not available.
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Not available.
Vapor pressure	: Not available.
Vapor density	: Highest known value: 1.94 (Air = 1) (isobutylene). Weighted average: 1.01 (Air = 1)
Gas Density (lb/ft ³)	: Weighted average: 0.07
Relative density	: Not applicable.
Solubility	: Not available.
Solubility in water	: Not available.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
SADT	: Not available.
Viscosity	: Not applicable.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: No specific data.
Incompatible materials	: No specific data.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Isobutylene	LC50 Inhalation Vapor	Rat	550000 mg/m ³	4 hours

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.
Inhalation : No known significant effects or critical hazards.
Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.
Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Section 11. Toxicological information

Potential chronic health effects

Not available.

General	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Nitrogen	0.67	-	low
oxygen	0.65	-	low
Isobutylene	2.34	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1956	UN1956	UN1956	UN1956	UN1956
UN proper shipping name	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	-	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2). <u>Explosive Limit and Limited Quantity Index</u> 0.125 <u>Passenger Carrying Road or Rail Index</u> 75	-	-	-

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
United States inventory (TSCA 8b): All components are listed or exempted.
Clean Air Act (CAA) 112 regulated flammable substances: isobutylene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

Section 15. Regulatory information

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Nitrogen	75 - 80.5	No.	Yes.	No.	No.	No.
oxygen	19.5 - 23.5	No.	Yes.	No.	No.	No.
Isobutylene	0.0001 - 1.13	Yes.	Yes.	No.	No.	No.

State regulations

- Massachusetts** : The following components are listed: NITROGEN; OXYGEN (LIQUID); 2-METHYLPROPENE
- New York** : None of the components are listed.
- New Jersey** : The following components are listed: NITROGEN; OXYGEN; ISOBUTYLENE; 1-PROPENE, 2-METHYL-
- Pennsylvania** : The following components are listed: NITROGEN; OXYGEN; 1-PROPENE, 2-METHYL-

International regulations

International lists

National inventory

- Australia** : All components are listed or exempted.
- Canada** : All components are listed or exempted.
- China** : All components are listed or exempted.
- Europe** : All components are listed or exempted.
- Japan** : Not determined.
- Malaysia** : Not determined.
- New Zealand** : All components are listed or exempted.
- Philippines** : All components are listed or exempted.
- Republic of Korea** : All components are listed or exempted.
- Taiwan** : All components are listed or exempted.

Canada

- WHMIS (Canada)** : Class A: Compressed gas.
- CEPA Toxic substances**: None of the components are listed.
- Canadian ARET**: None of the components are listed.
- Canadian NPRI**: The following components are listed: Butene (all isomers)
- Alberta Designated Substances**: None of the components are listed.
- Ontario Designated Substances**: None of the components are listed.
- Quebec Designated Substances**: None of the components are listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.

Hazardous Material Information System (U.S.A.)

Health	1
Flammability	0
Physical hazards	3

Section 16. Other information

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

[National Fire Protection Association \(U.S.A.\)](#)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

[Procedure used to derive the classification](#)

Classification	Justification
Press. Gas Comp. Gas, H280	On basis of test data

[History](#)

Date of printing : 6/24/2016

Date of issue/Date of revision : 6/24/2016

Date of previous issue : 1/26/2016

Version : 0.02

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

☑ Indicates information that has changed from previously issued version.

[Notice to reader](#)

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.



Safety Data Sheet

SECTION 1: Identification

1.1. Product Identifier

Trade Name or Designation: ORP Standard, +200 mV
vs. Ag/AgCl (4M KCl sat. with AgCl filling solution)

Product Number: 5464.5

Other Identifying Product Numbers: 5464.5-1, 5464.5-16, 5464.5-2.5, 5464.5-32, 5464.5-4, 5464.5-5

1.2. Recommended Use and Restrictions on Use

General Laboratory Reagent

1.3. Details of the Supplier of the Safety Data Sheet

Company: Ricca Chemical Company

Address: 448 West Fork Drive
Arlington, TX 76012 USA

Telephone: 888-467-4222

1.4. Emergency Telephone Number (24 hr)

CHEMTREC (USA) 800-424-9300
CHEMTREC (International) 1+ 703-527-3887

SECTION 2: Hazard(s) Identification

2.1. Classification of the Substance or Mixture (in accordance with OSHA HCS 29 CFR 1910.1200)

For the full text of the Hazard and Precautionary Statements listed below, see Section 16.

This product is not categorized as hazardous in any GHS hazard class.

2.2. GHS Label Elements

Pictograms: None required.

Signal Word: None required.

Hazard Statements: None required.

Precautionary Statements: None required.



Safety Data Sheet

2.3. WHMIS Classification

WHMIS classification is not included based on the recommended option (Option 4) found in the Canada Gazette Part II, Vol. 149, No.3, page 458

2.4. Hazards not Otherwise Classified or Covered by GHS

Data not available.

SECTION 3: Composition / Information on Ingredients

3.1. Components of Substance or Mixture

Chemical Name	Formula	Molecular Weight	CAS Number	Weight%
Water	H ₂ O	18.01 g/mol	7732-18-5	98.92%
Potassium Chloride	KCl	74.55 g/mol	7447-40-7	0.75%
Potassium Ferrocyanide Trihydrate	K ₄ Fe(CN) ₆ ·3H ₂ O	Data not available.	14459-95-1	0.30%
Potassium Ferricyanide	K ₃ Fe(CN) ₆	329.24 g/mol	13746-66-2	0.03%

SECTION 4: First-Aid Measures

4.1. General First Aid Information

Eye Contact: May cause slight irritation.

Inhalation: Not expected to require first aid. If necessary, remove to fresh air.

Skin Contact: May cause slight irritation.

Ingestion: Dilute with water or milk. Do not induce vomiting. Call a physician if necessary.

4.2. Most Important Symptoms and Effects, Acute and Delayed

Does not present any significant health hazards. Wash areas of contact with water. EYE CONTACT: May cause slight irritation. SKIN CONTACT: May cause slight irritation.

4.3. Medical Attention or Special Treatment Needed

Not expected to require special treatment.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing Media

Use any means suitable for extinguishing surrounding fire.

5.2. Specific Hazards Arising from the Substance or Mixture

Not considered to be a fire or explosion hazard.



Safety Data Sheet

5.3. Special Protective Equipment for Firefighters

Use protective clothing and breathing equipment appropriate for the surrounding fire.

SECTION 6: Accidental Release Measures

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Wear appropriate PPE for the size and nature of the spill. As a general rule, wear safety glasses and gloves.

6.2. Cleanup and Containment Methods and Materials

Absorb with suitable material and treat as normal refuse. Small amounts of the liquid may be flushed to the drain with excess water. Always dispose of in accordance with local regulations.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling and Storage Conditions

As with all chemicals, wash hands thoroughly after handling. Avoid contact with eyes and skin. Protect from freezing and physical damage. Store in the refrigerator.

SECTION 8: Exposure Controls / Personal Protection

8.2. Exposure Controls

Engineering Controls: No specific controls are needed. Normal room ventilation is adequate.

Respiratory Protection: Normal room ventilation is adequate.

Skin Protection: Chemical resistant gloves.

Eye Protection: Safety glasses or goggles.

8.3. Personal Protective Equipment

Normal room ventilation is adequate. Chemical resistant gloves. Safety glasses or goggles.



Safety Data Sheet

SECTION 9: Physical and Chemical Properties

9.1. Basic Physical and Chemical Properties

Appearance: Yellow-green liquid

Physical State: Liquid

Odor: Data not available.

Odor Threshold: Data not available.

pH: Data not available.

Melting/Freezing Point: 0.0°C

Initial Boiling Point /Range: 100°C - 100°C

Flash Point: Data not available.

Evaporation Rate: Data not available.

Flammability: Data not available.

Flammability/Explosive Limits: Data not available.

Vapor Pressure: Data not available.

Vapor Density: Data not available.

Relative Density: 1.0

Solubility: Miscible

Partition Coefficient (n-Octanol/Water): Data not available.

Auto-Ignition Temperature: Data not available.

Decomposition Temperature: Data not available.

Viscosity: Data not available.

Explosive Properties: Data not available.

Oxidizing Properties: Data not available.

SECTION 10: Stability and Reactivity

10.1. Reactivity and Chemical Stability

Stable under normal conditions of use and storage.

10.2. Possibility of Hazardous Reactions

Data not available.

10.3. Conditions to Avoid and Incompatible Materials

Acids, Bromine Trifluoride, Sodium Nitrate, ammonia, Chromium Trioxide, Chromic Anhydride, Cupric Nitrate.

10.4. Hazardous Decomposition Products

Will not occur.



Safety Data Sheet

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity - Oral Exposure:

Not applicable.

Acute Toxicity - Dermal Exposure:

Not applicable.

Acute Toxicity - Inhalation Exposure:

Not applicable.

Acute Toxicity - Other Information:

LD50, Oral Rat: (anhydrous Potassium Ferrocyanide) 6400 mg/kg, (Potassium Chloride) 2600 mg/kg; LD50, Oral, Mouse: (Potassium Ferricyanide) 2970 mg/kg, details of toxic effects not reported other than lethal dose value.

Skin Corrosion and Irritation:

Not applicable.

Serious Eye Damage and Irritation:

Not applicable.

Respiratory Sensitization:

Not applicable.

Skin Sensitization:

Not applicable.

Germ Cell Mutagenicity:

Not applicable.

Carcinogenicity:

Not applicable.

Reproductive Toxicity:

Not applicable.

Specific Target Organ Toxicity from Single Exposure:

Not applicable.

Specific Target Organ Toxicity from Repeated Exposure:

Not applicable.

Aspiration Hazard:

Not applicable.

Additional Toxicology Information:

Data not available.



Safety Data Sheet

SECTION 12: Ecological Information

12.1. Ecotoxicity

Not applicable.

12.2. Persistence and Degradability

Data not available.

12.3. Bioaccumulative Potential

Data not available.

12.4. Mobility in Soil

Data not available.

12.5. Other Adverse Ecological Effects

Data not available.

SECTION 13: Disposal Considerations

13.1. Waste Treatment Methods

Data not available.

SECTION 14: Transportation Information

14.1. Transportation by Land - Department of Transportation (DOT, United States of America)

Not regulated according to DOT Regulations.



Safety Data Sheet

Not regulated according to IATA Regulations.

SECTION 15: Regulatory Information

15.1. Occupational Safety and Health Administration (OSHA) Hazards

Not listed.

15.2. Superfund Amendments and Reauthorization Act (SARA) 302 Extremely Hazardous Substances

Not listed.

15.3. Superfund Amendments and Reauthorization Act (SARA) 311/312 Hazardous Chemicals

Not listed.

15.4. Superfund Amendments and Reauthorization Act (SARA) 313 Toxic Release Inventory (TRI)

Potassium Ferricyanide (CAS # 13746-66-2): 1.0 % de minimis concentration (X+CN⁻ where X = H⁺ or any other group where a formal dissociation can be made. For example KCN or Ca(CN)₂. Chemical Category N106)

Potassium Ferrocyanide Trihydrate (CAS # 14459-95-1): 1.0 % de minimis concentration (X+CN⁻ where X = H⁺ or any other group where a formal dissociation can be made. For example KCN or Ca(CN)₂. Chemical Category N106)

15.5. Massachusetts Right-to-Know Substance List

Not listed.

15.6. Pennsylvania Right-to-Know Hazardous Substances

Potassium Ferricyanide (CAS # 13746-66-2): Environmental hazard

Potassium Ferricyanide (CAS # 13746-66-2): Present

Potassium Ferrocyanide Trihydrate (CAS # 14459-95-1): Environmental hazard

Potassium Ferrocyanide Trihydrate (CAS # 14459-95-1): Present

Water (CAS # 7732-18-5): Present

15.7. New Jersey Worker and Community Right-to-Know Components

Potassium Ferricyanide (CAS # 13746-66-2): sn 2308

Potassium Ferricyanide (CAS # 13746-66-2): SN 2308 500 lb TPQ (Category Code N106)

Potassium Ferrocyanide Trihydrate (CAS # 14459-95-1): sn 2308

Potassium Ferrocyanide Trihydrate (CAS # 14459-95-1): SN 2308 500 lb TPQ (Category Code N106)



Safety Data Sheet

15.8. California Proposition 65

Not listed.

15.9. Canada Domestic Substances List / Non-Domestic Substances List (DSL/NDSL)

Potassium Ferricyanide (CAS # 13746-66-2): Present (DSL)

Potassium Ferrocyanide Trihydrate (CAS # 14459-95-1): Present (DSL)

Potassium Chloride (CAS # 7447-40-7): Present (DSL)

Water (CAS # 7732-18-5): Present (DSL)

15.10. United States of America Toxic Substances Control Act (TSCA) List

Potassium Ferricyanide (CAS # 13746-66-2): Present

Potassium Ferrocyanide Trihydrate (CAS # 14459-95-1): Present

Potassium Chloride (CAS # 7447-40-7): Present

Water (CAS # 7732-18-5): Present

15.11. European Inventory of Existing Commercial Chemical Substances (EINECS), European List of Notified Chemical Substances (ELINCS), and No Longer Polymers (NLP)

Not listed.

SECTION 16: Other Information

16.1. Full Text of Hazard Statements and Precautionary Statements

16.2. Miscellaneous Hazard Classes

Canadian Carcinogenicity Hazard Class: Not Applicable.

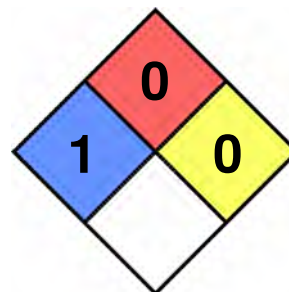
Physical Hazards Not Otherwise Classified (PHNOC): Not Applicable.

Health Hazards Not Otherwise Classified (HHNOC): Not Applicable.

Not Applicable.

16.3. National Fire Protection Association (NFPA) Rating

Health: 1
Flammability: 0
Reactivity: 0
Special Hazard:





Safety Data Sheet

16.4. Document Revision

Last Revision Date: 5/1/2015

DISCLAIMER

When handled properly by qualified personnel, the product described herein does not present a significant health or safety hazard. Alteration of its characteristics by concentration, evaporation, addition of other substances, or other means may present hazards not specifically addressed herein and which must be evaluated by the user. The information furnished herein is believed to be accurate and represents the best data currently available to us. No warranty, expressed or implied, is made and RICCA CHEMICAL COMPANY assumes no legal responsibility or liability whatsoever resulting from its use.

SAFETY DATA SHEET

Version 5.1
Revision Date 05/26/2015
Print Date 10/03/2016

1. PRODUCT AND COMPANY IDENTIFICATION**1.1 Product identifiers**

Product name : Hanna conductivity standards

Product Number : Z655244
Brand : Aldrich

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture**

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS**3.2 Mixtures**

Molecular weight : 18.02 g/mol

No components need to be disclosed according to the applicable regulations.

4. FIRST AID MEASURES**4.1 Description of first aid measures****If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact

Wash off with soap and plenty of water.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water.

- 4.2 Most important symptoms and effects, both acute and delayed**
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
- 4.3 Indication of any immediate medical attention and special treatment needed**
No data available
-

5. FIREFIGHTING MEASURES

- 5.1 Extinguishing media**
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- 5.2 Special hazards arising from the substance or mixture**
No data available
- 5.3 Advice for firefighters**
Wear self-contained breathing apparatus for firefighting if necessary.
- 5.4 Further information**
No data available
-

6. ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures**
Avoid breathing vapours, mist or gas.
For personal protection see section 8.
- 6.2 Environmental precautions**
No special environmental precautions required.
- 6.3 Methods and materials for containment and cleaning up**
Keep in suitable, closed containers for disposal.
- 6.4 Reference to other sections**
For disposal see section 13.
-

7. HANDLING AND STORAGE

- 7.1 Precautions for safe handling**
For precautions see section 2.2.
- 7.2 Conditions for safe storage, including any incompatibilities**
Keep container tightly closed in a dry and well-ventilated place.
- 7.3 Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated
-

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1 Control parameters**
Components with workplace control parameters
Contains no substances with occupational exposure limit values.
- 8.2 Exposure controls**
Appropriate engineering controls
General industrial hygiene practice.
- Personal protective equipment**
Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
- Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

No special environmental precautions required.

9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

a) Appearance	Form: liquid Colour: colourless
b) Odour	odourless
c) Odour Threshold	No data available
d) pH	7
e) Melting point/freezing point	100 °C (212 °F)
f) Initial boiling point and boiling range	100.0 °C (212.0 °F)
g) Flash point	Not applicable
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	1 g/cm ³ at 20 °C (68 °F)
n) Water solubility	completely miscible
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY**10.1 Reactivity**

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Water

CAS-No.
7732-18-5

Revision Date

New Jersey Right To Know Components

Water

CAS-No.
7732-18-5

Revision Date

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION**HMIS Rating**

Health hazard:	0
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.1

Revision Date: 05/26/2015

Print Date: 10/03/2016

SAFETY DATA SHEET

Version 5.3
Revision Date 09/23/2016
Print Date 10/02/2016

1. PRODUCT AND COMPANY IDENTIFICATION**1.1 Product identifiers**

Product name : Buffer, reference standard

Product Number : B5020

Brand : Sigma

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture**

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS**3.2 Mixtures****Hazardous components**

Component		Classification	Concentration
Methanol			
CAS-No.	67-56-1	Flam. Liq. 2; Acute Tox. 3; STOT SE 1; H225, H301 + H311 + H331, H370	>= 0.1 - < 1 %
EC-No.	200-659-6		
Index-No.	603-001-00-X		
Registration number	01-2119433307-44-XXXX		

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES**4.1 Description of first aid measures****If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact

Wash off with soap and plenty of water.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES**5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures**

Avoid breathing vapours, mist or gas.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE**7.1 Precautions for safe handling**

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1 Control parameters****Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

8.2 Exposure controls**Appropriate engineering controls**

General industrial hygiene practice.

Personal protective equipment

Eyeface protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: liquid
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	4.0 at 25 °C (77 °F)
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	No data available
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	No data available
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Potassium oxides

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence (Methanol)

12. ECOLOGICAL INFORMATION**12.1 Toxicity**

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION**SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Methanol	67-56-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Potassium hydrogen phthalate	877-24-7	
Methanol	67-56-1	2007-07-01

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	CAS-No.	Revision Date
Methanol	67-56-1	2012-03-16

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled
H370	Causes damage to organs.
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.3

Revision Date: 09/23/2016

Print Date: 10/02/2016

SAFETY DATA SHEET

Version 5.4
Revision Date 05/11/2016
Print Date 10/02/2016

1. PRODUCT AND COMPANY IDENTIFICATION**1.1 Product identifiers**

Product name : Buffer, reference standard

Product Number : B4770

Brand : Sigma

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture**

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS**3.2 Mixtures**

No components need to be disclosed according to the applicable regulations.

4. FIRST AID MEASURES**4.1 Description of first aid measures****If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact

Wash off with soap and plenty of water.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid breathing vapours, mist or gas.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls

General industrial hygiene practice.

Personal protective equipment

Eyeface protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

a) Appearance	Form: liquid
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	7
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	No data available
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	No data available
n) Water solubility	No data available

o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

Other decomposition products - No data available

Hazardous decomposition products formed under fire conditions. - Oxides of phosphorus, Potassium oxides, Sodium oxides

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Disodium hydrogenorthophosphate	7558-79-4	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Disodium hydrogenorthophosphate	7558-79-4	2007-03-01
Water	7732-18-5	

New Jersey Right To Know Components

	CAS-No.	Revision Date
Disodium hydrogenorthophosphate	7558-79-4	2007-03-01
Potassium dihydrogenorthophosphate	7778-77-0	
Water	7732-18-5	

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4

Revision Date: 05/11/2016

Print Date: 10/02/2016

SAFETY DATA SHEET

Version 5.4
Revision Date 10/20/2014
Print Date 10/02/2016

1. PRODUCT AND COMPANY IDENTIFICATION**1.1 Product identifiers**

Product name : Buffer, reference standard

Product Number : B4895

Brand : Sigma

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture**

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS**3.2 Mixtures**

No components need to be disclosed according to the applicable regulations.

4. FIRST AID MEASURES**4.1 Description of first aid measures****If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact

Wash off with soap and plenty of water.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Nature of decomposition products not known.

Oxides of phosphorus, Potassium oxides, Sodium oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid breathing vapours, mist or gas.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls

General industrial hygiene practice.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

a) Appearance	Form: liquid, clear Colour: light blue
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	10.0 at 25 °C (77 °F)
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	No data available
g) Flash point	Not applicable
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	1.000 g/cm ³
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY**10.1 Reactivity**

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents, Carbon dioxide (CO₂)

10.6 Hazardous decomposition products

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects****Acute toxicity**

No data available

Inhalation: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components

Disodium hydrogenorthophosphate

CAS-No.
7558-79-4

Revision Date
2007-03-01

Pennsylvania Right To Know Components

Water

CAS-No.
7732-18-5

Revision Date

Disodium hydrogenorthophosphate

7558-79-4

2007-03-01

New Jersey Right To Know Components

Water

CAS-No.
7732-18-5

Revision Date

Disodium hydrogenorthophosphate

7558-79-4

2007-03-01

Potassium dihydrogenorthophosphate

7778-77-0

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION**HMIS Rating**

Health hazard: 0

Chronic Health Hazard:

Flammability: 0

Physical Hazard 0

NFPA Rating

Health hazard: 0

Fire Hazard: 0

Reactivity Hazard: 0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation

Product Safety – Americas Region

1-800-521-8956

Version: 5.4

Revision Date: 10/20/2014

Print Date: 10/02/2016

Attachment C
Shipping Determinations



HAZARDOUS MATERIALS SHIPPING/TRANSPORTATION DETERMINATION FORM

Materials of Trade Template for use with the Standard HASP

11/25/2013

Date: 4/20/2017
Project Name: GE- Former Static Power512-520 Puse
Project Number: AP013235.1000
Supplemental Information: SDS

Description of the Material to be Transported or Shipped:

Checked materials in the *HAZCOM/GHS* worksheet, *Monitoring* worksheet, *Safety Supplies and Equipment* section and *Level C Supplement* (if applicable) of the standard HASP for this project will be transported under the Materials of Trade Exception (49 CFR 143.6) in ARCADIS owned, leased or rented vehicles or vendor vehicles.

Special Instructions:

- 1) All containers will be maintained in an upright condition with lids or other openings secure. Containers will be protected against movement during transport and have adequate cushioning for protection
- 2) Cylinders will have valves removed during transport.
- 3) Batteries regardless of type or size, will have terminal protected and each battery will be protected from crushing, pressure or other condition that may affect the integrity of the battery.
- 4) ChemTel 24 hr. phone number and registration is not required.

Limitations

- 1) No more than 440 pounds (combined gross weight) of materials subject to this shipping determination are permitted on a transport vehicle and individual container limits are specified below:

Material Hazard	Packing Group	Limit per Package
High hazard	I	0.5 kg (1 pound) for solids 0.5 L (1 pint) for liquids
Medium/Low hazard (excluding Div 4.3) or ORM-D	II or III	30 kg (66 pounds) for solids 30 L (8 gallons) for liquids
Div. 4.3	II and III only	30 ml
Div 2.1 or 2.2 cylinder	N/A	100 kg (220 pounds) gross weight
Dilute Class 9 (<2% concentration)	N/A	Tank capacity <1500L (<400 gallons)

- 2) Materials that are radioactive or explosive are not eligible for MOT Exception and separate shipping determinations will be required for those materials.
- 3) Flammable gases not transported in a specification cylinder are not eligible for the MOT Exception and separate shipping determination will be required.

References and Rationale for the Determination:

49 CFR 173.6 DOT Facts-108a

These materials are used in support of ARCADIS work.

Determination performed by:

Matthew Sabetta

Determination QA/QC performed by:

Zuck, Daniel



HAZARDOUS MATERIALS SHIPPING/TRANSPORTATION DETERMINATION FORM

Field Equipment GROUND/AIR Template 10/14/2014

Project/Office Name:

Project Number:

Supplemental Information:

tic Power512-520 Pusey AveCollingdal
AP013235.1000
SDS

Description of the Material to be Transported or Shipped:

Rental equipment to be return shipped by the ground or air mode of transportation subject to this determination include: air monitoring/sampling equipment, water quality instruments, survey and measurement equipment, GPS devices, computer tablets, cameras, communication devices, weather monitoring equipment, heat/cold stress monitors and noise monitoring equipment subject to the following conditions:

- 1) Dry cell batteries (including alkaline, NiMH, and NiCad batteries) and/or nonspillable batteries shipped alone, contained in or packed with equipment.
- 2) Equipment containing lithium-ion batteries will be ≤ 100 watt hour (Wh)/battery and ≤ 20 Wh/cell with ≤ 4 cells/2 batteries in package with no spare Li-ion batteries packed with equipment.
- 3) Equipment may be packed with DOT 39 calibration gas cylinders (Division 2.2) and will not require a Cargo Aircraft Only Label on return shipment.
- 4) Equipment may contain small flammable gas cylinders to power equipment or perform analyses which will be empty upon return shipment.
- 5) Equipment may be packed with/contain cleaning or calibration solutions meeting the criteria of Hazard Classes 3, 4.1, 4.2, 5.1, 5.2, 6.1, 8 or 9 in PG II or III, and solutions are in plastic, glass or metal containers ≤ 30 ml per container and ≤ 500 ml (PGII) and ≤ 1 L (PGIII) per completed package (air shipment) or ≤ 30 ml per container ≤ 29 kg (64 pounds) (ground shipment).
- 6) Equipment may be shipped with calibration solutions or powders which are limited to pH buffer, conductivity, and turbidity standards or standards made specifically for water quality meters calibration. Standards referenced will not meet the criteria of a DOT or ICAO/IATA hazard class.
- 7) Equipment does not contain components that are magnetic, radioactive, or contain materials under pressure (>15.22 psi absolute) which are not in DOT 39 cylinders.
- 8) Equipment is clean and free of site contaminants.
- 9) The shipment will not contain chemical kits (Hach kits, DTECH kits or similar kits), colorimetric indicator tubes (Drager tubes, etc.), first aid kits or fire extinguishers and equipment containing mercury.

Special Instructions:

- 1) This determination is void if the above conditions are not met or the shipment contains devices or substances not list above. This determination is void if lithium metal batteries are contained in the shipment (excludes button cells attached to circuit boards of equipment).
- 2) All batteries should remain installed in equipment and spare batteries, regardless of type and charge, will have terminals protection; and each battery will be protected from metal objects, crushing, or puncturing by other components in the package.
- 3) Air and ground shipment of equipment with nonspillable batteries will be marked on the outer package "Nonspillable Battery". Also, for air shipments, the air waybill (if used) will be marked "Not Restricted, A67".
- 4) Air shipment of equipment with dry cell batteries will have "Not Restricted, A123" written on the air waybill or shipping label (refer to Shipping Guide US-050 for battery mark and notation information).
- 5) Shipments containing pressurized DOT 39 cylinders (look for mark or stamp indicating cylinder type) will be shipped in accordance with HSSP-020 (designed for air shipment but same rules apply for ground shipment). For air shipments, the Shipper's Declaration will be prepared using approved software. For ground shipments, FedEx Ground pre-registration required and cylinder offered under FedEx Ground HazMt shipping papers (form OP-900 and OP-950).
- 6) Shipments with small quantities of HazMat liquids (see above) will be shipped in accordance with HSSP-016 (air shipment) or HSSP-028 (ground shipment) requirements. Container closures will be secured by secondary securement method (taping, etc.).
- 7) FIDs will be return shipped with hydrogen tanks empty and valves open.
- 8) Equipment will be packed in a manner which provides protection to the device and its ancillary components, with the device in the off position and protected against accidental activation.
- 9) Non-hazardous liquids and powders that may be packed with the rental equipment will be packed with lids or other closure method secure and protected with secondary securement method (taping, wiring, clipping, etc.).
- 10) If shipping in packaging provided by the vendor, check exterior of the package and remove obsolete marks or labels. Also check package to ensure it is not damaged or has other condition that might impair package integrity.

Emergency Phone Number:

ARCADIS requires 24 emergency phone number on package (if requiring a mark or label) and/or on any shipment requiring a shipping paper.

"1-800-255-3924 CHEMTEL #MIS0007883"

Register this shipment at: <http://arcadis.chemtel.net/>

Certification:

I certify field equipment and supply shipments that will be prepared for air transport for this project or office, will be prepared and checked to ensure the package conforms to the requirements and limitations of this shipping determination. I will utilize referenced ARCADIS guidance, when applicable, in preparing these shipment(s). I will not rely solely on vendor instructions for return shipment package preparation. I am current on HazMat #1 training or approved equivalent.

Offeror(s) Signature/Date:

_____ / _____	_____ / _____
_____ / _____	_____ / _____
_____ / _____	_____ / _____
_____ / _____	_____ / _____
_____ / _____	_____ / _____
_____ / _____	_____ / _____
_____ / _____	_____ / _____
_____ / _____	_____ / _____
_____ / _____	_____ / _____
_____ / _____	_____ / _____
_____ / _____	_____ / _____



SHIPPING/TRANSPORTATION DETERMINATION FORM

Revision 9b

Non-Regulated Shipping Determination

Date:

6/6/2017

Project Name:

mer Hooker Chemical/Oxy/Ruco PolymerSite, Hicksville, N

Project Number:

B0032305.1701

1) Check the following to certify materials being transported or shipped meet non-regulated or not restricted status:

☐ Samples will not be collected on this project

OR

☒ The following samples have been reviewed and do not meet criteria of a regulated shipment under DOT or IATA:

Check applicable media that will be sampled on the project:

☒ Soil	☒ Groundwater	☒ Air samples
☐ Sediment	☐ Surface water	☐ Tissue, body part, or body fluid (1)
☐ Sludge	☐ Process water	☐ Plant tissue, part or fluid
☐ Bldg. materials	☐ Waste water	☐ Mold
☐ Articles	☐ Potable water	☐ Investigation derived waste (all media types)
	☐ Product	☐ Other:

☐ The following location(s) are not covered by above, are considered HazMat for shipping/transportation, and are subject to an additional shipping determination:

1a

The following checkboxes must be checked confirming a non-regulated/not restricted determination:

- ☒ Sample containers will be filled and preserved in accordance with EPA SW-846 protocols (2)
- ☒ Sample containers will not be field preserved with acids or bases by Arcadis staff
- ☒ Empty but preserved sample containers will not be return shipped to the laboratory or office
- ☐ EPA Method 5035 (TerraCore) samples will not be collected (3)

Supplemental information used to confirm this conclusion:

Site measurements/observations

2) Certify the following by checking the applicable categories that will be shipped or transported on this project (at least one category must be checked):

☐ Equipment and supplies will not be transported or shipped on this project.

OR

- ☒ Rental equipment being transported/shipped will not contain materials subject to DOT/IATA regulation (4)
- ☒ Field test kits, fire extinguishers and first aid kits will not be shipped
- ☐ Remediation chemicals transported in quantities >440 pounds gross weight per vehicle are not DOT regulated
- ☒ Other equipment and supplies used on this project are:
 - ☐ Not regulated for transport; and/or
 - ☒ Eligible for materials of trade exception (5)

- ☐ The following equipment/supplies are not covered by above, are considered HazMat for shipping/transportation, and are subject to an additional shipping determination:

2a

Supplemental information used to confirm this conclusion:

Completion of the "Determination" worksheet is not required. Issue this worksheet to field staff.

3) Certification:

I certify that I am current in HazMat #1 or approved equivalent and the above determination is true and correct to the best of my knowledge.

Name : Daniel Zuck

Signature:



Reviewed By:

May be signed by any currently trained HazMat #1 employee

Notes:

- 1) This category applies to mammals, reptiles, birds, fish, insects, arachnids and all other vertebrate and invertebrate organisms.
- 2) This category is limited to containers preserved with ≤ 4 ml of preservatives and excludes containers used to preserve human or animal tissue described in footnote 1.
- 3) Unhide and review the generic shipping determination form for TerraCores for details
- 4) Unhide and attach the generic shipping determination for rental equipment.
- 5) Unhide and attach the generic shipping determination for MOT transport.



QUICK VIEW SHIPPING DETERMINATION FORM

Revision 9b

For Use by Field Staff

Date:	6/5/2017
Project Name:	Bayer Hicksville, NY
Project Number:	B0032305.1701

This Determination applies to

The material you will be shipping includes the following:

Soil/sludge/sediment with ppb or low ppm concentrations of volatile, semivolatile and/or inorganic constituents with no sheens or odors: Low level volatile and semi-volatile organic compounds, PCBs, and metals.

If this is not what you are shipping or if you need help, contact : Daniel Zuck
at 516-369-2741 for assistance and guidance.

The material in your shipment has been classified as a: Not Restricted/Not Regulated

This material has been identified as:

PROPER SHIPPING NAME (including applicable modifiers and technical names):

An ID Number, Proper Shipping Name, Hazard Class, and Packing Group are not required for this shipment.

ID NUMBER: NA Hazard Class NA (NA) Packing Group NA

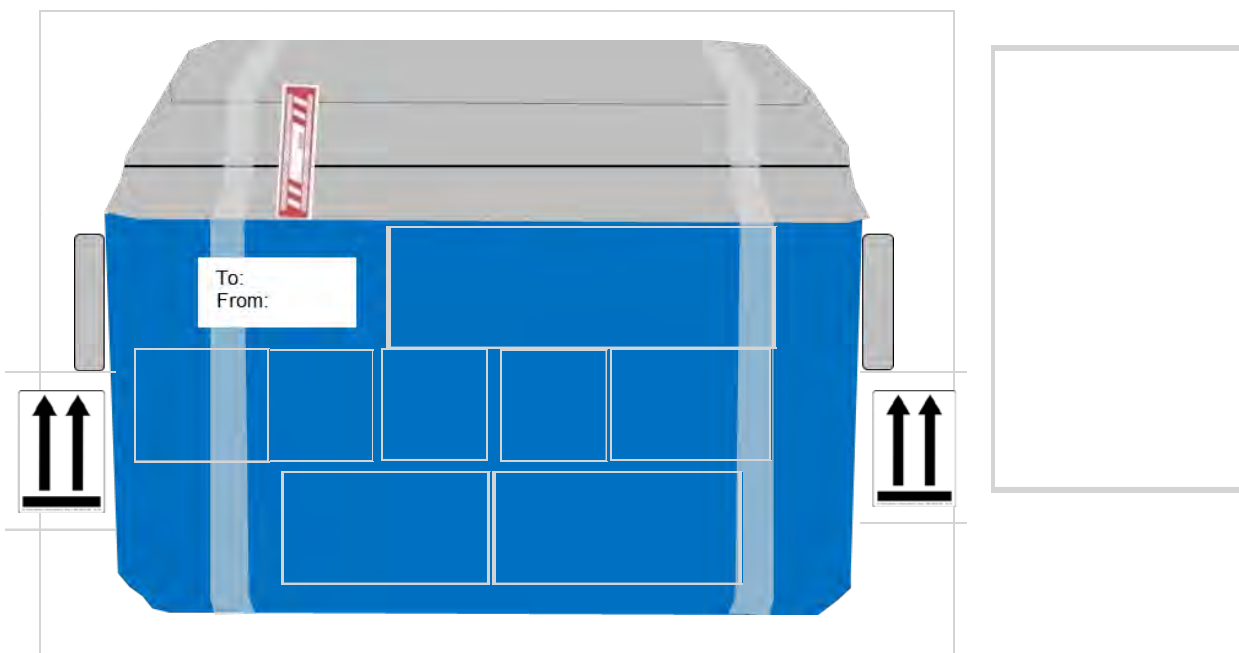
☐	The above information in RED is required on the outer package of your shipment as illustrated in the picture		
☒	Follow Shipping Guide US-001 to prepare this shipment	☐	Follow Shipping Guide US-015 for dry ice
☐	Refer to the referenced HSSP to right for more information:	NA	

Package preparation configuration per package shipped (not to exceed):

Inner container sizes and quantity	# of containers	Size	Type	Net Qty Each
	10	1 L	Glass	0 None
	10	4 oz	Plastic	0 None
	10	8 oz	Plastic	0 None
	0	None	None	0 None
	0	None	None	0 None
	0	None	None	0 None

Intermediate packaging:	Plastic bag/liner
Outer packaging:	Non-specification box- plastic (sample cooler)

Place marks and labels on same side of package, except orientation arrows should be placed on each end of package.



If you do not have all of the marks or labels shown above. DO NOT GIVE THE PACKAGE TO FEDEX or UPS. Orientation arrows may be red colored. If required, contact the individual listed above for assistance.

☐ Your supervisor (PM, TM, or Field supervisor) must register this shipment with ChemTel (the Arcadis 24 hour emergency phone number provider).

You must offer this shipment to: Arcadis or Lab Courier Transport



ARCADIS SHIPPING GUIDE NO. US-001

Environmental Sample Cooler Preparation for Hazardous Materials Shipping Do Not Use After 12/31/2017

1) Fill bottles <90% Full



2) Tape lids secure



3) Place bottles in protective bubble wrap bags or wrap in cushioning material



4) Place protected bottles inside of a self-sealing bag (Ziploc® bag)



5) Select a clean, like new ice chest ≤52 quart capacity. Avoid ice chests with drain plugs



6) Line ice chest with plastic bag (heavy duty trash bag)



7) Place absorbent pads, vermiculite, or other compatible absorbent in ice chest (enough to absorb contents of ice chest) and additional cushioning material (like bubble wrap)



8) Place all bottles in ice chest in upright position (including temperature blank if required by your work plan)



9) Fill remaining void with compatible absorbent, cushioning materials or ice in self-sealing plastic bags (if using cooling preservation). Don't overfill the bag liner.



10) Twist and tie off top of plastic bag



11) Place chain-of-custody in self-sealing plastic bag and tape to inside lid of ice chest



12) Close lid and secure with strapping/packing tape all the way around the ice chest. Apply chain-of-custody seals (one on each side or as directed in your work plan)



Attachment D
Field Forms

Task Improvement Process

General

Observed Company: _____

Observation Type: _____

TIP Form: H&S Field Multi-Task (General)

Task Observed: _____

Observee Name: _____

Observer Name: _____

Observation Date: _____

Project Number: B0032305.1701

Project Name: Former Hooker Chemical/Oxy/Ruco PolymerSite, Hicksville, NY

Supervisor: _____

Equipment On Site: _____

Pertinent Information: _____

Observation

Task	Correct	Questionable	Comments
General			
PPE worn according to HASP/JLA specifications and inspected before use?			
STOP work authority used where appropriate?			
Body Use/Positioning			
Proper lifting/pushing / pulling techniques used (no awkward positions/posture; no twisting or excessive reaching; no straining; no excessive weight; load under control/stable; etc.)?			
Body parts away from pinch points (clear or protected from being caught between objects/equipment or from contacting sharp objects/edges, etc.)?			
Body parts not in the Line of Fire (protected from being struck by traffic, equipment, falling/flying objects, etc.)?			
Work Procedures/Environment			
Correct type and number of barricades/warning devices/cones?			

Communication with others when necessary (hand signals, flags, etc.)?			
Right tools and equipment selected for the job and inspected before use?			
Tools and equipment used properly?			
Housekeeping performed (work areas and pathways clear of hazards, uneven surfaces addressed, etc.)?			
Slip/trip/fall hazards addressed (path selected and cleared, eyes on path, speed footing, etc.)?			
Proper energy control (electrical systems grounded, lock out/tag out performed, isolated, cords/fixtures in good condition, GFCI inspected and utilized when appropriate and used properly, etc.)?			
Protected from overhead/underground utilities (proper clearance, properly marked, spotters as necessary, etc.)?			
Safe work on/near water (appropriate flotation device, appropriate boat for body of water and operation of boat, etc.)?			
Chemical/Radiation protection (decontamination zones set up properly, air monitoring, completed, and logged, etc.)?			
Fall from elevated height prevention (maintains 3-points of contact, appropriate ladder, mounting/dismounting vehicle/equipment, fall arrest system, etc.)?			
Any additional safety issues identified:			

Tip Summary Enter details of the TIP and follow up discussion provide details on how any questionable items were resolved.

Discussion following the TIP led by: _____

Date of follow-up discussion: _____

Positive Comments:

Discussion Summary Completed:

☐	Supervisor Led
☐	Peer to Peer
☐	Arcadis Employee to Subcontractor

Summary of Questionable Items

Action Items (Optional) Assign appropriate action items based on the observations made. You can add more than one action item if needed.

Item #	Action Item	Responsible Person	Due Date	Comp. Date
1				
2				
3				

Standard Review

Reviews to be performed after entry of this TIP into 4-Sight.

Quality Review

Quality Reviews to be performed after entry of this TIP into 4-Sight.

Field Validation and Verification

Use the 4-Sight generated copy of this TIP to perform field V&V activities.

Air Monitoring Documentation Form



PID Model: _____

Monitor Frequency: _____

LEL/O₂ Model:

CIT Model: _____

Dust Mon. Model: _____

Air Monitoring Results

[illegible]

PID	Photoionization Detector
LEL	Lower Explosive Limit
O2	Oxygen
CIT	Colorimetric Indicator Tube

ppm	Part per million
%	Percent
mg/m3	Miligram per cubic meter

LEL/O₂ Calibration Log



Calibration Gas Source:	_____	Instrument Type:	_____
Lot Number/Expiration Date:	_____	Serial Number:	_____
Concentration:	_____	Instrument Type:	_____
Other:	_____	Serial Number:	_____
Other:	_____		_____

PAGE _____ of _____

[illegible]

PID Calibration Log



Zero Gas Source: _____ Lot Number/Expiration Date: _____ Calibration Gas Source: _____ Lot Number/Expiration Date: _____ Concentration: _____	Instrument Type: _____ Serial Number: _____ Instrument Type: _____ Serial Number: _____ _____ _____	PAGE ____ of ____

[illegible]

What You Need

Emergency Phone: 911 WorkCare Phone: 1-888-449-7787
Your nearest hospital: North Shore LIJ Plainview Hospital 888 Old Country Road Plainview, New York 11803 0 C

H&S Specialist for this project: Julie Santaniello Cell Phone: 978-551-0033
Project Site Safety Officer: To Be Established
Nearest assembly area(s): Located at the construction entrance off of New South Road
Nearest storm shelter(s): Personal Vehicles
Simultaneous operations (SimOps): You must review address SimOps activities in your tailgate safety briefing. Review of
THA may be required.
Site Security: A Site Security Plan does not apply to this project.
Utility Clearance: Review of utility clearance checklist and daily site walkover for utility identification is required.
State Specific Requirements: State specific H&S requirements do not apply this project.
You are required to have current training in the following:
H&S Program Orientation, HAZCOM GHS/EAP, Defensive Driving - Smith On-Line, PPE , Hazwoper 8-Hour Annual Refresher
, Defensive Driving - Smith On-Line,

SDSs for this project are located: Printed copy attached
Primary chemical constituents of concern for this project:
PCBs,

PID action levels for this project:

<	0.3	Continue work
0.3	-	0.5
		Sustained >5 min. continuous monitor, review eng. controls and PPE, proceed with caution
>	0.5	Sustained >5 min. stop work, contact SSO

* Arcadis administrative TWAs ensure mixture component TWAs are not exceeded that would require additional monitoring or medical surveillance.

For work not conducted under a JSA or permit, you must wear the following PPE:

Hard hat, Safety glasses, Steel or comp. toe boot, Traffic vest, shirt or coat: Class II, Hearing protection, Rain suit, Other:0, 0,
0, Gloves other:0,

You are required to be current on your medical surveillance.

The following safety equipment and supplies are required to be on site for this project:

First aid kit, Eyewash (bottle), Drinking water, Traffic cones,

Site Control: Site control is integrated into the STAR Plan or TCP for the project
Decontamination: Remove gloves and coveralls and contain, wash hands and face prior to consuming food, drink or
Sanitation: Mobile operation with access to off-site restrooms and potable water

Safety Briefings: Safety briefing required daily
This project has the following TIP goals: 1 time(s)

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Former Hooker Chemical/Oxy/Ruco PolymerSite, Hicksville
Project Number: B0032305.1701
Form Completion Date: _____ Form Expiration Date: _____
(15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? #: _____

Ticket Expiration Date _____ (Review State Requirements)

Utility companies notified during the One Call process ☐ See attached ticket

List any other utilities requiring notification: ☐ None

Private Locator Contacted ☐ Yes ☐ No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? ☐ Yes ☐ No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work

☐ One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)

Utility Markings Present: ☐ Paint ☐ Pin flags/stakes ☐ Other ☐ None

☐ Client Provided Maps/Drawings **OR** ☐ Maps/Drawings requested but not provided

☐ Client Clearance Name(s)/Affiliation(s) _____

☐ Interview(s): Name(s)/Affiliation(s) _____

Did person(s) interviewed indicate depths of any utilities in the subsurface?

☐ Yes, depths provided: ☐ Did not know or refused to answer

Additional Comments:

☐ Site Inspection (**Complete Page 2 & Photo Document Marked Utilities & Utility Structures**)

☐ Public Records / Maps / Asbuilts

☐ Private Locator: (Name and Company) _____

☐ Ground Penetrating Radar (GPR)

☐ Radiofrequency (RFLoc)

☐ Electromagnetic (EM)

☐ Metal Detector

Tips for Successful Utility Location:

1. Don't forget to look up
2. Be on site with Private Utility Locators
3. Ask Private Locators to "confirm" other's markings
4. Select alternate/backup locations during clearance process
5. Mark out all known utilities. Leave nothing to question
6. No hammering - no pickaxes - no digging bars - no shortcutting
7. No excessive turning or downward force of hand augers/shovels
8. Utilities may run in or directly under asphalt/concrete

Soft Dig Methods

☐ Termination Depth _____ ft. bgs

☐ Potholing / Vacuum Extraction

☐ Air-Knife ☐ Hydro-Knife

☐ Probing

☐ Hand Auguring

☐ Other: _____

☐ Marine Locator: (Name and Company) _____

During the site inspection look for the following: (**"YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work**):

Site Inspection	Utility Color Codes	Present	
a) Natural gas line present (evidence of a gas meter)?	Yellow	☐ Yes	☐ No
i) Feeder Lines to buildings or homes?		☐ Yes	☐ No
b) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		☐ Yes	☐ No
iii) Conduits from power poles running into ground?		☐ Yes	☐ No
ii) Light poles, electric devices with no overhead lines?		☐ Yes	☐ No
iii) Overhead electric lines present? (See Section I)		☐ Yes	☐ No
c) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		☐ Yes	☐ No
ii) Sewer cleanouts present?		☐ Yes	☐ No
iii) Combined sewer /storm lines or multiple sewer lines?		☐ Yes	☐ No
d) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		☐ Yes	☐ No
ii) Fire hydrants in vicinity of work?		☐ Yes	☐ No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		☐ Yes	☐ No
e) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		☐ Yes	☐ No
ii) Gutter down spouts going into ground		☐ Yes	☐ No
f) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		☐ Yes	☐ No
iv) Aboveground cable boxes or housings or wires in work area?		☐ Yes	☐ No
g) Underground storage tanks:			
i) Tank pit present, tank vent present?		☐ Yes	☐ No
ii) Product lines running to dispensers/buildings?		☐ Yes	☐ No
h) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		☐ Yes	☐ No
i) Proposed excavation marked in white?	White	☐ Yes	☐ No
j) Unclassed utilities / anomalies marked in pink?	Pink	☐ Yes	☐ No
k) Overhead Utilities/Communication Lines - Look Up:			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		☐ Yes	☐ No
ii) Overhead fire sprinkler system?		☐ Yes	☐ No
l) Overhead Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		☐ Yes	☐ No
ii) >50 - 200 kV within 15 ft. of work area?		☐ Yes	☐ No
iii) >200-350 kV within 20 ft. of work area?		☐ Yes	☐ No
iv) >350-500 kV within 25 ft. of work area?		☐ Yes	☐ No
v) >500-750 kV within 35 ft. of work area?		☐ Yes	☐ No
vi) >750-1000 kV within 45 ft. of work area?		☐ Yes	☐ No
m) Other:			
i) Evidence of linear asphalt or concrete repair?		☐ Yes	☐ No
ii) Evidence of linear ground subsidence or change in vegetation?		☐ Yes	☐ No
iii) Unmarked manholes or valve covers in work area?		☐ Yes	☐ No
iv) Warning signs ("Call Before you Dig", etc.) on or adjacent to site?		☐ Yes	☐ No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	☐ Yes	☐ No
n) Has the Utilities & Structures Checklist been reviewed by the PM or Designee		☐ Yes	☐ No
PM or Designee Name: _____			

Name and Signature of person completing the checklist: _____

Date: _____

Do not perform **mechanized** intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S .

