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**REMEDIAL INVESTIGATION AND INTERIM REMEDIAL MEASURE  
WORK PLAN  
ASH ROAD PROPERTIES  
221 SYCAMORE ROAD  
TOWN OF VESTAL, NEW YORK**

**Prepared For:**

**WEST COVINA ROYALE, LP  
AND  
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

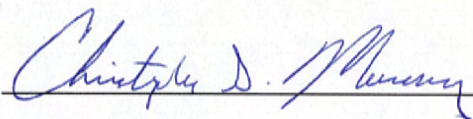
**Prepared By:**

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**August 2010  
Revised September 2010  
PROJECT NO. 209183**

## ***Certification***

I, Christopher S. Maroney, P.E. certify that I am currently a NYS registered professional engineer and that this Remedial Investigation and Interim Remedial Measure Work Plan was prepared in accordance with all applicable statutes and regulations, and in substantial conformance with the Draft DER Technical Guidance for Site Investigation and Remediation dated May 2010 (DER 10).

A handwritten signature in blue ink that reads "Christopher S. Maroney". The signature is written over a horizontal line.

Christopher S. Maroney, P.E.

NYS PE License No. 084953-1

***GeoLogic NY, Inc.***

***For:***

**REMEDIAL INVESTIGATION AND INTERIM REMEDIAL MEASURE WORK PLAN**

**Ash Road Properties**

**221 Sycamore Road**

**Town of Vestal, New York**

**NYSDEC Site #C704032**

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## **1 INTRODUCTION**

West Covina Royale, LP and GeoLogic NY, Inc. (GeoLogic) have developed this Work Plan for the remedial investigation and the implementation of an interim remedial measure to address chlorinated compounds present in soils and groundwater at the Ash Road Properties located at 211 Sycamore Road in the Town of Vestal, Broome County, New York (see Drawing No. 1, Appendix A). As a Volunteer to a Brownfield Cleanup Program Application (“Application”) signed May, 2010, NYSDEC Site # C704032, and as the signatory to a Brownfield Site Cleanup Agreement (“Agreement”), West Covina Royale, LP, proposes to define the nature and extent of contamination and implement appropriate remedial measures necessary to address hazardous constituents detected on-site that have the potential to adversely affect human health or cause significant off-site impact.

### **1.1 SITE DESCRIPTION AND HISTORY**

The Ash Road Properties (Site) occupies a portion of the Lowe’s Home Center 14.47-acre property, tax map number 158.10-2-13. The Site has been identified by four tax map parcel designations prior to incorporating these four parcels as well as other parcels into the one current 14.47-acre parcel (see Drawing No. 2, Appendix A). The Site encompasses perimeter parking adjacent to Ash Road for the Lowe’s Home Center. The majority of the Site is covered with asphalt pavement with intermittent grass areas along the southern and western perimeters.

The Ash Road Properties Site is roughly rectangular in shape and encompasses about 1.54 acres with Ash Road forming the southern property boundary and Sycamore Road forming the western property boundary. Further south is a restaurant, an automotive supply business, and an automotive rental and repair business. Parking area for the Lowe’s Home Center borders the Site on the north with the Lowe’s Home Center building located approximately 300 feet north. Residential properties border the Site on the east.

Commercial buildings were present on the Site since at least 1965. The buildings were demolished in 1996.

The Site was formerly occupied by two businesses, Town Square Body Shop and Hall Plumbing. Town Square Body Shop performed auto-body repairs as well as automotive painting, washing

and waxing. The Hall Plumbing building was occupied by a contractor's office and warehouse.

## 1.2 SUMMARY OF PREVIOUS INVESTIGATIONS

Previous evaluations that have been completed at the Site have identified elevation concentrations of chlorinated solvents that have exceeded NYSDEC TOGS 1.1.1 Ambient Water Quality Standards (NYSDEC water quality standards), and 6 NYCRR Part 375, subpart 375-6.8 Soil Cleanup Objectives. The two studies discussed below identified the highest levels of contamination near the southwest corner of the former Town Square Body Shop.

The contaminants of concern are as follows:

Tetrachloroethene (PCE)

Trichloroethene (TCE)

*cis* and *trans*-1,2-Dichloroethene (DCE)

Vinyl chloride (VC)

Petroleum fuel-related compounds have also been detected in groundwater at the Site at concentrations generally less than 10 ug/L (parts per billion-ppb).