Arcadis Weekly Vehicle Inspection Form

Vehicle # / License Plate #

Lease Plan # / Last 6 of Vin #

Inspection Date													
Odometer reading													
Driver / Inspector Name													
<i>Check the appropriate box and enter repair date for identified repairs:</i>		OK	Needs Repair	Repair Date	OK	Needs Repair	Repair Date	OK	Needs Repair	Repair Date	OK	Needs Repair	Repair Date
Interior	Horn operational												
	Door Locks operational												
	Seat Belts in good repair												
	Seats and Seating Controls												
	Steering Wheel - No Excessive Play												
	Interior Lights and Light Controls												
	Instrument Panel/Gauges												
	Wiper Controls operational												
	Heat/Defrost/Air Conditioning working												
	Rear View Mirror present												
	Backup Camera/Sensors working												
Jack and Lug Wrench present													
Exterior¹	Lights and Signals operational												
	Tires properly inflated/good tread depth												
	Spare Tire properly inflated												
	Doors operational												
	Windows Not Cracked/Damaged												
	Side View Mirrors												
	Body Panels and Bumpers												
Engine & Brakes	Engine Start & Running Smoothly												
	Fluid Levels, No Noticeable Leaks												
	Belts tight, no cracks												
	Brakes operational, no squeaking												
Emergency Equipment²	First Aid Kit, inspected weekly												
	Fire Extinguisher properly secured												
	Fire Extinguisher inspected weekly												
	Orange/Yellow emergency warning light												
	Roadside Assistance Information												
	Recommend spotter cones available												
Cargo	Cargo Secure and Properly Distributed												
	Securing Devices in Good Condition												
Registration	License Plate /Tags												
	Registration and Insurance												
	City/State Inspection Decal												
	Lease Plan information/Fuel Card												

¹ Note all damages to the vehicle on the back of this page

² Emergency Equipment required per Motor Vehicle Standard ARC HSGE024

Note All Vehicle Damage Below

All Vehicle Damage must be reported to Sue Berndt (Corporate Legal), Andrew McDonald (Corporate H&S), and Roger Elliot (Corporate Fleet Manger)

CODES:

B-BENT
BR-BROKEN
BU-BULGE
C-CHAFED
CH-CHIPPED

CPM-COVERED WITH PROTECTIVE
MATERIAL-UNABLE TO
DETERMINE DEFECTS IF ANY
CSA-CHAFED AND SCRATCHED ALL OVER
CR-CRACKED
D-DENTED

DMC-DUST AND MUD COVERED
UNABLE TO DETERMINE OTHER
DEFECTS IF ANY
G-GOUGED OR CUT
GC-GLASS CRACKED
HS-HAIRLINE SCRATCH
M-MISSING

P-PUNCTURED
R-RUSTY
S-SCRATCHED
SC-SCRAPED
SM-SMASHED
ST-STAINED AND/OR SOILED
T-TORN

CARS

FRONT

REAR

TRUCKS

FRONT

REAR

VANS/BUSES

FRONT

REAR

-INDICATE ON DIAGRAM-
-GIVE DIMENSIONS-
-CIRCLE WHERE APPLICABLE-

Notes:

Tread guide: If a tread gauge is not available coins may be used to determine remaining tread. 2/32" is the minimum by law in most states (top of Lincoln's head on penny), 4/32" is minimum recommended for wet surfaces (top of Washington's head on quarter), 6/32" is minimum recommended for snowy surfaces (top of Lincoln Memorial on penny).Vehicle tires should be replaced if the tread depth is less than 6/32".

2/32" remaining 4/32" remaining 6/32" remaining

Reference JSA 10907 For Weekly Vehicle Inspection

6/7/2017
G:\Clients\BayerMaterialScience\Hicksville\10 Final Reports and Presentations\2017\SMPI\Appendices\Appendix F - HASP\1201711022_Appendix F-HASP Text

Arcadis Heat Illness Prevention Plan
HASP Supplement

Date Completed 6/6/2017 Revision 3, 4/14/2015

The purpose of this document is to serve as a planning tool and implementation guide to help the Project Team Site, Site Health & Safety Officer (SHSO) or other designated responsible party to comply with the requirements set forth by Cal/OSHA Title 8 CCR 3395 Heat Illness Prevention Standard and the Washington State Outdoor Heat Exposure Regulations 296-62-09510 thru 09560.

This HASP Supplement is required to be used in California and Washington states.

Projects sites in other states and provinces can use this HASP Supplement as a Best Management Practice to prevent heat illness related injury.

The objective of this planning guide is to prevent or reduce the risk of work-related heat illness. This HASP Supplement provides site specific guidance for actions to be completed the project site. The Arcadis Health and Safety Standards ARC HSIH013 Heat Stress Prevention, and ARC HSGE008 Injury and Illness Prevention Program (IIPP) must accompany this HASP Supplement. To completely address the regulatory requirements for work in CA and WA states these standards are required to be used in association with the project-specific HASP and this supplement.

Project Name Site, Hicksville, NY

Project Manager John Brussel

Authority and Implementation

The following designated individuals have authority and responsibility for implementing the provisions of this program at the work site indicated above.

Site Health &Safety Officer Greg McDermott Designated Alternate Daniel Zuck

Procedures for Provision of Water

The Site Health & Safety Officer (SHSO) or designee will be responsible for implementing the following when conditions at the site are anticipated to exceed 80 degrees Fahrenheit:

1. Maintaining an adequate supply of suitably cool, fresh and pure potable water (fresh and pure is defined as "odor free" and "suitably cool" is defined as water being cooler than the ambient temperature but not so cold as to cause discomfort or prevent drinking.) on site at all times to allow each employee to consume one quart of water per hour, ideally at a rate of four 8-oz cups per hour. Entering the requested information into the formula provided below calculates the number of quarts of water required per employee, per hours worked per day. Electrolyte replacement drinks or "Sports Drinks" can be used to replace essential minerals lost during sweating. Generally, such drinks should supplement water intake such as one "sports drink" to every two bottles of water. Also, a teaspoon of salt added to every gallon of water could also be used.
2. Designate and communicate a water source such as an onsite potable plumbed system, chilled coolers containing bottled water, or drinking water coolers (of a sufficient capacity to support all field staff present) and disposable cups for potable water consumption. The water source must provide suitably cool, fresh and pure water in sufficient quantity for all employees at the site. Water shall be provided free of charge or expenses will be reimbursed for employees.
3. Document and communicate the decision to either provide all water for the day at the start of the shift (e.g., 2 gallons per employee for an 8-hour shift), or a replenishment plan. Note: a sufficient quantity of water must always be present and readily accessible to allow every employee to consume at least one quart of water per hour. It is suggested to have a minimum of three hours supply of water per employee on hand.
4. Water supplies must be positioned as close as possible to the work site. If site conditions prohibit such positioning then an alternative plan must be prepared to address making water readily available to site workers.
5. Inspect the coolers / water dispensers for cleanliness and replenishment of water and cooling ice on a documented routine interval based on temperatures and staff size. Cooling ice will be stored in clean coolers if added directly to water dispensers. If the site temperature exceeds 90 degrees F the frequency of the cooler inspection will increase to maintain cool water and water supply levels.
6. Oversee the daily inspection and maintenance of coolers to ensure they are kept clean and in good condition.

No. of Employees 2 No. of Work Hours Per Day 10 Quarts of Water Required 20

One cooler will be provided for every four workers and will contain 24 16-ounce bottles every 2 hours.

No. of Employees 2 Number of Coolers 1 Bottles Required 24

Form Color Key

Enter requested Information

Calculation Completed

Check which situation applies. Must check at least one box, or provide additional detail.

☒	Ice will be purchased at the start of each day by the site Health & Safety Officer or designee.
☐	Ice will be distributed from on-site machine or service meeting applicable potable water standards.

Checklist of materials to order and keep on hand.

☒	Anti-microbial hand cleaner.	☒	Food Safe cleaning product for water cooler.
☒	Paper towels.	☒	Sufficient amount of drinking cups for each employee and water dispenser.
☒	Potable water to clean coolers.		Other Items -

Access to Shade

1. The Site Health & Safety Officer or designee is responsible for directing how shade will be coordinated and placed when temperatures exceed **80 degrees** Fahrenheit.
2. Before the start of work, the location of the shade areas, the importance of taking shade breaks, recognizing the signs and symptoms of heat illness, and the schedule of shade breaks (> 10 minutes every two hours), and the location will be addressed during each Tailgate Safety Meeting. Access to shade must be allowed at all times (As temperature increases cool down breaks should increase in frequency.)
3. The amount of shaded areas must be able to accommodate all employees taking a recovery or rest break including those employees who are on meal breaks. This doesn't mean that the shaded area(s) must provide shade to accommodate all employees on a site or working a shift at the same time. An example includes rotating routine breaks among employees. Also, additional portable shade structures can be erected on an "as-needed" basis. Employees must have enough shaded space so they can sit in a normal posture fully in the shade with enough space to allow for sitting without being in physical contact with each other. **Employees who desire access to shade must not be deprived of it due to lack of space.**
4. Employees who take a preventative cool-down rest; (1) shall be monitored and asked if they are experiencing symptoms of heat stress; (2) shall be encouraged to remain in the shade; (3) shall not be ordered back to work until any signs or symptoms of heat illness have abated, but in no event less than 5 minutes in addition to the time needed to access the shade.
If an employee exhibits signs or symptoms of heat illness while taking a preventative cool-down rest the SHSO will provide appropriate first aid or emergency response support.
5. Shade structures will be relocated to follow along with the crew for moving tasks. Shade structures will be placed within 50 feet of the work area, if practical. Shade structures must be no further than a short walk away (e.g. 2-3 minutes) from the work area. This consideration becomes critical as the temperature rises above 80 degrees F.
6. In situations where it is not safe or feasible to provide shade, the SHSO will document in the HASP Supplement the unsafe or unfeasible conditions, and include the steps taken to provide alternative cooling measures equivalent to shade.

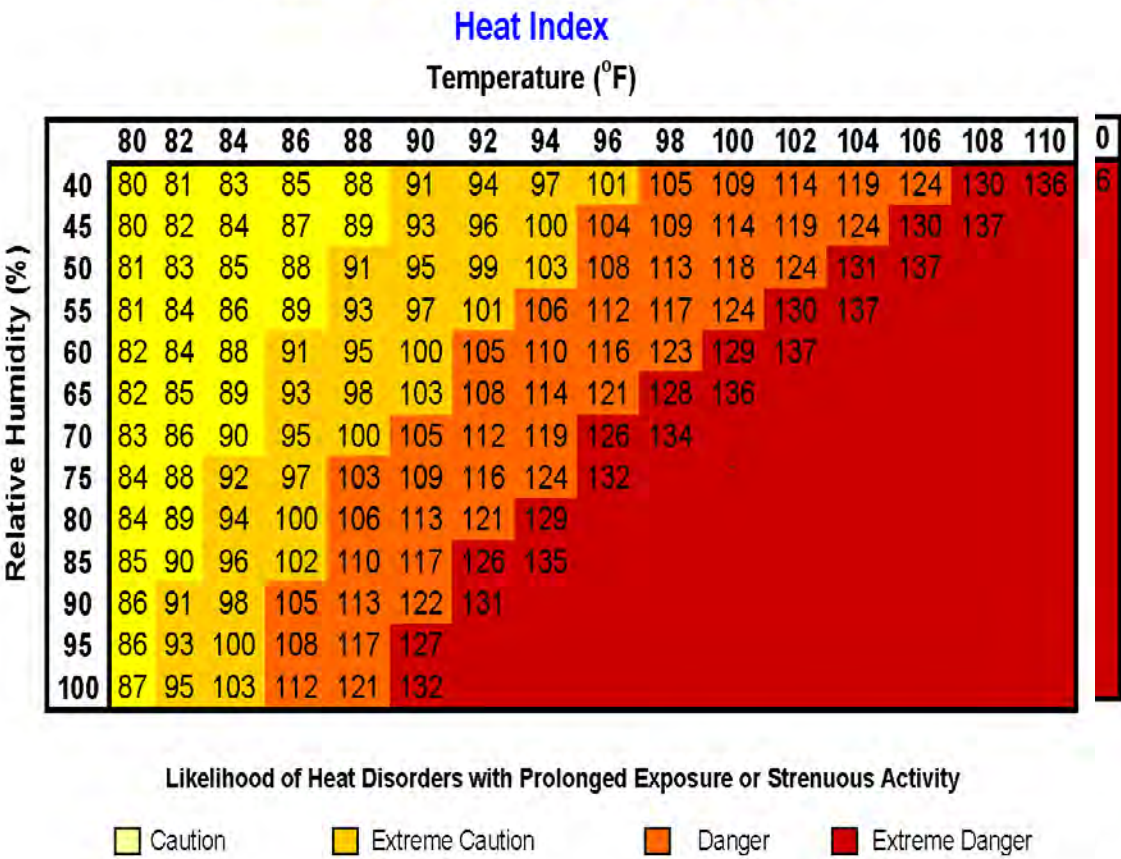
Check Available Option

X	Provide vehicle(s) with working air conditioner to all employees on recovery or rest breaks as well as employees taking onsite meal breaks on the shift at any time.)
X	Provide temporary or mobile shade structure(s) that are either ventilated or open to air movement (Secure against wind.)
X	Building or permanent structure(s) in close proximity to the work area that provide a cooling environment either through mechanical ventilation or are open to air movement will be used for shade. (Job trailer, pavilion, manufacturing building, etc.)

Monitoring of Weather

1. The SHSO or designee must check the extended weather forecast in advance of the upcoming work on a weekly basis. Work schedules will be adjusted in advance, taking into consideration whether high temperatures or a heat wave is expected.
Accepted weather forecasting resources include webpages such as: <http://www.noaa.gov/> or <http://www.weather.com/>
2. Before work starts for the day or for the shift, the SHSO will review the forecasted temperature and humidity for the work site and compare conditions against the National Weather Service Heat Index (below) to evaluate the risk level for heat illness. Determination will be made of whether or not workers will be exposed to a combination of temperature and humidity characterized as “Extreme Caution”, "Danger" or “Extreme Danger” for heat illnesses. It is important to note that the temperature at which these warnings occur must be lowered as much as 15 degrees if the workers under consideration are in direct sunlight.
3. A thermometer will be used at the job site to monitor for sudden increases in temperature. The SHSO will be responsible for obtaining a thermometer prior to the start of the project and making it readily accessible or mounting it in an area where it can easily be monitored throughout the course of the day.
- 3a. If the temperature exceeds **80 degrees** Fahrenheit, shade structures will be opened and made available to workers.
- 3b. If the temperature equals or exceeds **95 degrees** Fahrenheit, additional preventive measures (such as those outlined in the High Heat Procedures) will be implemented.

NOAA's National Weather Service



Procedures for High Heat and Heat Waves

High Heat

These procedures are additional preventative measures to be implemented when the temperature equals or exceeds **95 degrees Fahrenheit**.

The SHSO or designee is responsible for ensuring effective observation and monitoring of employees during periods of high heat by implementing one or more of the following procedures:

- 1. SHSO or designee will supervise 20 or fewer employees,
- 2. The “Buddy System” is mandatory;
- 3. Regular communication with SHSO or designee via mobile phone or radio of identifying another effective means of observation;
- 4. Designating one or more employees as authorized to contact emergency medical services and communicating that if no designate is identified and the SHSO is unavailable that any employee can call for emergency medical assistance.
- 5. During high heat conditions, employees will be provided with a minimum 10-minute cool-down period every two hours.

Tailgate Safety Meetings will include a review the high heat procedures, encourage employees to drink plenty of water, and remind employees of the importance to take a preventative or recovery cool-down rest when necessary.

The “Buddy System” must be implemented, especially for new employees and employees who have yet to acclimate to high heat conditions. Additionally, frequent communication will be maintained with employees working by themselves (via cell phone or two-way radio), to be on the lookout for possible symptoms of heat illness.

Employees will be observed for alertness and signs and symptoms of heat illness at regular intervals to be documented in the field book or field log.

When the SHSO is not available, an alternate responsible person must be assigned to look for signs and symptoms of heat illness. Such a designated observer will be trained and know what steps to take if heat illness occurs.

Heat Waves

A “heat wave” as defined by the National Oceanic and Atmospheric Administration (NOAA), is a period of abnormally and uncomfortably hot and unusually humid weather.” Typically, a heat wave lasts 2 or more days. A "Heat Wave" as defined for the purposes of this Standard is when temperatures are sustained above 80 degrees F.

During a heat wave or if site conditions indicate the potential for “Extreme Caution”, "Danger" or “Extreme Danger” per the NOAA Heat Index Table the following steps will be taken:

Work schedules will be modified to protect workers from heat illnesses. The SHSO or designee in coordination with the project team, will use their Stop Work Authority and evaluate the following actions and document the action in the daily field log

- 1 Modify work hours.
- 2 Reschedule or suspend work or specific tasks that are strenuous.
- 3 Cease work for the day.

If schedule modifications are not possible, the Heat Illness Prevention Plan will be reviewed before work resumes. At a minimum, procedures for heat illness prevention, the provisions of the high heat procedures, the weather forecast and emergency response protocols will be reviewed.

Employees will be provided with additional water and rest breaks and will be observed more frequently. During work activities and rest breaks, employees will be observed for signs and symptoms of heat illness.

All employees will maintain frequent communication with the SHSO or designee, who will be monitoring workers for possible symptoms of heat illness. In the event of large project sites where the SHSO may be unable to be near the workers (to directly observe or communicate with them), then communication via a cell phone or radio may be used for this purpose provided reception in the area is reliable.

Procedure for Emergency Response

Emergency procedures include recognizing the symptoms of heat related illness. A critical step also involves ensuring that effective communication is established either through voice, direct observation or electronic means such as via mobile phones or 2-way radios. In an emergency situation it is critical that employees understand the process and contact information for requesting emergency medical support. The reception coverage for the site must be evaluated and understood to ensure adequate communication is in place across the project site

1. The Site Health & Safety Officer or designee is responsible for implementing the following procedures for emergency response. These procedures include, but are not limited to, the following:
2. Prior to assigning staff to a particular work site, during the Tailgate H&S Tailgate Safety Meeting all site workers will review a map of the Site along with clear and precise directions (such as streets or road names, distinguishing features, and distances to major roads), to avoid a delay of emergency medical services.
3. Prior to assigning staff to a particular work site, efforts will be made to ensure that a qualified and appropriately trained and equipped person is available at the site to render first aid, if necessary.
4. Prior to the start of the morning Tailgate Safety Meeting, a determination will be made of whether or not a language barrier is present at the site, and steps will be taken (such as assigning the responsibility to call emergency medical services to the Health & safety Officer or an English speaking worker) to ensure that emergency medical services can be immediately called in the event of an emergency in accordance with the HASP.
5. All Health & Safety Officers and supervisors will carry cell phones or other means of communication to ensure that emergency medical services can be called. Checks will be made to ensure that these electronic devices are allowed on site, have adequate reception across the site, and are functional prior to each shift.
6. When an employee reports symptoms, or is observed displaying symptoms of possible heat illness, steps will be taken immediately to keep the affected employee cool and comfortable until emergency service responders have been called and treatment guidance is provided, or until they arrive at the Site (to reduce the progression to more serious illness).
7. During a heat wave or hot temperatures, workers will be reminded and encouraged to immediately report to the Site Health & Safety Officer any signs or symptoms they are experiencing.

Procedure for Handling a Sick Employee

1. The Site Health & Safety Officer or designee is responsible for implementing the following procedures for handling a sick employee. These procedures include the following:
2. When an employee displays possible signs or symptoms of heat illness, the Site Health & Safety Officer or designee will check the sick employee and determine whether resting in the shade and drinking cool water will suffice or if emergency service providers will need to be called. In the event of a non-emergency incident the SHSO will contact the employees supervisor or the project manager as well as calling WorkCare **1-800-455-6155 (US) and 1-888-449-7787 (Canada)** for non-emergency medical assistance.
A sick worker will not be left alone, and will be monitored closely for the remainder of the day or until emergency support arrives.
3. Signs of the onset of Heat Illness are: excessive fatigue, heavy sweating, headaches, cramps, dizziness, elevated pulse.
Signs of Heat Exhaustion are: Cool, moist, pale or flushed skin, nausea or vomiting, disorientation or confusion.
Signs of Heat Stroke are: hot, red skin which can feel dry to the touch, or moist from overexertion, changes in consciousness, rapid or weak pulse, shallow rapid breathing.
4. When an employee displays possible signs or symptoms of heat illness and no trained first aid worker or supervisor is available at the site, emergency service providers will be called.
5. Emergency service providers will be called immediately if an employee displays signs or symptoms of heat illness (loss of consciousness, incoherent speech, convulsions, red and hot face) or does not get better after drinking cool water in intervals of 8 ounces every 15 minutes and resting in the shade. While the ambulance is in route, first aid will be administered (**cool the worker: place the worker in the shade, remove excess layers of clothing, place ice pack in the armpits and groin area and fan the victim**).
A worker determined to be suffering heat illness will not be allowed to leave the site except under medical care.

6. If an employee displays signs or symptoms of severe heat illness (loss of consciousness, incoherent speech, convulsions, red and hot face), and the work site is located more than 20 minutes away from a hospital, call emergency service providers, communicate the signs and symptoms of the victim, and request an Air Ambulance if necessary.

Revisions, notes, amendments, and clarifications specific to this plan will be detailed in the space below:

APPENDIX G

Site-Wide Inspection Form



Former Hooker/Oxy/Ruco Polymer Site
125 New South Road
Hicksville, New York
Site-Wide Inspection Form

Date: _____

Temperature: _____

Personnel: _____

Weather Conditions: _____

Time of Arrival: _____

Departure Time: _____

Inspection Checklist	Yes	No	Comments
Exterior Cover System			
<i>Intrusive Activities Being Performed?</i>			
- Trenching?			
- Excavating?			
- Tunneling?			
- Saw Cutting?			
- Other?			
<i>Signs of Previous Intrusive Activities Performed?</i>			
- New Drainage Feature?			
- Evidence of a New Underground Utility?			
- New Grass or Vegetation?			
- Demarcation Layer Exposed?			
- Saw-Cut Pavement/Concrete?			
- Patched or Repaired Pavement/Concrete?			
- Other?			
<i>Vegetation Condition?</i>			
- Bare Spots?			
- Distressed Vegetation?			
- Ponded Water?			
- Other?			
<i>Soil Condition?</i>			
- Erosion?			
- Cracking?			
- Settling?			
- Sloughing?			
- Other?			

Former Hooker/Oxy/Ruco Polymer Site
125 New South Road
Hicksville, New York
Site-Wide Inspection Form

Inspection Checklist	Yes	No	Comments
Interior Cover System (this section applies if a building is constructed onsite)			
<i>Potential Evidence of Intrusive Activities?</i>			
- Floor Covering or Carpeting Patched, Repaired, or Replaced?			
- New Drainage Feature?			
- Evidence of a New Sub-slab Utility?			
Sub-Slab Depressurization System (this section applies if a building is constructed onsite and shall be modified as needed depending on the building plans)			
<i>Passive System?</i>			
- Wind Driven Turbine spinning freely and unobstructed?			
- Control Valves Operating and in the Open Position? If Not, Why?			
- Piping is Not Modified or Damaged?			
- System Labels are Present?			
<i>Active System?</i>			
- Electric Fan is Operating?			
- Control Valves Operating and in Open Position? If Not, Why?			
- Piping is Not Modified or Damaged?			
- System Labels are Present?			
- Warning Device/Indicator is Undamaged and Functioning Properly?			
<u>General Comments/Suggested Action Items:</u>			

Instructions:

1. *Soil Cover System Inspection:* For any inspection item where a box is checked "yes", identify the location of the observed condition on a site plan, take a photograph(s) to document the condition, and document the size of the affected area in the "comments" field above.
2. *General:* Take photographs from each of the four corners of the soil cover system (each photo facing diagonally across to the opposite corner) and take representative photographs showing conditions elsewhere around the site.

APPENDIX H

Field Sampling Plan



**Former Hooker Chemical/Oxy/Ruco
Polymer Corporation Site**

Field Sampling Plan

125 New South Road
Hicksville, New York
NYSDEC Site No. 130004

September 2017



A handwritten signature in black ink that reads "John C. Brussel".

John C. Brussel, PE
Principal Engineer

A handwritten signature in black ink that reads "L. Carey Healy III".

L. Carey Healy
Staff Environmental Engineer

Field Sampling Plan

Former Hooker
Chemical/Oxy/Ruco Polymer
Corporation Site
Hicksville, New York

Prepared for:
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Our Ref.:
B0032305.1701 #10

Date:
September 2017

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Attachments

- A Sample Chain-of-Custody Form
- B Electromagnetic Induction Survey EM31-D and EM34-3 Operating Procedures
- C Soil Description Procedures
- D Test Pit/Trenching Log
- E Photoionization Detector Air Monitoring and Field Screening Procedures
- F Building Survey and Building Inventory Form
- G Indoor Air/Ambient Air Sample Collection Log
- H Sub-Slab Soil-Gas Sample Collection Log
- I Tracer Gas Procedures
- J Investigation-Derived Waste Handling and Storage

1. Introduction

This Field Sampling Plan (FSP) was prepared on behalf of Covestro LLC (Covestro) to support the Site Management Plan (SMP) for the former Hooker Chemical/Oxy/Ruco Polymer site located at 125 New South Road, Hicksville, New York ("the Site").

This FSP contains field procedures and sample collection methods to be used to characterize environmental media as needed for future site redevelopment and utility installation and maintenance. The FSP includes procedures to: (1) collect, visually characterize, and analyze subsurface soil samples; (2) evaluate subsurface conditions and structures; and (3) collect and analyze indoor air (IA), and sub-slab soil-gas samples. Surface soil sampling is not anticipated to be needed because a minimum 1-foot thick soil cover system was installed across the majority of the Site as part of the final remedial activities. The cover system was constructed using imported clean fill that meets the commercial use soil cleanup objectives (SCOs) presented in Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375-6.8(b). Based on available analytical results for the remaining areas outside the cover system, no constituents have been found in that soil at concentrations exceeding the commercial SCOs.

Site background information, including a summary of the remedial investigation results and the remedial actions, are included in the SMP. The FSP should be used in conjunction with the Excavation Work Plan (EWP), the Quality Assurance Project Plan (QAPP), the Health and Safety Plan (HASP), and the Community Air Monitoring Plan (CAMP). The FSP, EWP, HASP, and CAMP only need to be executed for future intrusive work in designated areas below the demarcation layer located below the 1-foot soil cover system (i.e. in soil containing residual impacts).

The EWP outlines actions to be performed for any intrusive work that will penetrate the soil cover system, or encounter or disturb soil containing residual impacts, including any modification or repairs to the existing soil cover system. The QAPP outlines the procedures that will be used to ensure that data collected and subsequent reports are of high enough quality to meet project objectives, as well as a description of general field and laboratory procedures. The HASP presents the procedures and practices to be followed during ground-intrusive activities to promote the safety of workers, and is designed to prevent occupational injuries and worker exposures to chemical, physical and biological hazards. The CAMP provides a measure of protection for the downwind communities from potential airborne release of residual impacts during intrusive work

activities. The EWP, HASP, CAMP, and QAPP are provided as Appendices to the SMP.

1.1 Overview of Anticipated Characterization Field Activities

The following field characterization activities will potentially be performed in connection with future site redevelopment or maintenance:

- Conventional surveying
- Geophysical surveying
- Soil boring and sampling
- Test pit excavation
- Sub-slab soil gas (vapor) sampling
- Indoor air and ambient air sampling

The activities listed above are the anticipated activities to characterize environmental media, as needed, in connection with site redevelopment or maintenance. However, this list is not exhaustive. Environmental media characterization activities/procedures that are not included in this FSP, but are required for site redevelopment, will require New York State Department of Environmental Conservation (NYSDEC) approval prior to implementation.

2. Field Activities

This section describes in detail the field procedures and methodology potentially used for site redevelopment.

2.1 General Field Guidelines

All underground utilities will be identified prior to any drilling or subsurface sampling. Public and privately owned utilities will be located by contacting Dig Safely New York such that responsible agencies can mark their underground utilities at the Site. Other potential onsite hazards such as traffic, overhead power lines, and building hazards will be identified during a site reconnaissance visit. A geophysical survey (electromagnetic [EM] or ground penetrating radar [GPR]), radio-frequency line tracing, and/or vacuum boring/excavation (also referred to as “potholing” or “softdig”) may be conducted to provide an additional line of evidence for utility location and to identify potential unknown sub-grade structures.

Field log books will be maintained by the Field Manager/Site Supervisor and other team members to provide a daily record of significant events, observations, and measurements during the field investigation.

Information pertinent to the field investigation and/or sampling activities will also be recorded in the log books. The books will be bound with consecutively numbered pages. Entries in the log book will include, at a minimum, the following information:

- Name of author, date of entry, and physical/environmental conditions during field activity
- Purpose of sampling activity
- Location of sampling activity
- Name of field crew members
- Name of any site visitors
- Sample media (soil, groundwater, etc.)
- Sample collection method
- Number and volume of sample(s) taken
- Description of sampling point(s)
- Volume of groundwater removed before sampling (where appropriate)
- Preservatives used
- Date and time of collection
- Sample identification number(s)

- Field observations
- Any field measurements made, such as pH, temperature, conductivity, water-level, etc.

All original data recorded in field log books and Chain-of-Custody (COC) records will be written with indelible ink. If an error is made in these documents, the individual entering the data will make all corrections simply by crossing a single line through the error and entering the correct information. The erroneous information will not be erased or made illegible. Any subsequent error discovered on an accountable document will be corrected by the person who made the entry. All subsequent corrections will be initialed and dated.

2.2 Sampling Labeling, Packing, and Shipping

Each sample will be given a unique identification. With this type of identification, no two samples will have the same label.

Samples will be promptly labeled upon collection with the following information:

- Project number and site
- Unique sample identification
- Analysis required
- Date and time sampled
- Sample type (composite or grab)
- Preservative, if applicable

Clear tape will be secured over the sample label and the COC will be initiated. A sample COC form is included as Attachment A.

Appropriate sample containers, preservation methods, and laboratory holding times for each sample type will be applied as identified in the QAPP.

If samples are to be shipped by commercial carrier (e.g., UPS), sample bottles/jars will be packed in coolers containing the following:

- 1-2 inches of vermiculite or bubble wrap on the bottom of the cooler
- Water/ice packaged in re-sealable plastic bags
- Sufficient vermiculite or bubble wrap to fill in the remaining area

- The completed COC in a re-sealable plastic bag, taped in place on the inside cover of the cooler

The cooler will then be sealed with tape. If the cooler contains a drain plug, it must be sealed with duct tape. Appropriate shipping labels, such as "this-end-up" and "fragile" stickers will be affixed to the cooler. Samples will be hand-delivered or delivered by an express carrier within 48 hours of sample collection. The express carrier will not be required to sign the COC form; however, the shipping receipt should be retained by the sampler, and forwarded to the project files.

All samples, whether solids, liquids or gases, being shipped by air or ground transport will be evaluated using a Shipping Determination process to determine if the material or equipment being shipped is hazardous for transport. All materials identified as HazMat will be shipped according to applicable Department of Transportation and International Air Transport Association regulations and requirements. All employees collecting samples, preparing HazMat packages, or offering HazMat to a third party carrier such as FedEx will have current HazMat training.

2.3 Electromagnetic Survey

An electromagnetic (EM) conductivity survey may be performed to identify subsurface structures (e.g., dry wells, leach fields, process wells, tanks, piping, etc.) that may remain below grade or be installed as part of future development.

EM investigations will be conducted by qualified and experienced operators, such as an experienced field technician and/or geophysicist trained in the use and operation of the EM31/34 instruments. The EM operator will be experienced in evaluating data quality in the field and be able to adjust data acquisition procedures in response to variable site conditions in order to identify anomalies and resolve target features.

Operating procedures for conducting EM surveys will be in accordance to the Electromagnetic Induction Survey EM31-D and EM34-3 Operating Procedures included as Attachment B.

2.4 Ground Penetrating Radar

GPR may be used to investigate anomalies identified using EM. GPR investigations will be conducted by qualified and experienced operators, such as an experienced field technician and/or geophysicist. The GPR operator will be experienced in evaluating

data quality in the field and be able to adjust data acquisition procedures in response to variable site conditions in order to identify anomalies and resolve target features.

The following equipment will be available, as required, during GPR surveys.

- Appropriate personal protective equipment (PPE), as required in the site HASP
- Appropriate forms, Site plans, field notebook, spray paint and camera
- GSSI Model SIR-3000 radar instrument (or equivalent)
- A primary and, preferably, secondary antennae of appropriate signal frequency to match anticipated size and depth of targets
- Non-conductive measuring tape or measuring wheel
- Connecting cables and 12 volt-power source

The following 12 steps detail the GPR surveying procedures:

1. Become familiar with the details of the applicability and limitations of GPR.
2. Evaluate site-specific soil information to determine suitability of soils (clay content, saturation) for GPR.
3. Evaluate meteorological information regarding recent or forecasted precipitation that could impact soil moisture content and GPR effectiveness. Schedule GPR surveys appropriately.
4. Perform site reconnaissance in advance to identify potential sources of surface interference such as reinforced concrete, large metal objects, or electrical generators).
5. Consider complimentary technologies to supplement GPR and provide multiple lines of evidence. Technologies may include radio frequency, magnetic, and/or electromagnetic surveys.
6. Employ only qualified and experienced GPR operators. For utility locating and mapping applications, the GPR operator should be specifically experienced in evaluating data quality and identifying anomalies in the field requiring variations in data acquisition procedures to positively interpret and locate targets of concern.
7. Consider the depth and size of subsurface features that GPR will be used for identification. Attempt to match the signal frequency to the expected depth and

size of the subsurface feature. Change antennae as necessary for variable depths and sizes of target objects. Consider the selection of a primary and secondary choice of antennae, and use multiple antennae as necessary. Evaluate GPR for known utility locations and/or relative to EM results, as an indication of potential effectiveness.

8. Establish a reference grid over the area to be investigated and identify traverse locations in the field notebook or on a site plan map.
9. Select and input a dielectric constant into the GPR unit based on knowledge of the type of subsurface materials. Bear in mind that the dielectric constant is an approximation based on assumed subsurface materials and may vary based on the variability of the subsurface materials. The dielectric constant is necessary to estimate the depth of a target, but should be considered an approximation not an absolute. Multiple passes over a known utility may be necessary using different dielectric constants before an accurate depth to a target can be estimated.
10. The pace at which the GPR unit is moved along a traverse affects the target resolution. It is recommended that an initial starting pace should be approximately 1.5 feet (0.5m) per second and modified if necessary during field operations. Appropriate pacing can be determined in advance if the size of the smallest target is known.
11. Record GPR data while slowly pulling the antenna along each survey traverse. Annotate the record at even distance increments (10 feet, or as needed) using the antenna's marker switch.
12. Multiple traverses in opposite directions over the area being scanned are recommended. A difference in data output for passes conducted in opposing directions may warrant a third pass. This is not necessarily reflective of poor data, but may indicate that anomalies observed are dipping at some angle from horizontal with the ground surface.

Data processing and analysis will be conducted in accordance with the manufacturer's recommendations and industry practice. Processed data is available in electronic form and as a paper printout. A copy of the field printout should be included in the project files along with the field notebook. Electronic data (raw and processed) should be maintained in accordance with data management procedures as outlined in the QAPP.

2.5 Equipment Decontamination

Equipment decontamination is performed to ensure that sampling equipment that contacts a sample, or monitoring equipment that is brought into contact with environmental media to be sampled, is free from constituents that would interfere with laboratory analysis for analytes of interest. Equipment must be cleaned prior to use onsite for sampling or contact with environmental media, and prior to shipment or storage.

Equipment that may require decontamination at a given site includes: heavy equipment (such as drill rigs); soil sampling tools; and other activity-specific sampling equipment. Non-disposable equipment will be cleaned before collecting each sample, between sampling events, and prior to leaving the site. Dedicated and/or disposable (not to be re-used) sampling equipment will not require decontamination.

The following subsections detail decontamination procedures for heavy equipment, such as a drill rig, and sampling equipment.

2.5.1 Heavy Equipment Decontamination

The following equipment will be required for use during heavy equipment cleaning procedures:

- Appropriate PPE, as required in the site HASP
- Shop vacuum
- Lint-free absorbent towels
- 6-mil polyethylene sheeting
- Assorted scrub brushes
- Waste disposal drums
- Cleaning fluids, such as Knights Super Kleen, Simple Green, Aquanex MC, Zep Formula 50, Zep Big Orange, or equal
- Aluminum duct tape
- Oil/water absorbent Speedi-Dry compounds

A decontamination pad will be lined with plastic sheeting on a surface sloped to a sump. The sump must also be lined and of sufficient volume to contain approximately 20 gallons of decontamination water. All drilling equipment, including rear-end of drilling rig, augers, bits, rods, tools, split spoon samplers, and tremie pipe, will be cleaned on the decontamination pad with a high pressure hot water "steam cleaner"

unit and scrubbed with a wire brush, as needed, to remove dirt, grease, and oil before beginning work in the project area. Prior to using water for cleaning equipment, the entire piece of equipment will be pre-cleaned to remove all loose dust, dirt, and scale using a shop vacuum designed for solid material, supplemented by scraping, chipping, and spot cleaning with solvent or detergent to remove encrusted materials. If heavy accumulations of tars or oils are present on the downhole tools, a citrus-based cleaner (e.g., Citra-Solv®) may be used to aid in equipment cleaning. Tools, drill rods, and augers will be placed on sawhorses, decontaminated pallets, or polyethylene plastic sheets following steam cleaning. Direct contact with the ground will be avoided. The back of the drill rig and augers, rods, and tools will be decontaminated between each drilling location according to the above procedures, unless otherwise approved. Decontamination water will be contained in a dedicated plastic tank or 55-gallon open-top drums located on site. All open-top drums will remain closed when not in use.

Following decontamination of all heavy site equipment, the decontamination pad will be decommissioned. The decommissioning will be completed by:

- Transferring the bulk of the remaining liquids and solids into the drums, tanks, and roll-offs.
- Rolling the sheeting used in the decontamination pad onto itself to prevent discharge of the remaining materials to the ground surface. Once rolled up, the polyethylene sheeting will be placed in the roll-off or drums used for disposal of PPE and disposable equipment.

2.5.2 Sampling Equipment Decontamination

The following equipment will be required for use during sampling equipment cleaning procedures:

- Appropriate PPE, as required in the site HASP
- Distilled water
- Non-phosphate detergent such as Alconox (or equivalent)
- Tap water
- Rinsate collection plastic containers
- DOT-approved waste shipping container(s),
- Brushes
- Large heavy-duty garbage bags
- Spray bottles

- (Optional) – “pesticide grade” Methanol
- (Optional) – “ultra-pure grade” Nitric Acid
- (Optional) – Hexane
- Ziploc-type bags
- Plastic sheeting

Prior to every entry into each borehole, all non-dedicated bowls, spoons, hand augers, bailers, and filtering equipment will be washed with potable water and a detergent (such as Alconox). Decontamination may take place at the sampling location as long as all liquids are contained in pails, buckets, etc. The sampling equipment will then be rinsed with potable water, followed by a 10% “pesticide-grade” methanol rinse, and finally a distilled water rinse. When sampling for inorganic constituents in an aqueous phase, an additional rinse step will be added prior to the rinse with methanol. The rinse step will entail a rinse with a 10% “ultra-pure grade” nitric acid followed by a distilled water rinse. In addition, when sampling for PCBs in an aqueous phase, an additional rinse step using 10% hexane (followed by a distilled water rinse will be completed prior to the methanol rinse. Between rinses, equipment will be placed on polyethylene sheets or aluminum foil, if necessary. At no time will washed equipment be placed directly on the ground. Equipment will be either be used immediately or wrapped in plastic or aluminum foil for storage or transportation from the designated decontamination area to the sampling location.

Equipment decontamination rinsate will be managed in conjunction with all other waste produced during the field sampling effort. Waste management procedures are outlined in the EWP.

2.6 Soil Drilling Procedures

The drilling and geological logging methods to be used during the subsurface investigation are as follows:

- Boreholes in the overburden will be drilled using hollow stem auger or direct push techniques. If difficult drilling conditions are encountered in the subsurface soils, alternate drilling methods may be used.
- Boreholes drilled using hollow stem augers will be advanced using a drill rig equipped with 2.25- to 4.25-inch (inner diameter) hollow stem augers. Soil samples will be collected continuously to the bottom of the borings using 2-foot-long, 2-inch diameter discrete split spoon samplers advanced 2 feet per sampling run.

Sampling method ASTM D1586-84 (Standard Method for Penetration Test and Split-Barrel Sampling of Soils) will be followed, unless otherwise authorized by the Field Manager/Site Supervisor.

- Boreholes drilled using direct push techniques will be advanced using either a truck or tractor mounted push/percussion drill rig. Soil samples will be collected continuously to the bottom of the borings using 2- or 4-foot-long, 2-inch diameter Macrocore® samplers, equipped with disposable polyvinyl chloride liners, advanced 2 to 4 feet per sampling run.
- For samples that may be submitted for chemical analysis, split spoons will be decontaminated, as specified in Section 2.5.2, between uses. Sample descriptions, portable photoionization detector (PID) readings, and location will be recorded in the field book.
- Where a boring cannot be advanced to the desired depth, the boring will be abandoned and an additional boring will be advanced at an adjacent location to obtain the required sample.
- Upon completion of each boring, the borehole will be sealed with a bentonite/ cement grout tremied in place from the bottom of the borehole up, or other method with NYSDEC approval.
- A plywood sheet or tub may be placed around the auger or casing when drilling to contain cuttings.
- Cuttings will be placed in a drum or roll off supplied by the drilling subcontractor. Decontamination water will be placed in drums or plastic tanks supplied by the drilling subcontractor. Soil cuttings and decontamination water will be picked up and containerized at the end of each work day. The roll-offs or open-top drums used to contain the solids will be covered when not in use.

Pertinent notes regarding the drilling work will be recorded in the field book.

2.7 Soil Characterization and Sampling Procedures

Soils encountered while drilling soil borings will be collected using one of the following methods:

- 2-inch split-barrel (split-spoon) sampler, if using the ASTM D 1586 – Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils
- Plastic internal soil sample sleeves if using direct-push drilling.

Soils will be screened with a PID where volatile organic compounds (VOCs) are or may be present in the subsurface. Field screening is performed using one of the following methods:

- Upon opening the sampler, the soil is split open and the PID probe is placed in the opening and covered with a gloved hand. Such readings should be obtained at several locations along the length of the sample
- A portion of the collected soil is placed in a jar, which is covered with aluminum foil, sealed, and allowed to warm to room temperature. After warming, the cover is removed, the foil is pieced with the PID probe, and a reading is obtained.

A geologist or other qualified professional will be onsite during drilling and sampling operations to describe each soil interval on the soil boring log, as discussed in the section below.

Samples selected for laboratory analysis will be based on:

- Their position in relation to potential source areas
- The visual presence of source materials
- The relative VOC levels based on PID field screening measurements
- The discretion of the field manager

Samples selected for laboratory analysis will be placed in the appropriate containers provided by the laboratory. Sample containers for VOC analyses will be filled first. Next, a sufficient amount of the remaining soil will be homogenized by mixing the sample in a decontaminated stainless steel tray or bowl with a decontaminated stainless steel trowel or disposable scoop. Laboratory-supplied sample containers for other analytes will then be filled. Duplicate samples will be collected at the frequency detailed in the QAPP (Appendix F) by alternately filling two sets of sample containers.

A geologist or other qualified professional will be onsite during drilling and sampling operations to describe each soil interval on the soil boring log, as discussed in the section below.

2.8 Sample Description

Collected samples will be described by persons who have been trained in soil description procedures and have a degree in geology or a geology-related discipline. The procedures that will be followed for describing soils are contained in Attachment C.

2.9 Test Pit Excavation

Test pits will be excavated using a decontaminated track-mounted backhoe (or equivalent) as appropriate.

The following materials will be available, as required, during test pit excavation:

- Appropriate PPE, as required in the site HASP
- Backhoe with bucket
- Shovel
- Plastic sheeting
- Stainless steel shovel, scoop, hand auger, or hand trowel
- Stainless steel pan
- Appropriate sample containers and packing materials, if required
- Potable water
- Steam cleaning equipment
- PID
- Camera/video camera
- Sample containers and forms
- Test pit/trench log
- Ground stakes

The following procedures will be followed during test-pit excavation:

1. Identify the test pit/trench number on an appropriate log or in the designated field notebook, along with the temperature, weather, date, time, and personnel at the site.
2. Set up decontamination station and decontaminate the backhoe, bucket, shovel, and other sampling apparatus with a high-pressure steam rinse using a tap water source.

3. Put on appropriate health and safety equipment.
4. Place the plastic sheeting on the ground next to the test pit/trench location.
5. Position backhoe and personnel at upwind (to the extent feasible) locations of the test pit/trench area.
6. Turn on the PID. Measure and record on the test pit/trench log background PID readings on the log or in the field book.
7. Excavate the soil with the backhoe in approximately one-foot increments. At each interval, examine and classify the soils in accordance with the Unified Soil Classification System. Record these observations in the test pit/trench log or field book. Also screen the soil samples with a PID. These measurements will also be recorded in the test pit/trench log (Attachment D).
8. If the contents of the test pit/trench visually appear to consist of site residues, the test pit/trench contents may be sampled. If sampling is required, the test pit/trench will be sampled with a shovel if the test pit/trench is less than 3 feet deep. If the test pit/trench is greater than three feet deep, then the test pit/trench will be sampled with the backhoe bucket. The contents of the bucket will then be sampled with a cleaned stainless steel hand trowel.
9. If sampling is required, the samples will be collected in the appropriate containers and placed immediately in a cooler of wet ice to maintain a 4°C temperature for preservation. VOC samples will be collected immediately after sample retrieval. Next, a sufficient amount of the remaining soil will be removed from the sampling device and homogenized by mixing thoroughly in a clean stainless steel pan with a clean stainless steel trowel. Samples will be selected for analytical characterization if visible residues are present and/or relatively high PID screening readings are measured and analytical data is not already available for that area.
10. The test pit/trench will be terminated when significant residues are encountered, at the limit (reach) of the backhoe, or when refusal (whichever is encountered first).
11. Soils generated during drilling may be staged on plastic sheeting or plywood, as appropriate, during excavation. Soils will be monitored for PID readings and visual observations, and then placed back into the test pit/trench. Clean fill will be placed at the surface.

12. A labeled stake will be placed at the test pit/trench location.
13. A photograph of each location before, during, and after each test pit/trench is excavated will be taken.
14. The backhoe, backhoe bucket, and all tools used at the test pit/trench area will be decontaminated using a high-pressure steam rinse from a potable water source. Decontamination water and residual materials associated with decontamination will be contained.

2.10 Air Monitoring

Air monitoring during soil investigation activities (drilling soil borings and excavating test pits) will be conducted in accordance with the procedures detailed in the HASP and CAMP. Air monitoring will be conducted with a PID and dust monitor during all intrusive land activities and only a PID during sampling activities. The PID will be used to monitor organic vapors in the breathing zone and downwind area, and to screen samples for analysis. The dust monitor will be used to monitor particulate concentration in the breathing zone and downwind area for particulates less than 10 microns in diameter.

The PID and dust monitor readings will be recorded in the field book during trenching and drilling activities. The instruments will be calibrated at least once each day and more frequently if needed. A detailed procedure for the PID calibration is included as Attachment E.

2.11 Indoor Air and Ambient Air Sampling

Indoor air and ambient air samples may be collected and analyzed for VOCs using United States Environmental Protection Agency (USEPA) Method TO-15 (TO-15). The TO-15 method uses SUMMA[®] passivated stainless steel canisters (typically 1- to 6-liter in size). For purposes of this FSP, procedures for collecting indoor air and ambient air sampling will describe collecting a sample using a 6-liter SUMMA[®] canister.

The equipment required for indoor air/ambient air sample collection is presented below:

- Stainless steel SUMMA[®] canister (order at least one extra, as vacuum seals may leak in transport or during sample collection).

- Flow controllers with in-line particulate filters and vacuum gauges (flow controllers are pre-calibrated by the laboratory to a specified sample duration [e.g., 8-hour]). Confirm with lab that flow controller is equipped with an in-line particulate filter and pressure gauge (order an extra set for each extra SUMMA® canister, if feasible).
- Appropriate-sized open-end wrenches (typically 9/16-inch).
- PID (for use identifying potential background sources during building survey).
- Portable weather meter, if appropriate.
- Box, chair, tripod, or similar to hold canister at breathing zone elevation.
- Teflon® sampling tubing may be used to sample abnormal situations (e.g., sumps, where canisters must be hidden). In these situations ¼-inch Swagelock fittings or other methods may be appropriate to affix tubing to canister. Staff should check this before heading out into the field.
- Building survey and product inventory form (Attachment F), indoor air/ambient air sample collection log (Attachment G), site plans, field notebook, COC, and camera (if photography is permitted at sampling locations).

Care must be taken to minimize the potential for introducing interferences during the sampling event. As such, keep ambient air canisters away from heavy pedestrian traffic areas (e.g., main entranceways, walkways) if possible. If the canisters are not to be overseen for the entire sample duration, precautions should be taken to maintain the security of the sample (e.g., do not place in areas regularly accessed by the public, fasten the sampling device to a secure object using lock and chain, label the canister to indicate it is part of a scientific project, notify local authorities, place the canister in secure housing that does not disrupt the integrity/validity of the sampling event). Sampling personnel should not handle hazardous substances (such as gasoline), permanent marking pens (sharpies), wear/apply fragrances, or smoke cigarettes before and/or during the sampling event.

Ensure that the flow controller is pre-calibrated to the proper sample collection duration (confirm with laboratory). Sample integrity can be compromised if sample collection is extended to the point that the canister reaches atmospheric pressure. Sample integrity is maintained if sample collection is terminated prior to the target duration and a measurable vacuum (e.g., 7-inches Hg) remains in the canister when sample collection is terminated.

The following procedures will be followed during initial building survey for indoor air samples (if applicable):

1. Complete the appropriate building survey form and product inventory form (Attachment F).
2. Survey the area for the apparent presence of items or materials that may potentially produce or emit constituents of concern and interfere with analytical laboratory analysis of the collected sample. Record relevant information on survey form and document with photographs.
3. Record date, time, location, and other relevant notes on the sampling form.
4. Items or materials that contain constituents of concern and/or exhibit elevated PID readings shall be considered probable sources of VOCs. Request approval of the owner or occupant to have these items removed to a structure not attached to the target structure at least 48 hours prior to sampling, if possible.
5. Set a date and time with the owner or occupant to return for placement of SUMMA® canisters.

The following procedures will be followed to prepare SUMMA® canister and collect sample:

1. Record the ambient temperature, barometric pressure, wind speed, and relative humidity. Weather data should be obtained from a hand-held weather meter, the local airport's listing, or other suitable weather source (e.g., weatherunderground.com).
2. Choose the sample location in accordance with the sampling plan. If a breathing zone sample is required, place the canister on a ladder, tripod, box, or other similar stand to locate the canister orifice 3 to 5 feet above ground or floor surface. If the canister will not be overseen for the entire sampling period, secure the canisters as appropriate (e.g., lock and chain). Canister may be affixed to wall/ceiling support with nylon rope or placed on a stable surface. In general, areas near windows, doors, air supply vents, and/or other potential sources of "drafts" shall be avoided.
3. Record SUMMA® canister serial number and flow controller number on the sampling log and COC form. Assign sample identification on canister ID tag, and record on the sample collection log (Attachment G), and COC form.

4. Remove the dust cap from the SUMMA® canister. Attach the flow controller with in-line particulate filter and vacuum gauge to the SUMMA® canister with the appropriate-sized wrench. Tighten with fingers first, then gently with the wrench. Use caution not to over tighten fittings.
5. Open the SUMMA® canister valve to initiate sample collection. Record the date and local time (24-hour basis) of valve opening on the sample collection log, and COC form. Collection of duplicate samples will include collecting two samples side by side at the same time.
6. Record the initial vacuum pressure in the SUMMA® canister on the sample log and COC form. If the initial vacuum pressure registers less than -25 inches of Hg, then the SUMMA® canister is not appropriate for use and another canister should be used.
7. Take a photograph of the SUMMA® canister and surrounding area, if possible.
8. Check the SUMMA® canister approximately half way through the sample duration and note progress on sample logs.

The following procedures will be followed to terminate sample collection:

1. Arrive at the SUMMA® canister location at least 1-2 hours prior to the end of the sampling interval (e.g., 8-hour, 24-hour).
2. Stop collecting the sample when the canister vacuum reaches approximately 7 inches of Hg (leaving some vacuum in the canister provides a way to verify if the canister leaks before it reaches the laboratory) or when the desired sample time has elapsed.
3. Record the final vacuum pressure. Stop collecting the sample by closing the SUMMA® canister valve. Record the date, local time (24-hour basis) of valve closing on the sample collection log, and COC form.
4. Remove the particulate filter and flow controller from the SUMMA® canister, reinstall brass cap on canister fitting, and tighten with wrench.

5. Package the canister and flow controller in the shipping container supplied by the laboratory for return shipment to the laboratory. The SUMMA® canister does not require preservation with ice or refrigeration during shipment.
6. Complete the appropriate forms and sample labels as directed by the laboratory (e.g., affix card with string). Complete COC form and place requisite copies in shipping container. Close shipping container and affix custody seal to container closure. Ship to laboratory via overnight carrier (e.g., Federal Express) for analysis.

2.12 Sub-Slab Soil-Gas Sampling

Sub-slab soil-gas samples will be collected and analyzed for VOCs using USEPA Method TO-15. The TO-15 method uses SUMMA® passivated stainless steel canisters (typically 1- to 6-liter in size). Depending on circumstances, sub-slab soil-gas samples will be collected via either a temporary or permanent sampling probe. If the probe will be used for sampling more than once, a permanent sampling probe is recommended.

Sub-slab probe installation should be completed 24 hours in advance or after any indoor air sampling to avoid cross-contamination of indoor air samples.

The following subsection details sub-slab soil-gas probe installation (for both permanent and temporary probes). The procedures for the actual sub-slab soil-gas collection are contained in subsection 2.12.2.

2.12.1 Soil-Gas Probe Installation

The equipment required for the installation of the soil-gas probe is presented below:

- Appropriate PPE (e.g., work gloves, nitrile gloves, knee pads, and PPE required by site specific HASP and the job safety analysis [JSA]).
- Heavy duty electronic hammer drill (e.g., Bosch or Hilti), ground fault circuit interrupter, and an extension cords rated for amperage for hammer drill).
- ½ inch-diameter and 1½-inch diameter (if installing permanent probe) concrete drill bits for impact drill (drill bit length contingent on slab thickness).
- Hand tools including open-end wrench (typically 9/16-inch), pliers, channel lock pliers, tubing cutter, etc.
- ¼-inch outside diameter (OD) tubing (Teflon®, nylon, or Teflon®-lined).

- Hydrated bentonite, VOC-free modeling clay that complies with ASTM D4236 (McMaster Carr 6102T11 recommended) or wax to seal drill hole (if installing temporary probe).
- Decontaminated stainless steel vapor probe (typically 1/4-inch OD stainless steel tubing, 1/4-inch Swagelok by 1/4-inch Swagelok female coupling [or equivalent], 1/4-inch Swagelok cap: if installing permanent probe).
- Extra 1/4-inch Swagelok front and back compression sleeves (if installing permanent probe).
- Stainless steel washers (if installing permanent probe).
- Quick-setting non-shrink grout powder, and disposable cups and spoons for mixing grout (if installing permanent probe).
- Spray bottle with potable water and paper towels.
- Teflon® tape.
- Whisk broom, dust pan, bottle brush, and shop vacuum with clean fine-particle filter.
- Plastic sheeting.

Temporary sub-slab soil-gas probes are installed using equipment and procedures that allow the point to be installed quickly and abandoned after an initial sample is collected. If the probe is to be sampled more than once, a permanent sub-slab soil-gas probe is recommended. A permanent sub-slab probe is similar to a temporary probe, but it includes inserting a vapor probe into a concrete slab hole (permanent sub-slab probes may be formed when pouring concrete to construct the building slab or following building construction). The vapor probe is grouted with a quick-setting non-shrink grout powder and equipped with a plug. The cap is removed and a compression fitting nut and ferrules are used to allow collection of a soil gas sample through Teflon® tubing. Procedures for installing a sub-slab soil-gas probe following building construction are detailed below:

1. Select a probe location that is free of utilities and safe to drill. The probe location should be installed at a minimum of 5 feet from an exterior wall with a 10 foot preference, if possible.
2. Remove any covering on top of the slab, as needed, and lay down plastic sheeting to keep work area clean. Check to make sure shop vacuum is working properly and fine concrete dust particles will not pass through filter.

3. Drill a ½-inch-diameter hole into the concrete slab using the electric drill. Do not fully penetrate the slab at this time. Stop drilling approximately 1 inch short of penetrating the slab.

If a permanent probe is being installed, the ½-inch diameter hole should be drilled within a 1½-inch diameter hole that extends approximately 1½ inches into the slab. This 1½-inch hole is drilled deep enough to permit the top of a permanent coupling (described in Step 10b below) to be set flush with the slab when the ¼-inch tubing is inserted into the ½-inch hole drilled.

4. Use the shop vacuum, bottle brush and dust broom to clean up the work area and material that may have fallen into and around the drill hole.
5. Advance the ½-inch drill bit the remaining thickness of the slab and approximately 3 inches into the sub-slab material to create an open cavity. Record any observations from the drill cuttings, if possible, regarding approximate soil types and presence or absence of a plastic sub-slab sheet.
6. Use the bottle brush, whisk broom, and dust pan to quickly clean material around and within the hole. The hole should not be left open for any extended length of time to ensure that VOCs below the slab do not migrate into indoor air. Do not use the shop vacuum to clean up the drill hole after the full thickness of the slab has been penetrated.
7. Re-drill the ½-inch hole to ensure it remains clear. This can also be accomplished using a piece of steel rod, sample tubing, or even a piece of heavy wire (coat hanger).
8. Install a temporary sub-slab probe as detailed in Steps 9a-9d below or install a permanent sub-slab probe as detailed in Steps 10a-10g below.
9. Install a temporary sub-slab probe using the procedures below:
 - a. Wrap the tubing with Teflon® tape or modeling clay, to the extent necessary, for a snug fit of tubing and hole.
 - b. Insert the tubing approximately 2 to 3 inches into the slab; tubing should not contact material beneath the slab. Tubing should be capped with clay or other fitting so it does not provide a pathway for vapor movement.

- c. Prepare a hydrated bentonite mixture and apply bentonite at slab surface around the tubing. Instead of hydrated bentonite, either VOC free modeling clay (McMaster-Carr #6102T11) or wax may be used for the temporary seal around the tubing where it enters the slab.
 - d. Proceed to soil-gas sample collection after waiting a minimum of 1 hour for equilibrium following probe installation.
10. Install a permanent sub-slab probe using the procedures below:
- a. Assemble the sample probe assembly (stainless steel tubing, stainless steel Swagelok coupling, Swagelok nut). Teflon[®] tape should never be used with Swagelok connections.
 - b. Using an assembled sample probe assembly, test fit the components so that the proper length of ¼-inch tubing and depth of the 1½-inch hole provides enough space for the stainless steel coupling. Adjust so that the coupling will lie flush with the slab surface and does not create a tripping hazard.
 - c. Wrap the sample probe assembly with Teflon tape, to the extent necessary, for a snug fit of the assembly and hole. Teflon tape or stainless steel washers can also be used to achieve the proper depth of the sample probe assembly. Ensure that Teflon tape or stainless steel washers do not interfere with the cement that will be used to permanently fix and seal the sample probe.
 - d. Prepare a mixture of nonshrink cement and water according to the manufacturer's directions in a disposable cup using a plastic spoon for mixing.
 - e. Cement in the sample probe using the plastic spoon to apply the cement into the annular space between the coupling and the 1½-inch drill hole. Before cementing in the sample probe, moisten the bore hole with the spray bottle to provide better adhesion.
 - f. Replace the surface covering (e.g., carpet) if warranted. Sample collection location should be returned to pre-sampling conditions to the extent feasible given the presence of a permanent probe.
 - g. All permanent sub-slab sample probes should be allowed to sit and equilibrate for a minimum of 24 hours before proceeding to sample collection.

2.12.2 Sub-Slab Soil-Gas Sampling

The equipment required for sub-slab soil-gas sample collection is presented below:

- Appropriate PPE (e.g., work gloves, nitrile gloves, knee pads, and PPE required by site specific HASP and the JSA).
- 1, 3, or 6-liter stainless steel SUMMA® canisters (order at least one extra, if feasible) (batch certified canisters or individual certified canisters as required by the project).
- Flow controllers with in-line particulate filters and vacuum gauges; flow controllers are pre-calibrated to specified sample duration (e.g., 30 minutes, 8 hours, 24 hours) or flow rate (e.g., 200 milliliters per minute [mL/min]); confirm with the laboratory that the flow controller comes with an in-line particulate filter and pressure gauge (order at least one extra, if feasible).
- ¼-inch inner diameter (ID) tubing (Teflon®, or similar) and two 3-inch lengths of ¼-inch OD Teflon tubing.
- ¼-inch Swagelok by 1/8-inch national pipe thread (NPT) male stainless steel coupling.
- Extra ¼-inch Swagelok front and back compression sleeves and Swagelok fittings.
- Decontaminated stainless steel Swagelok or comparable “T” fitting and needle valve for isolation of purge pump.
- Stainless steel duplicate “T” fitting provided by the laboratory (if collecting duplicate samples).
- Portable vacuum pump capable of producing very low flow rates (e.g., 100 to 200 mL/min) with vacuum gauge.
- Rotameter or an electric flow sensor if vacuum pump does not have an accurate flow gauge (Bios DryCal or equivalent).
- Tracer gas testing supplies.
- Appropriate-sized open-end wrench (typically 9/16-inch and ½-inch).
- Tedlar® bag to collect purge air or length of tubing sufficient to vent it outside the structure.
- Portable weather meter, if appropriate.
- PID.
- Quick setting grout or Sika Flex joint sealer to seal abandoned holes (if using a temporary sub-slab probe).
- Sub-slab soil-gas sample collection log (Attachment H), site plans, field notebook, COC, and camera (if photography is permitted at sampling locations).

Once a sub-slab sample probe is installed, the following procedures should be used to collect the sample in a SUMMA[®] canister.

1. Record the ambient temperature, barometric pressure, wind speed, and relative humidity. Weather data should be obtained from a hand-held weather meter, the local airport's listing, or other suitable weather source (e.g., weatherunderground.com).
2. Assemble the sample train by removing the cap from the SUMMA[®] canister and connecting the Swagelok T-fitting to the can using a short length of 1/4-inch OD stainless steel tubing. The flow controller with in-line particulate filter and vacuum gauge is then attached to the T-fitting. The Swagelok two-way valve is connected to the free end of the T-fitting using a short length of 1/4-inch OD Teflon tubing.
3. When collecting duplicate or other quality assurance/quality control samples as required by applicable regulations and guidance, couple two SUMMA[®] canisters using stainless steel Swagelok duplicate sample T-fitting supplied by the laboratory. Attach flow controller with in-line particulate filter and vacuum gauge to duplicate sample T-fitting provided by the laboratory.
4. Perform a leak-down-test by replacing the nut which secures sample tubing with the cap from the canister. This will create a closed system. Open the canister valve and quickly close it; the vacuum should increase approaching 30 inches Hg. If there are no leaks in the system this vacuum should be held. If vacuum holds proceed with sample collection; if not attempt to rectify the situation by tightening fittings.
5. Connect the flow controller to the sub-slab sampling probe as follows:
 - a. If connecting to temporary sub-slab sampling probe, attach Teflon sample tubing from the temporary probe to the flow controller using Swagelok fittings.
 - b. If connecting to permanent sub-slab sampling probe, install the male threaded fitting into the sub-slab port and connect the male threaded coupling fitting and the flow controllers using a length of Teflon sample tubing.
6. Connect the two-way valve and the portable purge pump using a length of Teflon[®] sample tubing.

7. Record on the sample log and COC form the flow controller number with the appropriate SUMMA® canister number.
8. If appropriate, the seal around the soil-gas sampling port and the numerous connections comprising the sampling train will be evaluated for leaks using helium as a tracer gas. The helium tracer gas will be administered according to the methods established in the appropriate guidance documents and Attachment I.
9. Open the two-way valve and purge the soil-gas sampling port and tubing with the portable sampling pump. Purge approximately three volumes of air from the soil-gas sampling port and sampling line using a flow rate of 200 mL/min or less. Purge air will be collected into a Tedlar bag to provide that VOCs are not released into interior spaces. Measure organic vapor levels and tracer gas within the Tedlar bag, as appropriate. Purge volume is calculated by the following equation:
$$V_{\text{purge}} = 3\pi \times R^2_{\text{inner tubing}} \times L_{\text{tubing}}$$
10. Close the two-way valve to isolate the purge pump.
11. Open the SUMMA® canister valve to initiate sample collection. Record on the sample log (attached) the time sampling began and the canister pressure. If the initial vacuum pressure registers less than -25 inches of Hg, then the SUMMA® canister is not appropriate for use and another canister should be used. Sampling flow rate should be 200 mL/min or less.
12. Take a photograph of the SUMMA® canister and surrounding area, if possible.
13. Check the SUMMA® canister approximately half way through the sample duration and note progress on sample logs.

The following procedures will be followed to terminate sample collection:

1. Arrive at the SUMMA® canister location at least 1-2 hours prior to the end of the sampling interval (e.g., 8-hour, 24-hour).
2. Stop collecting the sample when the canister vacuum reaches approximately 7 inches of Hg (leaving some vacuum in the canister provides a way to verify if the canister leaks before it reaches the laboratory) or when the desired sample time has elapsed.

3. Record the final vacuum pressure. Stop collecting the sample by closing the SUMMA® canister valve. Record the date, local time (24-hour basis) of valve closing on the sample collection log, and COC form.
4. Disconnect sample tubing from sub-slab probe as follows:
 - a. If connected to temporary sub-slab sampling probe, remove tubing and grout the hole in the slab with quick-setting hydraulic cement powder, Sika-Flex, or other material similar to the slab. This step must be done carefully to ensure that the abandoned sampling point does not become a preferential flow pathway.
 - b. If connected to permanent sub-slab sampling probe, disconnect sample tubing from the sample probe and replace flush-mount cap or Swagelok nut.
5. Remove the particulate filter and flow controller from the SUMMA® canister, reinstall brass cap on canister fitting, and tighten with wrench.
6. Package the canister and flow controller in the shipping container supplied by the laboratory for return shipment to the laboratory. The SUMMA® canister does not require preservation with ice or refrigeration during shipment.
7. Complete the appropriate forms and sample labels as directed by the laboratory (e.g., affix card with string). Complete COC form and place requisite copies in shipping container. Close shipping container and affix custody seal to container closure. Ship to laboratory via overnight carrier (e.g., Federal Express) for analysis.
8. Replace the surface covering (e.g., carpet) to the extent practicable. Sample collection location should be returned to pre-sampling conditions.

2.13 Investigation Derived Waste and Storage

Investigation-derived wastes (IDW) will be generated during site activities, which include, but are not limited to drilling, trenching/excavation, soil sampling, and decontamination. IDW may include soil, drilling fluids, decontamination liquids, PPE, sorbent materials, construction and demolition debris, and disposable sampling materials that may have come in contact with potentially impacted materials. IDW will be collected and staged at the point of generation. Quantities small enough to be

containerized in 55-gallon drums will be taken to a designated temporary storage area onsite pending characterization and disposal. Waste materials will be analyzed for constituents of concern to evaluate proper disposal methods. PPE and disposable sampling equipment will be placed in DOT-approved drums prior to disposal and typically does not require laboratory analysis.

The procedures for handling IDW are based on the USEPA's *Guide to Management of Investigation Derived Wastes* (USEPA, 1992). IDW is assumed to be contaminated with the site residuals until analytical evidence indicates otherwise. IDW will be managed to ensure the protection of human health and the environment and will comply with all applicable or relevant and appropriate requirements (ARARs). The following Laws and Regulations on Hazardous Waste Management are possible ARARs for this Site.

- 6 NYCRR Part 364 "Waste Transporter Permits" and Part 372 "Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities".
- Resource Conservation and Recovery Act (RCRA) 42 USC § 6901-6987
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) 42 USC § 9601-9675
- Superfund Amendments and Reauthorization Act (SARA)
- Department of Transportation (DOT) Hazardous Materials Transportation

The necessary equipment, field procedures, materials, regulatory references, and documentation procedures necessary for proper handling and storage of IDW up to the time it is properly disposed are included in Attachment J.

3. Field Instruments

At a minimum, all field screening equipment will be calibrated immediately prior to each day's use. Additional calibration may be required if measurements appear erroneous. The calibration procedures will conform to the manufacturer's standard instructions. Records of all instrument calibration will be maintained by the field personnel. Copies of all of the instrument manuals will be maintained on site by the field personnel.

3.1 Electromagnetic Conductivity Meter

The electromagnetic conductivity meter will be a Geonics Limited EM31-D and EM34-3 Terrain Conductivity Meter (or equivalent) and will be calibrated by the manufacturer. A calibration check will be performed prior to data collection each day to monitor any drifts in calibration. If there is a drift in calibration, the quality factor compensation control will be adjusted until the meter reads the background terrain conductivity determined at the start of the survey. The calibration data will be recorded in field notebooks.

3.2 Ground Penetrating Radar

The ground penetrating radar will be a GSSI Model SIR-3000 radar instrument (or equivalent) and will be calibrated and maintained in accordance with the manufacturer's specifications. Calibration and maintenance information will be recorded in the field notebook.

3.3 Portable Photoionization Detector

The photoionization detector will be a MiniRAE™ (or equivalent), equipped with at least a 10.0 eV lamp, depending on the requirements of the HASP. The MiniRAE™ is capable of ionizing and detecting compounds with an ionization potential of less than 10.0 eV. Calibration will be performed according to the procedures outlined in Attachment E.

3.4 Dust Monitor

The dust monitor will be a MIE DataRAM (or equivalent) and will be calibrated at the start of each day of use. Calibration and maintenance of the dust monitor will be conducted in accordance with the manufacturer's specifications. The calibration data will be recorded in field notebooks.

3.5 Flow Controller and SUMMA® Canister

The flow controller and the SUMMA® canister will be provided by the laboratory and are frequently susceptible to failure. It is recommended that extra canisters and flow controllers are requested from the laboratory to ensure that there is sufficient onsite equipment in case of an equipment failure. If possible, the equipment should be shipped two to three days before the scheduled start of the sampling event so that all materials can be checked and replacements can be ordered as needed.

Ensure that the flow controllers are pre-calibrated to the proper sample collection duration (confirm with laboratory). Sample integrity can be compromised if sample collection is extended to the point that the canister reaches atmospheric pressure. Sample integrity is maintained if sample collection is terminated prior to the target duration and a measurable vacuum (e.g., 3 -7 – inches Hg) remains in the canister when sample collection is terminated. Ensure that there is still measureable vacuum in the SUMMA® after sampling. Sometimes the gauges sent from labs have offset errors, or they stick. It is a good practice to lightly tap the pressure gauge with your finger before reading it to make sure it is not stuck.

Many times the pressure gauges sent from labs have large offset errors, or the gauge needle does not move freely in response to changes in vacuum. For the most precise pressure readings, consider using a separate, more sensitive, device to check pressure at the beginning of the sampling period in a clean atmosphere. This should be done without moving a significant flow into the canister – for example using a pressure gauge on a dead-end leg. If used, this device must be tested beforehand to confirm that it does not introduce contaminants to the SUMMA® canister during pressure checks.



Attachment A

Sample Chain-of-Custody Form



ID#: 11999

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page ____ of ____

Lab Work Order #

Send Results to:	Contact & Company Name:		Telephone:		Preservative										Preservation Key: A. H ₂ SO ₄ B. HCL C. HNO ₃ D. NaOH E. None F. Other: _____ G. Other: _____ H. Other: _____ Matrix Key: SO - Soil W - Water T - Tissue SE - Sediment SL - Sludge A - Air NL - NAPL/Oil SW - Sample Wipe Other: _____		
	Address:		Fax:		Filtered (✓)												
	City		State	Zip	E-mail Address:		# of Containers										
	Container Information																
Project Name/Location (City, State):		Project #:		PARAMETER ANALYSIS & METHOD													
Sampler's Printed Name:		Sampler's Signature:															
Sample ID		Collection		Type (✓)		Matrix		REMARKS									
	Date	Time	Comp	Grab													
Special Instructions/Comments:								☐ Special QA/QC Instructions(✓):									
Laboratory Information and Receipt				Relinquished By		Received By		Relinquished By		Laboratory Received By							
Lab Name:		Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact		Printed Name:		Printed Name:		Printed Name:		Printed Name:							
☐ Cooler packed with ice (✓)				Signature:		Signature:		Signature:		Signature:							
Specify Turnaround Requirements:		Sample Receipt:		Firm:		Firm/Courier:		Firm/Courier:		Firm:							
Shipping Tracking #:		Condition/Cooler Temp: _____		Date/Time:		Date/Time:		Date/Time:		Date/Time:							



Attachment B

Electromagnetic Induction Survey
EM31-D and EM34-3 Operating
Procedures

**Electromagnetic Induction
Survey EM31-D and EM34-3
Terrain Conductivity Meters**

June 2010

Approval Signatures

Prepared by: 
Ray Wagner

Date: June 2010

Reviewed by: 
(Technical Expert)

Date: June 2010

I. Scope and Application

The electromagnetic (EM) ground conductivity meters operate using a transmitter coil located at one end of the instrument, which induces circular loops of current into the earth. The magnitude of any one of these current loops is directly proportional to the terrain conductivity in the vicinity of that loop. Each one of the current loops generates a magnetic field that is proportional to the value of the current flowing within that loop. A part of the magnetic field from each loop is intercepted by the receiver coil and results in an output voltage that is linearly related to the terrain conductivity.

The EM instrument is calibrated to read conductivity when the earth is uniform. If the earth is layered and each layer has a different conductivity, the instrument will read an intermediate value. The units of conductivity measured by the electromagnetometer will be in millimhos per meter (mmhos/m). To obtain resistivity in ohm-meters, the instrument reading is divided into 1,000 (i.e., a reading of 4 mmhos/m divided into 1,000 gives 250 ohm-meters).

Two components of the induced magnetic field will be measured. The first is the quadrature-phase component, which gives the ground conductivity measurement. The second is the in-phase component, used primarily for calibration purposes and when looking for buried metal drums.

II. Personnel Qualifications

EM investigations should be conducted by qualified and experienced operators, such as an experienced field technician and/or geophysicist trained in the use and operation of the EM31/34 instruments. The EM operator should be experienced in evaluating data quality in the field and be able to adjust data acquisition procedures in response to variable site conditions in order to identify anomalies and resolve target features. Inexperienced ARCADIS personnel directing or supervising EM data acquisition, or interpreting processed EM data should seek appropriate guidance and technical peer review from qualified and experienced personnel. [Click here and enter Text]

III. Equipment List

The materials for conducting an EM survey include the following:

- Geonics Limited EM31-D and EM34-3 Terrain Conductivity Meter;
- Eight size C batteries;

- Field notebook;
- 100' measuring tape;
- Wood stakes, pin flags, and/or marking paint;
- Permanent markers;
- Site maps;
- Data logger; and
- Laptop computer.

IV. Cautions

The effectiveness of EM is site-specific and subject to the skill level of the operator. Reliability and efficiency is enhanced when used in conjunction with other geophysical methods. Soils with higher electrical conductivity may mask or interfere with identifying less conductive targets. Clayey soils and saturated soils, particularly when high in soluble salts, may limit the usefulness of EM. Other potential interference sources include subsurface debris, rebar reinforced concrete, above ground conductive objects (cars, surface water, transmission lines), and electromagnetic generating apparatus (electrical generators, radio transmitters).

Typically only metallic utilities may be located by EM methods. It should be noted that due to differences in the properties of metallic materials, some less conductive pipe materials (aluminum) may be more problematic to locate than an iron or copper pipe, depending on the conductivity or the surrounding soils.

Also, the presence of reinforcing bar (rebar) in concrete can limit the resolution of pipes present below the concrete. The resolution of smaller diameter pipes present within or just below the concrete may be completely masked by the high response caused by the rebar.

V. Health and Safety Considerations

Minimize physical hazard exposure through use of proper PPE as prescribed in the HASP. Maintain awareness of other potential hazards associated with the physical

location where the EM investigation is being conducted and any ingress or egress conditions.

VI. Procedure

Operating Procedures of EM31-D

Conductivity Measurements

Electrical conductivity will be measured using the quadrature-phase component following the procedures listed below.

1. Using the identifying labels on the tubes, select the transmitter coil tube, align it with respect to the main tube, insert it, and fix it with the clamp.
2. Check the battery condition, plus and minus, by setting the MODE switch (MODE SELECTOR SWITCH) to the OPER position and the RANGE switch to the +B and -B positions, respectively. If the needle registers within the BATT range on the meter, batteries are in good condition. Otherwise, replace the batteries with a fresh set of size C alkaline batteries.
3. Checking the zero reading will be performed in an area considered representative of background conditions and having minimal interferences. The zero reading is checked by setting the MODE switch to the OPER position and the RANGE switch to the least sensitive position, 1,000 mmhos/m (this minimizes any external noise interference while checking the zero position). If a zero adjustment is required, adjust the DC ZERO CONTROL located under the front panel to obtain a zero reading.
4. Align and connect the receiver coil tube to the main frame tube.

Equipment Functional Checks

The RANGE switch should be set at the 30 mmhos/m position for all of the following tests.

1. Set the MODE switch to the COMP position and adjust the meter reading to zero using the COARSE and FINE COMPENSATION controls.
2. To check the phasing of the instrument, set the MODE switch to the PHASE position. Note the meter reading and rotate the COARSE control one step

clockwise. If the meter reading remained the same, the phasing is already correct. Return the COARSE control to its original position (one step counterclockwise). No further adjustment is necessary. If there was a difference in the meter readings taken before and after the COARSE control was rotated one step counterclockwise, then a phase adjustment is required. With the COARSE control in its original position, adjust the PHASE potentiometer about 3-turns clockwise and note the new meter reading. Rotate the COARSE control one step clockwise, take a reading, and return the COARSE control to its original position. Repeat the procedure using a further clockwise adjustment until rotating the COARSE control one step clockwise produces no change in the meter reading. However, if the difference in meter readings was increased, the PHASE potentiometer should be rotated in a counterclockwise direction instead.

3. To check the sensitivity of the instrument, set the MODE switch to the COMP position and rotate the COARSE control clockwise one step. The meter should read between 75% and 85% (22 to 26 mmhos/m) of full-scale deflection (inside black mark). Record the reading. Return the COARSE switch to its original position and the EM31-D is now ready to make ground conductivity measurements.

Operation

1. The instrument will be worn with the shoulder strap adjusted so that the instrument is at hip height. The MODE switch will be set to the OPER position. Rotate the RANGE switch so that the meter reads in the upper 2/3 of the scale. The full-scale deflection is now indicated by the RANGE switch and the instrument will be reading the terrain conductivity directly in mmhos/m.
2. The EM31 can be operated continuously while moving from one measurement station to the next. However, the instrument has a time constant of about one second for which the operator will adjust his walking speed to obtain greatest accuracy. Alternatively, to extend battery life, the instrument will be switched on at each measurement station when not using a recorder. The operator will allow at least 2 seconds warm-up time after turn-on, prior to taking a measurement.
3. The EM31 has been factory-calibrated. The calibration will be checked at a location in the vicinity of the site where soils are undisturbed and where they are similar to the native soil on-site. Calibration will be checked prior to data collection each day and at the end of data collection each day to monitor any drifts in calibration. If the EM31 shows drifts in calibration, the QF compensation control will be adjusted until the meter reads the background terrain conductivity determined at the start of the survey.

Detection of Buried Metal

The in-phase component of the magnetic field is significantly more sensitive to large metallic objects than the quadrature-phase component used for ground conductivity measurements.

Operation

1. The in-phase component of the magnetic field is measured with the Geonics EM31-D by taking the reading with the MODE switch in the COMP position. The 30 mmhos/m range will be used because it provides adequate sensitivity; however, more or less sensitive positions of the RANGE switch may also be used.
2. To measure the in-phase component, the MODE switch will be set to the COMP position and adjusted with the COARSE and FINE compensation controls until a meter deflection of about 20% of full-scale deflection is obtained. Adjusting to 20% of the full-scale deflection, rather than to zero, is a convenience to allow for negative readings on the meter and, under certain conditions, a possible change in the reference level. For example, a sudden jar to the instrument can result in a small positive or negative change in the in-phase reference level.
3. This lack of a true zero reference should not cause any serious problems since, when using the in-phase component, one is usually only looking for buried metallic objects. These will be easily recognizable by relatively localized meter deflections occurring in response to the number of buried objects, their spacing, and depth of burial.

Operating Procedures for EM34-3

The following procedures will be followed during the EM34-3 survey.

Equipment Set-up

1. At the beginning of the survey, select an area free of “cultural interference” and man-made conductors such as buried pipes, buildings, power lines, and steel reinforced concrete, etc.
2. Having determined the coil separation to be used for the survey, lay the instrument out on the ground accordingly. Connect one end of the reference cable (10, 20, or 40 meters) to the 8-pin connector on the transmitter (Tx) coil and the other end to the “REFERENCE” connector on the receiver console. See attached sketch for proper use of thimbles and snaps on the cable.

3. Connect the transmitter console to the transmitter coil using the appropriate short cable.
4. Put the "LEVEL" switch on the transmitter console to the "NORMAL" position.
5. Set the receiver and transmitter coils to the selected coil separation with red circles on the coils both facing in the same direction.
6. Set transmitter "SEPARATION" switch to selected value and turn on transmitter ("POWER/ON" switch to "ON" position).
7. Check to see that the Battery Monitor Meter indicator is in the black area of the scale. If not, batteries are low or are not making proper contact with the battery clips. During the transmitter battery check, the transmitter coil has to be far from metal objects, including steel reinforced concrete flooring.
8. Check condition of receiver battery by rotating receiver "SEPARATION" switch to "BATT" position with "POWER/ON" switch in "POWER/OFF" position.
9. Set receiver "SEPARATION" switch to selected value.

Equipment Functional Checks

Electronic nulling will be completed to remove any offsets in the output (DC) circuitry as follows:

1. Complete equipment set-up as described above.
2. Prior to turning receiver on, insure that meters read zero. If they do not, adjust mechanical meter zero control located on the meters.
3. Turn on receiver ("POWER/ON" switch to "ON" position).
4. With receiver coil disconnected, depress "NULL" pushbutton switch. Both meter needles should go to zero.
5. If either needle is not reading zero, release the lock on the appropriate "NULL" control potentiometer. Keeping the "NULL" switch depressed, adjust the "NULL" control to zero on the meter.
6. Lock the "NULL" control.

7. Connect the receiver coil to the receiver console "COIL" connector via the appropriate short cable.

Receiver compensation and gain check will be completed as described below:

1. Maintaining the receiver and transmitter coils in the same plane, adjust the coil separation to obtain a zero reading (center of the green area) on the "SEPARATION" meter (insure that red circles on coils face in the same direction). The coil separation should now measure the selected value and allow from 2-4 meters of slack reference cable between the thimbles which attach to the console leather cases.
2. With the "SENSITIVITY RANGE" switch set to the 300 mmhos/m position, move the receiver coil toward the transmitter until the "SEPARATION" meter deflects to the full scale mark.
3. Measure the distance that the receiver coil has moved. This distance should be 10.4% of inter-coil spacing.

After the above procedures have been performed, the instrument is ready for data collection. Readings of apparent terrain conductivity are made directly using either the horizontal or vertical dipole mode, or both. At each measurement station, the position of the transmitter will remain fixed and the position of the receiver coil will be adjusted such that the "SEPARATION" meter is in the green area. The "SENSITIVITY RANGE" switch will be set so that the "CONDUCTIVITY" needle is in the upper 70% of the scale. The meter reading will then be recorded in mmhos/m.

During the survey, daily checks of the electronic nulling and receiver and transmitter battery condition will be performed to verify proper data collection.

Multiple Coil Separation Surveys

It is possible to use one cable for multiple coil spacing surveys; however, a simple calibration procedure is required. For 10m and 20m coil separations, the set-up procedure is as follows:

1. Set up the instrument with the 10m cable, take and note a reading.
2. Without moving the coils, carefully remove the 10m cable and replace it with the 20m cable.
3. Take another reading at 10m separation with the 20m cable and note the reading. It will likely be different from the reading with the 10m cable.

4. The difference between the two readings is now your calibration constant to be either added or subtracted from all of your 10m readings. 20m readings are taken normally.
5. The procedure is the same for 20m and 40m separations.

VII. Waste Management

EM is a non-invasive procedure and should not result in the generation of derived wastes. Any trash or rubbish generated during the course of field activities should be disposed of in a proper trash receptacle.

VIII. Data Recording and Management

True conductivity measurements will be corrected for measurements of greater than 100 mmhos/m. However, the spatial variations of terrain conductivity are more informative than the absolute value of conductivity and corrected conductivities will not affect interpretations.

The measurements obtained in the quadrature component will be evaluated to delineate variations in apparent soil conductivity. The in-phase component measurements will be used to locate buried metal objects.

IX. Quality Assurance

The following quality control procedures should be observed:

- Seek appropriate input prior to conducting an EM survey to identify site-specific features (soil conditions/sources of interference) that may impact data acquisition.
- Operate all equipment in accordance with manufacturer's instructions and recommended procedures. Record all system components (Unit, coil spacing, dipole orientation, etc.) information in the field book.
- Data quality should be checked in the field to identify anomalies that may require adjustment to the data acquisition procedures. Make appropriate

adjustments to data acquisition methods to achieve survey objectives, as feasible.

- It is recommended that the operation and performance of the EM equipment is field checked (if possible) by locating existing underground utilities or structures of known depth, size, and construction. These characteristics should be similar to that of unidentified target objects.
- Data interpretation should undergo peer review by appropriate qualified and experienced personnel.

X. References

Geonics Limited, 1984, Operating Manual for the EM31-D Non-Contacting Terrain Conductivity Meter, Mississauga, Ontario.

Geonics Limited, 1984, Operating Manual for the EM34-3 Non-Contacting Terrain Conductivity Meter. Mississauga, Ontario

Geonics Limited, 1991, DL55/31 Data Logging System, Operating instructions for the EM-31 Ground Conductivity Meter with Polycorder Series 720, Mississauga, Ontario.

Geonics Limited, 1980, Technical Note TN-6, Electromagnetic Terrain Conductivity Measurement at Low Induction Numbers.

Geonics Limited, 1983, Technical Note TN-8, EM34-3 Survey Interpretation Techniques.



Attachment C

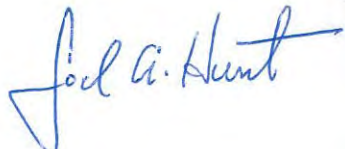
Soil Description Procedures

Soil Description

Rev. #: 0

Rev Date: May 20, 2008

Approval Signatures

Prepared by:  Date: 5/22/08

Reviewed by:  Date: 5/22/08
(Technical Expert)

Reviewed by:  Date: 5/22/08
(Technical Expert)

I. Scope and Application

This ARCADIS standard operating procedure (SOP) describes proper soil description procedures. This SOP should be followed for all unconsolidated material unless there is an established client-required specific SOP or regulatory-required specific SOP. In cases where there is a required specific SOP, it should be followed and should be referenced and/or provided as an appendix to reports that include soil classifications and/or boring logs. When following a required non-ARCADIS SOP, additional information required by this SOP should be included in field notes with client approval.

This SOP has been developed to emphasize field observation and documentation of details required to:

- make hydrostratigraphic interpretations guided by depositional environment/geologic settings;
- provide information needed to understand the distribution of constituents of concern; properly design wells, piezometers, and/or additional field investigations; and develop appropriate remedial strategies.

This SOP incorporates elements from various standard systems such as ASTM D2488-06, Unified Soil Classification System, Burmister and Wentworth. However, none of these standard systems focus specifically on contaminant hydrogeology and remedial design. Therefore, although each of these systems contain valuable guidance and information related to correct descriptions, strict application of these systems can omit information critical to our clients and the projects that we perform.

This SOP does not address details of health and safety; drilling method selection; boring log preparation; sample collection; or laboratory analysis. Refer to other ARCADIS SOPs, the project work plans including the quality assurance project plan, sampling plan, and health and safety plan (HASP), as appropriate.

II. Personnel Qualifications

Soil descriptions will be completed only by persons who have been trained in ARCADIS soil description procedures. Field personnel will complete training on the ARCADIS soil description SOP in the office and/or in the field under the guidance of an experienced field geologist. For sites where soil descriptions have not previously been well documented, soil descriptions should be performed only by trained persons with a degree in geology or a geology-related discipline.

III. Equipment List

The following equipment should be taken to the field to facilitate soil descriptions:

- field book, field forms or PDA to record soil descriptions;
- field book for supplemental notes;
- this SOP for Soil Descriptions and any project-specific SOP (if required);
- field card showing Wentworth scale;
- Munsell® soil color chart;
- tape measure divided into tenths of a foot;
- stainless steel knife or spatula;
- hand lens;
- water squirt bottle;
- jar with lid;
- personal protective equipment (PPE), as required by the HASP; and
- digital camera.

IV. Cautions

Drilling and drilling-related hazards including subsurface utilities are discussed in other SOPs and site-specific HASPs and are not discussed herein.

Soil samples may contain hazardous substances that can result in exposure to persons describing soils. Routes for exposure may include dermal contact, inhalation and ingestion. Refer to the project specific HASP for guidance in these situations.

V. Health and Safety Considerations

Field activities associated with soil sampling and description will be performed in accordance with a site-specific HASP, a copy of which will be present on site during such activities. Know what hazardous substances may be present in the soil and understand their hazards. Always avoid the temptation to touch soils with bare hands, detect odors by placing soils close to your nose, or tasting soils.

VI. Procedure

1. Select the appropriate sampling method to obtain representative samples in accordance with the selected sub-surface exploration method, e.g. split-spoon or Shelby sample for hollow-stem drilling, Lexan or acetate sleeves for dual-tube direct push, etc.
2. Proceed with field activities in required sequence. Although completion of soil descriptions is often not the first activity after opening sampler, identification of stratigraphic changes is often necessary to select appropriate intervals for field screening and/or selection of laboratory samples.
3. Examine all of each individual soil sample (this is different than examining each sample selected for laboratory analysis), and record the following for each stratum:
 - depth interval;
 - principal component with descriptors, as appropriate;
 - amount and identification of minor component(s) with descriptors as appropriate;
 - moisture;
 - consistency/density;
 - color; and
 - additional description or comments (recorded as notes).

The above is described more fully below.

DEPTH

To measure and record the depth below ground level (bgl) of top and bottom of each stratum, the following information should be recorded.

1. Measured depth to the top and bottom of sampled interval. Use starting depth of sample based upon measured tool length information and the length of sample interval.

2. Length of sample recovered, not including slough (material that has fallen into hole from previous interval), expressed as fraction with length of recovered sample as numerator over length of sampled interval as denominator (e.g. 14/24 for 14 inches recovered from 24-inch sampling interval that had 2 inches of slough discarded).
3. Thickness of each stratum measured sequentially from the top of recovery to the bottom of recovery.
4. Any observations of sample condition or drilling activity that would help identify whether there was loss from the top of the sampling interval, loss from the bottom of the sampling interval, or compression of the sampling interval. Examples: 14/24, gravel in nose of spoon; or 10/18 bottom 6 inches of spoon empty.

DETERMINATION OF COMPONENTS

Obtain a representative sample of soil from a single stratum. If multiple strata are present in a single sample interval, each stratum should be described separately. More specifically, if the sample is from a 2-foot long split-spoon where strata of coarse sand, fine sand and clay are present, then the resultant description should be of the three individual strata unless a combined description can clearly describe the interbedded nature of the three strata. Example: Fine Sand with interbedded lenses of Silt and Clay, ranging between 1 and 3 inches thick.

Identify principal component and express volume estimates for minor components on logs using the following standard modifiers.

Modifier	Percent of Total Sample (by volume)
and	36 - 50
some	21 - 35
little	10 - 20
trace	<10

Determination of components is based on using the Udden-Wentworth particle size classification (see below) and measurement of the average grain size diameter. Each size grade or class differs from the next larger grade or class by a constant ratio of $\frac{1}{2}$. Due to visual limitations, the finer classifications of Wentworth's scale cannot be distinguished in the field and the subgroups are not included. Visual determinations in the field should be made carefully by comparing the sample to the field gauge card that shows Udden-Wentworth scale or by measuring with a ruler. Use of field sieves s

recommended to assist in estimating percentage of coarse grain sizes. Settling test or wash method (Appendix X4 of ASTM D2488) is recommended for determining presence and estimating percentage of clay and silt.

Udden-Wenworth Scale Modified ARCADIS, 2008			
Size Class	Millimeters	Inches	Standard Sieve #
Boulder	256 – 4096	10.08+	
Large cobble	128 - 256	5.04 -10.08	
Small cobble	64 - 128	2.52 – 5.04	
Very large pebble	32 – 64	0.16 - 2.52	
Large pebble	16 – 32	0.63 – 1.26	
Medium pebble	8 – 16	0.31 – 0.63	
Small pebble	4 – 8	0.16 – 0.31	No. 5 +
Granule	2 – 4	0.08 – 0.16	No.5 – No.10
Very coarse sand	1 -2	0.04 – 0.08	No.10 – No.18
Coarse sand	½ - 1	0.02 – 0.04	No.18 - No.35
Medium sand	¼ - ½	0.01 – 0.02	No.35 - No.60
Fine sand	1/8 -¼	0.005 – 0.1	No.60 - No.120
Very fine sand	1/16 – 1/8	0.002 – 0.005	No. 120 – No. 230
Silt (subgroups not included)	1/256 – 1/16	0.0002 – 0.002	Not applicable (analyze by pipette or hydrometer)
Clay (subgroups not included)	1/2048 – 1/256	.00002 – 0.0002	

Identify components as follows. Remove particles greater than very large pebbles (64-mm diameter) from the soil sample. Record the volume estimate of the greater than very large pebbles. Examine the sample fraction of very large pebbles and smaller particles and estimate the volume percentage of the pebbles, granules, sand, silt and clay. Use the jar method, visual method, and/or wash method (Appendix X4 of ASTM D2488) to estimate the volume percentages of each category.