### 1.2.1 Phase I/Limited Phase II Environmental Site Assessment, Town Square Body Shop and Hall Plumbing, Vestal, New York

Gaynor Associates, Inc. completed a Phase I and Limited II Environmental Site Assessment (ESA), January 1996. This ESA encompassed the Ash Road Properties Site. The Phase I ESA included a visual inspection of the Site, a review of historical database listings, and review of local and regional geologic/hydrogeologic conditions. In 1996 there were two buildings on the Site, one occupied by Town Square Body Shop and the other by Hall Plumbing. A prior occupant of the Town Square Body Shop included Monarch Chemical; Dean Fowler Oil Company formerly occupied Hall Plumbing. The report identifies floor drains in both buildings that were not connected to the municipal sewer system, poor housekeeping practices of various automotive products inside the body shop, and the dumping of sediments into the Site from an adjacent business. Contamination of petroleum and chlorinated compounds were detected in the sediments placed on the Site and in groundwater that exceeded NYSDEC water quality standards. No petroleum bulk storage tanks were identified on the property.

A total of nine borings and three monitoring wells were completed at the Site in 1996. The groundwater evaluation identified an area southwest of the former Town Square Body Shop building with the highest concentrations of chlorinated solvents that ranged from 4 to 27 ug/L or parts-per-billion (ppb) for the individual contaminants of concern (see Gaynor Associates, Inc. Drawing No. 3, Appendix A).

#### **1.2.2 Site Characterization Report, Ash Road Site (7-04-032), Vestal, New York**

The summary of the field investigations completed by EA Engineering, P.C. (EA) for NYSDEC, dated September 2009, indicates that there is a limited shallow source area of primarily chlorinated compounds located in the west portion of the Site with the highest contaminant concentration observed near the southwest corner of the former Town Square Body Shop building. The source area appears to have impacted groundwater quality migrating northwesterly along the direction of groundwater flow. The results of the evaluation suggest that contamination from the Site has migrated off-site.

EA recommended interim remedial measures including the soil excavation in the identified source area, and additional remedial investigation of the Site.

The conclusions reached from this characterization initiated a NYSDEC notification letter to West Covina Royale, LP of the department's intent to consider 221 Sycamore Road for inclusion on the Registry of Inactive Hazardous Waste Disposal Sites in New York State.

### **1.3 SUMMARY OF ENVIRONMENTAL CONDITIONS**

#### **1.3.1 Nature and Extent of Contamination**

The Site Characterization completed by EA Engineering included the advancement of twenty-three (23) soil borings in the area of the former Hall Plumbing and Town Square Body Shop buildings (see EA Figure 5, Drawing No. 4, Appendix A). Acetone was noted as the only compound detected in soil samples analyzed from these borings at concentrations that exceeded 6 NYCRR 375 Unrestricted Use Soil Cleanup Objective (SCO) of 0.05 mg/kg. Acetone concentrations ranged from 0.05 to 0.27 mg/kg in soils. During a

membrane interphase probe (MIP) evaluation, the contaminants of concern were detected in soils at levels that exceed the SCO's. The highest concentrations were observed at MP-10 with a total VOC concentration of 60,800 ppb.

Groundwater quality at the Site has been impacted with VOC's that exceed NYSDEC water quality standards (EA Figure 11, Drawing No. 5, Appendix A). Total VOC concentrations of 230,800 ug/L were detected near the southwest corner of the former Town Square Body Shop building (sample location MIP-10) and concentrations in groundwater at MW-2 located at the northwest corner of the Site have ranged from 8 ug/L (not depicted on figure) to 12,603 ug/L.

### **1.3.2 Hydrogeologic Setting**

The Site is located in the Susquehanna River Basin within the Susquehanna River Valley. Surficial deposits beneath the Site are mapped as sand and gravel glacial outwash that is covered by 5 to 15 feet of fine sand and silt in low lying areas (Muller Ernest H. and D. H. Cadwell, 1986). Underlying bedrock is mapped as West Falls Group shale and siltstone. Depth to bedrock is anticipated to be at least 75 feet below ground surface in the general vicinity of the Site. Previous subsurface evaluations that have been completed at the Site have encountered stratified sands, with variable silt and gravel.