Determination of actual dry weight of each Udden-Wentworth fraction requires laboratory grain-size analysis using sieve sizes corresponding to Udden-Wentworth fractions and is highly recommended to determine grain-size distributions for each hydrostratigraphic unit.

Lab or field sieve analysis is advisable to characterize the variability and facies trends within each hydrostratigraphic unit. Field sieve-analysis can be performed on selected samples to estimate dry weight fraction of each category using ASTM D2488 Standard Practice for Classification of Soils for Engineering Purposes as guidance, but replace required sieve sizes with the following Udden-Wentworth set: U.S. Standard sieve mesh sizes 6; 12; 20; 40; 70; 140; and 270 to retain pebbles; granules; very coarse sand; coarse sand; medium sand; fine sand; and very fine sand, respectively.

PRINCIPAL COMPONENT

The principal component is the size fraction or range of size fractions containing the majority of the volume. Examples: the principal component in a sample that contained 55% pebbles would be "Pebbles"; or the principal component in a sample that was 20% fine sand, 30% medium sand and 25% coarse sand would be "Fine to coarse Sand" or for a sample that was 40% silt and 45% clay the principal component would be "Clay and Silt".

Include appropriate descriptors with the principal component. These descriptors vary for different particle sizes as follows.

Angularity – Describe the angularity for very coarse sand and larger particles in accordance with the table below (ASTM D-2488-06). Figures showing examples of angularity are available in ASTM D-2488-06 and the ARCADIS Soil Description Field Guide.

Description	Criteria
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

Plasticity – Describe the plasticity for silt and clay based on observations made during the following test method (ASTM D-2488-06).

- As in the dilatancy test below, select enough material to mold into a ball about ½ inch (12 mm) in diameter. Mold the material, adding water if necessary, until it has a soft, but not sticky, consistency.
- Shape the test specimen into an elongated pat and roll by hand on a smooth surface or between the palms into a thread about 1/8 inch (3 mm) in diameter. (If the sample is too wet to roll easily, it should be spread into a thin layer and allowed to lose some water by evaporation.) Fold the sample threads and reroll repeatedly until the thread crumbles at a diameter of about 1/8 inch. The thread will crumble when the soil is near the plastic limit.

Description	Criteria
Nonplastic	A 1/8 inch (3 mm) thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

Dilatancy – Describe the dilatancy for silt and silt-sand mixtures using the following field test method (ASTM D-2488-06).

- From the specimen select enough material to mold into a ball about $\frac{1}{2}$ inch (12 mm) in diameter. Mold the material adding water if necessary, until it has a soft, but not sticky, consistency.
- Smooth the ball in the palm of one hand with a small spatula.
- Shake horizontally, striking the side of the hand vigorously with the other hand several times.
- Note the reaction of water appearing on the surface of the soil.
- Squeeze the sample by closing the hand or pinching the soil between the fingers, and note the reaction as none, slow, or rapid in accordance with the table below. The reaction is the speed with which water appears while shaking and disappears while squeezing.

Description	Criteria
None	No visible change in the specimen.
Slow	Water appears slowly on the surface of the specimen during shaking and does not disappear or disappears slowly upon squeezing.
Rapid	Water appears quickly on the surface of the specimen during shaking and disappears quickly upon squeezing.

MINOR COMPONENT(S)

The minor component(s) are the size fraction(s) containing less than 50% volume. Example: the identified components are estimated to be 60% medium sand to granules, 25 % silt and clay; 15 % pebbles – there are two identified minor components: silt and clay; and pebbles.

Include a standard modifier to indicate percentage of minor components (see Table on Page 5) and the same descriptors that would be used for a principal component. Plasticity should be provided as a descriptor for the silt and clay. Dilatancy should be provided for silt and silt-sand mixtures. Angularity should be provided as a descriptor for pebbles and coarse sand. For the example above, the minor constituents with

modifiers could be: some silt and clay, low plasticity; little medium to large pebbles, sub-round.

SORTING

Sorting is the opposite of grading, which is a commonly used term in the USCS or ASTM methods to describe the uniformity of the particle size distribution in a sample. Well-sorted samples are poorly graded and poorly sorted samples are well graded. ARCADIS prefers the use of sorting for particle size distributions and grading to describe particle size distribution trends in the vertical profile of a sample or hydrostratigraphic unit because of the relationship between sorting and the energy of the depositional process. For soils with sand-sized or larger particles, sorting should be determined as follows:

- Well sorted – the range of particle sizes is limited (e.g. the sample is comprised of predominantly one or two grain sizes)
- Poorly sorted – a wide range of particle sizes are present

You can also use sieve analysis to estimate sorting from a sedimentological perspective; sorting is the statistical equivalent of standard deviation. Smaller standard deviations correspond to higher degree of sorting (see Remediation Hydraulics, 2008).

MOISTURE

Moisture content should be described for every sample since increases or decreases in water content is critical information. Moisture should be described in accordance with the table below (percentages should not be used unless determined in the laboratory).

Description	Criteria
Dry	Absence of moisture, dry to touch, dusty.
Moist	Damp but no visible water.
Wet (Saturated)	Visible free water, soil is usually below the water table.

CONSISTENCY or DENSITY

This can be determined by standard penetration test (SPT) blow counts (ASTM D-1586) or field tests in accordance with the tables below. For SPT blow counts the N-value is used. The N-value is the blows per foot for the 6" to 18" interval. Example: for 24-inch spoon, recorded blows per 6-inch interval are: 4/6/9/22. Since the second interval is 6" to 12", the third interval is 12" to 18", the N value is 6+9, or 15. Fifty blow counts for less than 6 inches is considered refusal.

Fine-grained soil – Consistency

Description	Criteria
Very soft	N-value < 2 or easily penetrated several inches by thumb.
Soft	N-value 2-4 or easily penetrated one inch by thumb.
Medium stiff	N-value 9-15 or indented about ¼ inch by thumb with great effort.
Very stiff	N-value 16-30 or readily indented by thumb nail.
Hard	N-value > than 30 or indented by thumbnail with difficulty

Coarse-grained soil – Density

Description	Criteria
Very loose	N-value 1- 4
Loose	N-value 5-10
Medium dense	N-value 11-30
Dense	N-value 31- 50
Very dense	N-value >50

COLOR

Color should be described using simple basic terminology and modifiers based on the Munsell system. Munsell alpha-numeric codes are required for all samples. If the sample contains layers or patches of varying colors this should be noted and all representative colors should be described. The colors should be described for moist

samples. If the sample is dry it should be wetted prior to comparing the sample to the Munsell chart.

ADDITIONAL COMMENTS (NOTES)

Additional comments should be made where observed and should be presented as notes with reference to a specific depth interval(s) to which they apply. Some of the significant information that may be observed includes the following.

- **Odor** - You should not make an effort to smell samples by placing near your nose since this can result in unnecessary exposure to hazardous materials. However, odors should be noted if they are detected during the normal sampling procedures. Odors should be based upon descriptors such as those used in NIOSH "Pocket Guide to Chemical Hazards", e.g. "pungent" or "sweet" and should not indicate specific chemicals such as "phenol-like" odor or "BTEX" odor.
- Structure
- Bedding planes (laminated, banded, geologic contacts)
- Presence of roots, root holes, organic material, man-made materials, minerals, etc.
- Mineralogy
- Cementation
- NAPL presence/characteristics, including sheen (based on client-specific guidance)
- Reaction with HCl (typically used only for special soil conditions)
- Origin, if known (capital letters: LACUSTRINE; FILL; etc.)

EXAMPLE DESCRIPTIONS

51.4 to 54.0' Clay, some silt, medium to high plasticity; trace small to large pebbles, subround to subangular up to 2" diameter; moist; stiff; dark grayish brown (10YR 4/2) NOTE: Lacustrine; laminated 0.01 to 0.02 feet thick, laminations brownish yellow (10 YR 4/3).



32.5 to 38.0' Sand, medium to Pebbles, coarse; sub-round to sub-angular; trace silt; poorly sorted; wet; grayish brown (10YR5/2). NOTE: sedimentary, igneous and metamorphic particles.

Unlike the first example where a density of cohesive soils could be estimated, this rotosonic sand and pebble sample was disturbed during drilling (due to vibrations in a loose Sand and Pebble matrix) so no density description could be provided. Neither sample had noticeable odor so odor comments were not included.

The standard generic description order is presented below.

- Depth

- Principal Components
 - o Angularity for very coarse sand and larger particles
 - o Plasticity for silt and clay
 - o Dilatancy for silt and silt-sand mixtures
- Minor Components
- Sorting
- Moisture
- Consistency or Density
- Color
- Additional Comments

VII. Waste Management

Project-specific requirements should be identified and followed. The following procedures, or similar waste management procedures are generally required.

Water generated during cleaning procedures will be collected and contained onsite in appropriate containers for future analysis and appropriate disposal. PPE (such as gloves, disposable clothing, and other disposable equipment) resulting from personnel cleaning procedures and soil sampling/handling activities will be placed in plastic bags. These bags will be transferred into appropriately labeled 55-gallon drums or a covered roll-off box for appropriate disposal.

Soil materials will be placed in sealed 55-gallon steel drums or covered roll-off boxes and stored in a secured area. Once full, the material will be analyzed to determine the appropriate disposal method.

VIII. Data Recording and Management

Upon collection of soil samples, the soil sample should be logged on a standard boring log and/or in the field log book depending on Data Quality Objectives (DQOs) for the task/project. Two examples of standard boring logs are presented below.

Completed logs and/or logbook will be maintained in the task/project field records file. Digital photographs of typical soil types observed at the site and any unusual features should be obtained whenever possible. All photographs should include a ruler or common object for scale. Photo location, depth and orientation must be recorded in the daily log or log book and a label showing this information in the photo is useful.

<http://teams/sites/Offices/North/Northeast Area/Northeast Area Geoscience Forms/Sample Core Log.XLS> - Sheet1

IX. Quality Assurance

Soil descriptions should be completed only by appropriately trained personnel. Descriptions should be reviewed by an experienced field geologist for content, format and consistency. Edited boring logs should be reviewed by the original author to assure that content has not changed.

X. References

ARCADIS Soil Description Field Guide, 2008 (in progress)

Munsell® Color Chart – available from Forestry Suppliers, Inc.- Item 77341 “Munsell® Color Soil Color Charts

Field Gauge Card that Shows Udden-Wentworth scale – available from Forestry Suppliers, Inc. – Item 77332 “Sand Grain Sizing Folder”

ASTM D-1586, Test Method for Penetration Test and Split-Barrel Sampling of Soils

ASTM D-2488-00, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)

United States Bureau of Reclamation. Engineering Geology Field Manual. United States Department of Interior, Bureau of Reclamation.
<http://www.usbr.gov/pmts/geology/fieldmap.htm>

Petrology of Sedimentary Rocks, Robert L. Folk, 1980, p. 1-48

NIOSH Pocket Guide to Chemical Hazards

Remediation Hydraulics, Fred C. Payne, Joseph A. Quinnan, and Scott T. Potter, 2008, p 59-63



Attachment D

Test Pit/Trenching Log



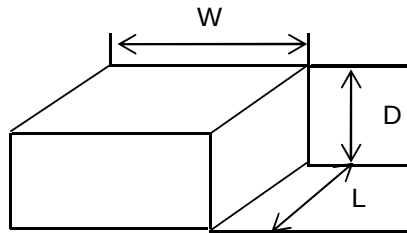
Test Pit Excavation Log

TEST PIT NO.: _____

SHEET 1 OF

PROJECT NAME: _____	DATE OF EXCAVATION: _____
PROJECT NO.: _____	DATE BACKFILLED: _____
PROJECT LOCATION: _____	CONTRACTOR: _____
LOGGED BY: _____	OPERATOR: _____

TEST PIT DIMENSIONS:



D = _____

W = _____

L = _____

SKETCH: _____

AMBIENT AIR TOTAL ORGANIC VAPORS: _____

SURFACE CONDITIONS: _____

DEPTH (FT)	DESCRIPTION & REMARKS:	MOISTUR E	USCS Class.	SEEPAGE	GROUNDWATER				SAMPLE			COMMENTS
	TRACE=0-10%, LITTLE=10-20%, SOME=20-30%, AND=35-50%			DEPTH	DEPTH	SP. COND.	pH	Tem p (°F)	MATRIX	ID#	PID (ppm)	
0												
5												
10												
15												
20												



Test Pit Excavation Log

TEST PIT NO.: _____

SHEET 2 OF

PROJECT NAME: _____

PROJECT NO.: _____

PROJECT LOCATION: _____

LOGGED BY: _____

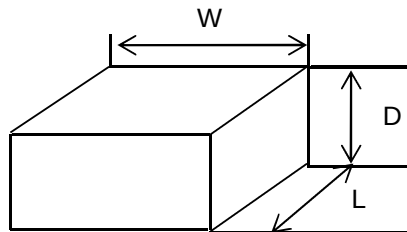
DATE OF EXCAVATION: _____

DATE BACKFILLED: _____

CONTRACTOR: _____

OPERATOR: _____

TEST PIT DIMENSIONS:



D = _____

W = _____

L = _____

SKETCH: _____

AMBIENT AIR TOTAL ORGANIC VAPORS: _____

SURFACE CONDITIONS: _____

DEPTH (FT)	DESCRIPTION & REMARKS:	MOISTURE	USCS Class.	SEEPAGE	GROUNDWATER				SAMPLE			COMMENTS
	TRACE=0-10%, LITTLE=10-20%, SOME=20-30%, AND=35-50%			DEPTH	DEPTH	SP. COND.	pH	Temp (°F)	MATRIX	ID#	PID (ppm)	



Attachment E

Photoionization Detector Air
Monitoring and Field Screening
Procedures

Photoionization Detector Air Monitoring and Field Screening

Rev. #: 1

Rev Date: November 8, 2009

Approval Signatures

Prepared by: (the late) Maureen Geisser

Date: July 28, 2003



Reviewed/revised by: Christopher C. Lutes
(Technical Expert)

Date: November 8, 2009

I. Scope and Application

Field screening with a photoionization detector (PID), such as an HNu™, Photovac™, MicroTIP™, or MiniRAE™, is a procedure to measure relative concentrations of volatile organic compounds (VOCs) and other compounds. Characteristics of the PID are presented in Attachment 1 and the compounds a PID can detect are presented in Attachment 2. Field screening will frequently be conducted on the following:

- Work area air to assess exposure to on-site workers of air contaminants via the air pathway;
- Well headspaces as a precautionary measure each time the well cover is opened; and
- Headspace of soil samples to assess the relative concentration of volatile organics in the sample or to select particular intervals for off-site analysis for VOCs.

II. Personnel Qualifications

Personnel performing this method should be familiar with the basic principles of quantitative analytical chemistry (such as calibration) and familiar with the particular operation of the instrument to be used.

III. Equipment List

The following materials, as required, shall be available while performing PID field screening:

- personal protective equipment (PPE), as required by the site Health and Safety Plan (HASP);
- PID and operating manual;
- PID extra battery pack and battery charger;
- calibration canisters for the PID;
- sample jars;
- Q-tips;

- aluminum foil;
- field calibration log (attached); and
- field notebook.

IV. Cautions

PIDs are sensitive to moisture and may not function under high humidity. PIDs cannot be used to indicate oxygen deficiency or combustible gases.

V. Health and Safety Considerations

Since the PIDs cannot detect all of the chemicals that may be present at a sample location, a zero reading on either instrument does not necessarily signify the absence of air contaminants. PIDs cannot be used as an indicator for oxygen deficiency.

VI. Procedure (*Note these procedures were written particular to one specific instrument model, therefore please also refer to your owners manual. However the general principles – such as always measuring both a zero and span gas after an instrument adjustment/at the beginning of the analytical day, after four hours of testing and again at the end of an analytical day can be applied to all instruments.*)

PID Calibration

PID field instruments will be calibrated and operated to yield “total organic vapor” in parts per million (ppm) (v/v) relative to benzene or isobutylene (or equivalent). Operation, maintenance, and calibration shall be performed in accordance with the manufacturer’s instructions and entered on the PID calibration and maintenance log (Attachment 3).

1. Don PPE, as required by the HASP.
2. Perform a BATTERY CHECK. Turn the FUNCTION switch to the BATTERY CHECK position. Check that the indicator is within or beyond the green battery arc. If battery is low, the battery must be charged before calibration.
3. Allow the instrument to warm up, then calibrate the PID. If equipped, turn the FUNCTION switch to the STANDBY position and rotate the ZERO

POTENTIOMETER until the meter reads zero with the instrument sampling clean air. Wait 15 to 20 seconds to confirm the adjustment. If unstable, readjust. If equipped, check to see that the SPAN POTENTIOMETER is adjusted for the probe being used (e.g., 9.8 for 10.2 electron volts [eV]). Set the FUNCTION switch to the desired ppm range (0-20, 0-200, or 0-2,000). A violet glow from the ultraviolet (UV) source should be visible at the sample inlet of the probe/sensor unit.

4. Listen for the fan operation to verify fan function.
5. Connect one end of the sampling hose to the calibration canister regulator outlet and the other end to the sampling probe of the PID. Crack the regulator valve and take a reading after 5 to 10 seconds. Adjust the span potentiometer to produce the concentration listed on the span gas cylinder. Record appropriate information on a PID Calibration and Maintenance Log (Attachment 3, or equivalent).
6. If so equipped, set the alarm at desired level.
7. Recheck the zero with fresh/clean air
8. Always recheck both zero and span after making any instrument adjustment, after four hours of screening work and again after sample analysis.

Work Area Air Monitoring

1. Measure and record the background PID reading.
2. Measure and record the breathing space reading.

Well Headspace Screening

1. Measure and record the background PID reading.
2. Unlock and open the well cover while standing upwind of the well.
3. Remove the well cap.
4. Place the PID probe approximately 6 inches above the top of the casing.
5. Record all PID readings and proceed in accordance with the HASP.

Field Screening Procedures

Soil samples will be field screened upon collection with the PID for a relative measure of the total volatile organic concentration. The following steps define the PID field screening procedures.

1. Half-fill two clean glass jars with the sample (if sufficient quantities of soil are available) to be analyzed. Quickly cover each open top with one or two sheets of clean aluminum foil and subsequently apply screw caps to tightly seal the jars. Sixteen-ounce (approximately 500 mL) soil or “mason” type jars are preferred; jars less than 8 ounces (approximately 250 mL) total capacity may not be used.
2. Allow headspace development for at least 10 minutes. Vigorously shake jars for 15 seconds at both the beginning and end of the headspace development period. Where ambient temperatures are below 32°F (0°C), headspace development should be within a heated building.
3. Subsequent to headspace development, remove screw lid to expose the foil seal. Quickly puncture foil seal with instrument sampling probe, to a point about one-half of the headspace depth. Exercise care to avoid contact with water droplets or soil particulates.
4. Following probe insertion through foil seal, record the highest meter response for each sample as the jar headspace concentration. Using the foil seal/probe insertion method, maximum response should occur between 2 and 5 seconds. Erratic meter response may occur at high organic vapor concentrations or conditions of elevated headspace moisture, in which case headspace data should be recorded and erratic meter response noted.
5. The headspace screening data from both jar samples should be recorded and compared; generally, replicate values should be consistent to plus or minus 20%. It should be noted that in some cases (e.g., 6-inch increment soil borings), sufficient sample quantities may not be available to perform duplicate screenings. One screening will be considered sufficient for this case.
6. PID field instruments will be operated and calibrated to yield “total organic vapors” in ppm (v/v) as benzene. PID instruments must be operated with at least a 10.0 eV (+) lamp source. Operation, maintenance, and calibration will be performed in accordance with the manufacturer’s specifications presented in Attachment 12-1. For jar headspace analysis, instrument calibration will be checked/adjusted at least twice per day, at the beginning and end of each day

of use. Calibration will exceed twice per day if conditions and/or manufacturer's specifications dictate.

7. Instrumentation with digital (LED/LCD) displays may not be able to discern maximum headspace response unless equipped with a "maximum hold" feature or strip-chart recorder.

VII. Waste Management

Do not dispose canisters of compressed gas, if there is still compressed gas in the canister. Return the canister to the manufacturer for proper disposal.

VIII. Data Recording and Management

Measurements will be recorded in the field notebook or boring logs at the time of measurement with notation of date, time, location, depth (if applicable), and item monitored. If a data memory is available, readings will be downloaded from the unit upon access to a computer with software to retrieve the data.

IX. Quality Assurance

After each use, the readout unit should be wiped down with a clean cloth or paper towel.

For a HNu, the UV light source window and ionization chamber should be cleaned once a month in the following manner:

1. With the PID off, disconnect the sensor/probe from the unit.
2. Remove the exhaust screw, grasp the end cap in one hand and the probe shell in the other, and pull apart.
3. Loosen the screws on top of the end cap and separate the end cap and ion chamber from the lamp and lamp housing.
4. Tilt the lamp housing with one hand over the opening so that the lamp slides out into your hand.
5. Clean the lamp with lens paper and HNu cleaning compound (except 11.7 eV). For the 11.7 eV lamp, use a chlorinated organic solvent.

6. Clean the ion chamber using methanol on a Q-tip and then dry gently at 50°C to 60°C for 30 minutes.
7. Following cleaning, reassemble by first sliding the lamp back into the lamp housing. Place ion chamber on top of the housing, making sure the contacts are properly aligned.
8. Place the end cap on top of the ion chamber and replace the two screws (tighten the screws only enough to seal the o-ring).
9. Line up the pins on the base of the lamp housing with pins inside the probe shell and slide the housing assembly into the shell.

X. References

Denahan, S.A. et. al. "Relationships Between Chemical Screening Methodologies for Petroleum Contaminated Soils: Theory and Practice" *Chapter 5 In Principles and Practices for Petroleum Contaminated Soils*, E.J. Calabrese and P.T. Kostecki Eds., Lewis Publishers 1993.

Fitzgerald, J. "Onsite Analytical Screening of Gasoline Contaminated Media Using a Jar Headspace Procedure" *Chapter 4 in Principles and Practices for Petroleum Contaminated Soils*, E.J. Calabrese and P.T. Kostecki Eds., Lewis Publishers 1993.

ATTACHMENT 1

Characteristics of the Photoionization Detector (PID)

I. Introduction

PIDs are used in the field to detect a variety of compounds in air. PIDs can be used to detect leaks of volatile substances in drums and tanks, to determine the presence of volatile compounds in soil and water, and to make ambient air surveys. If personnel are thoroughly trained to operate the instrument and interpret the data, these PID instruments can be a valuable tool. Its use can help in deciding the level of protection to be worn, assist in determining the implementation of other safety procedures, and in determining subsequent monitoring or sampling locations.

Portable PIDs detect the concentration of organic gases, as well as a few inorganic gases. The basis for detection is the ionization of gaseous species. The incoming gas molecules are subjected to UV radiation, which ionizes molecules that have an ionization potential (IP) less than or equal to that rated for the UV source. Every molecule has a characteristic IP, which is the energy required to remove an electron from the molecule, thus yielding a positively charged ion and the free electron. These ions are attracted to an oppositely charged electrode, causing a current and an electric signal to the LED display. Compounds are measured on a ppm volume basis.

II. HNu PI-101 / MiniRAE or Equivalent PID

The PIDs detect the concentration of organic gases, as well as a few inorganic gases. The basis for detection is the ionization of gaseous species. The incoming gas molecules are subjected to UV radiation, which is energetic enough to ionize many gaseous compounds. Each molecule is transformed into charged ion pairs, creating a current between two electrodes. Every molecule has a characteristic IP, which is the energy required to remove an electron from the molecule, yielding a positively charged ion and the free electron.

Three probes, each containing a different UV light source, are available for use with the PID. Probe energies are typically 9.5, 10.2, and 11.7 eV, respectively. All three probes detect many aromatic and large-molecule hydrocarbons. In addition, the 10.2 eV and 11.7 eV probes detect some smaller organic molecules and some halogenated hydrocarbons. The 10.2 eV probe is the most useful for environmental response work, as it is more durable than the 11.7 eV probe and detects more compounds than the 9.5 eV probe. A listing of molecules and compounds that the HNu can detect is presented in Attachment 2.

The primary PID calibration gas is either benzene or isobutylene. The span potentiometer knob is turned to 9.8 for benzene calibration. A knob setting of zero increases the sensitivity to benzene approximately 10-fold. Its lower detection limit is in the low ppm range. Additionally, response time is rapid; the dot matrix liquid crystal displays 90% of the indicated concentration within 3 seconds.

III. Limitations

The PID instrument can monitor several vapors and gases in air. Many non-volatile liquids, toxic solids, particulates, and other toxic gases and vapors, however, cannot be detected with PIDs (such as methane). Since the PIDs cannot detect all of the chemicals that may be present at a sample location, a zero reading on either instrument does not necessarily signify the absence of air contaminants.

The PID instrument is generally not specific and their response to different compounds is relative to the calibration gases. Instrument readings may be higher or lower than the true concentration. This effect can be observed when monitoring total contaminant concentrations if several different compounds are being detected at once. In addition, the response of these instruments is not linear over the entire detection range. Therefore, care must be taken when interpreting the data. Concentrations should be reported in terms of the calibration gas and probe type.

PIDs are small, portable instruments and may not yield results as accurate as laboratory instruments. PIDs were originally designed for specific industrial applications. They are relatively easy to use and interpret when detecting total concentrations of known contaminants in air, but interpretation becomes more difficult when trying to identify the individual components of a mixture. PIDs cannot be used as an indicator for combustible gases or oxygen deficiency.

ATTACHMENT 2

Molecules and Compounds Detected by a PID

<u>Some Atoms and Simple Molecules</u>			<u>Paraffins and Cycloparaffins</u>	
	<u>IP(eV)</u>	<u>IP(eV)</u>	<u>Molecule</u>	<u>IP(eV)</u>
H	13.595 I ₂	9.28	methane	12.98
C	11.264 HF	15.77	ethane	11.65
N	14.54 HCl	12.74	propane	11.07
O	13.614 HBr	11.62	n-butane	10.63
Si	8.149 HI	10.38	i-butane	10.57
S	10.357 SO ₂	12.34	n-pentane	10.35
F	17.42 CO ₂	13.79	i-pentane	10.32
Cl	13.01 COS	11.18	2,2-dimethylpropane	10.35
Br	11.84 CS ₂	10.08	n-hexane	10.18
I	10.48 N ₂ O	12.90	2-methylpentane	10.12
H ₂	15.426 NO ₂	9.78	3-methylpentane	10.08
N ₂	15.580 O ₃	12.80	2,2-dimethylbutane	10.06
O ₂	12.075 H ₂ O	12.59	2,3-dimethylbutane	10.02
CO	14.01 H ₂ S	10.46	n-heptane	10.08
CN	15.13 H ₂ Se	9.88	2,2,4-trimethylpentane	9.86
NO	9.25 H ₂ Te	9.14	cyclopropane	10.06
CH	11.1 HCN	3.91	cyclopentane	10.53
OH	13.18 C ₂ N ₂	13.8	cyclohexane	9.88
F ₂	15.7 NH ₃	10.15	methcyclohexane	9.8
Cl ₂	11.48 CH ₃	9.840		
Br ₂	10.55 CH ₄	12.98		

Alkyl Halides

<u>IP(eV)</u>	<u>IP(eV)</u>
HCl	12.74
Cl ₂	11.48
CH ₄	12.98
methyl chloride	11.28
dichloromethane	11.35
trichloromethane	11.42
tetrachloromethane	11.47
ethyl chloride	10.98
1,2-dichloroethane	11.12
1-chloropropane	10.82
2-chloropropane	10.78
1,2-dichloropropane	10.87
1,3-dichloropropane	10.85
1-chlorobutane	10.67
2-chlorobutane	10.65
1-chloro-2-methylpropane	10.66
2-chloro-2-methylpropane	10.61
HBr	11.62
Br ₂	10.55
methyl bromide	10.53
dibromomethane	10.49
tribromomethane	10.51
CH ₂ BrCl	10.77
CHBr ₂ Cl	10.59
ethyl bromide	10.29
1,1-dibromoethane	10.19
1-bromo-2-chloroethane	10.63
1-bromopropane	10.18
2-bromopropane	10.075
1,3-dibromopropane	10.07
1-bromobutane	10.13
2-bromobutane	9.98
1-bromo-2-methylpropane	10.09
2-bromo-2-methylpropane	9.89
1-bromopentane	10.10
HI	10.38
I ₂	9.28

Alkyl Halides

<u>Molecule</u>	<u>IP(eV)</u>
methyl iodide	9.54
diiodomethane	9.34
ethyl iodide	9.33
1-iodopropane	9.26
2-iodopropane	9.17
1-iodobutane	9.21
2-iodobutane	9.09
1-iodo-2-methylpropane	9.18
2-iodo-2-methylpropane	9.02
1-iodopentane	9.19
F ₂	15.7
HF	15.77
CFCl ₃ (Freon 11)	11.77
CF ₂ Cl ₂ (Freon 12)	12.31
CF ₃ Cl (Freon 13)	12.91
CHClF ₂ (Freon 22)	12.45
CFBR ₃	10.67
CF ₂ Br ₂	11.07
CH ₃ CF ₂ Cl (Genetron 101)	11.98
CFCl ₂ CF ₂ Cl	11.99
CF ₃ CCl ₃ (Freon 113)	11.78
CFHBrCH ₂ Cl	10.75
CF ₂ BrCH ₂ Br	10.83
CF ₃ CH ₂ I	10.00
n-C ₃ F ₇ I	10.36
n-C ₃ F ₇ CH ₂ Cl	11.84
n-C ₃ F ₇ CH ₂ I	9.96

Aliphatic Alcohol, Ether, Thiol, and Sulfides

<u>Molecule</u>	<u>IP(eV)</u>
H ₂ O	12.59
methyl alcohol	10.85
ethyl alcohol	10.48
n-propyl alcohol	10.20
i-propyl alcohol	10.16
n-butyl alcohol	10.04
dimethyl ether	10.00
diethyl ether	9.53
n-propyl ether	9.27
i-propyl ether	9.20
H ₂ S	10.46
methanethiol	9.440
ethanethiol	9.285
1-propanethiol	9.195
1-butanethiol	9.14
dimethyl sulfide	8.685
ethyl methyl sulfide	8.55
diethyl sulfide	8.430
di-n-propyl sulfide	8.30

Aliphatic Aldehydes and Ketones

<u>Molecule</u>	<u>IP(eV)</u>
CO ₂	13.79
formaldehyde	10.87
acetaldehyde	10.21
propionaldehyde	9.98
n-butyraldehyde	9.86
isobutyraldehyde	9.74
n-valeraldehyde	9.82
isovaleraldehyde	9.71
acrolein	10.10
crotonaldehyde	9.73
benzaldehyde	9.53
acetone	9.69
methyl ethyl ketone	9.53
methyl n-propyl ketone	9.39
methyl i-propyl ketone	9.32
diethyl ketone	9.32
methyl n-butyl ketone	9.34
methyl i-butyl ketone	9.30
3,3-dimethyl butanone	9.17
2-heptanone	9.33
cyclopentanone	9.26
cyclohexanone	9.14
2,3-butanedione	9.23
2,4-pentanedione	8.87

Aliphatic Acids and Esters

<u>Molecule</u>	<u>IP(eV)</u>
CO ₂	13.79
formic acid	11.05
acetic acid	10.37
propionic acid	10.24
n-butyric acid	10.16
isobutyric acid	10.02
n-valeric acid	10.12
methyl formate	10.815
ethyl formate	10.61
n-propyl formate	10.54
n-butyl formate	10.50
isobutyl formate	10.46
methyl acetate	10.27
ethyl acetate	10.11
n-propyl acetate	10.04
isopropyl acetate	9.99
n-butyl acetate	10.01
isobutyl acetate	9.97
sec-butyl acetate	9.91
methyl propionate	10.15
ethyl propionate	10.00
methyl n-butyrate	10.07
methyl isobutyrate	9.98

Aliphatic Amines and Amides

<u>Molecule</u>	<u>IP(eV)</u>
NH ₃	10.15
methyl amine	8.97
ethyl amine	8.86
n-propyl amine	8.78
i-propyl amine	8.72
n-butyl amine	8.71
i-butyl amine	8.70
s-butyl amine	8.70
t-butyl amine	8.64
dimethyl amine	8.24
diethyl amine	8.01
di-n-propyl amine	7.84
di-i-propyl amine	7.73
di-n-butyl amine	7.69
trimethyl amine	7.82
triethyl amine	7.50
tri-n-propyl amine	7.23
formamide	10.25
acetamide	9.77
N-methyl acetamide	8.90
N,N-dimethyl formamide	9.12
N,N-dimethyl acetamide	8.81
N,N-diethyl formamide	8.89
N,N-diethyl acetamide	8.60

Other Aliphatic Molecules with N Atom

<u>Molecule</u>	<u>IP(eV)</u>
nitromethane	11.08
nitroethane	10.88
1-nitropropane	10.81
2-nitropropane	10.71
HCN	13.91
acetonitrile	12.22
propionitrile	11.84
n-butyronitrile	11.67
acrylonitrile	10.91
3-butene-nitrile	10.39
ethyl nitrate	11.22
n-propyl nitrate	
methyl thiocyanate	10.065
ethyl thiocyanate	9.89
methyl isothiocyanate	9.25
ethyl isothiocyanate	9.14

Olefins, Cyclo-olefins, Acetylenes

<u>Molecule</u>	<u>IP(eV)</u>
ethylene	10.515
propylene	9.73
1-butene	9.58
2-methylpropene	9.23
trans-2-butene	9.13
cis-2-butene	9.13
1-pentene	9.50
2-methyl-1-butene	9.12
3-methyl-1-butene	9.51
3-methyl-2-butene	8.67
1-hexene	9.46
1,3-butadiene	9.07
isoprene	8.845
cyclopentene	9.01
cyclohexene	8.945
4-methylcyclohexene	8.91
4-vinylcyclohexene	8.93
cyclo-octatetraene	7.99
acetylene	11.41
propyne	10.36
1-butyne	10.18

Some Derivatives of Olefins

<u>Molecule</u>	<u>IP(eV)</u>
vinyl chloride	9.995
cis-dichloroethylene	9.65
trans-dichloroethylene	9.66
trichloroethylene	9.45
tetrachloroethylene	9.32
vinyl bromide	9.80
1,2-dibromoethylene	9.45
tribromoethylene	9.27
3-chloropropene	10.04
2,3-dichloropropene	9.82
1-bromopropene	9.30
3-bromopropene	9.7
CF ₃ CCl=CClCF ₃	10.36
n-C ₅ F ₁₁ CF=CF ₂	10.48
acrolein	10.10
crotonaldehyde	9.73
mesityl oxide	9.08
vinyl methyl ether	8.93
allyl alcohol	9.67
vinyl acetate	9.19

Aromatic Compounds

<u>Molecule</u>	<u>IP(eV)</u>
benzene	9.245
toluene	8.82
ethyl benzene	8.76
n-propyl benzene	8.72
i-propyl benzene	8.69
n-butyl benzene	8.69
s-butyl benzene	8.68
t-butyl benzene	8.68
o-xylene	8.56
m-xylene	8.56
p-xylene	8.445
mesitylene	8.40
durene	8.025
styrene	8.47
alpha-methyl styrene	8.35
ethynylbenzene	8.815
naphthalene	8.12
1-methylnapthalene	7.69
2-methylnapthalene	7.955
biphenyl	8.27
phenol	8.50
anisole	8.22
phenetole	8.13
benzaldehyde	9.53
acetophenone	9.27
benzenethiol	8.33
phenyl isocyanate	8.77

Aromatic Compounds

<u>Molecule</u>	<u>IP(eV)</u>
phenyl isothiocyanate	8.520
benzonitrile	9.705
nitrobenzene	9.92
aniline	7.70
fluoro-benzene	9.195
chloro-benzene	9.07
bromo-benzene	8.98
iodo-benzene	8.73
o-dichlorobenzene	9.07
m-dichlorobenzene	9.12
p-dichlorobenzene	8.94
1-chloro-2-fluorobenzene	9.155
1-chloro-3-fluorobenzene	9.21
1-chloro-4-fluorobenzene	8.99
o-fluorotoluene	8.915
m-fluorotoluene	8.915
p-fluorotoluene	8.785
o-chlorotoluene	8.83
m-chlorotoluene	8.83
p-chlorotoluene	8.70
o-bromotoluene	8.79
m-bromotoluene	8.81
p-bromotoluene	8.67
o-iodotoluene	8.62
m-iodotoluene	8.61
p-iodotoluene	8.50
benzotrifluoride	9.68
o-fluorophenol	8.66

Heterocyclic Molecules

<u>Molecule</u>	<u>IP(eV)</u>
furan	8.89
2-methyl furan	8.39
2-furaldehyde	9.21
tetrahydrofuran	9.54
dihydropyran	8.34
tetrahydropyran	9.26
thiophene	8.860
2-chlorothiophene	8.68
2-bromothiophene	8.63
pyrrole	8.20
pyridine	9.32
2-picoline	9.02
3-picoline	9.04
4-picoline	9.04
2,3-lutidine	8.85
2,4-lutidine	8.85
2,6-lutidine	8.85

Miscellaneous Molecules

<u>Molecule</u>	<u>IP(eV)</u>
ethylene oxide	10.565
propylene oxide	10.22
p-dioxane	9.13
dimethoxymethane	10.00
diethoxymethane	9.70
1,1-dimethoxyethane	9.65
propiolactone	9.70
methyl disulfide	8.46
ethyl disulfide	8.27
diethyl sulfite	9.68
thiolacetic acid	10.00
acetyl chloride	11.02
acetyl bromide	10.55
cyclo-C ₆ H ₁₁ CF ₃	10.46
(n-C ₃ F ₇)(CH ₃)C=O	10.58
trichlorovinylsilane	10.79
(C ₂ F ₅) ₃ N	11.7
isoprene	9.08
phosgene	11.77

Notes:

Reference: HNu Systems, Inc., 1985

IP = Ionization Potential

ATTACHMENT 3

PID CALIBRATION AND MAINTENANCE LOG						
Instrument Model Number						
Instrument Serial Number						
Calibration Gas ppm						
Date/Time	Initials	Battery Check	Calibration			
			Background Value	True Gas Value	Measured Gas Value	Adjust
COMMENTS:						



Attachment F

Building Survey and Building
Inventory Form

**NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH**

This form must be completed for each residence involved in indoor air testing.

Preparer's Name _____ Date/Time Prepared _____

Preparer's Affiliation _____ Phone No. _____

Purpose of Investigation _____

1. OCCUPANT:

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

Number of Occupants/persons at this location _____ Age of Occupants _____

2. OWNER OR LANDLORD: (Check if same as occupant ____)

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential
Industrial

School
Church

Commercial/Multi-use
Other: _____

If the property is residential, type? (Circle appropriate response)

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_____

If multiple units, how many? _____

If the property is commercial, type?

Business Type(s) _____

Does it include residences (i.e., multi-use)? Y / N If yes, how many? _____

Other characteristics:

Number of floors _____ Building age _____

Is the building insulated? Y / N How air tight? Tight / Average / Not Tight

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

Airflow near source

Outdoor air infiltration

Infiltration into air ducts

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

- a. Above grade construction: wood frame concrete stone brick
- b. Basement type: full crawlspace slab other _____
- c. Basement floor: concrete dirt stone other _____
- d. Basement floor: uncovered covered covered with _____
- e. Concrete floor: unsealed sealed sealed with _____
- f. Foundation walls: poured block stone other _____
- g. Foundation walls: unsealed sealed sealed with _____
- h. The basement is: wet damp dry moldy
- i. The basement is: finished unfinished partially finished
- j. Sump present? Y / N
- k. Water in sump? Y / N / not applicable

Basement/Lowest level depth below grade: _____(feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other _____

The primary type of fuel used is:

Natural Gas	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: _____

Boiler/furnace located in: Basement Outdoors Main Floor Other _____

Air conditioning: Central Air Window units Open Windows None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level **General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)**

Basement	
1 st Floor	
2 nd Floor	
3 rd Floor	
4 th Floor	

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage?	Y / N
b. Does the garage have a separate heating unit?	Y / N / NA
c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car)	Y / N / NA Please specify
d. Has the building ever had a fire?	Y / N When?
e. Is a kerosene or unvented gas space heater present?	Y / N Where?
f. Is there a workshop or hobby/craft area?	Y / N Where & Type?
g. Is there smoking in the building?	Y / N How frequently?
h. Have cleaning products been used recently?	Y / N When & Type?
i. Have cosmetic products been used recently?	Y / N When & Type?

- j. Has painting/staining been done in the last 6 months? Y / N Where & When? _____
- k. Is there new carpet, drapes or other textiles? Y / N Where & When? _____
- l. Have air fresheners been used recently? Y / N When & Type? _____
- m. Is there a kitchen exhaust fan? Y / N If yes, where vented? _____
- n. Is there a bathroom exhaust fan? Y / N If yes, where vented? _____
- o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N
- p. Has there been a pesticide application? Y / N When & Type? _____

Are there odors in the building?

Y / N

If yes, please describe: _____

Do any of the building occupants use solvents at work?

Y / N

(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist)

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work?

Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

No

Unknown

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: _____

Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply: Public Water Drilled Well Driven Well Dug Well Other: _____

Sewage Disposal: Public Sewer Septic Tank Leach Field Dry Well Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: _____

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

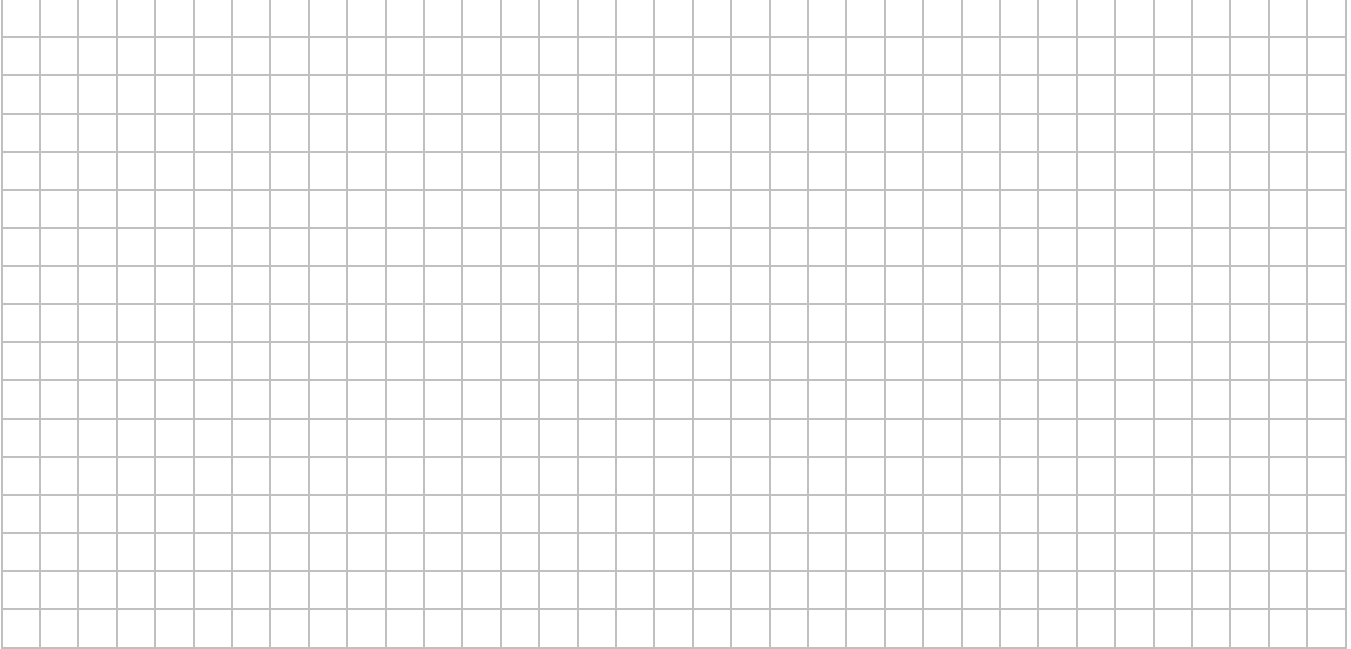
c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

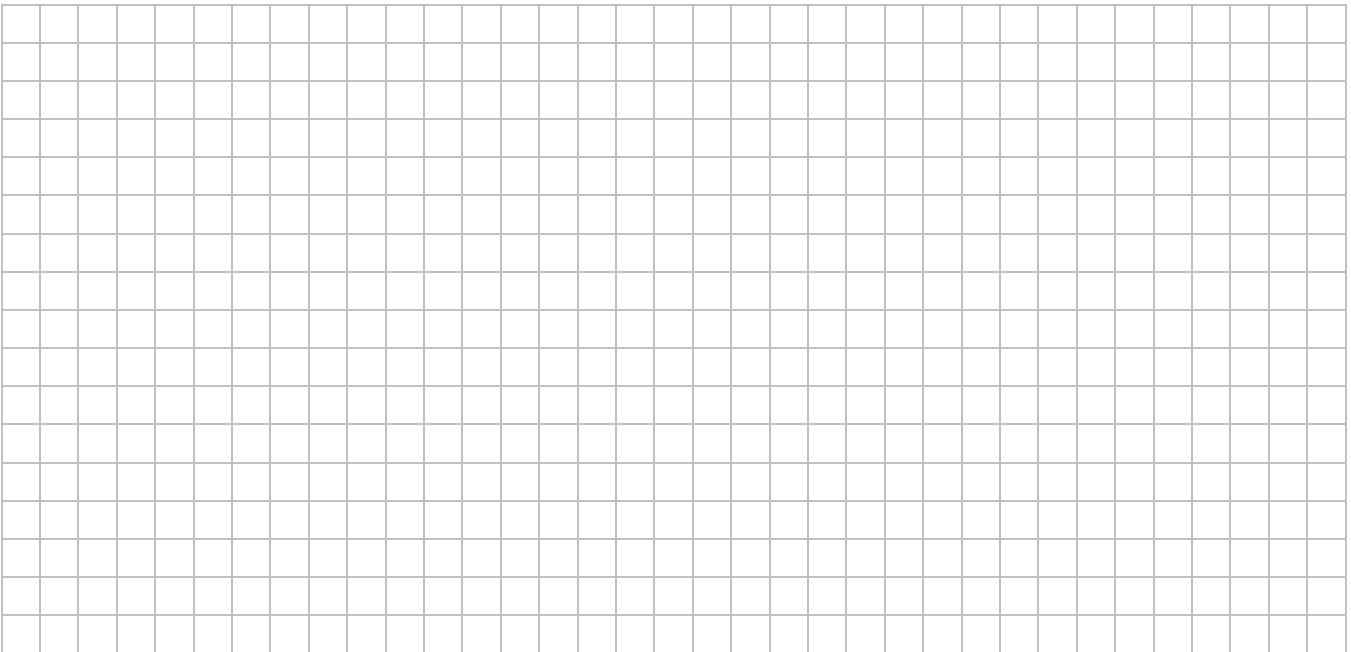
11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:



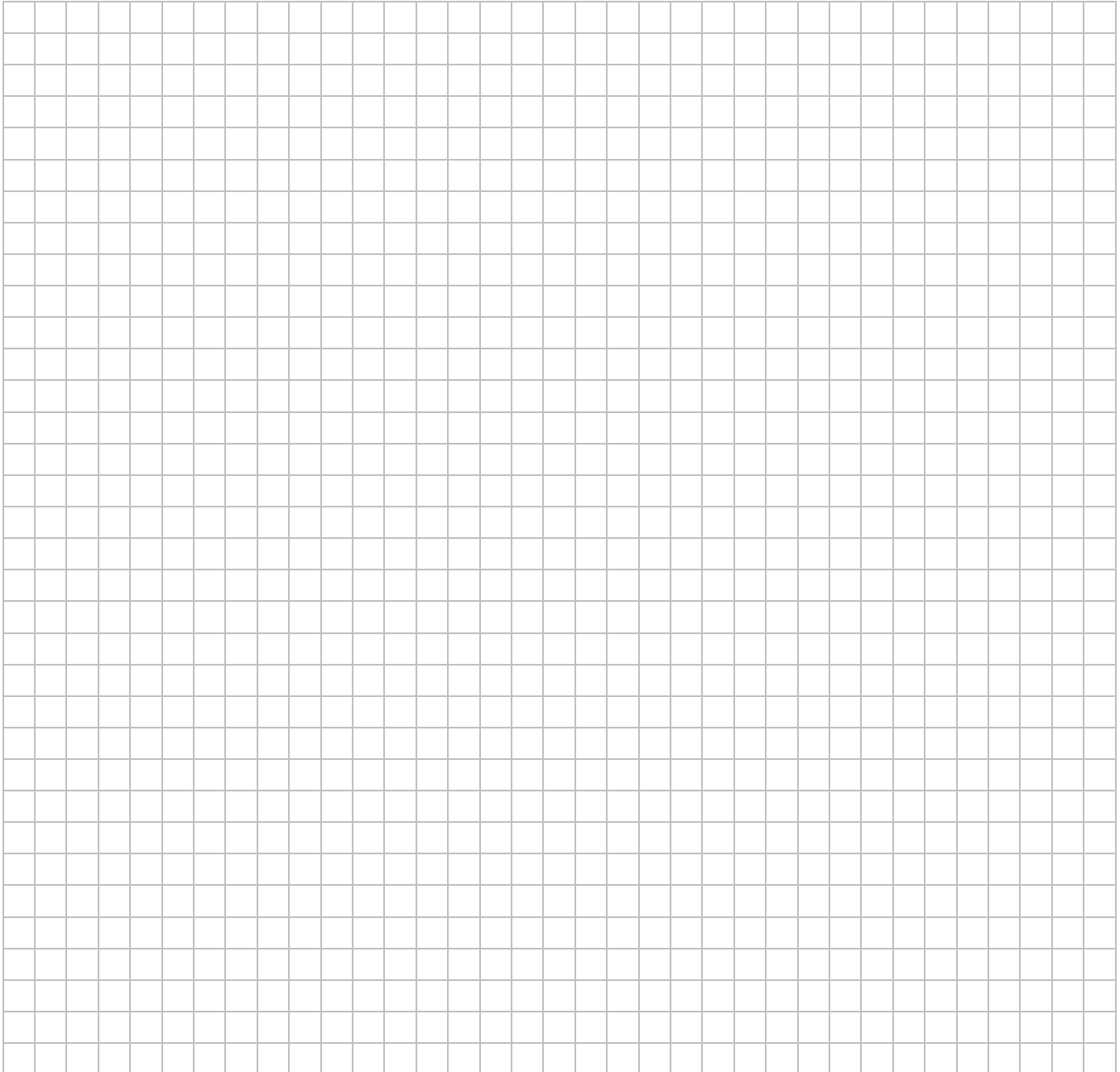
First Floor:



12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: _____

List specific products found in the residence that have the potential to affect indoor air quality.

[illegible]

* Describe the condition of the product containers as **Unopened (UO)**, **Used (U)**, or **Deteriorated (D)**

**** Photographs of the front and back of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.**



Attachment G

Indoor Air/Ambient Air Sample
Collection Log

**ARCADIS***Infrastructure, environment, facilities*

Indoor/Ambient Air Sample Collection Log

Sample ID:

Client:		Date/Day:	
Project:		Sample Intake Height:	
Location:		Subcontractor:	
Project #:		Miscellaneous Equipment:	
Samplers:			
Coordinates:		Time On/Off:	
Outdoor/Indoor:		Subcontractor:	

Instrument Readings:

Time	Canister Pressure (inches Hg)	Temperature (°F)	Relative Humidity (%)	Air Speed (ft/min)	Barometric Pressure	PID (ppb) / (ppm)

SUMMA Canister Information**Size (circle one):** 1 L 6 L**Canister ID:** _____**Flow Controller ID:** _____**General Observations/Notes:**

Photos:
Initial Digital reading pre-sample:
Final Digital reading following sample collection:



Attachment H

Sub-Slab Soil-Gas Sample Collection
Log



Sub-Slab Soil-Gas Sample Collection Log

Sample ID:

Client:		Date/Day:	
Project:		Weather:	
Location:		Temperature:	
Project #:		Wind Speed/Direction:	(ft/min) / (mph)
Samplers:		Subcontractor:	
Logged By:		Equipment:	
Background PID Ambient Air Reading:		Moisture Content of Sampling Zone (circle one):	NA Dry / Moist
Sampling Depth:			
Probe (circle one):	Permanent / Temporary	Approximate Volume of Sampling Train::	
Time of Collection:	Start: Finish:	Approximate Purge Volume:	

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)

SUMMA Canister Information

Size (circle one): 1 L 6 L

Canister ID: _____

Flow Controller ID: _____

Tracer Gas Information (if applicable)

Tracer Gas: _____ Helium / NA

Canister Pressure (inches Hg):

Reported By Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection
	Digital: / Analog:	Digital: / Analog:

Tracer Gas Concentration (if applicable):

Measured from Soil Vapor Tubing		Measured in 'Concentrated' Area		
Post Purge	Post Sample	Prior to Purging	Post Purging	Post Sampling

General Observations/Notes:

Photo ID:
Final Reading:
Differential Pressure:

Approximating One-Well Volume (for purging temporary points):

Each foot of 1/4-inch tubing will have a volume of approximately 10 mL.



Attachment I

Tracer Gas Procedures

Administering Helium Tracer Gas for Leak Checks of Soil Gas or Sub-slab Sampling Points

SOP #416199

Rev. #: 3

Rev Date: July 7, 2010

Approval Signatures

Prepared by:  Date: 07/07/2010
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Approved by:  Date: 07/07/2010
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I. Scope and Application

When collecting subsurface vapor samples as part of a vapor intrusion evaluation, a tracer gas serves as a quality assurance/quality control method to verify the integrity of the vapor port seal and the numerous connections comprising the sample train. Without the use of a tracer, verification that a soil vapor sample has not been diluted by ambient or indoor air is difficult.

This standard operating procedure (SOP) focuses on using helium as a tracer gas. However, depending on the nature of the contaminants of concern, other compounds can be used as a tracer including sulfur hexafluoride (SF₆), butane and propane (or other gases). In all cases, the protocol for using a tracer gas is consistent and includes the following basic steps: (1) enrich the atmosphere in the immediate vicinity of the sample port where ambient air could enter the sampling train during sampling with the tracer gas; and (2) measure a vapor sample from the sample tubing for the presence of elevated concentrations (> 10%) of the tracer. A plastic pail, bucket, garbage can or even a plastic bag can serve to keep the tracer gas in contact with the port during the testing.

There are two basic approaches to testing for the tracer gas:

1. Include the tracer gas in the list of target analytes reported by the laboratory; and/or
2. Use a portable monitoring device to analyze a sample of soil vapor for the tracer prior to sampling for the compounds of concern. (Note that tracer gas samples can be collected via syringe, Tedlar bag, etc. They need not be collected in SUMMA® canisters or minicans.)

This SOP focuses on monitoring helium using a portable sampling device, although helium can also be analyzed by the laboratory along with other volatile organic compounds (VOCs). Real-time tracer sampling is generally preferred as the results can be used to confirm the integrity of the port seals prior to formal sample collection.

During the initial stages of a subsurface vapor sampling program, tracer gas samples should be collected at each of the sampling points. If the results of the initial samples indicate that the port seals are adequate, the Project Manager can consider reducing the number of locations at which tracer gas samples are used in future monitoring rounds. At a minimum, at least 5% of the subsequent samples should be supported with tracer gas analyses. When using permanent soil vapor points as part of a long-term monitoring program, the port should be tested prior to the first sampling event. Tracer gas testing of subsequent sampling events may often be reduced or eliminated unless conditions have changed at the site. Soil gas port integrity should certainly be

rechecked with Tracer gas if land clearing/grading activities, freeze thaw cycles, or soil dessication may have occurred. Points should also be rechecked if more than 2 years have elapsed since the last check of that port.

II. Personnel Qualifications

ARCADIS field sampling personnel will have current health and safety training, including 40-hour HAZWOPER training, site supervisor training, site-specific training, first-aid, and cardiopulmonary resuscitation (CPR), as needed. ARCADIS field sampling personnel will be well versed in the relevant SOPs and possess the required skills and experience necessary to successfully complete the desired field work. ARCADIS personnel responsible for leading the tracer gas testing must have previous experience conducting similar tests.

III. Health and Safety Considerations

Field sampling equipment must be carefully handled to minimize the potential for injury and the spread of hazardous substances. All sampling personnel should review the appropriate health and safety plan (HASP) and job safety analysis (JSA) prior to beginning work to be aware of all potential hazards associated with the job site and the specific task. Field staff should review the attachment on safely handling compressed gas cylinders prior to commencing field work.

IV. Equipment List

The equipment required to conduct a helium tracer gas test is presented below:

- Appropriate PPE for site (as required by the Health and Safety Plan)
- Helium (laboratory grade)
- Regulator for helium tank
- Shroud (plastic bucket, garbage can, etc)
 - o The size of the shroud should be sufficient to fit over the sample port. It is worth noting that using the smallest shroud possible will minimize the volume of helium needed; this may be important when projects require a large number of helium tracer tests.
 - o The shroud will need to have three small holes in it. These holes will include one on the top (to accommodate the sample tubing), and two

on the side (one for the helium detector probe, and one for the helium line).

- o The shroud should ideally enclose the sample port and as much as possible of the sampling train.
- Helium detector capable of measuring from 1 - 100% (Dielectric MGD-2002, Mark Model 9522, or equivalent)
- Tedlar bags
- Seal material for shroud (rubber gasket, modeling clay, bentonite, etc) to keep helium levels in shroud high in windy conditions. Although the sealing material is not in direct contact with the sample if leakage does not occur, sealing materials with high levels of VOC emissions should be avoided, since they could contaminate a sample if a leak occurs.
- Sample logs
- Field notebook

V. Cautions

Helium is an asphyxiant! Be cautious with its use indoors! Never release large volumes of helium within a closed room!

Compressed gas cylinders should be handled with caution; see attachment on the use and storage of compressed gasses before beginning field work.

Care should be taken not to pressurize the shroud while introducing helium. If the shroud is completely air tight and the helium is introduced quickly, the shroud can be over-pressurized and helium can be pushed into the ground. Provide a relief valve or small gap where the helium can escape.

Because minor leakage around the port seal should not materially affect the usability of the soil vapor sampling results, the mere presence of the tracer gas in the sample should not be a cause for alarm. Consequently, portable field monitoring devices with detection limits in the low ppm range are more than adequate for screening samples for the tracer. If high concentrations (> 10%) of tracer gas are observed in a sample, the port seal should be enhanced and fittings within the sampling train should be checked and/or tightened to reduce the infiltration of ambient air and the tracer test readministered. If the problem cannot be rectified, a new sample point should be installed or an alternate sampling train used.

VI. Procedure

The procedure used to conduct the helium tracer test should be specific to the shroud being used and the methods of vapor point installation. The helium tracer test can be conducted when using temporary or permanent sampling points and inside or outside a facility. When using the tracer gas within indoor areas you must provide adequate ventilation as helium is an asphyxiant.

1. Attach Teflon or nylon (Nylaflow) sample tubing to the sample point. This can be accomplished utilizing a number of different methods depending on the sample install (i.e., most typically Swage-Lok brand compression fittings, but some quick release fittings could also be used etc.).
2. Place the shroud over the sample point and tubing.
3. Pull the tubing through hole in top of shroud. Seal opening at top of shroud with modeling clay.
4. Place weight on top of shroud to help maintain a good seal with the ground.
5. Insert helium tubing and helium detector probe into side of shroud. Seal both with modeling clay to prevent leaks.
6. Fill shroud with helium. Fill shroud slowly, allowing atmospheric air to escape either by leaving a gap where the shroud meets the ground surface or by providing a release valve on the side of the shroud.
7. Use the helium detector to monitor helium concentration within the shroud from the lowest hole drilled in the shroud (bottom of the shroud nearest where the sample tubing intersects the ground). Helium should be added until the environment inside the shroud has > 60% helium.
8. Purge the sample point through the sample tubing into a Tedlar bag using a hand held sampling pump. The purge rate should at least match the sample collection rate but not exceed 100 ml/min. Test the air in the Tedlar bag for helium using portable helium detector. If the point is free of leaks there should be very low helium in the purge air from the soil. The natural concentration of helium in the atmosphere is 0.00052% by volume and there are few if any natural sources of helium to soil gas.
9. If > 10% helium is noted in purge air, add more clay or other material to the seal the sample port and repeat the testing procedure. If the seal cannot be fixed, re-install sample point.

10. Monitor and record helium level in shroud before, during and after tracer test.
11. Monitor and record helium level in purge exhaust.
12. At successful completion of tracer test and sample point purging, the soil vapor sample can be collected (if the helium shroud must be removed prior to sample collection be mindful not disturb the sample tubing and any established seals).

VII. Data Recording and Management

Measurements will be recorded on the sample logs at the time of measurement with notations of the project name, sample date, sample start and finish time, sample location, and the helium concentrations in both the shroud and the purge air before, during, and after tracer testing. Any problems encountered should also be recorded in the field notes.

ATTACHMENT: Compressed Gases—Use and Storage

In general, a compressed gas is any material contained under pressure that is dissolved or liquefied by compression or refrigeration. Compressed gas cylinders should be handled as high-energy sources and therefore as potential explosives and projectiles. Prudent safety practices should be followed when handling compressed gases since they expose workers to both chemical and physical hazards.

Handling

- Safety glasses with side shields (or safety goggles) and other appropriate personal protective equipment should be worn when working with compressed gases.
- Cylinders should be marked with a label that clearly identifies the contents.
- All cylinders should be checked for damage prior to use. Do not repair damaged cylinders or valves. Damaged or defective cylinders, valves, etc., should be taken out of use immediately and returned to the manufacturer/distributor for repair.
- All gas cylinders (full or empty) should be rigidly secured to a substantial structure at 2/3 height. Only two cylinders per restraint are allowed in the laboratory and only soldered link chains or belts with buckles are acceptable. Cylinder stands are also acceptable but not preferred.
- Handcarts shall be used when moving gas cylinders. Cylinders must be chained to the carts.
- All cylinders must be fitted with safety valve covers before they are moved.
- Only three-wheeled or four-wheeled carts should be used to move cylinders.
- A pressure-regulating device shall be used at all times to control the flow of gas from the cylinder.
- The main cylinder valve shall be the only means by which gas flow is to be shut off. The correct position for the main valve is all the way on or all the way off.
- Cylinder valves should never be lubricated, modified, forced, or tampered with.
- After connecting a cylinder, check for leaks at connections. Periodically check for leaks while the cylinder is in use.
- Regulators and valves should be tightened firmly with the proper size wrench. Do not use adjustable wrenches or pliers because they may damage the nuts.
- Cylinders should not be placed near heat or where they can become part of an electrical circuit.
- Cylinders should not be exposed to temperatures above 50 °C (122 °F). Some rupture devices on cylinders will release at about 65 °C (149 °F). Some small cylinders, such as lecture bottles, are not fitted with rupture devices and may explode if exposed to high temperatures.

- Rapid release of a compressed gas should be avoided because it will cause an unsecured gas hose to whip dangerously and also may build up enough static charge to ignite a flammable gas.
- Appropriate regulators should be used on each gas cylinder. Threads and the configuration of valve outlets are different for each family of gases to avoid improper use. Adaptors and homemade modifications are prohibited.
- Cylinders should never be bled completely empty. Leave a slight pressure to keep contaminants out.

Storage

- When not in use, cylinders should be stored with their main valve closed and the valve safety cap in place.
- Cylinders must be stored upright and not on their side. All cylinders should be secured.
- Cylinders awaiting use should be stored according to their hazard classes.
- Cylinders should not be located where objects may strike or fall on them.
- Cylinders should not be stored in damp areas or near salt, corrosive chemicals, chemical vapors, heat, or direct sunlight. Cylinders stored outside should be protected from the weather.

Special Precautions

Flammable Gases

- No more than two cylinders should be manifolded together; however several instruments or outlets are permitted for a single cylinder.
- Valves on flammable gas cylinders should be shut off when the laboratory is unattended and no experimental process is in progress.
- Flames involving a highly flammable gas should not be extinguished until the source of the gas has been safely shut off; otherwise it can reignite causing an explosion.

Acetylene Gas Cylinders

- Acetylene cylinders must always be stored upright. They contain acetone, which can discharge instead of or along with acetylene. Do not use an acetylene cylinder that has been stored or handled in a nonupright position until it has remained in an upright position for at least 30 minutes.
- A flame arrestor must protect the outlet line of an acetylene cylinder.
- Compatible tubing should be used to transport gaseous acetylene. Some tubing like copper forms explosive acetylides.

Lecture Bottles

- All lecture bottles should be marked with a label that clearly identifies the contents.
- Lecture bottles should be stored according to their hazard classes.
- Lecture bottles that contain toxic gases should be stored in a ventilated cabinet.
- Lecture bottles should be stored in a secure place to eliminate them from rolling or falling.
- Lecture bottles should not be stored near corrosives, heat, direct sunlight, or in damp areas.
- To avoid costly disposal fees, lecture bottles should only be purchased from suppliers that will accept returned bottles (full or empty). Contact the supplier before purchasing lecture bottles to ensure that they have a return policy.
- Lecture bottles should be dated upon initial use. It is advised that bottles be sent back to the supplier after one year to avoid accumulation of old bottles.



Attachment J

Investigation-Derived Waste Handling
and Storage

Investigation-Derived Waste Handling and Storage

Rev. #: 2

Rev Date: March 6, 2009

Approval Signatures

Prepared by: Andrew Kamik Date: 3/6/09

Reviewed by: Liz Marsh Date: 3/6/09
(Technical Expert)

I. Scope and Application

The objective of this Standard Operating Procedure (SOP) is to describe the procedures to manage investigation-derived wastes (IDW), both hazardous and non-hazardous, generated during site activities, which may include, but are not limited to - drilling, trenching/excavation, construction, demolition, monitoring well sampling, soil sampling, decontamination and remediation. Please note that this SOP is intended for materials that have been deemed a solid waste as defined by 40 CFR § 261.2 (which may include liquids, solids, and sludges). In some cases, field determinations will be made based on field screening or previous data that materials are not considered a solid waste. IDW may include soil, groundwater, drilling fluids, decontamination liquids, personal protective equipment (PPE), sorbent materials, construction and demolition debris, and disposable sampling materials that may have come in contact with potentially impacted materials. IDW will be collected and staged at the point of generation. Quantities small enough to be containerized in 55-gallon drums will be taken to a designated temporary storage area (discussed in further detail under Drum Storage) onsite pending characterization and disposal. Waste materials will be analyzed for constituents of concern to evaluate proper disposal methods. PPE and disposable sampling equipment will be placed in DOT-approved drums prior to disposal and typically does not require laboratory analysis. This SOP describes the necessary equipment, field procedures, materials, regulatory references, and documentation procedures necessary for proper handling and storage of IDW up to the time it is properly disposed. The procedures for handling IDW are based on the United States Environmental Protection Agency's Guide to Management of Investigation Derived Wastes (USEPA, 1992). IDW is assumed to be contaminated with the site constituents of concern (COCs) until analytical evidence indicates otherwise. IDW will be managed to ensure the protection of human health and the environment and will comply with all applicable or relevant and appropriate requirements (ARAR). The following Laws and Regulations on Hazardous Waste Management are potential ARAR for this site.

State Laws and Regulations

- To Be Determined Based on Location of Site and Location of Treatment, Storage, and/or Disposal Facility (TSDF) to be utilized

Federal Laws and Regulations

- Resource Conservation and Recovery Act (RCRA) 42 USC § 6901-6987
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) 42 USC § 9601-9675

- Superfund Amendments and Reauthorization Act (SARA)
- Department of Transportation (DOT) Hazardous Materials Transportation

Pending characterization, IDW will be stored appropriately within each area of contamination (AOC). Under RCRA, "storage" is defined as the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere" (40 CFR § 260.10). The onsite waste staging area will be in a secure and controlled area. Waste characterization can either be based on generator knowledge, such as using materials safety data sheets (MSDS'), or can be based upon analytical results. The laboratory used for waste characterization analysis must have the appropriate state and federal certifications and be approved by ARCADIS and Client. IDW will be classified as RCRA hazardous or non-regulated under RCRA based on the waste characterization.

If IDW is characterized as RCRA hazardous waste, RCRA and DOT requirements must be followed for packaging, labeling, transporting, storing, and record keeping as described in 40 CFR § 262 and 49 CFR § 171-178. Wastes judged to potentially meet the criteria for hazardous wastes shall be stored in DOT approved packaging. Waste material classified as RCRA non-hazardous may be handled and disposed of as an industrial waste.

Liquid wastes judged to potentially meet the criteria for hazardous wastes shall be stored in DOT approved 55 gallon drums or other approved containers that are compatible with the type of material stored therein. Solid materials deemed to potentially meet hazardous criteria will be drummed where practicable. Large quantities of potentially hazardous solid materials must be containerized (such as in a roll-off box) for up to a maximum of 90 or 180 days as described in the Excavated Solids Section. Waste material classified as non-hazardous may be handled and disposed of as an industrial waste and is not subject to the 90-day or 180-day on-site storage limitation.

This is a standard (i.e., typically applicable) operating procedure which may be varied or changed as required, dependent upon site conditions, equipment limitations, or limitations imposed by the procedure. The ultimate procedure employed will be documented in the project work plans or reports. If changes to the sampling procedures are required due to unanticipated field conditions, the changes will be discussed with the Project Manager and Client as soon as practicable and documented in the report.

II. Personnel Qualifications

ARCADIS field sampling personnel will have current health and safety training including 40-hour HAZWOPER training, site supervisor training, site-specific training, first aid, and CPR, as needed. ARCADIS personnel may sign manifests on a case-to-case basis for clients, provided the appropriate agreement is in place between ARCADIS and the client documenting that ARCADIS is not the generator, but is acting as authorized representative for the generator. ARCADIS personnel who sign hazardous waste manifests will have the current DOT hazardous materials transportation training according to 49 CFR § 172.704. ARCADIS field personnel will also comply with client-specific training such as LPS. In addition, ARCADIS field sampling personnel will be versed in the relevant SOPs and possess the required skills and experience necessary to successfully complete the desired field work.

III. Equipment List

The following materials, as required, shall be available for IDW handling and storage:

Appropriate personal protective equipment as specified in the Site Health and Safety Plan

- 55-gallon steel drums, DOT 1A2 or equivalent
- $\frac{3}{4}$ -inch socket wrench
- Hammer
- Leather gloves
- Drum dolly
- Appropriate drum labels (outdoor waterproof self adhesive)
- Polyethylene storage tank
- Appropriate labeling, packing, chain-of-custody forms, and shipping materials as specified in the *Chain-of-Custody SOP* and *Field Sampling Handling, Packing, and Shipping SOP*.
- Indelible ink and/or permanent marking pens
- Plastic sheeting

- Appropriate sample containers, labels, and forms
- Stainless-steel bucket auger
- Stainless steel spatula or knife
- Stainless steel hand spade
- Stainless steel scoop
- Digital camera
- Field logbook.

IV. Cautions

- Filled drums can be very heavy, always use appropriate moving techniques and equipment.
- Similar media will be stored in the same drums to aid in sample analysis and disposal.
- Drum lids must be secured to prevent rainwater from entering the drums.
- Drums containing solid material may not contain any free liquids.
- Waste containers stored for extended periods of time may be subject to deterioration. Drum over packs may be used as secondary containment.
- All drums must be in good condition to prevent potential leakage and facilitate subsequent disposal. Inspect the drums for dents and rust, and verify the drum has a secure lid prior to use.

V. Health and Safety Considerations

- Appropriate personal protective equipment must be worn by all field personnel within the designated work area.
- Air monitoring may be required during certain field activities as required in the Site Health and Safety Plan.

- If excavating in potentially hazardous areas is possible, contingency plans should be developed to address the potential for encountering gross contamination or non-aqueous phase liquids.
- ARCADIS field personnel will be familiar and compliant with Client-specific health and safety requirements such as Chevron's hand safety policy including the prohibition of fixed and/or folding blade knives.

VI. Procedure

Waste storage and handling procedures to be used depend upon the type of generated waste. For this reason, IDW should be stored in a secure location onsite in separate 55-gallon storage drums, solids can be stockpiled onsite (if non-hazardous), and purge water may be stored in polyethylene tanks. Waste materials such as broken sample bottles or equipment containers and wrappings will be stored in 55-gallon drums unless they were not in contact with sample media.

Management of IDW

Minimization of IDW should be considered by the Project Manager during all phases of the project. Site managers may want to consider techniques such as replacing solvent-based cleaners with aqueous-based cleaners for decontamination of equipment, reuse of equipment (where it can be decontaminated), limitation of traffic between exclusion and support zones, and drilling methods and sampling techniques that generate little waste. Alternative drilling and subsurface sampling methods may include the use of small diameter boreholes, as well as borehole testing methods such as a core penetrometer or direct push technique instead of coring (EPA, 1993).

Drum Storage

Drums containing hazardous waste shall be stored in accordance with the requirements of 40 CFR 265 Subpart I (for containers) and 265 Subpart DD (for containment buildings). All 55-gallon drums will be stored at a secure, centralized on-site location that is readily accessible for vehicular pick-up. Drums confirmed as, or believed to contain hazardous waste will be stored over an impervious surface provided with secondary containment. The storage location will, for drums containing liquid, have a containment system that can contain at least the larger of 10% of the aggregate volume of staged materials or 100% of the volume of the largest container. Drums will be closed during storage and be in good condition in accordance with the Guide to Management of Investigation-Derived Wastes (USEPA, 1992).

Hazardous Waste Determination

Waste material must be characterized to determine if it meets any of the federal definitions of hazardous waste as required by 40 CFR § 262.11. If the waste does not meet any of the federal definitions, it must then be established if any state-specific hazardous waste criteria exist/apply.

Generator Status

Once hazardous waste determination has been made, the generator status will be determined. Large quantity generators (LQG) are generators who generate more than 1,000 kilograms of hazardous waste in a calendar month. Small quantity generators (SQG) of hazardous waste are generators who generate greater than 100 kilograms but less than 1,000 kilograms of hazardous waste in a calendar month. Conditionally exempt small quantity generators (CESQG) are generators who generate less than 100 kilograms of hazardous waste per month. Please note that a generator status may change from month to month and that a notice of this change is usually required by the generator's state agency.

Accumulation Time for Hazardous Waste

A LQG may accumulate hazardous waste on site for 90 days or less without a permit and without having interim status provided that such accumulation is in compliance with specifications in 40 CFR § 262.34. A SQG may accumulate hazardous waste on site for 180 days or less without a permit or without having interim status subject to the requirements of 40 CFR § 262.34(d). CESQG requirements are found in 40 CFR § 261.5. **NOTE:** The CESQG and SQG provisions of 40 CFR § 261.5, 262.20(e), 262.42(b) and 262.44 may not be recognized by some states (e.g. Rhode Island).

State-specific regulations must be reviewed and understood prior to the generation of hazardous waste.

Satellite Accumulation of Hazardous Waste

Satellite accumulation (SAA) shall mean the accumulation of as much as fifty-five (55) gallons of hazardous waste, or the accumulation of as much as one quart of acutely hazardous waste, in containers at or near any point of generation where the waste initially accumulates, which is under the control of the operator of the process generating the waste, without a permit or interim status and without complying with the requirements of 40 CFR § 262.34(a) and without any storage time limit, provided that the generator complies with 40 CFR § 262.34(c)(1)(i).

Once more than 55 gallons of hazardous waste accumulates in SAA, the generator has three days to move this waste into storage.

Storage recommendations for hazardous waste include:

- Ignitable Hazardous wastes must be >50 feet from the property line per 40 CFR § 265.176 (LQG generators only).
- Hazardous waste must be stored on a concrete slab (asphalt is acceptable if there are no free liquids in the waste) per 40 CFR § 265.176.
- Drainage must be directed away from the accumulation area.
- Area must be properly vented.
- Area must be secure.

Drum/Container Labeling

Drums will be labeled on both the side and lid of the drum using a permanent marking pen. Old drum labels must be removed to the extent possible, descriptions crossed out should any information remain, and new labels affixed on top of the old labels. Other containers used to store various types of waste (polyethylene tanks, roll-off boxes, end-dump trailers, etc.) will be labeled with an appropriate "Waste Container" or "Testing in Progress" label pending characterization. Drums and containers will be labeled as follows:

- Appropriate waste characterization label (Testing In Progress, Hazardous, or Non-Hazardous)
- Waste generator's name (e.g., client name)
- Project name
- Name and telephone number of ARCADIS project manager
- Composition of contents (e.g., used oil, acetone 40%, toluene 60%)
- Media (e.g., solid, liquid)
- Accumulation start date

- Drum number of total drums as reconciled with the Drum Inventory maintained in the field log book.

IDW containers will remain closed except when adding or removing waste. Immediately upon beginning to place waste into the drum/container, a "Waste Container" or "Testing in Progress" label will be filled out to include the information specified above, and affixed to the container. Once the contents of the container are identified as either non-hazardous or hazardous, the following additional labels will be applied. Containers with waste determined to be non-hazardous will be labeled with a green and white "Non-Hazardous Waste" label over the "Waste Container" label. Containers with waste determined to be hazardous will be stored in an onsite storage area and will be labeled with the "Hazardous Waste" label and affixed over the "Waste Container" label. The ACCUMULATION DATE for the hazardous waste is the date the waste is first placed in the container and is the same date as the date on the "Waste Container" label. DOT hazardous class labels must be applied to all hazardous waste containers for shipment offsite to an approved disposal or recycling facility. In addition a DOT proper shipping name shall be included on the hazardous waste label. The transporter should be equipped with the appropriate DOT placards. However, placarding or offering placards to the initial transporter is the responsibility of the generator per 40 CFR § 262.33.

Inspections and Documentation

All IDW will be documented as generated on a Drum Inventory Log maintained in the field log book. The Drum Inventory will record the generation date, type, quantity, matrix and origin (e.g. Boring-1, Test Pit 3, etc) of materials in every drum, as well as a unique identification number for each drum. The drum inventory will be used during drum pickup to assist with labeling of drums. The drum storage area and any other areas of temporarily staged waste, such as soil/debris piles, will be inspected weekly. The weekly inspections will be recorded in the field notebook or on a Weekly Inspection Log. Digital photographs will be taken upon the initial generation and drumming/staging of waste, and final labeling after characterization to document compliance with labeling and storage protocols, and condition of the container. Evidence of damage, tampering or other discrepancy should be documented photographically.

Emergency Response and Notifications

Specific procedures for responding to site emergencies will be detailed in the HASP. If the generator is designated as a LQG, a Contingency Plan will need to be prepared to include emergency response and notification procedures per 40 CFR § 265 Subpart D. In the event of a fire, explosion, or other release which could threaten human health

outside of the site or when Client or ARCADIS has knowledge of a spill that has reached surface water, Client or ARCADIS must immediately notify the National Response Center (800-424-8802) in accordance with 40 CFR § 262.34. Other notifications to state agencies may also be necessary.

Drilling Soil Cuttings and Muds

Soil cuttings are solid to semi-solid soils generated during trenching activities, subsurface soil sampling, or installation of monitoring wells. Depending on the drilling method, drilling fluids known as "muds" may be used to remove soil cuttings. Drilling fluids flushed from the borehole must be directed into a settling section of a mud pit. This allows reuse of the decanted fluids after removal of the settled sediments. Soil cuttings will be labeled and stored in 55-gallon drums with bolt-sealed lids.

Excavated Solids

Excavated solids may include, but are not limited to soil, fill and construction and demolition debris. Excavated solids may be temporarily stockpiled onsite as long as the material is a RCRA non-hazardous waste and the solids will be treated onsite pursuant to a certified, authorized, or permitted treatment method, or properly disposed off-site. Stockpiled materials characterized as hazardous must be immediately containerized and removed from the site within 90 days of generation (except for soils using satellite accumulation). Excavated solids should be stockpiled and maintained in a secure area onsite. At a minimum, the floor of the stockpile area will be covered with a 20-mil high density polyethylene liner that is supported by a foundation or at least a 60-mil high density polyethylene liner that is not supported by a foundation. The excavated material will not contain free liquids. The owner/operator will provide controls for windblown dispersion, run-on control, and precipitation runoff. The run-on control system will prevent flow onto the active portion of the pile during peak discharge from at least a 25-year storm and the run-off management system will collect and control at least the water volume resulting from a 24-hour, 25-year storm (EPA, 1992). Additionally, the stockpile area will be inspected on a weekly basis and after storm events. Individual states may require that the stockpile be inspected/certified by a licensed professional engineer. Stockpiled material will be covered with a 6-mil polyvinyl chloride (PVC) liner. The stockpile cover will be secured in place with appropriate material (concrete blocks, weights, etc.) to prevent the movement of the cover. Excavated solids may also be placed in roll off containers and covered with a 6-mil PVC liner pending results for waste characterization.

Decontamination Solutions

Decontamination solutions are generated during the decontamination of personal protective equipment and sampling equipment. Decontamination solutions may range from detergents, organic solvents and acids used to decontaminate small field sampling equipment to steam cleaning rinsate used to wash heavy field equipment. These solutions are to be labeled and stored in 55-gallon drums with bolt-sealed lids.

Disposable Equipment

Disposable equipment includes personal protective equipment (tyvek coveralls, gloves, booties and APR cartridges) and disposable sampling equipment such as trowels or disposable bailers. If the media sampled exhibits hazardous characteristics per results of waste characterization sampling, disposable equipment will also be disposed of as a hazardous waste. These materials will be stored onsite in labeled 55-gallon drums pending analytical results for waste characterization.

Purge Water

Purge water includes groundwater generated during well development, groundwater sampling, or aquifer testing. The volume of groundwater generated will dictate the appropriate storage procedure. Monitoring well development and groundwater sampling may generate three well volumes of groundwater or more. This volume will be stored in labeled 55-gallon drums. Aquifer tests may generate significantly greater volumes of groundwater depending on the well yield and the duration of the test. Therefore, large-volume portable polyethylene tanks will be considered for temporary storage pending groundwater-waste characterization.

Purged Water Storage Tank Decontamination and Removal

The following procedures will be used for inspection, cleaning, and offsite removal of storage tanks used for temporary storage of purge water. These procedures are intended to be used for rented portable tanks such as Baker Tanks or Rain for Rent containers. Storage tanks will be made of inert polyethylene materials.

The major steps for preparing a rented tank for return to a vendor include characterizing the purge water, disposing of the purge water, decontaminating the tank, final tank inspection, and mobilization. Decontamination and inspection procedures are describe in further detail below.

- Tank Cleaning: Most vendors require that tanks be free of any sediment and water before returning, a professional cleaning service may be required. Each

specific vendor should be consulted concerning specific requirements for returning tanks.

- Tank Inspection: After emptying the tank, purged water storage tanks should be inspected for debris, chemical staining, and physical damage. The vendors require that tanks be returned in the original condition (i.e., free of sediment, staining and no physical damage).

VII. Waste Characterization Sampling and Shipping

Soil/Solids Characterization

Waste characterization will be conducted in accordance with waste hauler, waste handling facility, and state/federal requirements. In general, RCRA hazardous wastes are those solid wastes determined by a Toxicity Characteristic Leaching Procedure (TCLP) test or to contain levels of certain toxic metals, pesticides, or other organic chemicals above specific federally regulated thresholds. If the one or more of 40 toxic compounds listed in Table I of 40 CFR § 261.24 are detected in the sample at levels above the maximum unregulated concentrations, the waste must be characterized as a toxic hazardous waste. Wastes can also be considered "listed" hazardous waste depending on site-specific processes.

Composite soil samples will be collected at a frequency of one sample per 10 cubic yard basis for stockpiled soil or one per 55-gallon drum for containerized. A four point composite sample will be collected per 10 cubic yards of stockpiled material and for each drum. Sample and composite frequencies may be adjusted in accordance with the waste handling facility's requirements. Waste characterization samples may be analyzed for the TCLP volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), TCLP RCRA metals, and polychlorinated biphenyls, as well as corrosivity (pH), reactivity and flammability (flashpoint). Additional samples may be collected and analyzed by the laboratory on a contingency basis.

Wastewater Characterization

Waste characterization will be conducted in accordance with the requirements of the waste hauler, waste handling facility, and state/federal governments. In general, purge water should be analyzed by methods appropriate for the known contaminants, if any, that have been historically detected in the monitoring wells. Samples will be collected and analyzed in accordance with the requirements of the waste disposal facility.

Wastewater characterization samples may be analyzed for TCLP volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), TCLP RCRA

metals, and polychlorinated biphenyls, as well as corrosivity (pH), reactivity and flammability (flashpoint). Additional samples may be collected and analyzed by the laboratory on a contingency basis.

Sample Handling and Shipping

All samples will be appropriately labeled, packed, and shipped, and the chain-of-custody will be filled out in accordance with the Chain-of-Custody SOP and Field Sampling Handling, Packing, and Shipping SOP and Hazardous Materials Packaging and Shipping SOP.

It should be noted that additional training is required for packaging and shipping of hazardous and/or dangerous materials. Please reference the following ARCADIS intranet team page for more information: <http://team/sites/hazmat/default.aspx>.

Preparing Waste Shipment Documentation (Hazardous and Non-Hazardous)

Waste profiles will be prepared by the ARCADIS PM and forwarded, along with laboratory analytical data to the Client PM for approval/signature. The Client PM will then return the profile to ARCADIS who will then forward to the waste removal contractor for preparation of a manifest. The manifest will be reviewed by ARCADIS prior to forwarding to the Client PM for approval. Upon approval of the manifest, the Client PM will return the original signed manifest directly to the waste contractor or to the ARCADIS PM for forwarding to the waste contractor.

Final drum labeling and pickup will be supervised by an ARCADIS representative who is experienced with waste labeling procedures. The ARCADIS representative will have a copy of the drum inventory maintained in the field book and will reconcile the drum inventory with the profile numbers on the labels and on the manifest. Different profile numbers will be generated for different matrices or materials in the drums. For example, the profile number for drill cuttings will be different than the profile number for purge water. **When there are multiple profiles it is critical that the proper label, with the profile number appropriate to a specific material be affixed to the proper drums.** A copy of the ARCADIS drum inventory will be provided to the waste transporter during drum pickup and to the facility receiving the waste.

VIII. Data Recording and Management

Waste characterization sample handling, packing, and shipping procedures will be documented in accordance with the *Quality Assurance Project Plan*, if one exists. Copies of the chains-of-custody forms will be maintained in the project file.

Following waste characterization, IDW containers will be re-labeled with the appropriate waste hazardous or non-hazardous waste labels and the client will initiate disposal at the appropriate waste disposal facility.

IX. Quality Assurance

The chain-of-custody and sample labels for waste characterization samples will be filled out in accordance with the *Quality Assurance Project Plan*.

X. References

United States Environmental Protection Agency (USEPA). 1992. Guide to Management of Investigation-Derived Wastes. Office of Remedial and Emergency Response. Hazardous Site Control Division. January 1992.

USEPA. 1991. *Guide to Discharging CERCLA Aqueous Wastes to Publicly Owned Treatment Works (POTWs)*. Office of Remedial and Emergency Response. Hazardous Site Control Division OS-220W. March 1991.

APPENDIX I

Quality Assurance Project Plan



**Former Hooker Chemical/Oxy/Ruco
Polymer Corporation Site**

Quality Assurance Project Plan

125 New South Road
Hicksville, New York

September 2017



A handwritten signature in black ink that reads "John C. Brussel".

John Brussel
Arcadis Principal Engineer

A handwritten signature in blue ink that reads "Dennis K. Capria".

Dennis Capria
Arcadis Quality Assurance Coordinator

Quality Assurance Project Plan

Former Hooker
Chemical/Oxy/Ruco Polymer
Corporation Site
125 New South Road
Hicksville, New York

Prepared for:
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Our Ref.:
B0032305.1501

Date:
September 2017

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Attachment

1	Chain of Custody Form

List of Acronyms

%D	percent difference
APM	Assistant Project Manager
ASP	Analytical Services Protocol
CLP	contract laboratory program
DQI	data quality indicator
DQO	data quality objective
EDD	electronic data deliverable
FSP	Field Sampling Plan
ft	feet
GC/MS	gas chromatography/mass spectrometry
GIS	Geographic Information System
IDW	investigation-derived waste
LCS	laboratory control sample
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
NYSDEC	New York State Department of Environmental Conservation
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PM	Project Manager
QA	quality assurance
QAC	Quality Assurance Coordinator
QAPP	Quality Assurance Project Plan
QC	quality control
RL	reporting limit
RPD	relative percent difference
SCO	soil cleanup objective



SDG	sample delivery group
SMP	Site Management Plan
SVOC	semi-volatile organic compound
TBD	to be determined
TM	Task Manager
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

Introduction

This Quality Assurance Project Plan (QAPP), attachment to the Site Management Plan (SMP), by Arcadis of New York, Inc. (Arcadis) presents the analytical methods and procedures that will be used for data collection and analysis associated with the Former Hooker Chemical/Oxy/Ruco Polymer Corporation Site located at 125 New South Road, Hicksville, New York (the Site).

This QAPP was prepared in a manner consistent with the following reference and guidance documents:

- New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation *Technical Guidance for Site Investigation and Remediation*, DER-10 (NYSDEC, 2010);
- United States Environmental Protection Agency (USEPA) *Test Methods for Evaluating Solid Waste*, SW-846 (USEPA, 1996);
- USEPA *EPA Requirements for Quality Assurance Project Plans*, EPA-QA/R-5 (USEPA, 2001) (<http://epa.gov/quality/qs-docs/r5-final.pdf>);
- USEPA *Guidance for Quality Assurance Project Plans*, EPA-QA/G-5 (USEPA, 2002) (<http://epa.gov/quality/qs-docs/g5-final.pdf>); and
- USEPA *Guidance on Systematic Planning Using the Data Quality Objectives Process*, EPA-QA/G-4 (USEPA, 2006) (<http://www.epa.gov/QUALITY/qs-docs/g4-final.pdf>).

Information contained in this QAPP has been organized into the following sections:

Section	Content
<i>Project Management</i>	
1	Project Organization
2	Project Background
3	Project Description
4	Data Quality Objectives and Criteria for Measurement Data
5	Special Training Requirements/Certification
6	Documentation and Records

Section	Content
<i>Measurement/Data Acquisition</i>	
7	Sampling Process Design
8	Sampling Method Requirements
9	Sample Handling and Custody Requirements
10	Analytical Method Requirements
11	Quality Control Requirements
12	Instrument/Equipment Testing, Inspection and Maintenance Requirements
13	Instrument Calibration and Frequency
14	Inspection/Acceptance Requirements for Supplies and Consumables
15	Data Acquisition Requirements for Non-Direct Measurements
16	Data Management
<i>Assessment/Oversight</i>	
17	Assessment and Response Actions
18	Reports to Management
<i>Data Validation and Usability</i>	
19	Data Reduction and Review
20	Data Validation and Verification
21	Reconciliation with User Requirements
22	References

Details on each of the subjects listed above are provided in the subsequent sections.

1. Project Organization

1.1 Project Organization

The activities to be completed under the SMP will require integration of personnel from the organizations identified below, collectively referred to as the project team. A detailed description of the responsibilities of each member of the project team is presented below.

Arcadis, on behalf of Covestro, has overall technical responsibility for site activities. Arcadis personnel will perform related sampling activities and will evaluate data and prepare the deliverables as specified in the SMP. Project direction will be provided by Covestro. A listing of key project management personnel and their responsibilities is provided below.

Company/ Organization	Title	Name	Phone Number	Email
NYSDEC	Project Manager	Steven Scharf	518.402.9620	steven.scharf@dec.ny.gov
Covestro	Project Manager	Tim Troutman	412.777.2236	tim.troutman@covestro.com
Arcadis	Principal Engineer	John Brussel	315.671.9441	john.brussel@arcadis.com
	Task Manager	Lawrence Healy	315.671.9338	lawrence.healy@arcadis.com
	QA Coordinator	Dennis Capria	315.671.9299	dennis.capria@arcadis.com
Laboratory – Pace Analytical Services	QA Manager	Nicole Crespi	631.694.3040	NCrespi@h2mlabs.com
Laboratory – Pace Analytical Services	Project Manager	Jennifer Aracri	631.694.3040	jaracri@h2mlabs.com
Contractor/ Subcontractor - TBD	Field Personnel	TBD	TBD	TBD

TBD = To Be Determined

1.2 Team Member Responsibilities

The responsibilities of the various team members are summarized below.

1.2.1 Covestro

- Overseeing Arcadis work products.
- Providing approval of major Arcadis project deliverables.
- Reviewing Arcadis work products.

1.2.2 Arcadis

Project Manager (PM)

- Managing and coordinating the project as defined in the SMP with an emphasis on adhering to the objectives of the site activities.
- Reviewing documents prepared by Arcadis.
- Verifying that corrective actions are taken for deficiencies cited during audits of site activities.

Task Manager (TM)

- Managing relevant day-to-day activities.
- Developing, establishing, and maintaining files on relevant site activities.
- Reviewing data reductions from the relevant site activities.
- Performing final data review of field data reductions and reports on relevant site activities.
- Verifying that corrective actions are taken for deficiencies cited during audits of relevant site activities.

- Performing overall quality assurance(QA)/quality control (QC) of relevant portions of the site activities.
- Reviewing relevant field records and logs.
- Instructing personnel working on relevant site activities.
- Coordinating field and laboratory schedules pertaining to relevant site activities.
- Requesting sample bottles from the laboratory.
- Reviewing field instrumentation maintenance and calibration to meet quality objectives.
- Preparing reports pertaining to relevant site activities.
- Maintaining field and laboratory files of notebooks/logs, data reductions, and calculations. Transmitting originals to the Project Manager.

Field Personnel

- Performing field procedures associated with the investigations.
- Performing field analyses and collect QA samples.
- Calibrating, operating, and maintaining field equipment.
- Reducing field data.
- Maintaining sample custody.
- Preparing field records and logs.

Quality Assurance Coordinator (QAC)

- Reviewing laboratory data packages.
- Overseeing and interfacing with the analytical laboratory.

- Coordinating field QA/QC activities with TM, concentrating on field analytical measurements and practices to meet data quality objectives (DQOs).
- Reviewing audit reports.
- Preparing QA/QC reports, including an evaluation of laboratory data and data usability reports.