The Site overlies the NYSDEC Endicott-Johnson City Area Sole Source Aquifer. The Vestal Water District municipal well, Vestal 4-2, located on Prentice Road, is approximately ½-mile north of the Site. Broome County Health Department, Environmental Health Services identifies the Site within a Critical Environmental Area, which means that the local aquifer contributes groundwater to the municipal well. Depth to bedrock at this municipal well was reportedly encountered at approximately 100 feet below ground surface (Allan D. Randall, 1972). The Vestal Water Supply Well 4-2 is equipped with an air stripper and carbon filtration treatment system at the wellhead. The treatment system is in operation to eliminate any existing VOC contamination.

The general direction of groundwater flow is to the northwest toward the Susquehanna River that is located about 2,000 feet northwest of the Site. The local groundwater flow at

the Site is also to the northwest, as determined during previous evaluations at the Site and adjacent properties. Groundwater has been encountered within 20 feet below ground surface at the Site.

There is an intermittent stream located along the north side of the Site. The stream bed was channelized through a culvert during the Lowe's Home Center development, and underlies the Lowe's parking lot. This channel flows from east to west across the northern limits of the Site.

## **2 PROPOSED INTERIM REMEDIAL MEASURE AND REMEDIAL INVESTIGATION**

Two previous evaluations have both identified a potential source area located in the western portion of the Site, south and west of the former Town Square Body Shop building as well as elevated contaminant concentrations in both groundwater and in soils.

The objective of the Interim Remedial Measure (IRM) is to mitigate this on-going potential source of groundwater contaminations that has been observed at the Site since at least 1996. The NYSDEC study identified impacted soils within a zone between 6 and 8 feet below ground surface. The depth is amenable to removal via excavation.

### **2.1 SUMMARY OF PROPOSED WORK**

The objective of the planned Remedial Investigation (RI) is to assess the nature and extent of site-related environmental impacts and evaluate the risks posed to human health and the environment by those impacts. The findings of the RI will be used to assess the need for remediation and, if required, to evaluate remedial options.

Based on these objectives, and the information that has been collected during previous studies, GeoLogic has developed the following specific objectives for the RI to identify the data gaps that exist in previous evaluations and develop the RI activities to address these gaps.

These activities will include:

- Evaluate current groundwater quality by collection of groundwater samples from existing on-site and off-site monitoring wells.



- 
- Implement an Interim Remedial Measure to address the identified source area.
  - Further evaluate the nature and extent of impacts to soil at the Site by collecting, visually characterizing and analyzing subsurface soil samples.
  - Further evaluate the nature and extent of impacts to groundwater at the Site and off-site by collecting and analyzing groundwater samples.
  - Develop further remedial or investigative recommendations, if warranted.

#### **2.1.1 Task #1 - Monitoring Well Sampling**

Purpose: Establish current groundwater quality beneath the Site and groundwater flow patterns, and compare with previous groundwater quality data and flow patterns. The data will be used to support other RI activities.

Method: The conditions of all existing monitoring wells located on the Site (MW-2, MW-3, MW-4 and MW-5), on the greater Lowe's Home Center parcel (MW-1) and on adjacent properties (MW-6, MW-7 and MW-8), if available and accessible, will be reviewed. The depths of each monitoring well will be measured. The monitoring wells will be re-developed, repairs or replacement of caps and surface covers will be made, and reference elevations will be re-surveyed, if deemed necessary.

Prior to sample collection, water levels will be measured at all available monitoring wells. One round of groundwater samples will be collected and analyzed initially for volatile organic compounds (VOC's) on the Target Compound List (TCL) by EPA Method 8260 plus Tentatively Identified Compounds (TIC's) (see Table No. 1, Appendix B).

Field sampling procedures and analytical and quality assurance/quality control protocols for this Work Plan are presented in the Sampling and Analysis Plan in Appendix C.

#### **2.1.2 Task #2 – Pre-IRM Soil Borings**

Purpose: Delineate the vertical and lateral extent of contaminations in the vicinity of the potential source area previously identified in the western portion of the Site. The general

area identified as a potential source area is depicted on Drawing No. 6, Appendix A.

Method: Nine (9) soil borings are anticipated to access the presence or absence of contamination in the subsurface soils, and if evidence of contamination in soils are at depths that can be removed via typical excavation activities. It is anticipated that each boring will be advanced using direct push methods unless field conditions indicate that rotary drilling techniques and hollow stem augers are required. Additional borings may be advanced, if warranted, to identify the limits of the anticipated source area.