1.2.3 Analytical Laboratory

General responsibilities and duties include:

- Performing sample analyses and associated laboratory QA/QC procedures.
- Supplying sample bottles and coolers.
- Maintaining laboratory custody of samples.
- Strictly adhering to all protocols in the QAPP.

Laboratory Project Manager

- Primary communication link between Arcadis and laboratory technical staff.
- Monitoring workloads and maintaining availability of resources.
- Overseeing preparation of analytical reports.
- Supervising in-house chain of custody.

Quality Assurance Officer

- Supervising laboratory technical staff and inspecting all project-related laboratory activities.
- Conducting audits of all laboratory activities.



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Chemical/Oxy/Ruco Polymer
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Hicksville, New York

2. Project Background

The site location, description, and site history are provided in the SMP.

3. Data Quality Objectives and Criteria for Measurement Data

The DQO process, as described in EPA-QA/G-4 (USEPA, 2006), is used to establish performance or acceptance criteria, which serve as the basis for designing a plan for collecting data of sufficient quality and quantity to support the goals of the study. The following sections address each of the seven sequential steps in the USEPA DQO process.

Step 1: State the Problem

Soil sampling will be completed in support of the SMP.

Step 2: Identify the Goal of the Study

The goal of the study is to obtain sufficient data to enable the NYSDEC, Covestro, and the Current Site Owner to characterize chemical substances which may be present in soil, soil vapor, sub-slab vapor, and indoor/ambient air at the Site and allow the NYSDEC, Covestro, and the Current Site Owner to determine whether such substances pose a threat to the public and the environment. The data will also be used to determine appropriate handling of the soil at the Site.

Step 3: Identify Information Inputs

Information inputs will consist of visual characterization and laboratory analysis of soil samples and laboratory analysis of soil vapor, sub-slab vapor, and indoor/ambient air samples.

Step 4: Define the Boundaries of the Study

The Site is located in the Town of Oyster Bay, Nassau County, New York and consists of two parcels. The Site is located in a mixed commercial, industrial, and residential area of the city of Hicksville, New York. The Site is an approximately 14-acre area bounded by Kalda Lane/Commerce Place to the north, Long Island Railroad (LIRR) to the south, commercial businesses to the east, and New South Road to the west (see Figures 1 and 2 of the SMP).

Step 5: Developing the Analytical Approach

The decision on whether data can be used will be based on the validation results. Following validation, the data will be flagged, as appropriate, and any use restrictions will be noted. The media-specific sampling plans have been devised so that the loss of any single data point will not hinder description of the distribution of constituents or the development of a remediation plan. Given this, a reasonable decision rule would be that 90% of the data points not be rejected or deemed unusable.

Step 6: Specify Performance of Acceptance Criteria

Specifications for this step call for: (1) giving forethought to corrective actions to improve data usability; and (2) understanding the representative nature of the sampling design. This QAPP has been designed to meet both specifications for this step. The sampling and analysis programs have been developed based on a review of previous site data and knowledge of present site conditions. Corrective actions are described elsewhere in the document and in the appended documents. The representative nature of the sampling design has been facilitated by discussions among professionals familiar with the Site and the appropriate government agencies.

Step 7: Develop the Plan for Obtaining Data

Field sampling procedures are detailed in the SMP and Field Sampling Plan (FSP). Laboratory analysis of samples collected per the SMP and FSP will be conducted in accordance with this QAPP.

3.1 Data Categories

Three data categories have been defined to address various analytical data uses and the associated QA/QC effort and methods required to achieve the desired levels of quality. These categories are:

Screening Data: Screening data affords a quick assessment of site characteristics or conditions. These data collection activities involve rapid, non-rigorous methods of analysis and quality assurance. Screening data quality objectives are generally applied to physical and/or chemical properties of samples, preliminary ecological and/or human health and safety indicators, and visual or other qualitative observations used to make rapid assessment decisions for deployment or additional assessment.

Screening Data with Definitive Confirmation: Screening data provide rapid identification and quantitation however, because screening generally involves the use or less precise methods of analysis with less rigorous sample preparation, the quantitation may be relatively imprecise. Generally, at least 10% of the data are confirmed using analytical methods and QA/QC procedures and criteria associated with definitive data. This objective can also be used to verify less rigorous laboratory-based methods. This objective of data quality is available for data collection activities that require qualitative and/or quantitative verification of a select portion of sample findings.

Definitive Data: Definitive data are generated using rigorous analytical methods, such as approved USEPA reference methods. Data are analyte-specific, with confirmation of analyte identity and concentration. Methods produce tangible raw data (e.g., chromatograms, spectra, digital values). Data may be generated at the Site or at an off-site location, as long as the QA/QC requirements are satisfied. For data to be definitive, either analytical or total measurement error must be determined. Definitive data are used for formal site characterization, environmental monitoring, confirmation of field data, to support decision-making, and for risk assessments.

It is anticipated that both screening and definitive data categories will be used during the investigation. Screening techniques will include air monitoring for volatile organic compounds (VOCs) and particulate matter. All remaining parameters will be determined using definitive techniques.

For this project, three levels of data reporting have been defined. They are as follows:

Level 1 – Minimal Reporting: Minimal or “results only” reporting is used for analyses that, due either to their nature (i.e., field monitoring) or the intended data use (i.e., preliminary screening), do not generate or require extensive supporting documentation.

Level 2 – Modified Reporting: Modified reporting is used for analyses that are performed following standard USEPA-approved methods and QA/QC protocols and that, based on the intended data use, require some supporting documentation but not full Contract Laboratory Program-type (CLP-type) reporting.

Level 2 Laboratory data report required elements:

- Chain of custody
- Case narrative
- Final parameter concentration for all samples

- Preparation or extraction and analysis dates/times
- Method blanks
- Surrogate recoveries
- Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recoveries and relative percent difference (RPD)
- Laboratory Duplicate RPD
- Laboratory control sample (LCS) recoveries

Level 3 - Full Reporting: Full “CLP-type” reporting is used for those analyses that, based on the intended data use, require full documentation. This reporting level would include Analytical Services Protocol (ASP) Superfund and Category B reporting which also includes the elements for Level 2 listed above and the following:

- Calibrations (initial and continuing)
- Instrument blanks
- Gas chromatograph/mass spectrometer (GC/MS) instrument tuning
- Internal standard areas
- Serial dilution
- Primary/secondary column percent difference (%D)
- Raw data output for all field samples and associated QA/QC samples

The analytical methods to be used during the investigation activities will be USEPA SW-846 methods for soil sample analyses and USEPA Compendium methods for soil vapor, indoor air, and ambient air sample analyses. A summary of the testing methods is provided in Tables 1a and 1b.

Analytical results will be reported by the laboratory in both electronic data deliverable (EDD) and digital (i.e., PDF) format.

3.2 Field Activities

Soil sampling will be conducted to support the DQOs. Further details of field sampling are described in the SMP and FSP.

As described in the SMP, soil sampling will be performed to gather sufficient data to enable NYSDEC, Covestro, and the Current Site Owner to: (1) characterize chemical

substances which may be present in site soil, (2) determine whether such substances pose a significant threat to the public and environment, and (3) determine appropriate handling of the soil.

Soil samples will be analyzed for the following:

- VOCs by SW-846 8260
- Semi-volatile organic compounds (SVOCs) by SW-846 8270
- Polychlorinated biphenyls (PCBs) by SW-846 8082
- Pesticides by SW-846 8081
- Inorganics by SW-846 6010
- Mercury by SW-846 7471
- Cyanide by SW-846 9012

Table 1a presents the analytes which will be reported for each of the methods listed above, along with the applicable laboratory quantitation limits and soil cleanup objectives (SCO) [i.e., restricted use SCOs for the protection of public health, commercial use (NYSDEC Subpart 375-6.4)]. The number of soil samples that will be collected, including QA/QC samples, is summarized in Table 2.

Prior to construction of any enclosed structures located over areas that contain remaining impacted soil and where the potential for soil vapor intrusion (SVI) has been identified, soil vapor sampling can be performed to gather additional data to enable the NYSDEC, Covestro, and the Current Site Owner to determine the necessary mitigation measures to address potential exposure to vapors in the proposed structure. Additional sub-slab vapor, indoor air, and ambient air sampling may be required by the NYSDOH after the building is constructed and vapor intrusion mitigation measures are operational.

Soil vapor, sub-slab vapor, indoor air, and ambient air samples will be analyzed for VOCs by USEPA Method TO-15.



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Table 1b presents the analytes which will be reported for the soil vapor samples, sub-slab vapor samples and indoor/ambient air samples, along with the applicable laboratory quantitation limits. The number of soil vapor samples that will be collected, including QA/QC samples, is summarized in Table 2.

4. Special Training Requirements/Certification

In compliance with the Occupational Safety and Health Administration (OSHA) final rule, "Hazardous Waste: Operations and Emergency Response [29 Code of Federal Regulations 1910.120(e)]", all personnel performing sampling activities at the Site will have completed the requirements for OSHA 40-Hour Hazardous Waste Operations and Emergency Response training. Persons in field supervisory positions will have also completed the additional OSHA 8-Hour Supervisory Training.

Prior to the commencement of field activities, copies of applicable training certificates for subcontractor personnel will be provided to Arcadis for verification of training requirements. Training certificates for Arcadis personnel working on site are maintained on file at Arcadis' main headquarters in Highlands Ranch, Colorado. Arcadis employees are provided training, as necessary, for the completion of projects, as determined by Arcadis' corporate Health and Safety Officer and Education and Training department. Subcontractor personnel will be required to provide verification of training (i.e., copies of records/certificates) prior to performing sampling activities at the Site. Copies of training certificates and records will be kept in the project file.

5. Documentation and Records

Detailed descriptions of the documentation and reporting requirements are presented below.

5.1 Sample Designation System

Samples will be identified with a unique designation system that will facilitate sample tracking. The sample designation system to be employed during the sampling activities will be consistent, yet flexible enough to accommodate unforeseen sampling events and conditions. An alpha-numeric system is considered appropriate and will be used by field personnel to assign each sample with a unique sample identification number. The sample identification number will begin with a two-letter prefix indicating the sample type. Examples of sample type codes include the following: *(Note: for other sample types encountered during field activities, a sample type code will be established prior to sample collection.)*

- Subsurface (i.e., soil boring) Soil Sample – “SB”
- Excavation Verification Sampling Location – “VS”
- Soil Vapor – “SV”
- Sub-Slab Vapor – “SSV”
- Indoor Air – “IA”
- Ambient Air – “AA”
- Trip Blank Sample – “TB”
- Field Duplicate Sample – “DUP”
- Equipment Blank Sample – “EB”

The location code will follow the sample type code, and may consist of a sequential sample number for soil boring samples or other agreed upon designation. In addition, a third identifying code may be added to the sample identification number, such as the sample depth in feet (ft) or the sample collection date. For example, a subsurface soil

sample collected from a depth interval of 2 to 4 feet (ft.) below ground surface (bgs) from sampling location SB-02 would be designated as SB-02 (2-4').

QA/QC samples will be designated by a sample type code followed by the six-digit sample collection date. For equipment blanks, the sample type code will precede the blank designation to indicate which medium the blank was intended to represent. For example, an equipment blank collected on April 27, 2015 during subsurface soil sample collection would be designated SB-EB1-042715. The sampling point associations for field duplicates must be recorded in the field log.

5.2 Field Documentation

Field personnel will provide comprehensive documentation covering various aspects of field sampling, field analysis, and sample chain of custody. This documentation creates a record that allows reconstruction of field events to aid in the data review and interpretation process. Documents, records, and information relating to the performance of the field work will be retained in the project file.

The various forms of documentation to be maintained throughout the investigation include:

- Daily Production Documentation – A field notebook consisting on a waterproof, bound notebook that will contain a record of all activities performed at the Site.
- Sampling Information – Detailed notes will be made as to the exact sampling location, physical observations, and weather conditions (as appropriate).
- Sample Chain of Custody – Chain of custody forms will provide the record of responsibility for sample collection, transport, and submittal to the laboratory. Chain of custody forms will be filled out at each sampling site, at a group of sampling sites, or at the end of each day of sampling by Arcadis field personnel designated to be responsible for sample custody. In the event that samples are relinquished by the designated sampling person to other sampling or field personnel, the chain-of-custody form will be signed and dated by the appropriate personnel to document the sample transfer. The original chain of custody form will accompany the samples to the laboratory, and copies will be forwarded to the project files. A sample chain of custody form is included in Attachment 1.

Persons will have custody of samples when the samples are in their physical possession, in their view after being in their possession, or in their physical possession and secured so they cannot be tampered with. In addition, when samples are secured in a restricted area accessible only to authorized personnel, they will be deemed to be in the custody of such authorized personnel.

- Field Equipment, Calibration, and Maintenance Logs – To document the calibration and maintenance of field instrumentation, calibration and maintenance logs will be maintained for each piece of field equipment that is not factory calibrated.

5.3 Laboratory Documentation Files

5.3.1 Laboratory Project Files

The laboratory will establish a file for pertinent data. The file will include all correspondence (including emails), faxed information, phone logs, and chain of custody forms. The laboratory will retain project files and data packages for a period of not less than five years.

5.3.2 Laboratory Logbooks

Workbooks, bench sheets, instrument logbooks, and instrument printouts will be used to trace the history of samples through the analytical process and to document important aspects of the work, including the associated QC checks. As such, all logbooks, bench sheets, instrument logs, and instrument printouts will be part of the permanent record of the laboratory.

Each page or entry will be dated and initialed by the analyst at the time of entry. Errors in entry will be crossed out in indelible ink with a single stroke, corrected without the use of white-out or by obliterating or writing directly over the erroneous entry, and initialed and dated by the individual making the correction. Pages of logbooks that are not used will be completed by lining out unused portions.

Information regarding the sample, analytical procedures performed, and the results of the testing will be recorded on laboratory forms or personal notebook pages by the analyst. These notes will be dated and will also identify the analyst, the instrument used, and the instrument conditions.

Laboratory notebooks will be periodically reviewed by the laboratory group leaders for accuracy, completeness, and compliance with the laboratory standard operating procedures and quality assurance manual. All entries and calculations will be verified by the laboratory group leader. If all entries on the pages are correct, then the laboratory group leader will initial and date the pages. Corrective action will be taken for incorrect entries before the laboratory group leader signs.

5.3.3 Computer and Hard Copy Storage

All electronic files and deliverables will be retained by the laboratory for not less than five years; hard copy data packages (or electronic copies) will also be retained for not less than five years.

5.4 Data Reporting Requirements

5.4.1 Field Data Reporting

Information collected in the field through visual observation, manual measurement, and/or field instrumentation will be recorded in field notebooks or data sheets and/or on forms. Such data will be reviewed by the appropriate TM for adherence to the SMP and for consistency. Concerns identified as a result of this review will be discussed with the field personnel, corrected if possible, and, as necessary, incorporated into the data evaluation process (as necessary).

Where applicable, field data forms and calculations will be processed and included in appendices to the appropriate project reports (when generated). The original field logs, documents, and data reductions will be kept in the project file at the Arcadis office in Syracuse, New York.

5.4.2 Laboratory Data Reporting

The laboratory is responsible for preparing ASP Category B data packages (as defined previously) for all samples. Analytical results will be provided by the laboratory in a digital format (i.e., PDF), as well as an EDD in either an ASCII comma-separated value format or in a Microsoft Excel worksheet. The EDD will be loaded into the appropriate database.

Upon receipt, the data packages will be examined to ensure that the correct analyses requested on the chain of custody were performed for each sample submitted. If

discrepancies were noted, the QAC will be notified and will promptly follow up with the laboratory to resolve any issues.

Each data package will be validated in accordance with the procedures presented in this QAPP. Data that do not meet the specified standards will be flagged pending resolution of the issue. The flag will not be removed from the data until the issue associated with the sample results is resolved. Although flags may remain for certain data, the use of that data may not necessarily be restricted.

Data reports for all parameters will include, at a minimum, the following items:

Narrative: The narrative includes a summary of activities that took place during the course of sample analysis, including the following information:

- Laboratory name and address.
- Date of sample receipt.
- Cross reference of laboratory identification number to sample identification.
- Analytical methods used.
- Deviations from specified protocol.
- Corrective actions taken.

Included with the narrative will be any sample handling documents, including field and internal chain of custody forms, air bills, and shipping tags.

Analytical Results: Analytical results will include the following information, as applicable:

- Sample ID
- Laboratory ID
- Date of collection
- Date of receipt

- Date of extraction
- Date of analysis
- Dilution factor
- Detection limits

Sample results on the report forms will be corrected for dilutions. Soil samples will be reported on a dry weight basis. Unless otherwise specified, all results will be reported uncorrected for blank contamination.

The analytical reports will be expanded to include all supporting documentation necessary to provide an ASP Category B data package. This additional documentation will include at a minimum all raw data required to recalculate any result, including printouts, chromatograms, and quantitation reports; standards used in calibration and calculation of analytical results; sample extraction, digestion, and other preparation logs; standard preparation logs; instrument run logs; and moisture content calculations.

5.5 Project File

Project documentation will be placed in project files according to Arcadis' protocol for document management at the Arcadis office in Syracuse, New York. Project files typically consist of the following components:

1. Agreements/Proposals (filed chronologically)
2. Change Orders/Purchase Orders (filed chronologically)
3. Invoices (filed chronologically)
4. Project Management (filed by topic)
5. Correspondence (filed chronologically)
6. Notes and Data (filed by topic)
7. Public Relations Information (filed by topic)



Quality Assurance Project Plan

Former Hooker
Chemical/Oxy/Ruco Polymer
Corporation Site
Hicksville, New York

8. Regulatory Documents (filed chronologically)
9. Marketing Documents (filed chronologically)
10. Final Reports/Presentations (filed chronologically)
11. Draft Reports/Presentations (filed chronologically)
12. Documents Prepared by Others (filed chronologically)

Final reports are filed in a designated folder within the project file. Analytical laboratory documentation (when received) and field data will also be filed in a designated folder within the project file. Filed materials may be removed and signed out by authorized personnel on a temporary basis only.

6. Sampling Process Design

The sampling process design is based on the SMP. This document presents the sampling location selection rationale for the sampling program.

Soil samples will be collected as described in the SMP and FSP. The approximate sample quantities and field QC samples are shown in Table 2.



Quality Assurance Project Plan

Former Hooker
Chemical/Oxy/Ruco Polymer
Corporation Site
Hicksville, New York

7. Sampling Method Requirements

Arcadis will collect soil and air samples as described in the SMP and FSP. The approximate sample quantities and field QC samples are shown in Table 2.

8. Sample Handling and Custody Requirements

8.1 Sample Containers and Preservation

Appropriate sample containers, preservation methods, and laboratory holding times for the samples are shown in Table 4.

The analytical laboratory will supply appropriate sample containers and preservatives, as necessary. The bottles will be purchased pre-cleaned to USEPA Office of Solid Waste and Emergency Response Directive 9240.05A requirements. The field personnel will be responsible for properly labeling containers and preserving samples (as appropriate).

8.2 Field Custody Procedures

The objective of field sample custody is to ensure that samples are not tampered or modified from the time of collection through transport and transfer to the analytical laboratory. Persons will have “custody of samples” when the samples are in their physical possession, in their view after being in their possession, or in their physical possession and secured so they cannot be tampered with. In addition, when samples are secured in a restricted area accessible only to authorized personnel, they will be deemed to be in the custody of such authorized personnel.

Field custody documentation consists of both field logbooks and field chain of custody forms.

8.2.1 Field Logbooks

Field logbooks will provide the means of recording data collecting activities performed. As such, entries will be described in as much detail as possible so that persons going to the Site could reconstruct a particular situation without reliance on memory.

Field logbooks will be bound field survey books or notebooks. Logbooks will be assigned to field personnel, but will be stored in a secure location when not in use. Each logbook will be identified by the project-specific document number. The title page of each logbook will contain the following:

- Person to whom the logbook is assigned.

- Logbook number
- Project name
- Project start date
- End date

Entries into the logbook will contain a variety of information. At the beginning of each entry, the date, start time, weather, names of all sampling team members present, level of personal protection being used, and the signature of the person making the entry will be entered. The names of visitors to the Site, field sampling or investigation team personnel, and the purpose of their visit, will also be recorded in the field logbook.

Measurements made and samples collected will be recorded. All entries will be made in ink, and no erasures will be made. If an incorrect entry is made, the information will be crossed out with a single strike mark. Whenever a sample is collected or a measurement is made, a detailed description of the location of the station will be recorded. The number of the photographs taken, if any, will also be noted. All equipment used to make measurements will be identified, as well as the date of calibration.

Samples will be collected following the sampling procedures documented in the SMP and FSP. The equipment used to collect samples will be noted, as well as the time of sampling, sample description, depth at which the sample was collected, volume, and number of containers. Sample identification numbers will be assigned prior to sample collection. Field duplicate samples, which will receive an entirely separate sample identification number, will be noted under sample description

8.2.2 Sample Labeling

When possible, preprinted sample labels will be affixed to the sample bottles prior to delivery at the sampling site. The following information is required on each sample label:

- Project
- Date collected

- Time collected
- Location
- Sampler
- Analysis to be performed
- Preservative
- Sample number

8.2.3 Field Chain of Custody Forms

Completed chain of custody forms will be required for all samples to be analyzed. Chain of custody forms will be initiated by the sampling crew in the field. The chain-of-custody forms will contain the sample's unique identification number, sample date and time, sample description, sample type, preservation (if any), and analyses required. The original chain of custody form will accompany the samples to the laboratory. Copies of the chain of custody will be made prior to shipment (or multiple copy forms used) for field documentation. The chain-of-custody forms will remain with the samples at all times. The samples and signed chain of custody forms will remain in the possession of the sampling crew until the samples are delivered to the express carrier (e.g., Federal Express) or placed in secure storage.

Sample labels will be completed for each sample using waterproof ink. The labels will include the sample information, such as sample number and location, type of sample, date and time of sampling, sampler's name or initials, preservation, and analyses to be performed. The completed sample labels will be affixed to each sample bottle and covered with clear tape.

Whenever samples are split with a government agency or other party, a separate chain of custody will be prepared for those samples and marked to identify the party with whom the samples are being split. The person relinquishing the samples to the facility or agency should request the representative's signature acknowledging sample receipt. If the representative is unavailable or refuses, this is noted in the "Received By" space.

8.3 Management of Investigation-Derived Materials and Wastes

Investigation-derived wastes (IDW) include soil, sampling supplies, and personal protective equipment generated during sampling activities. The intent of managing IDW is to insure that impacted materials and media are not allowed to contaminate non-impacted materials and media. Where necessary to promote the safe, efficient, and environmentally protective performance of work, management of investigation-derived materials and wastes will be performed consistent with the USEPA guidance *Guide to Management of Investigation – Derived Wastes*, 9345.3-03FS, dated January 1992. Disposable equipment (including personal protective equipment) will be containerized, appropriately labeled during the sampling events, and disposed of accordingly. All water generated during equipment decontamination will be containerized, temporarily staged onsite in 55-gallon drums or portable tanks, and disposed of appropriately based on analytical results. Equipment will be decontaminated, as appropriate.

8.4 Packing, Handling, and Shipping Requirements

Sample packaging and shipment procedures are designed so that the samples will arrive at the laboratory, with the chain of custody, intact.

Samples will be packaged for shipment as outlined below:

- Securely affix the sample label to the container with clear packing tape.
- Check the cap on the sample container to confirm that it is properly sealed.
- Wrap the sample container cap with clear packing tape to prevent it from becoming loose.
- Complete the chain of custody form with the required sampling information and confirm that the recorded information matches the sample labels. (Note: If the designated sampler relinquishes the samples to other sampling or field personnel for packing or other purposes, the sampler will complete the chain of custody prior to this transfer. The appropriate personnel will sign and date the chain of custody form to document the sample custody transfer.)
- Using duct tape, secure the outside drain plug at the bottom of the cooler.
- Wrap sample containers in bubble wrap or other cushioning material.

- Place 1 to 2 inches of cushioning material at the bottom of the cooler.
- Place the sealed sample containers into the cooler.
- Place ice in plastic bags and seal. Place loosely in the cooler.
- Fill the remaining space in the cooler with cushioning material.
- Place chain of custody forms in a plastic bag and seal. Tape the forms to the inside of the cooler lid.
- Close the lid of the cooler, lock, and secure with duct tape.
- Wrap strapping tape around both ends of the cooler at least twice.
- Mark the cooler on the outside with the following information: shipping address, return address, "Fragile" labels, and arrows indicating "this side up." Cover the labels with clear plastic tape. Place a signed custody seal over the cooler lid. If the samples are being delivered directly to the laboratory or will be picked up by the lab's courier service, this step is eliminated.

Note that air samples collected in Summa canisters do not require the packaging described above. The canisters should be placed in a sturdy box for transport to the laboratory.

All samples will be packaged by field personnel and transported as low-concentration environmental samples. The samples will be hand-delivered or delivered by an express carrier within 48 hours of the time of collection. In some cases, the analytical method may require analysis within a shorter holding time, and arrangements will need to be made to accommodate the laboratory requirements. Shipments will be accompanied by the chain of custody form identifying the contents. The original form will accompany the shipment; copies will be retained by the sampler for the sampling office records. If the samples are sent by common carrier, a bill of lading will be used. Receipts or bills of lading will be retained as part of the permanent project documentation. Commercial carriers are not required to sign off on the chain-of-custody form as long as the forms are sealed inside the sample cooler, and the custody seals remain intact.

Sample custody seals and packing materials for filled sample containers will be provided by the analytical laboratory. The filled, labeled, and sealed containers will be

placed in a cooler on ice and carefully packed to eliminate the possibility of container breakage. Trip blank(s) of analyte-free water will be provided by the laboratory and included in each cooler containing samples to be analyzed for VOCs.

8.5 Laboratory Custody Procedures

8.5.1 General

Upon sample receipt, laboratory personnel will be responsible for sample custody. The original field chain of custody form will accompany all samples requiring laboratory analysis. Samples will be kept secured in the laboratory until all stages of analysis are complete. All laboratory personnel having samples in their custody will be responsible for documenting and maintaining sample integrity.

8.5.2 Sample Receipt and Storage

Upon sample receipt, the laboratory sample custodian will verify the package seal, open the package, verify the sample integrity, and compare the contents against the field chain of custody. If a sample container is broken, the sample is in an inappropriate container, has not been preserved by appropriate means, or if there is a discrepancy between the chain of custody and the sample shipment, Arcadis will be notified. The laboratory sample custodian will then log the samples in, assign a unique laboratory identification number to each, and label the sample bottle with the laboratory identification number. The project name, field sample code, date sampled, date received, analysis required, storage location and date, and action for final disposition will be recorded in the laboratory tracking system.

8.5.3 Sample Analysis

Analysis of an acceptable sample will be initiated by a work sheet that will contain pertinent information for analysis. The analyst will sign and date the laboratory chain of custody form when removing the samples from storage.

Samples will be organized into sample delivery groups (SDGs) by the laboratory. An SDG may contain up to 20 field samples (field duplicates, trip blanks, and rinse blanks are considered field samples for the purposes of SDG assignment). All field samples assigned to a single SDG will be received by the laboratory over a maximum of 7 calendar days and must be processed through the laboratory (preparation, analysis, and reporting) as a group. Every SDG must include a one site-specific matrix

spike/matrix spike duplicate (MS/MSD) pair, which shall be received by the laboratory at the start of the SDG assignment.

Each SDG will be self-contained for all of the required QC samples. All parameters within an SDG will be extracted and analyzed together in the laboratory. At no time will the laboratory be allowed to run any sample (including QC samples) at an earlier or later time than the rest of the SDG. These rules for analysis will confirm that the QC samples for an SDG are applicable to the field samples of the same SDG and that the best possible comparisons can be made.

8.5.4 Sample Storage Following Analysis

The remaining sample volume and extracts/digestates (if any) will be maintained by the laboratory for 1 month after the final report is delivered to Arcadis. After this period, the samples will be disposed of in accordance with applicable rules and regulations.

9. Analytical Method Requirements

9.1 Field Analytical Procedures

Field analytical procedures may include the measurement of VOCs and particulate matter in air.

9.2 Laboratory Parameters and Methods

Laboratory analytical requirements presented in the sub-sections below include a general summary of requirements, specifics related to each sample medium to be analyzed, and details of the methods to be used for this project. Current USEPA approved and SW-846 methods will be used for all applicable parameters and sample media.

9.2.1 General

The following tables (attached at the end of this QAPP) summarize general analytical requirements:

Table	Title
1a	Parameters, Methods, and Target Reporting Limits – Soil
1b	Parameters, Methods, and Target Reporting Limits – Soil Vapor and Indoor/Ambient Air
2	Sample Quantities and Quality Control Frequencies
3	Analytical Quality Control Limits
4	Sample Containers, Preservation, and Holding Times

9.2.2 Soil Sample Analyses

Xxx Analyses will be performed following the methods and quality control frequencies listed in Table 2 and quality control limits listed in Table 3. Results will be reported as dry weight. Moisture content will be reported separately.

The primary sources to describe the analytical methods to be used during the investigation for solid matrices are provided in USEPA SW-846 Test Methods for Evaluating Solid Waste, Third Edition, Update IV, and QA/QC.

9.2.3 Air Sample Analyses

Analyses will be performed following the methods and quality control frequencies listed in Table 2 and quality control limits listed in Table 3.

The primary sources to describe the analytical methods to be used during the investigation for air matrices are provided in USEPA Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition.

10. Quality Control Requirements

10.1 Data Quality Indicators

The overall QA objective for this QAPP is to develop and implement procedures for sampling, chain of custody, laboratory analysis, instrument calibration, data reduction and reporting, internal QC, audits, preventive maintenance, and corrective action such that valid data will be generated. These procedures are presented or referenced in subsequent sections of the QAPP.

Data quality indicators (DQI) are generally defined in terms of six parameters:

1. Representativeness
2. Comparability
3. Completeness
4. Precision
5. Accuracy
5. Sensitivity

Each parameter is defined below. Specific objectives for this assessment are set forth in other sections of this QAPP, as referenced below.

10.1.1 Representativeness

Representativeness is the degree to which sample data accurately and precisely represent site conditions, and is dependent on sampling and analytical variability. The investigation activities have been designed to assess the presence of the constituents at the time of sampling. The SMP and this QAPP present field sampling methodologies and laboratory analytical methodologies. The use of the prescribed field and laboratory analytical methods with associated holding times and preservation requirements are intended to provide representative data.

10.1.2 Comparability

Comparability is the degree of confidence with which one data set can be compared to another. Comparability between this investigation and to the extent possible, with existing data will be maintained through consistent use of the sampling and analytical methodologies set forth in the SMP and this QAPP, SW-846 analytical methods, and through use of QA/QC procedures and appropriately trained personnel.

10.1.3 Completeness

Completeness is defined as a measure of the amount of valid data obtained from an event and/or investigation compared to the amount that was expected to be obtained. This will be determined upon final assessment of the analytical results.

10.1.4 Precision

Precision is a measure of the reproducibility of sample results. The goal is to maintain a level of analytical precision consistent with the project objectives. To maximize precision, sampling and analytical procedures will be followed. All work for this investigation will adhere to established protocols presented in the SMP. Checks for analytical precision will include the analysis of MS/MSD, laboratory duplicates, and field duplicates. Field measurement precision will be monitored by obtaining duplicate field measurements.

10.1.5 Accuracy

Accuracy is the deviation of a measurement from the true value of a known standard. Both field and analytical accuracy will be monitored through initial and continuing calibration of instruments. In addition, internal standards, MS/MSD, laboratory control samples, and surrogate spikes will be used to assess the accuracy of the analytical data.

10.1.6 Sensitivity

Sensitivity is defined as the ability of the method or instrument to detect the constituent of concern and other target compounds at the level of interest. Method detection limit (MDL) is defined as the minimum concentration of a substance that can be identified, measured, and reported with a 99 percent confidence that the analyte concentration is greater than zero and is determined from repeated analysis of a sample in a given

matrix containing the analyte. MDLs have been determined as required in Title 40 of the Code of Federal Regulation Part 136B. The reporting limit (RL) is greater than or equal to the lowest standard used to establish the calibration curve. The RLs for this investigation are generally at least 3 times greater than the MDL. Results greater than the MDL and less than the RL will be qualified estimated (J) by the laboratory. The MDLs and RLs for the constituents of concern are provided in Tables 1a and 1b.

10.2 Decision Rule

The decision on whether data can be used will be based on the validation results. Following validation, the data will be flagged, as appropriate, and any use restrictions noted. The sampling plan has been devised so that the loss of any single data point will not hinder description of the distribution of potential constituents of concern. Given this, a reasonable decision rule would be that 90% of the data points not be rejected and deemed unusable.

10.3 Field Quality Control Checks

10.3.1 Field Measurements

To verify the quality of data using field instrumentation, duplicate measurements will be obtained and reported for all field measurements. A duplicate measurement will involve obtaining measurements a second time at the same sampling location.

10.3.2 Sample Containers

New, certified, clean sample containers will be supplied by the laboratory.

10.3.3 Field Duplicates

Field duplicates will be collected to verify the reproducibility of the sampling methods. For soils, field duplicates will be prepared by placing well homogenized aliquots from the same sample location into individual sample containers, which are submitted blind to the laboratory. Field duplicates collected from VOC analysis will be collected as discrete samples from the same location. In general, field duplicates will be collected at a 5% frequency (every 20 samples) for the chemical constituents. Table 2 provides an estimated number of field duplicates to be prepared for each applicable parameter and matrix.

10.3.4 Rinse Blanks

Rinse blanks are used to monitor the cleanliness of the sampling equipment and the effectiveness of the cleaning procedures. Rinse blanks will be prepared and submitted for analysis at a frequency of 1 per day (when sampling equipment cleaning occurs) or once for every 20 samples collected, whichever is less. Rinse blanks will be prepared by filling sample containers with analyte-free water (supplied by the laboratory), which has been routed through a cleaned sampling device. When dedicated sampling devices are used, rinse blanks will not be necessary. Table 2 provides an estimated number of rinse blanks collected during the investigation activities.

10.3.5 Trip Blanks

Trip blanks will be used to assess whether site samples have been exposed to non-site-related VOCs during storage and transport. Trip blanks will be analyzed at a frequency of once per day, per cooler containing samples to be analyzed for VOCs. A trip blank will consist of a container filled with analyte-free water (supplied by the laboratory), which remains unopened with field samples throughout the sampling event. Table 2 provides an estimated number of trip blanks collected for each matrix and parameter during the investigation activities.

10.4 Analytical Laboratory Quality Control Checks

Internal laboratory QC checks will be used to monitor data integrity. These checks will include method blanks, LCS, MS/MSD, laboratory duplicates, internal standards, surrogate samples and calibration standards. Project quality control limits are identified in Table 3. Laboratory control charts will be used to determine long-term instrument trends.

10.4.1 Method Blanks

Sources of contamination in the analytical process, whether specific analyses or interferences, need to be identified, isolated, and corrected. The method blank is useful in identifying possible sources of contamination within the analytical process. For this reason, it is necessary that the method blank is initiated at the beginning of the analytical process and encompasses all aspects of the analytical work. As such, the method blank would assist in accounting for any potential contamination attributable to glassware, reagents, instrumentation, or other sources that could affect sample

analysis. One method blank will be analyzed with each analytical series associated with no more than 20 samples.

10.4.2 Matrix Spike/Matrix Spike Duplicates

MS/MSDs will be used to measure the accuracy of analyte recovery from the sample matrices and will be site-specific. MS/MSD pairs will be analyzed at a 5% frequency.

When MS recoveries are outside quality control limits, associated LCS and surrogate spike recoveries will be evaluated, as applicable, to attempt to verify the reason for the deviation and determine the effect on the reported sample results. Table 2 presents an estimated number of MS and MSD analyses for each applicable parameter.

10.4.3 Surrogate Spikes

Surrogates are compounds that are unlikely to occur under natural conditions but that have properties similar to the analytes of interest. This type of control is primarily used for organic samples and is added to the samples prior to purging or extraction. The surrogate spike is utilized to provide broader insight into the proficiency and efficiency of an analytical method on a sample-specific basis. This control reflects analytical conditions that may not be attributable to sample matrix.

If surrogate spike recoveries exceed specified quality control limits, the analytical results need to be evaluated thoroughly in conjunction with other control measures. In the absence of other control measures, the integrity of the data may not be verifiable, and reanalysis of the samples with additional control may be necessary.

Surrogate spike compounds will be selected utilizing the guidance provided in the analytical methods.

10.4.4 Laboratory Duplicates

For inorganics and air samples, laboratory duplicates will be analyzed to assess laboratory precision. Laboratory duplicates are defined as a separate aliquot of an individual sample that is analyzed as a separate sample. Table 2 presents an estimated number of laboratory duplicates for each applicable parameter.

10.4.5 Calibration Standards

Calibration check standards analyzed within a particular analytical series provide insight regarding instruments' stability. A calibration check standard will be analyzed at the beginning and end of an analytical series, or periodically throughout a series containing a large number of samples.

In general, calibration check standards will be analyzed after every 12 hours or more frequently, as specified in the applicable analytical method. In analyses where internal standards are used, a calibration check standard will only be analyzed in the beginning of an analytical series. If results of the calibration check standard exceed specified tolerances, then all samples analyzed since the last acceptable calibration check standard will be re-analyzed.

Laboratory instrument calibration standards will be selected utilizing the guidance provided in the analytical methods.

10.4.6 Internal Standards

Internal standard areas and retention times will be monitored for organic analyses performed by GC/MS methods. Method-specified internal standard compounds will be spiked into all field samples, calibration standards, and quality control samples after preparation and prior to analysis. If internal standard areas in one or more samples exceed the specified tolerances, the cause will be investigated, the instrument will be recalibrated if necessary, and all affected samples may be re-analyzed.

The acceptability of internal standard performance will be determined using the guidance provided within the analytical methods.

10.4.7 Laboratory Control Samples

LCS are standards of known concentration and are independent in origin from the calibration standards. The intent of LCS analysis is to provide insight into the analytical proficiency within an analytical series. This includes the preparation of calibration standards, the validity of calibration, sample preparation, instrument set-up, and the premises inherent in quantitation. One LCS will be analyzed with each analytical series associated with not more than 20 samples.

10.5 Data Precision Assessment Procedures

Field precision is difficult to measure because of temporal variations in field parameters. However, precision will be controlled through the use of experienced field personnel, properly calibrated meters and duplicate field measurements. Field duplicates will be used to assess precision for the entire measurement system, including sampling, handling, shipping, storage, preparation and analysis.

Laboratory data precision for analyses will be monitored through the use of MS/MSD, laboratory duplicates and field duplicates as identified in Table 2.

The precision of data will be measured by calculation of the relative percent difference (RPD) of duplicate sample sets.

The RPD can be calculated by the following equation:

$$RPD = \frac{(A-B)}{(A+B)/2} \times 100$$

Where:

A = Analytical result from one of two duplicate measurements
B = Analytical result from the second measurement

Precision objectives for duplicate analyses are identified in Table 3.

10.6 Data Accuracy Assessment Procedures

The accuracy of field measurements will be controlled by experienced field personnel, properly calibrated field meters and adherence to established protocols. The accuracy of field meters will be assessed by review of calibration and maintenance logs.

Laboratory accuracy will be assessed via the use of MS/MSD, surrogate spikes, internal standards and LCS. Where available and appropriate, quality assurance performance standards will be analyzed periodically to assess laboratory accuracy. Accuracy will be calculated in terms of percent recovery as follows:

$$\% \text{ Recovery} = \frac{A-X}{B} \times 100$$

Where:

A = Value measured in spiked sample or standard

X = Value measured in original sample

B = True value of amount added to sample or true value of standard

This formula is derived under the assumption of constant accuracy between the original and spiked measurements. Accuracy objectives are identified in Table 3.

10.7 Data Completeness Assessment Procedures

Completeness of a field or laboratory data set will be calculated by comparing the number of valid sample results generated to the proposed number.

$$\text{Completeness} = \frac{\text{No. valid samples collected or analyzed}}{\text{No. proposed samples collected or analyzed}} \times 100$$

As a general guideline, overall project completeness is expected to be at least 90 percent. The assessment of completeness will require professional judgment to determine data usability for the intended purposes.

11. Instrument/Equipment Testing, Inspection and Maintenance Requirements

Preventive maintenance schedules have been developed for both field and laboratory instruments. A summary of the maintenance activities to be performed is presented below.

11.1 Field Instruments and Equipment

Prior to any field sampling, each piece of field equipment will be inspected to confirm that it is operational. If the equipment is not operational, it must be serviced prior to use. All meters that require charging or batteries will be fully charged or have fresh batteries. If instrument servicing is required, it is the responsibility of the Field Sampling Manager to follow the maintenance schedule and arrange for prompt service.

Logbooks will be kept for each field instrument. Logbooks will contain records of operation, maintenance, calibration and any problems and repairs. Logbooks for each piece of equipment will be maintained in project records.

Field equipment returned from a site will be inspected to confirm it is in working order. This inspection will be recorded in the logbook or field notebooks, as appropriate. It will also be the obligation of the last user to record any equipment problems in the logbook.

Non-operational field equipment will either be repaired or replaced. Appropriate spare parts for field equipment/meters will be available from the rental companies or manufacturers. Consultant-/subcontractor-owned or leased equipment will be maintained in accordance with the manufacturer's instructions.

11.2 Laboratory Instruments and Equipment

Laboratory instrument and equipment documentation procedures include details of any observed problems, corrective measure(s), routine maintenance and instrument repair (including information regarding the repair and the individual who performed the repair).

Preventive maintenance of laboratory equipment generally will follow the guidelines recommended by the manufacturer. A malfunctioning instrument will be repaired immediately by in-house staff or through a service call from the manufacturer.

Maintenance schedules for laboratory equipment adhere to each manufacturer's recommendations. Records reflect the complete history of each instrument and specify the time frame for future maintenance. Major repairs or maintenance procedures are performed through service contracts with the manufacturer or qualified contractors. Paperwork associated with service calls and preventive maintenance calls will be kept on file by the laboratory.

Laboratory Systems Managers are responsible for the routine maintenance of instruments used in the laboratory. Any routine preventive maintenance carried out is logged into the appropriate logbooks. The frequency of routine maintenance is dictated by the nature of samples being analyzed, the requirements of the method used and/or the judgment of the Laboratory Systems Manager.

All major instruments are backed up by comparable (if not equivalent) instrument systems in the event of unscheduled downtime. An inventory of spare parts is also available to minimize equipment/instrument downtime.

On a daily basis, the operation of balances, incubators, ovens, refrigerators, and water purification systems will be checked and documented. Any discrepancies will be immediately reported to the appropriate laboratory personnel for resolution.

12. Instrument Calibration Frequency

12.1 Field Equipment Calibration Procedures and Frequency

Calibration checks of field equipment will be performed daily when used. Field equipment operation, calibration, and maintenance procedures are provided in the equipment operation manuals.

12.2 Laboratory Equipment Calibration Procedures and Frequency

Instrument calibration will follow the specifications provided by the instrument manufacturer or specific analytical method used. The analytical methods for chemical constituents are identified in Tables 2.

When analyses are conducted according to USEPA methods, the calibration procedures and frequencies specified in the applicable method will be followed. Records of calibrations will be filed and maintained by the laboratory. These records will be subject to QA audit. For all instruments, the laboratory will maintain trained repair staff with in-house spare parts or will maintain service contracts with vendors.

All standards used to calibrate equipment are traceable, directly or indirectly, to the National Institute of Standards and Technology. All standards received will be logged into standard receipt logs maintained by the individual analytical groups. Each group will maintain a standard log that tracks the preparation of standards used for calibration and QC purposes.

13. Inspection/Acceptance Requirements for Supplies and Consumables

All supplies to be used in the field and laboratory will be available when needed. They will be free of target chemicals and interferences. All reagents will be tested prior to use in the laboratory. All standards will be verified against a second source standard. The laboratory will follow a "first in/first out" procedure for the storage and use of all consumables to minimize the risk of contamination and degradation.

14. Data Management

The purpose of the data management is to provide for the accuracy and ready accessibility of all of the necessary data to meet the analytical and reporting objectives of the project. The data management program established for the project includes field documentation and sample QA/QC procedures, methods for tracking and managing the data, and a system for filing all site-related information. More specifically, data management procedures will be employed to efficiently process the information collected such that the data are readily accessible and accurate. These procedures are described in detail in the following section.

The data management plan has four elements: 1) sample designation system; 2) field activities; 3) sample tracking and management; and 4) data management system.

14.1 Sample Designation System

A concise and easily understandable sample designation system is an important part of the project sampling activities. It provides a unique sample number that will facilitate both sample tracking and easy resampling of select locations to evaluate data gaps, if necessary. The sample designation system to be employed during the sampling activities will be consistent, yet flexible enough to accommodate unforeseen sampling events or conditions. A combination of letters and numbers will be used to yield a unique sample number for each field sampled collected.

14.2 Field Activities

Field activities designed to gather the information necessary to make decisions require consistent documentation and accurate record keeping. During site activities, standardized procedures will be used for documenting field activities, data security, and QA. These procedures are described in further detail in the following subsections.

14.2.1 Field Documentation

Complete and accurate record keeping is a critical component of the field investigation activities. When interpreting analytical results and identifying data trends, investigators realize that field notes are an important part of the review and validation process. To confirm that all aspects of the field investigation are thoroughly documented, several different information records, each with its own specific reporting requirements, will be maintained, including:

- Field logs.
- Instrument calibration records.
- Chain of custody forms.

A description of each of these types of field documentation is provided below.

Field Logs

The personnel performing the field activities will keep field logs that detail all observations and measurements made during sampling. Data will be recorded directly into site-dedicated, bound notebooks, with each entry dated and signed. To confirm at any future date that notebook pages are not missing, each page will be sequentially numbered. Erroneous entries will be corrected by crossing out the original entry, initialing it, and then documenting the proper information. In addition, sampling locations may be surveyed to accurately record their locations. The survey crew will use their own field logs and will supply the sampling location coordinates to the Database Administrator.

Instrument Calibration Records

As part of data quality assurance procedures, field monitoring and detection equipment will be routinely calibrated. Instrument calibration confirms that equipment used is of the proper type, range, accuracy, and precision to provide data compatible with the specified requirements and desired results. In order to demonstrate that established calibration procedures have been followed, calibration records will be prepared and maintained to include, as appropriate, the following:

- Calibration date and time.
- Type and identification number of equipment.
- Calibration frequency and acceptable tolerances.
- Identification of individual(s) performing calibration.
- Reference standards used.

- Calibration data.
- Information on calibration success or failure.

The calibration record will serve as a written account of monitoring or detection equipment QA. All erratic behavior or failures of field equipment will be subsequently recorded in the calibration log.

Chain of Custody Forms

Chain of custody forms are used as a means of documenting and tracking sample possession from time of collection to the time of disposal. A chain of custody form will accompany each field sample collected, and one copy of the form will be filed in the field office. All field personnel will be briefed on the proper use of the chain of custody procedure.

14.2.2 Data Security

Measures will be taken during the field investigation to confirm that samples and records are not lost, damaged, or altered. When not in use, all field notebooks will be stored at the field office or locked in the field vehicle. Access to these files will be limited to the field personnel who utilize them.

14.3 Sample Tracking and Management

A record of all field documentation, as well as analytical and QA/QC results, will be maintained to confirm the validity of data used in the site analysis. To effectively execute such documentation, carefully constructed sample tracking and data management procedures will be used throughout the sampling program.

Sample tracking will begin with the completion of chain of custody forms. On a daily basis, the completed chain of custody forms associated with samples collected that day will be faxed and/or scanned and emailed to the Database Administrator. Copies of all completed chain of custody forms will be maintained in the field office. The laboratory will verify receipt of the samples electronically (via email) on the following day.

When analytical data are received from the laboratory, the incoming analytical data packages will be reviewed against the information on the chain of custody to confirm

that the correct analyses were performed for each sample and that results for all samples submitted for analysis were received. Any discrepancies noted will be promptly followed up with the laboratory.

14.4 Data Management System

In addition to the sample tracking system, a data management system will be implemented. The central focus of the data management system will be the development of a personal computer-based project database. The project database, to be maintained by the Database Administrator, will combine pertinent geographical, field, and analytical data. Information that will be used to populate the database will be derived from three primary sources: surveying of sampling locations, field observations, and analytical results. Each of these sources is discussed in the following sections.

14.4.1 Computer Hardware

The database will be constructed on personal computer work stations connected through a network server.

14.4.2 Computer Software

The data will be warehoused in EQUIS 5 Enterprise system that uses a SQL Server database. Geographic information system (GIS) applications will be developed in ESRI ArcGIS, with additional customization performed with Visual Basic. Tables and other database reports will be generated through Microsoft Access in conjunction with Microsoft Excel and/or Microsoft Word. These software products will be upgraded to current industrial standards, as necessary.

14.4.3 Survey Information

In general, each location sampled will be surveyed to confirm that accurate documentation of sample locations for mapping and geographic information system purposes (if appropriate) to facilitate the re-sampling of select sample locations during future monitoring programs, if needed, and for any potential remediation activities. The surveying activities that will occur in the field will consist of the collection of information that will be used to compute a northing and easting in state plane coordinates for each sample location and the collection of information to compute elevations relative to the National Geodetic Vertical Datum of 1988 for select sample locations, as appropriate.

All field books associated with the surveying activities will be stored as a record of the project activities.

14.4.4 Field Observations

An important part of the information that will ultimately reside in the data management system for use during the project will originate in the observations that are recorded in the field.

Following each sampling event, a status memorandum may be prepared by the field personnel who performed the sampling activities. The purpose of the status memo is to present a summary and a record of the sampling event. Topics to be discussed include the locations sampled, the sampling methodologies used, QA/QC procedures, blind duplicate and MS/MSD sample identification numbers, equipment decontamination procedures, personnel involved in the activity, and any other noteworthy events that occurred.

Tables are typically attached to the memorandum and are used to summarize measurements that were recorded in the field books. It is anticipated that these tables will be developed using a personal computer spreadsheet program to reduce possible transcription error and to facilitate the transfer of information to the data management system. For example, for soil samples, the table would present the sampling date and time, soil depth, depth of soil recovered in a given core, the depth increment submitted for analysis, and a description of the lithology.

Status memos are valuable tools to keep project personnel informed on the details of the field activities and are also invaluable during the development of the final report. Each status memo will be reviewed for accuracy and completeness by the respective sampling activity manager. Following the approval and finalization of each memo, the status memo will be used to transfer field observations into the data management system.

All pertinent field data will be manually entered into the appropriate database tables from the chain of custody forms and field notebooks.

14.4.5 Analytical Results

Analytical results will be provided by the laboratory in digital format. The data packages will be examined to confirm that the correct analyses were performed for each sample

submitted and that all of the analyses requested on the chain of custody form were performed. If discrepancies are noted, the laboratory will be contacted to resolve any issues.

Each data package will be validated. Any data that do not meet the specified standards will be flagged pending resolution of the issue. The flag will not be removed from the data until the issue associated with the sample results is resolved. Although flags may remain for certain data, the use of those data may not necessarily be restricted.

Following completion of the data validation, the digital files will be used to populate the appropriate database tables. Specific fields include:

- Sample identification number
- Date sampled
- Date analyzed
- Parameter name
- Analytical result
- Units
- Detection limit
- Qualifier(s)

The individual EDDs, supplied by the laboratory in EQuIS 5 file format, will be loaded into the appropriate database. Any analytical data that cannot be provided by the laboratory in electronic format will be entered manually. After entry into the database, the EDD data will be compared to the field information previously entered into the database to confirm that all requested analytical data have been received.

14.4.6 Data Analysis and Reporting

The database management system will have several functions to facilitate the review and analysis of the data. Routines have been developed to permit the user to scan

analytical data from a given site for a given media. Several output functions are also available that can be modified, as necessary, for use in the data management system.

A valuable function of the data management system will be the generation of tables of analytical results from the project databases. The capability of the data management system to directly produce tables reduces the redundant manual entry of analytical results during report preparation and precludes transcription errors that may occur otherwise. This data management system function creates a digital file of analytical results and qualifiers for a given media. The file can then be processed into a table of rows and columns that can be transferred to word processing software (*e.g.*, Microsoft® Excel) for final formatting and addition of titles and notes. Tables of analytical data will be produced as part of data interpretation tasks and the reporting of data to the USEPA.

The data management system also has the capability of producing a digital file of select parameters that exists in one or more of the databases. This type of custom function is accomplished on an interactive basis and is best used for transferring select information into a number of analysis tools, such as statistical or graphing programs.

14.5 Document Control and Inventory

Arcadis will maintain the project files at its Syracuse, New York office.

15. Assessment and Response Actions

Performance and systems audits will be completed in the field and the laboratory during the sampling, as described below.

15.1 Field Audits

The appropriate TM will monitor field performance. Field performance audit summaries will contain an evaluation of field activities to verify that the activities are performed according to established protocols. Field performance audits may be performed by the NYSDEC Project Manager (or his designee). The auditor(s) will review field reports and communicate concerns to the Arcadis PM and/or TM, and/or NYSDEC Project Manager, as appropriate. The observations made during field performance audits and any recommended changes/deviations to the field procedures will be recorded and documented.

In addition, systems audits comparing scheduled QA/QC activities from this QAPP with actual QA/QC activities completed will be performed. The appropriate TM and QAC will periodically confirm that work is being performed consistent with this QAPP and the SMP.

15.2 Laboratory Audits

The laboratory will perform internal audits consistent with their Quality Assurance Manual.

In addition to the laboratory's internal audits and participation in state and federal certification programs, the laboratory sections at the laboratory are audited by representatives of the regulatory agency issuing certification. Audits are usually conducted on an annual basis and focus on laboratory conformance to the specific program protocols for which the laboratory is seeking certification. The auditor reviews sample handling and tracking documentation, analytical methodologies, analytical supportive documentation, and final reports. The audit findings are formally documented and submitted to the laboratory for corrective action, if necessary.

Arcadis reserves the right to conduct an on-site audit of the laboratory prior to the start of analyses for the project. Additional audits may be performed during the course of the project, as deemed necessary.

15.3 Corrective Action

Corrective actions are required when field or analytical data are not within the objectives specified in this QAPP or the SMP. Corrective actions include procedures to promptly investigate, document, evaluate, and correct data collection and/or analytical procedures. Field and laboratory corrective action procedures for the assessment are described below.

15.3.1 Field Procedures

If, during field work, a condition is noted by the field crew that would have an adverse effect on data quality, corrective action will be taken so as not to repeat this condition. Condition identification, cause, and corrective action implemented will be documented on a Corrective Action Form and reported to the appropriate Arcadis TM, QAC, and PM. The QAC or his designee will be responsible for follow-up and acceptance of corrective actions.

Examples of situations that would require corrective actions are provided below:

- Protocols as defined by the QAPP, FSP and/or SMP have not been followed
- Equipment is not in proper working order or properly calibrated
- QC requirements have not been met
- Issues resulting from performance or systems audits

Project personnel will continuously monitor ongoing work performance in the normal course of daily responsibilities.

15.3.2 Laboratory Procedures

In the laboratory, when a condition is noted to have an adverse effect on data quality, corrective action will be taken so as not to repeat this condition. Condition identification, cause, and corrective action to be taken will be documented, and reported to the appropriate Arcadis TM, QAC, and PM.

Corrective action may be initiated, at a minimum, under the following conditions:

- Specific laboratory analytical protocols have not been followed
- Predetermined data acceptance standards are not obtained



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- Equipment is not in proper working order or calibrated
- Sample and test results are not completely traceable
- QC requirements have not been met
- Issues resulting from performance or systems audits

Laboratory personnel will continuously monitor ongoing work performance in the normal course of daily responsibilities.

16. Reports to Management

16.1 Internal Reporting

The analytical laboratory will submit analytical reports to Arcadis for review. Arcadis will, in turn, submit the reports to the data validator for review. Supporting data (i.e., historic data, related field or laboratory data) will also be reviewed to evaluate data quality, as appropriate. The Arcadis QAC will incorporate results of the data validation reports and assessments of data usability into a summary report that will be submitted to the Arcadis PM and TM. If required, this QAPP will be filed in the project file at Arcadis' office and will include the following:

1. Assessment of data accuracy, precision, and completeness for both field and laboratory data.
2. Results of the performance and systems audits.
3. Significant QA/QC problems, solutions, corrections, and potential consequences.
4. Analytical data validation report.

16.2 Reporting

Upon receipt of the data package from the laboratory, the Arcadis QAC will determine if the data package has met the required DQOs. The analytical data package will be incorporated into the reports.

17. Data Reduction and Review

After field and laboratory data are obtained, the data will be subject to the following:

- Reduction, or manipulation mathematically or otherwise into meaningful and useful forms.
- Data validation
- Review.
- Organization, interpretation, and reporting.

17.1 Field Data Reduction and Review

17.1.1 Field Data Reduction

Information collected in the field through visual observation, manual measurement, and/or field instrumentation will be recorded in field notebooks, log sheets, and/or on forms. Such data will be reviewed by the appropriate TM for adherence to the SMP and this QAPP and for consistency. Any concerns identified as a result of this review will be discussed with the field personnel, corrected if possible, and, as necessary, incorporated into the data evaluation process.

17.1.2 Field Data Review

Field data calculations, transfers, and interpretations will be conducted by the field personnel and reviewed for accuracy by the appropriate TM and the QAC. Logs and documents will be checked for:

- General completeness.
- Readability.
- Usage of appropriate procedures.
- Appropriate instrument calibration and maintenance.
- Reasonableness in comparison to present and past data collected.

- Correct sample locations.
- Correct calculations and interpretations.

17.1.3 Field Data Reporting

Where appropriate, field data forms and calculations will be processed and included in appendices to the reports. The original field logs, documents, and data reductions will be kept in the project file at the Arcadis office in Syracuse, New York.

17.2 Laboratory Data Reduction and Review

17.2.1 Laboratory Data Reduction

The calculations used for data reduction will be in accordance with the analytical methods. Whenever possible, analytical data will be transferred directly from the instrument to a computerized data system. Raw data will be entered into permanently bound laboratory notebooks. The data entered must be sufficient to document all factors used to arrive at the reported value.

Concentration calculations for chromatographic analyses will be based on response factors. Quantitation will be performed using internal standards for GC/MS methodology. Concentration calculations for metals and wet chemistry, if appropriate, will be based on linear regression.

Unless otherwise specified, all values will be reported uncorrected for blank contamination

17.2.2 Laboratory Data Review

Data will be subject to multi-level review by the laboratory. The group leader will review all data reports prior to release for final data report generation. The QA Manager will review the final data reports, and the Laboratory Director will review a cross section of the final data reports prior to shipment to the environmental consultant.

If discrepancies or deficiencies are present in the analytical results, corrective action will be taken. Deficiencies discovered as a result of internal data review, as well as the corrective actions to be used to rectify the situation, will be documented on a



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Corrective Action Form. This form will be submitted to the Arcadis Project Manager and QAC.

18. Data Verification and Validation

Data validation entails a review of the QC data and the raw data to verify that the laboratory was operating within required limits, the analytical results are correctly transcribed from the instrument, and which, if any, environmental samples are related to any out-of-control QC samples. The objective of data validation is to identify any questionable or invalid laboratory measurements.

Data validation will consist of data screening, checking, reviewing, editing, and interpreting to document analytical data quality and determine if the quality is sufficient to meet the DQOs.

The data validator will use the most recent versions of the USEPA functional guidelines for data validation and requirements available at the time of project initiation and for the entire duration of the project, as guidance, where appropriate.

The data validator will verify reduction of laboratory measurements and laboratory reporting of analytical parameters are in accordance with the procedures specified for each analytical method (i.e., perform laboratory calculations in accordance with the method-specific procedure).

Upon receipt of the laboratory data, the following reduction, validation, and reporting scheme will be executed by the data validator:

1. Laboratory data will be screened to confirm that the necessary QC procedures (e.g., detection limit verification, initial calibration, continuing calibration, duplicates, spikes, blanks) have been performed. QC information not included or of insufficient frequency will be identified in the validation report, including a discussion of the implications.
2. QC supporting information will subsequently be screened to identify QC data outside established control limits. If out-of-control data are discovered, documentation of appropriate corrective action will be reviewed. Out-of-control data without appropriate corrective action shall result in designation of the affected data as qualified or rejected, as appropriate.

It should be noted that the existence of qualified results does not automatically invalidate data. This point is repeatedly emphasized in the USEPA functional guidelines for data validation and is inherently acknowledged by the very existence of

the data validation/flagging guidelines. The goal to produce the best possible data does not necessarily mean producing data without QC qualifiers. Qualified data can provide useful information.

Resolution of any issues regarding laboratory performance or deliverables will be handled between the data validator, laboratory Project Manager, and the Arcadis Project Manager.

Upon completion of the data validation (if required), a data usability summary report addressing the following topics will be prepared.

1. Assessment of the data package.
2. Description of any protocol deviations.
3. Failures to reconcile reported and/or raw data.
4. Assessment of any compromised data.
5. Laboratory case narrative.
6. Overall appraisal of the analytical data.

Table of site name, sample quantities, data submitted to the laboratory, year of protocol used, matrix, and fractions analyzed.

19. Reconciliation with User Requirements

The data results will be examined to determine the performance that was achieved for each data usability criterion. The performance will then be compared with the project objectives. Of particular note will be samples at or near action levels. All deviations from objectives will be noted. Additional action may be warranted when performance does not meet performance objectives for critical data. Action options may include any or all of the following:

- Retrieval of missing information;
- Request for additional explanation or clarification;
- Reanalysis of sample from extract (when appropriate); and
- Recalculation or reinterpretation of results by the laboratory.

These actions may improve the data quality, reduce uncertainty, and eliminate the need to qualify or reject data.

If these actions do not improve the data quality to an acceptable level, the following additional actions may be taken:

- Extrapolation of missing data from existing data points
- Use of historical data
- Evaluation of the critical/non-critical nature of the sample

If the data gap cannot be resolved by these actions, an evaluation of the data bias and potential for false negatives and positives can be performed. If the resultant uncertainty level is unacceptable, additional sample collection and analysis may be required.

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Tables

TABLE 1A
PARAMETERS, METHODS, AND TARGET QUANTITATION LIMITS (SOIL)

QUALITY ASSURANCE PROJECT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER CORPORATION SITE
HICKSVILLE, NEW YORK

Analyte	CAS Number	Soil ² (ug/kg)		
		Action Limit ³	Laboratory MDL ⁴	Laboratory RL ⁴
VOLATILE ORGANIC COMPOUNDS (SW-846 8260 ¹)				
1,1,1-Trichloroethane	71-55-6	500,000	0.260	5
1,1-Dichloroethane	75-34-3	240,000	0.270	5
1,1-Dichloroethene	75-35-4	500,000	0.208	5
1,2,4-Trichlorobenzene	120-82-1	190,000	0.463	5
1,2-Dichlorobenzene	95-50-1	500,000	0.156	5
1,2-Dichloroethane	107-06-2	30,000	0.150	5
1,3,5-Trimethylbenzene	108-67-8	190,000	0.170	5
1,3-Dichlorobenzene	541-73-1	280,000	0.200	5
1,4-Dichlorobenzene	106-46-7	130,000	0.257	5
1,4-Dioxane	123-91-1	130,000	30.852	125
2-Butanone (Methyl ethyl ketone)	78-93-3	500,000	0.960	5
Acetone	67-64-1	500,000	1.677	5
Benzene	71-43-2	44,000	0.156	5
Carbon tetrachloride	56-23-5	22,000	0.119	5
Chlorobenzene	108-90-7	500,000	0.090	5
Chloroform	67-66-3	350,000	0.403	5
cis-1,2-Dichloroethene	156-59-2	500,000	0.264	5
Ethylbenzene	100-41-4	390,000	0.266	5
Methyl tert-butyl ether	1634-04-4	500,000	0.087	5
Methylene chloride	75-09-2	500,000	0.347	5
n-Butylbenzene	104-51-8	500,000	0.23	5
n-Propylbenzene	103-65-1	500,000	0.142	5
sec-Butylbenzene	135-98-8	500,000	0.165	5
tert-Butylbenzene	98-06-6	500,000	0.123	5
Tetrachloroethene	127-18-4	150,000	0.769	5
Toluene	108-88-3	500,000	0.138	5
trans-1,2-Dichloroethene	156-60-5	500,000	0.165	5
Trichloroethane	79-01-6	200,000	0.209	5
Vinyl chloride	75-01-4	13,000	0.201	5
Xylenes, Total	1330-20-7	500,000	0.395	5
SEMIVOLATILE ORGANIC COMPOUNDS (SW-846 8270 ¹)				
2-Methylphenol	95-48-7	500,000	71.0	330
3&4-Methylphenol	108-39-4 / 106-44-5	500,000	53.8	330
Acenaphthene	83-32-9	500,000	30.9	330
Acenaphthylene	208-96-8	500,000	33.7	830
Anthracene	120-12-7	500,000	19.6	330
Benzo(a)anthracene	56-55-3	5,600	10.9	330
Benzo(a)pyrene	50-32-8	1,000	16.4	330
Benzo(b)fluoranthene	205-99-2	5,600	26.6	330
Benzo(g,h,i)perylene	191-24-2	500,000	15.3	330
Benzo(k)fluoranthene	207-08-9	56,000	38.4	330
Chrysene	218-01-9	56,000	18.9	330
Dibenzo(a,h)anthracene	53-70-3	560	21.1	330
Dibenzofuran	132-64-9	350,000	32.0	330
Fluoranthene	206-44-0	500,000	17.3	330
Fluorene	86-73-7	500,000	29.7	330
Hexachlorobenzene	118-74-1	6,000	30.2	330
Indeno(1,2,3-cd)pyrene	193-39-5	5,600	21.2	330
Naphthalene	91-20-3	500,000	56.3	330
Pentachlorophenol	111-44-4	6,700	40.6	330
Phenanthrene	85-01-8	500,000	16.7	330
Phenol	108-95-2	500,000	38.2	330
Pyrene	129-00-0	500,000	14.8	330

**TABLE 1A
PARAMETERS, METHODS, AND TARGET QUANTITATION LIMITS (SOIL)**

**QUALITY ASSURANCE PROJECT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER CORPORATION SITE
HICKSVILLE, NEW YORK**

Analyte	CAS Number	Soil ² (ug/kg)		
		Action Limit ³	Laboratory MDL ⁴	Laboratory RL ⁴
AROCLORS (SW-846 8082 ¹)				
Aroclor-1016	12674-11-2	--	5.286	33
Aroclor-1221	11104-28-2	--	NA	67
Aroclor-1232	11141-16-5	--	NA	33
Aroclor-1242	53469-21-9	--	NA	33
Aroclor-1248	12672-29-6	--	NA	33
Aroclor-1254	11097-69-1	--	NA	33
Aroclor-1260	11096-82-5	--	6.099	33
Aroclor-1262	37324-23-5	--	NA	33
Aroclor-1268	11100-14-4	--	NA	33
Total PCBs	1336-36-3	1,000	--	--
PESTICIDES (SW-846 8081 ¹)				
4,4'-DDD	72-54-8	92,000	0.427	3.3
4,4'-DDE	72-55-9	62,000	0.178	3.3
4,4'-DDT	50-29-3	47,000	0.318	3.3
Aldrin	309-00-2	680	0.563	1.7
alpha-BHC	319-84-6	3,400	0.379	1.7
alpha-Chlordane	5103-71-9	24,000	0.253	1.7
beta-BHC	319-85-7	3,000	0.536	1.7
delta-BHC	319-86-8	500,000	0.431	1.7
Dieldrin	60-57-1	1,400	0.294	3.3
Endosulfan I ⁵	959-98-8	200,000	0.291	1.7
Endosulfan II ⁵	33213-65-9	200,000	0.393	3.3
Endosulfan sulfate ⁵	1031-07-8	200,000	0.248	3.3
Endrin	72-20-8	89,000	0.269	3.3
gamma-BHC (Lindane)	58-89-9	9,200	0.525	1.7
Heptachlor	76-44-8	15,000	0.290	1.7
METALS (SW-846 6010/7471 ¹)				
Arsenic	7440-38-2	16	0.11	0.5
Barium	7440-39-3	400	0.07	10
Beryllium	7440-41-7	590	0.01	0.25
Cadmium	7440-43-9	9.3	0.01	0.125
Hexavalent chromium ⁶	18540-29-9	400	0.31	1
Trivalent chromium ⁶	16065-83-1	1,500	Calculation	
Chromium	7440-47-3	--	0.05	0.5
Copper	7440-50-8	270	0.02	1.25
Lead	7439-92-1	1,000	0.14	0.25
Manganese	7439-96-5	10,000	0.04	0.75
Mercury	7439-97-6	2.8	0.01	0.033
Nickel	7440-02-0	310	0.03	2
Selenium	7782-49-2	1,500	0.12	0.5
Silver	7440-22-4	1,500	0.02	0.5
Zinc	7440-66-6	10,000	0.06	1
CYANIDE (SW-846 9012 ¹)				
Cyanide	57-12-5	27	0.15	1

Notes:

- USEPA. Office of Solid Waste and Emergency Response. *Test Methods for Evaluating Solid Waste SW-846 3rd ed. Update IV Washington, D.C 1996*
- The target reporting limits are based on wet weight. The actual reporting limits will vary based on sample weight, moisture content, and potential dilution factors.
- Action Limit: Restricted use soil cleanup objectives (SCO) for the protection of public health, commercial use, presented in 6 NYCRR Part 375-6.8(b), effective December 14, 2006. "--" indicates that there is no action limit for this analyte.
- The MDL and RL are provided for the Pace Analytical Services laboratory located in Melville, NY. These values are laboratory-specific and will be subject to change dependent upon the laboratory contracted to perform the work at the site.
- The SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.
- The SCO is considered to be met if the analysis for the total species is below the specific SCO.

**TABLE 1B
PARAMETERS, METHODS, AND TARGET QUANTITATION LIMITS (SOIL VAPOR/INDOOR AND AMBIENT AIR)**

**QUALITY ASSURANCE PROJECT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER CORPORATION SITE
HICKSVILLE, NEW YORK**

Analyte	CAS Number	Molecular Weight	Reporting Limit ³			
			Soil Vapor/Sub-Slab Soil Vapor		Indoor Air/Ambient Air	
			(ppb v/v)	(µg/m ³)	(ppb v/v)	(µg/m ³)
NYSDEC DER TO-15 TCL ^{1,2}						
1,1,1-Trichloroethane	71-55-6	133.40	0.2	1.1	0.2	1.1
1,1,2,2-Tetrachloroethane	79-34-5	167.85	0.2	1.4	0.2	1.4
1,1,2-Trichlorotrifluoroethane (Freon 113)	76-13-1	187.38	0.2	1.5	0.2	1.5
1,1,2-Trichloroethane	79-00-5	133.40	0.2	1.1	0.2	1.1
1,1-Dichloroethane	75-34-3	98.96	0.2	0.8	0.2	0.8
1,1-Dichloroethene	75-35-4	96.94	0.2	0.8	0.2	0.8
1,2,4-Trichlorobenzene	120-82-1	181.45	0.2	1.5	0.2	1.5
1,2,4-Trimethylbenzene	95-63-6	120.19	0.2	1.0	0.2	1.0
1,2-Dibromoethane	106-93-4	187.86	0.2	1.5	0.2	1.5
1,2-Dichlorobenzene	95-50-1	147.00	0.2	1.2	0.2	1.2
1,2-Dichloroethane	107-06-2	98.96	0.2	0.8	0.2	0.8
cis-1,2-Dichloroethene	156-59-2	96.94	0.2	0.8	0.2	0.8
trans-1,2-dichloroethene	156-60-5	96.94	0.2	0.8	0.2	0.8
1,2-Dichloropropane	78-87-5	112.99	0.2	0.9	0.2	0.9
1,2-Dichlorotetrafluoroethane (Freon 114)	76-14-2	170.92	0.2	1.4	0.2	1.4
1,3,5-Trimethylbenzene	108-67-8	120.19	0.2	1.0	0.2	1.0
1,3-Dichlorobenzene	541-73-1	147.00	0.2	1.2	0.2	1.2
1,4-Dichlorobenzene	106-46-7	147.00	0.2	1.2	0.2	0.0
1,4-Dioxane	123-91-1	88.10	0.5	1.8	0.5	1.8
2,2,4-Trimethylpentane	540-84-1	114.22	0.5	2.3	0.5	2.3
2-Butanone (Methyl ethyl ketone, MEK)	78-93-3	72.11	0.2	0.6	0.2	0.6
4-Methyl-2-pentanone (Methyl Isobutyl ketone, MIBK)	108-10-1	100.16	0.2	0.8	0.2	0.8
Benzene	71-43-2	78.11	0.2	0.6	0.2	0.6
Benzyl Chloride	100-44-7	126.58	0.5	2.6	0.5	2.6
Bromodichloromethane	75-27-4	163.83	0.2	1.3	0.2	1.3
Bromoform	75-25-2	252.73	0.2	2.1	0.2	2.1
Bromomethane	74-83-9	94.94	0.2	0.8	0.2	0.8
Carbon tetrachloride	56-23-5	153.82	0.2	1.3	0.04	0.25
Chlorobenzene	108-90-7	112.56	0.2	0.9	0.2	0.9
Chloroethane	75-00-3	64.51	0.2	0.5	0.2	0.5
Chloroform	67-66-3	119.38	0.2	1.0	0.2	1.0
Chloromethane	74-87-3	50.49	0.2	0.4	0.2	0.4
cis-1,3-Dichloropropene	10061-01-5	110.97	0.2	0.9	0.2	0.9
Cyclohexane	110-82-7	84.16	0.5	1.7	0.5	1.7
Dibromochloromethane	124-48-1	208.28	0.2	1.7	0.2	1.7
Dichlorodifluoromethane	75-71-8	120.91	0.2	1.0	0.2	1.0
Ethanol	64-17-5	46.07	0.5	0.9	0.5	0.9
Ethyl Benzene	100-41-4	106.17	0.2	0.9	0.2	0.9
1,3-Hexachlorobutadiene	87-68-3	260.76	0.2	2.1	0.2	2.1
Methylene chloride	75-0902	84.93	0.2	0.7	0.2	0.7
n-Hexane	110-54-3	86.18	0.5	1.8	0.5	1.8
Tert Butyl Alcohol (TBA)	75-65-0	74.12	0.5	1.5	0.5	1.5
Tetrachloroethene	127-18-4	165.83	0.2	1.4	0.2	1.4
Toluene	108-88-3	92.14	0.2	0.8	0.2	0.8
trans-1,3-Dichloropropene	10061-02-6	110.97	0.2	0.9	0.2	0.9
Trichloroethene	79-01-6	131.39	0.2	1.1	0.05	0.25
Trichlorofluoromethane	75-69-4	137.37	0.2	1.1	0.2	1.1
Vinyl chloride	75-01-4	62.50	0.2	0.5	0.1	0.25
m&p-Xylene	106-42-3	212.34	0.2	1.7	0.2	1.7
o-Xylene	95-47-6	106.17	0.2	0.9	0.2	0.9

Notes:

1. NYSDEC DER TO-15 TCL = New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Target Compound List (TCL) as presented in the February 2008 "NYSDEC Modifications to EPA Region 9 TO-15 QA/QC Criteria".
2. Analyses to be performed using USEPA Compendium Method TO-15 (soil vapor/sub-slab soil vapor samples) and USEPA Low-level Method TO-15 (indoor air/ambient air samples).
3. The are provided for the Pace Analytical Services laboratory located in Melville, NY. These values are laboratory-specific and will be subject to change dependent upon the laboratory contracted to perform the work at the site.

**TABLE 2
SAMPLE QUANTITIES AND QUALITY CONTROL FREQUENCIES**

**QUALITY ASSURANCE PROJECT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER CORPORATION SITE
HICKSVILLE, NEW YORK**

Parameter	Estimated Environmental Sample Quantity	Field Quality Control Analyses						Laboratory Quality Control Analyses						Total
		Trip Blank		Rinse Blank ¹		Field Duplicate		Matrix Spike		Matrix Spike Duplicate		Lab Duplicate		
		Frequency	Number	Frequency	Number	Frequency	Number	Frequency	Number	Frequency	Number	Frequency	Number	
Soil														
Volatile Organic Compounds (SW-846 8260)	To be determined (TBD)	1/cooler	TBD	1/day	TBD	1/20	TBD	1/20	TBD	1/20	TBD	Not applicable (NA)	--	TBD
Semivolatile Organic Compounds (SW-846 8270)	TBD	NA	--	1/day	TBD	1/20	TBD	1/20	TBD	1/20	TBD	NA	--	TBD
Polychlorinated Biphenyls (SW-846 8082)	TBD	NA	--	1/day	TBD	1/20	TBD	1/20	TBD	1/20	TBD	NA	--	TBD
Pesticides (SW-846 8081)	TBD	NA	--	1/day	TBD	1/20	TBD	1/20	TBD	1/20	TBD	NA	--	TBD
Metals (SW-846 6010/7471)	TBD	NA	--	1/day	TBD	1/20	TBD	1/20	TBD	1/20	TBD	1/20	TBD	TBD
Cyanide (SW-846 9012)	TBD	NA	--	1/day	TBD	1/20	TBD	1/20	TBD	1/20	TBD	1/20	TBD	TBD
Soil Vapor/Ambient Air														
Volatile Organic Compounds (TO-15)	TBD	NA	--	NA	--	1/20	TBD	NA	--	NA	--	1/20	TBD	TBD

Notes:

1. Rinse blanks will only be collected if new disposable equipment is not used for sample collection.

TABLE 3
LABORATORY QUALITY CONTROL LIMIT ¹

QUALITY ASSURANCE PROJECT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER CORPORATION SITE
HICKSVILLE, NEW YORK

Parameter	Accuracy - Percent Recovery			Precision - Relative Percent Difference (RPD)		
	Surrogate	Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Laboratory Control Sample (LCS)	MS/MSD	Lab Duplicate	Field Duplicate
Soil						
Volatile Organic Compounds (SW-846 8260)	70 - 130	70 - 130	70 - 130	30	--	50
Semivolatile Organic Compounds (SW-846 8270)	30 - 130	30 - 140	30 - 140	30	--	50
Polychlorinated Biphenyls (SW-846 8082)	30 - 150	40 - 140	40 - 140	50	--	50
Pesticides (SW-846 8081)	30 - 150	40 - 140	40 - 140	50	--	50
Metals (SW-846 6010/7471)	--	75 - 125	80 - 120	20	20	50
Cyanide (SW-846 9012)	--	75 - 125	90 - 110	20	20	50
Soil Vapor/Ambient Air						
Volatile Organic Compounds (TO-15)	--	--	70 - 130	--	25	50

Notes:

1. The listed QC limits are based on SW-846 guidance and are advisory. The actual limits are determined based on laboratory performance. Frequent failure to meet the QC limits; however, warrant investigation of the laboratory.

TABLE 4
SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES
QUALITY ASSURANCE PROJECT PLAN
FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER CORPORATION SITE
HICKSVILLE, NEW YORK

Parameter	Method ¹	Bottle Type	Preservation	Holding Time ²
Soil				
Volatile Organic Compounds	SW-846 8260	2 x 5 gram Encore samplers	Cool to <6°C	48 hours to preservation 14 days to analysis
Semivolatile Organic Compounds	SW-846 8270	1 x 4 ounce glass jar with Teflon®-lined lid	Cool to <6°C	14 days to extraction 40 days to analysis
Polychlorinated Biphenyls	SW-846 8082	1 x 4 ounce glass jar with Teflon®-lined lid	Cool to <6°C	14 days to extraction 40 days to analysis
Pesticides	SW-846 8081	1 x 4 ounce glass jar with Teflon®-lined lid	Cool to <6°C	14 days to extraction 40 days to analysis
Metals (except mercury)	SW-846 6010	1 x 4 ounce wide mouth glass jar	Cool to <6°C	180 days to analysis
Mercury	SW-846 7471			28 days to analysis
Cyanide	SW-846 9012	1 x 4 ounce wide mouth glass jar	Cool to <6°C	14 days to analysis
Soil Vapor/Ambient Air				
Volatile Organic Compounds	TO-15	1 x Summa canister	None	30 days to analysis

Notes:

- USEPA. Office of Solid Waste and Emergency Response. *Test Methods for Evaluating Solid Waste. SW-846 3rd ed. Update IV Washington, D.C. 1996.*
- All holding times are measured from date of collection.



Attachment A

Chain of Custody Form

APPENDIX J

Community Air Monitoring Plan





Bayer MaterialScience LLC

Community Air Monitoring Plan

125 New South Road
Hicksville, New York
NYSDEC Site No. 130004

February 2013



Community Air Monitoring Plan

Bayer Material Science LLC
125 New South Road
Hicksville, New York

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Date:
February 2013

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Attachments

- A New York State Department of Health Generic Community Air Monitoring Plan (Appendix 1A of DER-10)
- B Fugitive Dust Suppression and Particulate Monitoring (Appendix 1B of DER-10)
- C Specifications for Community Air Monitoring Equipment



Community Air Monitoring Plan

Bayer MaterialScience LLC
125 New South Road
Hicksville, New York

1. Introduction

This *Community Air Monitoring Plan* (CAMP) has been prepared by ARCADIS to support implementation of the remedial action at the Bayer MaterialScience LLC (Bayer) site located at 125 New South Road in Hicksville, New York (the Site). This CAMP fulfills the general requirements set forth in the New York State Department Environmental Conservation (NYSDEC) document titled *DER-10 Technical Guidance for Site Investigation and Remediation*, (DER-10) issued on May 3, 2010. Specifically, Appendix 1A of DER-10 (included herein as Attachment A) provides general guidance and protocols for the preparation and implementation of a CAMP. In addition, Appendix 1B of DER-10 (included herein as Attachment B) supplements the contents of Appendix 1A and provides additional requirements for fugitive dust/particulate monitoring.

The intent of this CAMP is to provide a measure of protection for downwind communities from potential airborne releases of constituents of concern during intrusive and/or potential dust-generating remedial construction activities at the Site. Accordingly, this CAMP identifies potential air emissions, and describes air monitoring procedures, monitoring schedule, data collection, and reporting requirements for the remedial action.

The Contractor will be required to obtain the services of a qualified third party subcontractor to provide all labor, materials, and equipment necessary to implement the community air monitoring program specified in this CAMP. A dedicated air monitoring technician (from the third party subcontractor) will be responsible for performing all monitoring activities described herein, including but not limited to: (1) establishing the daily air monitoring sampling stations based on prevailing wind directions and making adjustments to the locations, as needed; (2) performing daily calibrations of the monitoring equipment; (3) routinely checking the air monitoring sampling stations to confirm that the monitoring equipment is functioning properly and to record manual hourly air monitoring readings; (4) downloading data from the monitoring instruments; (5) documenting the remedial construction activities being performed while air monitoring is ongoing; and (6) preparing weekly CAMP reports.

1.1 Site Description

The Site consists of a 14-acre triangular-shaped parcel located just southeast of the intersection of New South Road and Commerce Place in the City of Hicksville, New York. The Site is bordered to the north by industrial properties, to the south and west by the Long Island Railroad (LIRR) and commercial/industrial properties, and to the east by warehouses owned by Simone Development and a complex owned by Northrop Grumman Corporation (Northrop Grumman).



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Aside from the Administration Building located in the northern portion of the Site, all other buildings and aboveground structures formerly used in connection with site operations were demolished down to their floor slabs in 2003. The building floor slabs and foundations were demolished and removed between December 2005 and February 2006 in accordance with the NYSDEC-approved *Demolition Work Plan* (ARCADIS BBL, July 2005) and follow-up correspondence.

1.2 Remedial Action Summary

The proposed remedial activities primarily include the following:

- Excavating soil containing polychlorinated biphenyls (PCBs), metals, and polycyclic aromatic hydrocarbons (PAHs) at concentrations exceeding soil cleanup levels for offsite transportation and disposal.
- Excavating surface soil (top 1 foot of soil) at select locations (where concentrations of constituents meet subsurface soil cleanup levels but exceed surface soil cleanup levels) for re-use as subsurface fill.
- Transporting excavated impacted soil for offsite disposal.
- Collecting and processing verification soil samples (confirmation and documentation samples) to confirm that the remedial objectives are achieved and concentrations are documented.
- Backfilling the excavated areas.
- Performing various restoration activities.

1.3 Potential Air Emissions Related to Remedial Activities

Ground-intrusive and certain non-intrusive activities have the potential to generate localized impacts to air quality. Such activities are anticipated to include, but may not be limited to the following:

- Material excavation to the limits shown in the Remedial Design (RD).



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- Material handling and storage (e.g., manipulation of excavated materials to render them suitable for offsite treatment/disposal, stockpiling of materials, loading of materials for transport to the offsite treatment and/or disposal facility[ies], etc.).
- Soil boring for verification soil sampling.
- Handling materials subject to re-use for subsequent placement onsite.
- Backfilling/restoring remediated and other disturbed areas.
- Performing decontamination activities.

1.4 Vapor/Dust/Odor Emissions and Control Measures

Air emissions control and fugitive dust suppression measures will be implemented concurrently with the activities identified above (as needed) to limit the potential for organic vapor, dust, and dust emissions from the Site. Such control measures are anticipated to include the following:

- Applying a water spray to suppress dust originating from excavation and dumping and from vehicle traffic.
- Applying a foam or Biosolve[®] spray that uses encapsulation and chemical masking to suppress vapors/odors originating from the excavation, excavator bucket, or staging areas.
- Limiting travel speed and applying water to gravel haul roads, if needed.
- Minimizing the number and size of excavation areas open at one time.
- Covering the excavation and materials in the staging area(s) using ultraviolet resistant polyethylene sheeting.

These vapor, dust, and odor control measures will be mobilized to the Site at the beginning of the project and will be maintained onsite in sufficient supply throughout the work. Control measures will be implemented as necessary based on visual or olfactory observations, and the results of community air monitoring for organic vapors (including volatile organic compounds [VOCs]) and particulate matter less than 10 microns in diameter (PM₁₀).



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2. Air Monitoring Procedures

Real-time community air monitoring for VOCs and PM₁₀ will be performed at representative locations upwind and downwind of the area subject to remediation during construction activities. Additional information regarding the monitoring locations, equipment, and action levels is presented below.

2.1 Selection of Monitoring Locations

VOC and PM₁₀ monitoring station locations will be determined daily based on data from an onsite meteorological monitoring station (predominant wind direction) and the nature and location of the anticipated construction activities. An upwind location for both VOCs and PM₁₀ monitoring (station "UP") will be selected at the start of each workday. Three additional locations (stations "DN1", "DN2", and "DN3") will be selected to monitor for both VOCs and PM₁₀ as follows: (1) downwind from site activities; and (2) between site activities and nearest receptors.

Station "DN2" will be positioned at the downwind perimeter of the immediate work area (Exclusion Zone) as determined based on the prevailing wind direction. Recognizing that there will be wind gusts from time-to-time that differ from the prevailing wind direction, stations "DN1" and "DN3" will be positioned equidistant on either side of station "DN2" to create a monitoring "envelope" downwind from the Exclusion Zone (accounting for variability in wind direction). As indicated in the Remedial Design, the Exclusion Zone will generally extend toward or directly to the shared property boundaries with the Simone Building Complex (to the east) and the LIRR (to the south). Based on the site layout, the footprint of the proposed remedial activities (which occupy most of the eastern half of the Site), and the locations of nearby buildings, it is anticipated that the three downwind locations will generally be established along the property boundary (just inside the fence line), generally opposite the adjacent offsite commercial/industrial facilities. Therefore, the proposed downwind monitoring stations will also serve as stations between the Site and the nearest receptor. Monitoring data from each of these stations will also be used to make field adjustments (if needed) to be protective of offsite receptors.

Potential downwind monitoring stations for various prevailing wind directions are identified in the table below:



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Prevailing Wind Direction From:	Proposed Downwind CAMP Sampling Stations
West/ Northwest	Opposite the Simone Building Complex at 1 Enterprise Place. If the wind direction is from the northwest, one of these stations may be positioned along the southernmost property boundary depending on the location of intrusive work activities.
North/ Northeast/ East	Opposite the Long Island Railroad and the neighboring Westye Group East, Capitol Warehouse Corp., and American Compressed Gases facilities (and/or opposite New South Road depending on the location of intrusive work activities).
Southeast/ South	In the northern portion of the Site and/or along the western property boundary (west of the paved former parking lots and directly opposite New South Road), depending on the location of intrusive work activities.
Southwest	Opposite the Simone Building Complex and/or along the northern fence line opposite several offsite commercial/industrial facilities (e.g., beyond the proposed arsenic soil removal area), depending on the location of intrusive work activities.

If wind direction shifts radically during the workday and for an extended period of time, such that the upwind location and downwind locations no longer fall within acceptable guidelines ($\pm 60^\circ$ compass change from the original wind direction), the monitoring stations will be relocated so that the upwind and downwind locations are maintained. Any changes in monitoring locations will be documented.

2.2 VOC Monitoring

VOCs will be monitored continuously during the intrusive and/or potential dust-generating remedial construction activities with instrumentation equipped with electronic data-logging capabilities. Because real-time monitors for PCBs, metals, and PAHs are not available, the real-time VOC monitors will also serve as surrogate indicators for emissions (if any) of PCBs, metals, and PAHs during the work. A real-time VOC monitor (MultiRAE Plus or equivalent) equipped with a photoionization detector (PID) will be used for these purposes. Attachment C provides additional information regarding the capabilities of the MultiRAE Plus. All 15-minute average concentrations, as well as any instantaneous readings taken to



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facilitate activity decisions, will be recorded, stored onsite, and summarized in weekly CAMP reports to NYSDEC/New York State Department of Health (NYSDOH).

2.3 PM₁₀ Monitoring

PM₁₀ will also be monitored continuously during intrusive and/or potential dust-generating remedial construction activities using instrumentation equipped with electronic data-logging capabilities. PM₁₀ monitoring equipment will also be equipped with an audible alarm to indicate exceedances of the action levels identified below in Section 2.4.2. An MIE DataRAM (or equivalent) will be used to conduct the real-time PM₁₀ monitoring during the remedial construction activities. Attachment B provides additional information regarding requirements for PM₁₀ monitoring equipment and Attachment C provides additional information regarding the capabilities of the MIE DataRAM. All 15-minute average concentrations, as well as any instantaneous readings taken to facilitate activity decisions, will be recorded, stored onsite, and summarized in weekly CAMP reports to NYSDEC/NYSDOH.

Fugitive dust migration will be visually assessed during all work activities, and reasonable dust suppression techniques will be used during any remedial construction activities that may generate fugitive dust.

2.4 Action Levels

The action levels provided below are to be used to initiate corrective actions, if necessary, based on real-time monitoring. Each piece of monitoring equipment will have alarm capabilities (audible and/or visual) to indicate exceedances of the action levels specified below.

2.4.1 Action Levels for Organic Vapors

If the ambient air concentration of total VOCs at the downwind perimeter of the work area, Exclusion Zone, or opposite the nearest occupied building exceeds 5 parts per million (ppm) above the background (upwind) concentration for the 15-minute average, work activities will be temporarily halted while monitoring continues. If the total VOC concentration readily decreases (through observation of instantaneous readings) below 5 ppm above the background (upwind) concentration, work activities will resume with continued monitoring.

If the ambient air concentration of total VOCs at the downwind perimeter of the work area, Exclusion Zone, or opposite the nearest occupied building persists at levels in excess of 5 ppm but less than 25 ppm above the background (upwind) concentration: (1) work activities will be



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halted; (2) the source of the elevated total VOC concentration will be identified; (3) corrective actions will be implemented to reduce or abate the emissions; and (4) air monitoring will be continued. Once these activities have been implemented, work activities will resume provided the following two conditions are met:

- The 15-minute average VOC concentrations remain below 5 ppm above background.
- The total VOC concentration 200 feet downwind of the work area/Exclusion Zone or half the distance to the nearest potential receptor or residential/commercial structure (whichever is less but in no case less than 20 feet) is below 5 ppm over the background (upwind) concentration for the 15-minute average.

If the ambient air concentration of total VOCs at the downwind perimeter of the work area, Exclusion Zone, or opposite the nearest occupied building exceeds 25 ppm above the background (upwind) concentration, work activities will stop and corrective actions will be implemented to reduce or abate the emissions.

2.4.2 Action Levels for PM₁₀

If the ambient air concentration of PM₁₀ at the downwind perimeter of the work area, Exclusion Zone, or nearest occupied building exceeds 100 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) above the background (upwind) concentration, or if airborne dust is observed leaving the work area, dust suppression techniques will be employed. Work will continue with dust suppression techniques provided the downwind PM₁₀ concentration does not exceed 150 $\mu\text{g}/\text{m}^3$ above the background (upwind) concentration.

If, after implementation of dust suppression techniques, the downwind PM₁₀ concentration is greater than 150 $\mu\text{g}/\text{m}^3$ above the background (upwind) concentration, work will be stopped while activities are re-evaluated. Work will resume provided the dust suppression techniques and other controls are successful in: (1) reducing the downwind PM₁₀ concentration to less than 150 $\mu\text{g}/\text{m}^3$ above the background (upwind) concentration; and (2) preventing visible dust from leaving the work area.

2.5 Meteorological Monitoring

Meteorological monitoring will be conducted continuously at the Site using a portable meteorological monitoring system equipped with electronic data-logging capabilities. The meteorological monitoring system will be installed in a prominent location at the Site to provide representative observations of the local meteorological conditions. Security and



Community Air Monitoring Plan

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125 New South Road
Hicksville, New York

accessibility to the meteorological monitoring system will also be considered during the selection of the meteorological monitoring system location. At a minimum, the meteorological monitoring system will monitor wind speed, wind direction, relative humidity, and ambient temperature. A digital meteorological monitoring system (AutoMet or equivalent) will be used to collect the meteorological data.

2.6 Instrument Calibration

Calibration of the VOC, PM₁₀, and meteorological monitoring instrumentation will be conducted in accordance with each of the equipment manufacturer's calibration and quality assurance requirements. The VOC and PM₁₀ monitors will be calibrated daily (at a minimum), and calibrations will be recorded in the field logbook.



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Hicksville, New York

3. Monitoring Schedule and Data Collection/Reporting

The following identifies the monitoring schedule and data collection/reporting requirements.

3.1 Monitoring Schedule

Community air monitoring will be conducted prior to initiating remedial construction activities to establish adequate baseline data and until such time that intrusive and/or potential dust generating activities are complete. The frequency of community air monitoring will be relative to the level of site work activities being conducted and may be adjusted as the work proceeds and in consideration of the monitoring results. Air monitoring for VOCs and dust may be discontinued during periods of heavy precipitation that would otherwise result in unreliable data or damage to monitoring equipment. Meteorological monitoring will be performed continuously during work activities.

3.2 Data Collection and Reporting

Community air monitoring data will be collected continuously from VOC and PM₁₀ monitors during all intrusive and/or potential dust-generating activities by the electronic data-logging systems, except as discussed above in Section 3.1. The data management software will be set up to continuously monitor instantaneous readings and record average concentrations (calculated for continuous 15-minute increments – i.e., 08:00 to 08:15, 08:15 to 08:30, etc.), including meteorological data. Results of the perimeter/community air monitoring for total organic vapors and particulates (both instantaneous readings and 15-minute average concentrations) will be recorded by the monitoring instruments (dataloggers).

The air monitoring technician will prepare weekly CAMP reports that will include, but not be limited to, the following:

- A brief memorandum summarizing the air monitoring work activities and results for the monitoring period, including an in-text table that presents a “dashboard” view of the organic vapor and particulate concentrations measured at each station during the period. The memorandum will be supported by two attachments: (1) Attachment A showing air monitoring station daily locations; and (2) Attachment B presenting graphs of the 15-minute time-weighted average VOC and particulate concentrations recorded at each of the four sampling stations (one graph for each station showing the weekly results relative to action levels).



Community Air Monitoring Plan

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125 New South Road
Hicksville, New York

- A “zip” file that contains the raw data files from the individual monitors and meteorological data from the weather station.

The air monitoring technician will submit weekly CAMP reports (via e-mail) to the following:

~~NYSDEC – Steven Scharf (sxscharf@gw.dec.state.ny.us)~~

~~NYSDOH – Renata Ockerby (reo02@health.state.ny.us)~~

~~Bayer – David Schnelzer (david.schnelzer@bayer.com)~~

~~Bayer – Ramon Simon (ramon.simon@bayer.com)~~

~~ARCADIS – John Brussel (john.brussel@arcadis-us.com)~~

~~ARCADIS – David Kingsley (david.kingsley@arcadis-us.com)~~

~~ARCADIS – Andrew Enigk (andrew.enigk@arcadis-us.com)~~

August 2017 Updates:

The distribution for future CAMP Reports will be to current project representatives from the NYSDEC, NYSDOH, Current Site Owner, Current Site Owner's Representative. Note that e-mail addresses for representatives have changed to:

- (1) Steven Scharf = steven.scharf@dec.ny.gov
- (2) Renata Ockerby = renata.ockerby@health.ny.gov
- (3) Covestro (fka Bayer) = tim.troutman@covestro.com
- (4) Arcadis = john.brussel@arcadis.com

In the event of an exceedance of a community air monitoring action level (for either PM₁₀ or VOCs), the air monitoring technician will notify Bayer and the NYSDEC (via telephone) and the Engineer's onsite representative (in person) once the exceedance is observed (i.e., real time). Within 24 hours of the observed exceedance, the air monitoring technician will send a follow-up e-mail to the NYSDEC, NYSDOH, Bayer, and the Engineer summarizing the data, the cause of the exceedance, and any corrective measures implemented (or to be implemented) as a result of the exceedance. The information will also be documented in the weekly CAMP report.



Community Air Monitoring Plan

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Hicksville, New York

4. References

NYSDEC. 2010. DER-10 Technical Guidance for Site Investigation and Remediation.
May 2010.



Attachment A

*New York State Department of Health
Generic Community Air Monitoring
Plan (Appendix 1A of DER-10)*

New York State Department of Health Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDOH/NYSDEC staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored **continuously** at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed $150 \text{ mcg}/\text{m}^3$ above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than $150 \text{ mcg}/\text{m}^3$ above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within $150 \text{ mcg}/\text{m}^3$ of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

June 20, 2000

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Attachment B

*Fugitive Dist Suppression and
Particulate Monitoring (Appendix 1B
of DER-10)*



NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

Fugitive Dust Suppression and Particulate Monitoring Program (TAGM - 4031)

To:	Regional Hazardous Waste Remediation Engrs., Bur. Directors & Section Chiefs
From:	Michael J. O'Toole, Jr., Director, Division of Hazardous Waste Remediation (signed)
Subject:	Technical and Administrative Guidance Memorandum -- Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites
Date:	Oct 27, 1989

1. Introduction

Fugitive dust suppression, particulate monitoring, and subsequent action levels for such must be used and applied consistently during remedial activities at hazardous waste sites. This guidance provides a basis for developing and implementing a fugitive dust suppression and particulate monitoring program as an element of a hazardous waste site's health and safety program.

2. Background

Fugitive dust is particulate matter--a generic term for a broad class of chemically and physically diverse substances that exist as discrete particles, liquid droplets or solids, over a wide range of sizes--which becomes airborne and contributes to air quality as a nuisance and threat to human health and the environment.

On July 1, 1987, the United States Environmental Protection Agency (USEPA) revised the ambient air quality standard for particulates so as to reflect direct impact on human health by setting the standard for particulate matter less than ten microns in diameter (PM₁₀); this involves fugitive dust whether contaminated or not. Based upon an examination of air quality composition, respiratory tract deposition, and health effects, PM₁₀ is considered conservative for the primary standard--that requisite to protect public health with an adequate margin of safety. The primary standards are 150 ug/m³ over a 24-hour averaging time and 50 ug/m³ over an annual averaging time. Both of these standards are to be averaged arithmetically.

There exists real-time monitoring equipment available to measure PM₁₀ and capable of integrating over a period of six seconds to ten hours. Combined with an adequate fugitive dust suppression program, such equipment will aid in preventing the off-site migration of contaminated soil. It will also protect both on-site personnel from exposure to high levels of dust and the public around the site from any exposure to any dust. While specifically intended for the protection of on-site personnel as well as the public, this program is not meant to replace long-term monitoring which may be required given the contaminants inherent to the site and its air quality.

3. Guidance

A program for suppressing fugitive dust and monitoring particulate matter at hazardous waste sites can be developed without placing an undue burden on remedial activities while still being protective of health and environment. Since the responsibility for implementing this program ultimately will fall on the party performing the work, these procedures must be incorporated into appropriate work plans. The following fugitive dust suppression and particulate monitoring program will be employed at hazardous waste sites during construction and other activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.
2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Such activities shall also include the excavation, grading, or placement of clean fill, and control measures therefore should be considered.
3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM₁₀) with the following minimum performance standards:

Object to be measured: Dust, Mists, Aerosols

Size range: <0.1 to 10 microns

Sensitivity: 0.001 mg/m³

Range: 0.001 to 10 mg/m³

Overall Accuracy: ±10% as compared to gravimetric analysis of stearic acid or reference dust

Operating Conditions:

Temperature: 0 to 40°C

Humidity: 10 to 99% Relative Humidity

Power: Battery operated with a minimum capacity of eight hours continuous operation

Automatic alarms are suggested.

Particulate levels will be monitored immediately downwind at the working site and integrated over a period not to exceed 15 minutes. Consequently, instrumentation shall require necessary averaging hardware to accomplish this task; the P-5 Digital Dust Indicator as manufactured by MDA Scientific, Inc. or similar is appropriate.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the entity operating the equipment to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.
5. The action level will be established at 150 ug/m^3 over the integrated period not to exceed 15 minutes. While conservative, this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m^3 , the upwind background level must be measured immediately using the same portable monitor. If the working site particulate measurement is greater than 100 ug/m^3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see Paragraph 7). Should the action level of 150 ug/m^3 be exceeded, the Division of Air Resources must be notified in writing within five working days; the notification shall include a description of the control measures implemented to prevent further exceedences.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM_{10} at or above the action level. Since this situation has the potential to migrate contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.
7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:
 1. Applying water on haul roads.
 2. Wetting equipment and excavation faces.
 3. Spraying water on buckets during excavation and dumping.
 4. Hauling materials in properly tarped or watertight containers.
 5. Restricting vehicle speeds to 10 mph.
 6. Covering excavated areas and material after excavation activity ceases.
 7. Reducing the excavation size and/or number of excavations.

Experience has shown that utilizing the above-mentioned dust suppression techniques, within reason as not to create excess water which would result in unacceptable wet conditions, the chance of exceeding the 150 ug/m^3 action level at hazardous waste site remediations is remote. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. If the dust suppression techniques being utilized at the site do not lower particulates to an acceptable level (that is, below 150 ug/m^3 and no visible dust), work must be suspended until appropriate corrective measures are approved to remedy the situation. Also, the evaluation of weather conditions will be necessary for proper fugitive dust control--when extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended.

There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require appropriate toxics monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.



Attachment C

Specifications for Community Air
Monitoring Equipment

Product Overview

All these applications
in one small unit

- Indoor air quality monitoring
- Walk-through surveys
- Personal exposure monitoring
- Time & motion studies
- Workplace & plant monitoring
- Fixed-point continuous monitoring
- Remediation personal surveillance
- Remote alarming
- Mobile monitoring in vehicles & aircraft
- Toxicology & epidemiology studies
- Emergency response
- Testing air filtration efficiency



personalDataRAM™ Series

Measures airborne particulate concentration in real time

- pDR-1000AN
For passive air sampling applications
- pDR-1200
For active air sampling applications

Measure airborne particulate concentration in real-time

The *personalDataRAM* (pDR-1000AN) measures mass concentrations of dust, smoke, mists, and fumes in real time, and sounds an audible alarm whenever the user-defined level is exceeded. Conventional filter-based monitoring methods cannot indicate dangerous, real-time dust levels. In contrast, the pDR-1000AN alerts you to a problem within seconds, allowing you to take immediate action. With the datalogging enabled, the instrument automatically tags and time stamps the data collected, and stores it for subsequent retrieval, printing, or graphing through a computer.

Highest performance of any real-time personal particulate monitor

With a measurement range from 0.001 to 400 mg/m³ (auto-ranging), and an optical feedback stabilized sensing system, the pDR-1000AN sets the standard for sensitivity, long-term stability and reliability.

The palm-sized pDR-1000AN weighs only 18 oz (0.5 kg) for easy portability and attachment to a belt or a shoulder strap. The absence of any moving parts, such as pumps, motors and valves, and the use of low-power semiconductors housed in a ruggedized case ensures long life and dependable operation.

High correlation with gravimetric measurement

The pDR-1000AN is a light-scattering photometer (i.e., nephelometer) incorporating a pulsed, high output, near-infrared light emitting diode source, a silicon detector/hybrid preamplifier, and collimating optics and a source reference feedback PIN silicon detector. The intensity of the light scattered over the forward angle of 50° to 90° by airborne particles passing through the sensing chamber is linearly proportional to their concentration. This optical configuration produces optimal response to particles in the size range of 0.1-10 µm, achieving high correlation with standard gravimetric measurements of the respirable and thoracic fractions.

Simple zeroing and calibration

The pDR-1000AN arrives practically ready to use after the easy zeroing step. The unit comes gravimetrically calibrated in mg/m³ (NIST traceable) using standard SAE Fine test dust (ISO Fine). Zeroing with particle-free air is accomplished quickly and effectively under field conditions using the zeroing kit included with the instrument. Internal firmware controls an automatic calibration check. To maximize efficiency in the field, gravimetric calibration can be performed by comparison with a filter sampler and programming of the calibration constant.

Standard Accessories

- Universal voltage power supply
- PC communications software
- Zeroing kit
- Belt clip kit
- Instruction manual
- Carrying case
- Signal output cables

Optional Accessories

- Rechargeable battery pack (NiMH)
- Active sampling kit (converts pDR-1000AN to pDR-1200)
- Portable pump unit
- Shoulder strap
- Remote alarm interface
- Wall mounting bracket



pDR-1200

Active aerosol monitor/datalogger, plus aerodynamic sizing

Designed for active particulate monitoring applications

The *personalDataRAM*™ (model pDR-1200) performs active sampling applications and aerosol sizing. The pDR-1200 requires a vacuum pump module to perform particle size selective measurements under field conditions. The separate pump (not included) is required for active sampling and aerosol sizing. With optional inlet accessories, the pDR-1200 is excellent for ambient air measurements under variable wind and high humidity conditions. It is ideal for respirable, thoracic, and PM_{2.5} monitoring, as well as continuous emission and test chamber monitoring. With an isokinetic sampling set, the pDR-1200 can be used for stack and duct extractive sampling monitoring. Membrane filters can be used to capture particles for subsequent laboratory analysis.

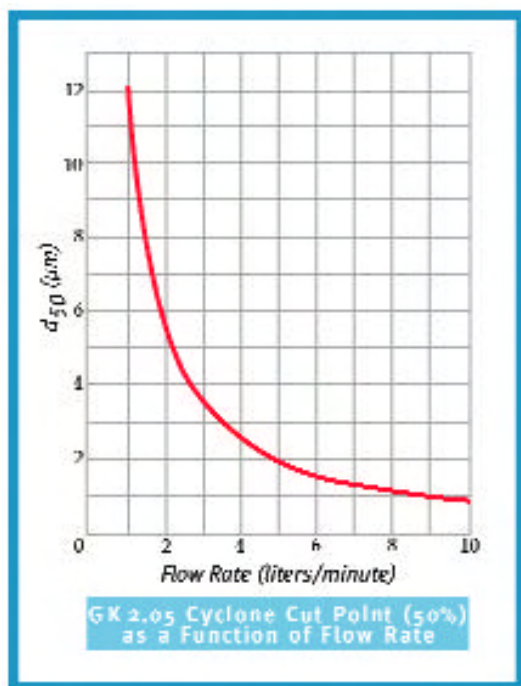
Aerodynamic particle sizing

The pDR-1200 incorporates an optimally designed metal cyclone (BGI Model GK 2.05) or the optional low flow cyclone (BGI Model Triplex SCC1.062-CUST) especially selected for PM_{2.5} collection at 1.5 LPM.

By operating the pump at specific sampling flow rates, the pDR-1200 cyclone preseparator provides precisely defined particle size cuts.

Primary calibration and particle samples by filter collection

An integral filter holder directly downstream of the photometric sensing stage accepts 37 mm filters. The calibration constant of the pDR-1200 is simply adjusted to coincide with the filter-determined concentration. Primary gravimetric calibration of the instrument concentration readout is easily accomplished under actual field conditions by means of this integral filter. Use membrane filters for chemical analysis or concurrent gravimetric measurements.



pDR-PU Attachable Pump Module

This optional accessory is designed for use with the *personalDataRAM* Model pDR-1200. It incorporates a dual-chamber diaphragm pump, a volumetric flow sensing, and control unit. The pump module operates from either an optional, rechargeable NiMH battery pack or from AC line current using the power supply/charger supplied with the *personalDataRAM*. The pDR-PU is designed as a modular unit that can be used in various combinations.

- Flow rate (user adjustable): 1 to 4 liters/minute
- Typical Conditions: 2 LPM @ 10 in H₂O (25 mbar) for up to 4 hours
- Maximum Conditions: 2 LPM @ 30 in H₂O
- Precision of constant flow rate control: $\pm 2\%$
- Power: 9 VDC, 200 mA at 4 liters/minute (approximate)
- Dimensions:
 - 4 in (100 mm) H x
 - 3.6 in (90 mm) W x
 - 1.8 in (45 mm) D
- Weight: 1 lb (0.45 kg)

personalDataRAM™ Series

At last,
a compact,
versatile,
real-time
aerosol monitor

Specifications

Concentration Measurement Range (auto-ranging)

Referred to gravimetric calibration with SAE
Fine test dust (mmd = 2 to 3 mm sg = 2.5, as aerosolized)
0.001 to 400 mg/m³

Scattering Coefficient Range

1.5 x 10⁻⁶ to 0.6 m⁻¹(approx) @
lambda = 880 nm

Precision/Repeatability Over 30 Days (2-sigma at constant temperature and full battery voltage)

- ±2% of reading or ±0.005 mg/m³, whichever is larger, for 1 second averaging time
- ±0.5 of reading or ±0.0015 mg/m³, whichever is larger, for 10 second averaging time
- ±0.2% of reading or ±0.0005 mg/m³, whichever is larger, for 60 second averaging time

Accuracy

Referred to gravimetric calibration with SAE
Fine test dust (mmd = 2 to 3 mm, sg = 2.5, as aerosolized)
±5% of reading ±precision

Resolution

0.1% of reading or 0.001 mg/m³, whichever is larger

Particle Size Range of Maximum Response

0.1 to 10 µm

Flow Rate Range (model pDR-1200)

1-10 liters/min (external pump required)

Aerodynamic Particle Sizing Range

1.0 to 10 µm (pDR-1200 only)

Concentration Display Updating Interval

1 second

Concentration Display Averaging Time (user selectable)

1 to 60 seconds

Alarm Level Adjustment Range (user selectable)

Selectable over entire measurement range

Alarm Averaging Time (user selectable)

Real-time (1 to 60 seconds) or STEL (15 minutes)

Datalogging Averaging Periods (user selectable)

1 second to 4 hours

Total Number of Data Points That Can Be Logged in Memory

More than 13,300

Number of Data Tags (data sets)

99 (maximum)

Logged Data

- Each data point: average concentration, time/date, and data point number
- Run summary: overall average and maximum concentrations, time/data of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration, and time/date of occurrence, averaging (logging) period, calibration factor, and tag number

Analog Signal Output

0 to 5 V and 4 to 20 mA, with selectable full scale ranges between 0.1 and 400 mg/m³

Power

- Internal battery 9 V alkaline, 20 hour run time (typical)

- Internal battery 9 V lithium, 40 hour run time (typical)
- AC source universal voltage adapter (included) 100-250 volts, 50-60 Hz (CE marked)
- Optional battery pack rechargeable NiMH, 72 hour run time typical (pDR-BP)

Readout Display

LCD 16 characters (4 mm height) x 2 lines

Serial Interface

RS232, 4800 baud

Computer Requirements

PC compatible, 486 or higher, Windows 95® or higher

Storage Environment

-20°C to 70°C (-4°F to 158°F)

Operating Environment

-10°C to 50°C (14°F to 122°F), 10 to 95% RH, non-condensing

Dimensions (max external)

153 mm (6.0 in) H x 92 mm (3.6 in) W x 63 mm (2.5 in) D (pDR-1000AN)
160 mm (6.3 in) H x 205 mm (8.1 in) W x 60 mm (2.4 in) D (pDR-1200 including cyclone and filter holder)

Weight

0.5 kg (18 oz) (pDR-1000AN)
0.68 kg (24 oz) (pDR-1200)

Approvals

- Intrinsic safety approval by US Mine Safety & Health Administration (MSHA) coal-mining environments containing methane gas (the pDR-PU pump is not approved by MSHA)
- US FCC Rules (Part 15)
- CE certified

About Thermo

Thermo Electron Corporation, the world's leading maker of high-tech instruments, provides instruments, equipment, software, and solutions that help laboratory and industrial customers advance scientific knowledge, enable drug discovery, improve manufacturing

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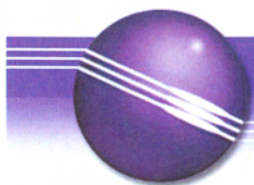
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processes, and protect people and the environment. With annual revenue exceeding \$2 billion, Thermo is a global leader employing 11,000 people in 30 countries worldwide. The company is based in Waltham, Massachusetts.

LITPERSONALDATARAMSERIES 4.03

Analyze • Detect • Measure • Control™

Thermo
ELECTRON CORPORATION



MultirAE Plus

One-to-Five Gas Monitor with VOC Detection

The **MultirAE Plus** combines a PID (Photoionization Detector) with the standard four gases of a confined space monitor (O₂, LEL, and two toxic gas sensors) in one compact monitor with sampling pump. Like the Leatherman™ tool, the **MultirAE Plus** gets the job done in more circumstances than any other gas detector. With more than 10,000 units in the field today, its versatility makes it the gas meter of choice for some of the highest profile HazMat/WMD teams in the United States. The **MultirAE Plus** is quickly and easily changed from a sophisticated technician instrument to a simple text-only monitor. The same monitor can be used as a personal monitor, a hand-held sniffer or as a continuous-operation area monitor.

Key Features

- **O₂, LEL, PID and any two plug-in "smart" toxic sensors:** CO, H₂S, SO₂, NO, NO₂, Cl₂, HCN, NH₃, PH₂
- **0-2,000 ppm measurement of VOCs** (volatile organic compounds) with 0.1 ppm resolution
- **Measure more chemicals than with any other PID** With over 60 Correction Factors built into the **MultirAE Plus** memory and the largest printed list of Correction Factors in the world (300+), RAE Systems offers the ability to accurately measure more ionizable chemicals than any other PID!
- **Drop-in Battery** When work schedules require putting in more than the 14 hours supplied by the advanced Lithium-ion (Li-ion) battery, the drop-in alkaline pack supplied with every **MultirAE Plus** allows you to finish the job.

- **User friendly** screens make it easy to use for simple applications and flexible enough for sophisticated options.
- **Rugged Rubber Boot** assures that the **MultirAE Plus** survives the bumps and knocks of tough field use
- **Strong, built-in sample pump** draws up to 100 feet (30m) horizontally or vertically. Large external filter and automatic low flowage
- **Large keys** are operable with 3 layers of gloves
- **Easy-to-read display** with backlight
- **Store up to 80 hours of data** at one minute interval for all 5 sensors for download to PC (with the optional datalogging)
- **Loud audible alarm** that varies for different alarm conditions and an optional external vibration alarm for noisy areas
- **Access sensors and battery in seconds** with the new, improved case

Applications

HazMat/Homeland Security

- Initial PPE (personal protective equipment) assessment
- Leak detection
- Perimeter establishment and maintenance
- Spill delineation
- Decontamination
- Remediation

Confined Space Entry

- Aviation/wing tank entry with jet fuel
- Shipyard and maritime confined spaces with diesel fuel
- Pulp and paper industry for confined space entry in turpentine environments

Environmental

- Soil and water headspace analysis
- Leaking underground storage tanks (LUST)
- Landfill monitoring

Industrial Hygiene, Plant Health & Safety

- Confined Space Entry
- Indoor Air Quality (IAQ)



ATEX



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Email: raesales@raesystems.com • www.raesystems.com

rev11_10.04

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Tel: 852.2669.0828



Specifications*

Sensor Specifications

Sensor	Range	Resolution
Oxygen	0-30%	0.1%
Combustible Gas	0-100% LEL	1% LEL
VOCs	0-200 ppm	0.1 ppm
	200-2000 ppm	1 ppm
Carbon Monoxide	0-500 ppm	1 ppm
Hydrogen Sulfide	0-100 ppm	1 ppm
Sulfur Dioxide	0-20 ppm	0.1 ppm
Nitric Oxide	0-250 ppm	1 ppm
Nitrogen Dioxide	0-20 ppm	0.1 ppm
Chlorine	0-10 ppm	0.1 ppm
Hydrogen Cyanide	0-100 ppm	1 ppm
Ammonia	0-50 ppm	1 ppm
Phosphine	0-5 ppm	0.1 ppm

Detector Specifications

Size	4.65"L x 3.0"W x 1.9"H (11.8 x 7.6 x 4.8 cm)
Weight	16 oz. with battery (454g)
Sensors	Up to 5 sensors including: • Photoionization detector for VOCs, 10.6 eV lamp standard • Protected catalytic bead for combustible gases • Interchangeable electrochemical sensors for oxygen and toxic gases (2)
Battery	• Interchangeable Li-ion and alkaline battery packs • Rechargeable units include Lithium-ion battery pack with internal smart charging, 120V AC/DC wall adapter, and spare alkaline battery pack
Operating Hours	• 14 hours continuous with Li-ion (typical) • Unit will run and charge simultaneously
Display	2 line, 16 digit LCD with LED backlighting automatically in dim light or alarm condition
Keypads	1 operation and 2 programming keys
Direct Readout	Instantaneous values (up to 5): • Oxygen as percentage by volume • Combustible gas as percentage of lower explosive level (LEL) • Toxic gases and VOCs as parts per million by volume (VOC scaleable using correction factors) • High and low values for all gases • STEL and TWA values of toxic gases and VOCs • Battery and shut down voltage • Date, time, elapsed time, temperature
Alarms	90 dB buzzer and flashing red LED to indicate exceeded preset limits: • High: 3 beeps and flashes per second • Low: 2 beeps and flashes per second • STEL and TWA: 1 beep and flash per second • Automatic reset or latching with manual override • Additional diagnostic alarms and display messages for low battery and pump stall
EM/RFI	Highly resistant to EMI/RFI. Compliant with EMC Directive 89/336/EEC
IP Rating	IP-55: protected against dust, protected against low pressure jets of water from all directions
Datalogging & Communication	Optional 80 hours, 5 channels at one minute intervals download to PC with serial number of unit, user ID, site number, and calibration date
Calibration	Two-point field calibration for zero span gas
Sampling Pump	Internal two-speed pump. Flow rates: • Low: ~150 cc/min • High: ~250 cc/min
Low Flow Alarm	Auto shut-off pump at low flow condition

Detector Specifications (continued)

Hazardous Area Approval	• US and Canada: UL, cUL, Classified as Intrinsically Safe for use in Class I, Division I Groups A, B, C, D, T3C • Europe: ATEX II 2G EEx ia d IIC T3 & T4
Temperature	-4° to 113 °F (-20 to 45°C)
Humidity	0% to 95% relative humidity (non-condensing)
Attachment	Durable yellow boot with belt clip and wrist strap; Shoulder strap; optional tripod/wall mounting bracket
Warranty	Lifetime on non-consuming components (per RAE Systems Standard Warranty), 2 years for O ₂ , LEL, CO, and H ₂ S sensors, 1 year all other sensors, 1 year pump, 1 year battery, 1 year for 10.6eV PID lamp

*Ongoing projects to enhance our products means that these specifications are subject to change

MultiRAE Plus Accessories

Monitor only includes:

- Sensors as specified
- Calibration adapter
- Training CDROM
- Operation and maintenance manual
- Rubber boot with belt clip
- Alkaline battery adapter
- Rechargeable units additionally include:
 - Standard Lithium-ion (Li-ion), optional extended duration Lithium-ion battery, or ATEX-certified charger and barrier kit
 - 120/230 V AC/DC Wall Adapter (if specified)
- 3 external filters
- 3-inch inlet probe

Monitor with accessories kit also includes:

- Hard transport case with pre-cut foam
- Sampling wand with 15 feet (5m) of self-coiling Teflon® tubing
- Tool Kit

Black boot is available for tactical operations
(part number 027-3042-000)

Optional calibration kit also includes:

- Four-gas mix in a 34L cylinder; (50% LEL, 20.9% O₂, 25 ppm Hydrogen Sulfide, 50 ppm Carbon Monoxide)
- 100 ppm Isobutylene in 34L cylinder
- Calibration regulator(s) and tubing

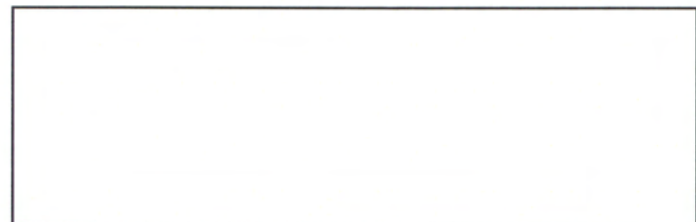
Datalogging Monitors also include:

- Software ProRAE Suite Package for Windows 98, NT, 2000 and XP
- Computer interface cable

Optional Guaranteed Cost of Ownership Program:

- 4-year repair and replacement guarantee
- Annual maintenance and servicing

DISTRIBUTED BY:



MULTIRAE Plus



APPENDIX K

As-Built Drawings



RECORD DRAWINGS

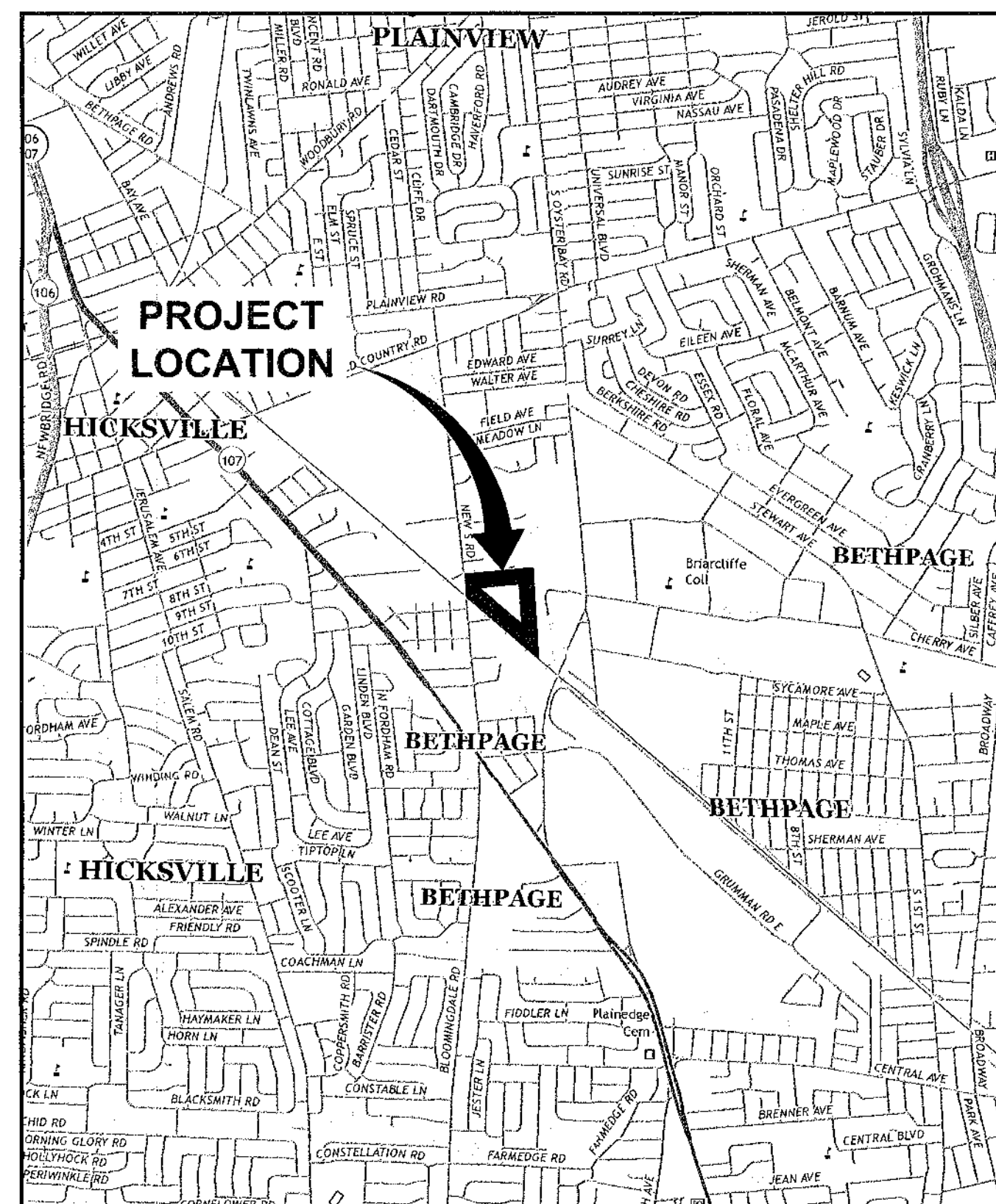
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FORMER HOOKER CHEMICAL/OXY/RUCO POLYMER CORPORATION

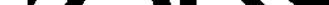
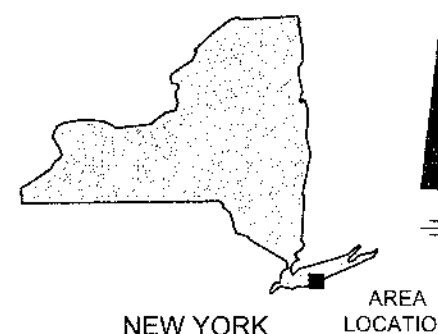
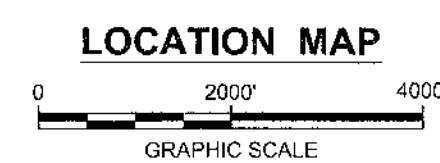
**125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK**

DATE ISSUED
SEPTEMBER 2017

COVESTRO LLC



REFERENCE: BASE MAP USGS 7.5 MINUTE QUADRANGLE, HICKSVILLE, HUNTINGTON, FREEPORT, & AMITYVILLE, NY 2016



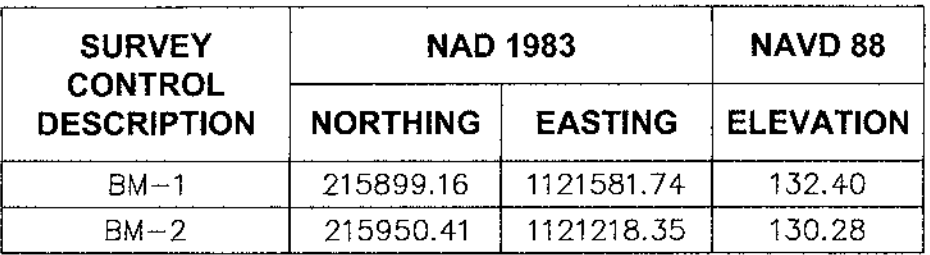
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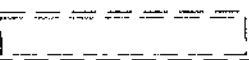
ARCADIS OF NEW YORK, INC.

INDEX TO DRAWINGS

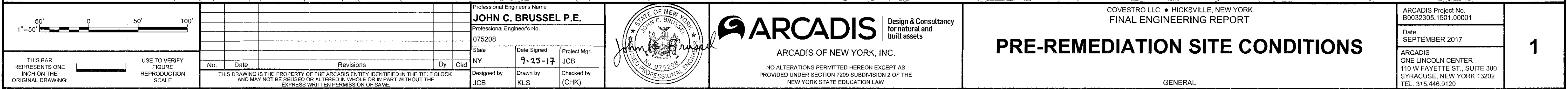
- COVER
- 1 PRE-REMEDIATION SITE CONDITIONS
- 2 FINAL EXCAVATION AREA LIMITS
- 3 REUSE SOIL LIMITS
- 4 DEMARCATION LAYER LIMITS
- 5 POST-REMEDIATION SOIL COVER SYSTEM SURFACE
ELEVATIONS AND SITE CONDITIONS

CITY: SYRACUSE,NY DW/GROUP: ENVCADD DB: K.SARTORI LD: K.SARTORI PIC: T.RATCHFORD PM: TM: J. BRUSSEL LYR: ONF* *OFF= *REF*
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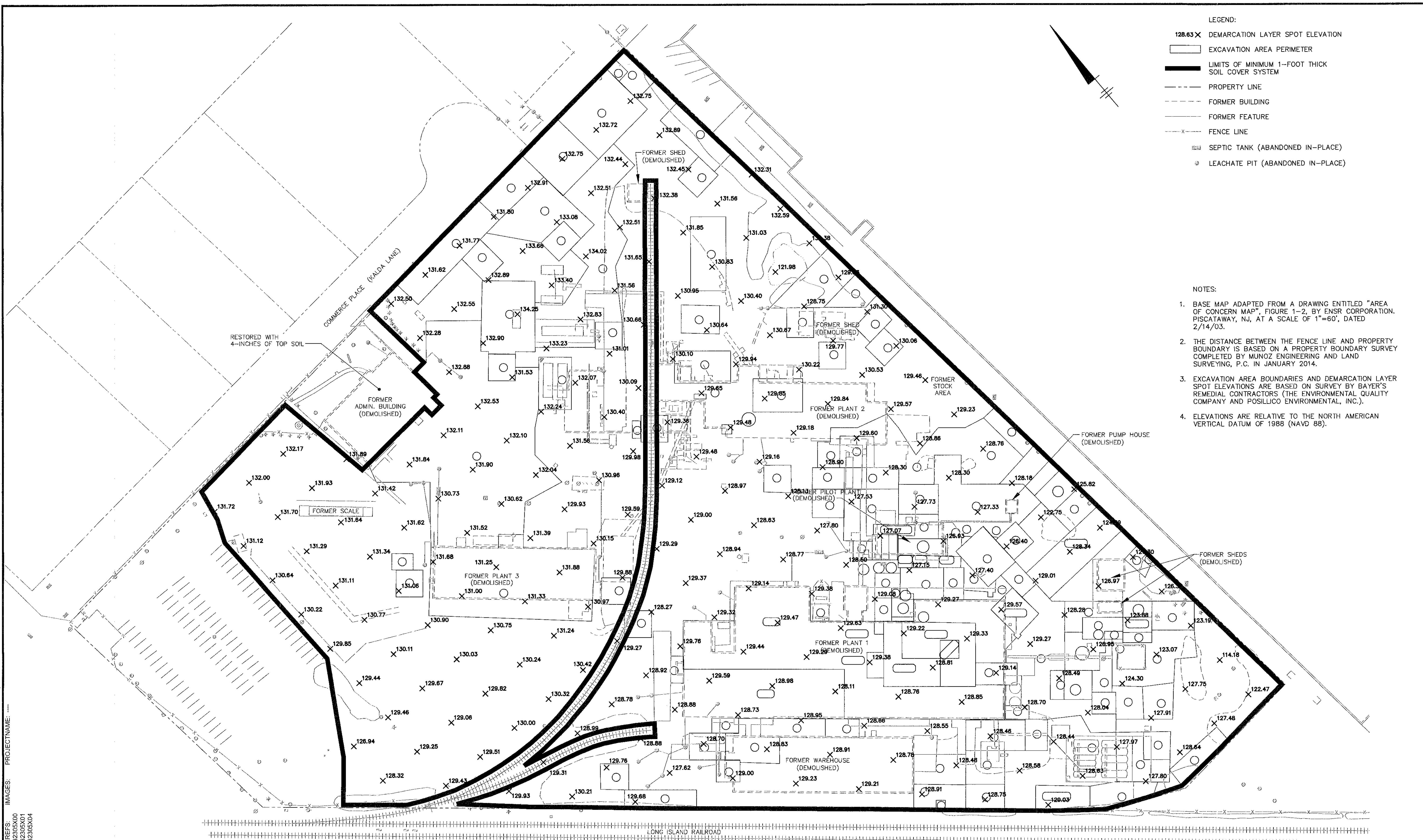


BM-1 ■	BENCHMARK
	SEPTIC TANK (ABANDONED IN-PLACE)
	LEACHATE PIT (ABANDONED IN-PLACE)
FW	FORMER FIRE PROTECTION WATER LINE
TWS	FORMER TOWER WATER SUPPLY LINE
TWR	FORMER TOWER WATER RETURN LINE
URW	FORMER WELL WATER LINE
UTW	FORMER TOWER WATER LINE
CW	FORMER CITY WATER LINE
CM	FORMER CITY WATER LINE
S	FORMER SANITARY SEWER LINE
G	FORMER GAS LINE
E	FORMER ELECTRIC LINE
	FORMER BUILDING LOCATION
	TREES

1. ELEVATIONS ARE RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AND ARE BASED ON SURVEY CONTROL POINTS BM-1 AND BM-2.
2. HORIZONTAL COORDINATES ARE RELATIVE TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD 83).
3. BASE MAP ADAPTED FROM A DRAWING ENTITLED "AREA OF CONCERN MAP", FIGURE 1-2, BY ENSR CORPORATION, PISCATAWAY, NJ, AT A SCALE OF 1"=60', DATED 2/14/03.
4. LOCATIONS OF SEPTIC TANKS, LEACHATE PITS AND UNDERGROUND UTILITIES ARE BASED ON ELECTROMAGNETIC, GROUND-PENETRATING RADAR, AND FIELD SURVEY ACTIVITIES PERFORMED BY ARCADIS, AND THE FOLLOWING FIGURES:
 - A) "REFERENCE DRAWING OF THE HOOKER/RUCO SITE PLANT UTILITIES: OUTDOOR PIPING" BY LEGGETTE, BRASHEARS & GRAHAM, INC. OF WILTON, CT DATED 3/20/91, AT A SCALE OF 1"=30'.
 - B) "EXTRUDER BUILDING & PARKING AREA PILOT PLAN & DRAINAGE DET." BY CRAWFORD & RUSSELL, INC. OF STAMFORD, CT, LAST REVISION 5/9/61, AT A SCALE OF 1"=30'.
 - C) "SITE PLAN" BY CARL V. LINN, ENGINEER OF NEW YORK, NY, DATED 12/2/53, AT A SCALE OF 1"=50'.
 - D) "N.P.D. BUILDING DRAINAGE WATER" BY HOOKER CHEMICAL CORPORATION OF HICKSVILLE, NY.
 - E) "SITE PLAN" BY RUCO POLYMERS CORPORATION OF HICKSVILLE, NY, DATED 9/21/82.
5. LOCATION OF FORMER SUBSURFACE UTILITIES ARE APPROXIMATE.
6. FORMER SITE FEATURES SHOWN IN GRAY OR BLACK DASHED LINES.
7. TOPOGRAPHY IS BASED ON PHOTOGRAMETRIC MAPPING PERFORMED BY AXIS GEOSPATIAL LLC OF EASTON, MARYLAND IN DECEMBER 2011. THE TOPOGRAPHIC CONTOURS REPRESENT THE PRE-REMEDIATION SITE ELEVATION GROUND SURFACE.
8. SUBSURFACE UTILITIES WERE ABANDONED IN-PLACE OR REMOVED DURING REMEDIATION. SECTIONS OF UTILITIES WITHIN THE REMEDIAL EXCAVATION LIMITS SHOWN ON DRAWING 2 WERE REMOVED.
9. SOME OF THE REMAINING SUBSURFACE UTILITIES MAY CONTAIN ASBESTOS.



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1"=50'

50' 0 50' 100'

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.

USE TO VERIFY FIGURE REPRODUCTION SCALE

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Professional Engineer's No. 075208		
State NY	Date Signed 9-25-17	
Designed by JCB	Drawn by KLS	Project Mgr. JCB
Checked by (CHK)		

ARCADIS Design & Consultancy for natural and built assets

ARCADIS OF NEW YORK, INC.

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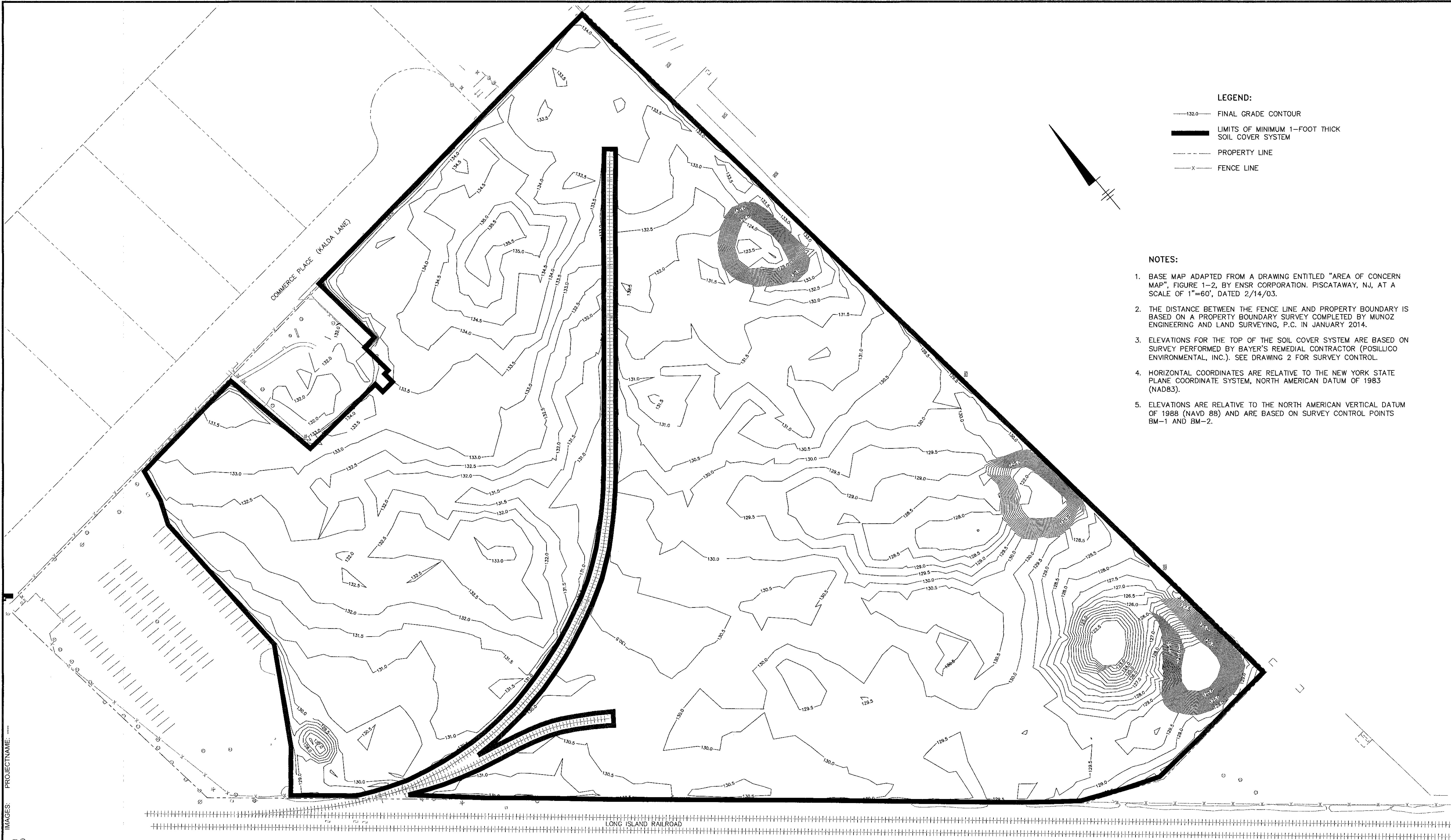
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DEMARCATION LAYER LIMITS

GENERAL

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ARCADIS ONE LINCOLN CENTER 110 W FAYETTE ST., SUITE 300 SYRACUSE, NEW YORK 13202 TEL. 315.446.9120	

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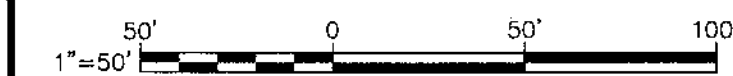
- 132.0— FINAL GRADE CONTOUR
- LIMITS OF MINIMUM 1-FOOT THICK SOIL COVER SYSTEM
- - - - - PROPERTY LINE
- X- FENCE LINE

NOTES:

1. BASE MAP ADAPTED FROM A DRAWING ENTITLED "AREA OF CONCERN MAP", FIGURE 1-2, BY ENSR CORPORATION, PISCATAWAY, NJ, AT A SCALE OF 1"=60', DATED 2/14/03.
2. THE DISTANCE BETWEEN THE FENCE LINE AND PROPERTY BOUNDARY IS BASED ON A PROPERTY BOUNDARY SURVEY COMPLETED BY MUNOZ ENGINEERING AND LAND SURVEYING, P.C. IN JANUARY 2014.
3. ELEVATIONS FOR THE TOP OF THE SOIL COVER SYSTEM ARE BASED ON SURVEY PERFORMED BY BAYER'S REMEDIAL CONTRACTOR (POSILICO ENVIRONMENTAL, INC.). SEE DRAWING 2 FOR SURVEY CONTROL.
4. HORIZONTAL COORDINATES ARE RELATIVE TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD83).
5. ELEVATIONS ARE RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AND ARE BASED ON SURVEY CONTROL POINTS BM-1 AND BM-2.

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32305X00

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IMAGES: ---



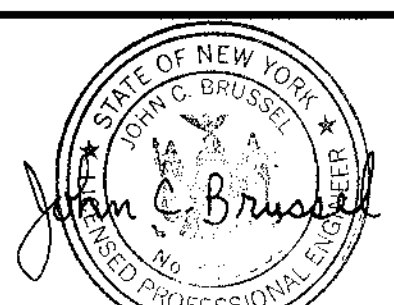
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JOHN C. BRUSSEL P.E.
Professional Engineer's No.
075208
State
NY
Date Signed
9-25-17
Project Mgr.
JCB
Designed by
JCB
Drawn by
KLS
Checked by
(CHK)



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POST-REMEDIATION SOIL COVER SYSTEM SURFACE ELEVATIONS AND SITE CONDITIONS
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