The soil borings will be advanced and the soils will be obtained in accordance to the Sampling and Analyses Plan. Subsurface conditions will be characterized and documented on subsurface logs, and any visual or olfactory evidence of contamination will be noted. Soil samples will be screened with a PID. Based on visual and olfactory evidence of contamination and PID readings, up to eighteen (18) soil samples will be selected for analysis. Soil samples will be selected from both zones of suspected contamination and zones expected to be "clean". Soil samples will be analyzed for volatile organic compounds using EPA Method 8260 TCL + TIC's. Six select soil samples from soils exhibiting the highest levels of field evidence of contamination will be analyzed for semi-volatile organic compounds using EPA Method 8270 base neutrals + TIC's, for PCB's by EPA Method 8082 and for Target Analyte List (TAL) metals by EPA Methods 6010 and 7471. *[The analytical scope for the remaining tasks presented in this Work Plan may be reduced in consultation with the NYSDEC based on the results of this initial subsurface soil evaluation.]*

Soils will be further characterized for additional parameters, if warranted, based on the requirements set forth by potential soil disposal facilities.

### **2.1.3 Task #3 - Interim Remedial Measure**

Purpose: Remove source area delineated in Task #2 to reduce receptor exposure to contaminants.

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#### **2.1.3.1 Site Preparation Activities**

The remedial activities presented in this IRM are technically feasible and relatively straight-forward to implement, if the Task #2 findings support previous data. Horizontal limits of the proposed excavation area using global positioning system (GPS) or conventional survey equipment and techniques will be delineated based on the findings in Task #2.

Dig Safely New York will be contacted to initiate a utility clearance request prior to the start of the remedial activities, to identify and mark the locations of underground utilities (e.g., electricity, natural gas, water, sewer, telephone, etc.) and structures, at and near the work areas. In addition, a representative from any company with underground utilities in the work area may be requested to be present at a site meeting prior to starting the remedial activities (to verify mark-outs).

Temporary fencing (minimum 6-foot high chain-link fence) around the perimeter of the proposed work area for safety reasons, and to limit unauthorized access into the area will be installed.

A material staging area will be constructed, as needed, for temporary staging of excavated materials prior to re-use on-site, or off-site transportation and disposal. Each material staging area will be bermed and lined with a low-permeability liner (30 mil thickness) that will slope to a lined collection sump. The berms will be of sufficient height to contain water that drains from staged soils and to mitigate the potential for surface water run-off to come in contact with the staged soils.

Portable storage tank(s) for temporary water storage or vac-trucks for direct collection and transport of water generated during remedial activities will be used.

Perimeter fence/warning signs/caution tape may supplemented the temporary construction chain-link fencing, as needed, to delineate and secure areas of the

ongoing remedial activities, stockpiled soil area and/or disruption to normal vehicular traffic within the Lowe's parking area and access drives.

#### **2.1.3.2 Excavation of Impacted Soils**

The asphalt pavement and sub-base material will be stripped and stockpiled for off-site disposal at an appropriate facility.

Soil exhibiting contaminant characteristics (based on analytical data from task #2, odors, visual staining, elevated PID readings - 5 ppm above background soils) removed by the excavation operations will be direct-loaded to trucks, to the extent possible, to minimize the size of on-site staging areas and to minimize double-handling of the soil. Excavated soil that requires dewatering to remove free liquids (as discussed in the subsection above), and excavated soil that requires further characterization, will be stockpiled in lined material staging areas or within the actual excavation pit prior to off-site transportation and disposal. Excavated soil that exhibits no visible contamination, no staining, and no obvious chemical odors will be staged on-site for possible reuse as subsurface fill.

It is anticipated that a sump may need to be installed in the bottom of the excavation that extends below the water table to provide a location for pumping groundwater that would otherwise accumulate in and interfere with excavation. Water withdrawn from the excavation could be managed in a variety of ways. It is currently anticipated that untreated water would be collected directly into tanks for direct transport to a commercial wastewater treatment facility for treatment/discharge.

All dump trailers and dump truck boxes used to transport impacted materials for off-site disposal will be lined, when deemed necessary, with polyethylene sheeting prior to waste loading. The waste transport containers will be covered with a tarp upon loading, prior to departing the Site. Each load will be transported to the designated facility by a licensed hauler in accordance with applicable local,

state, and federal regulations. Wastes will be transported under manifest and vehicles will be placarded, as needed.

Although the excavation would be in close proximity to the greater Lowe's Home Center, odors/vapors from the excavation activities at levels that would require control are not anticipated.

An air monitoring program will be implemented during the remedial activities to protect the health and safety of site workers and the surrounding community and to establish appropriate response protocols for potential emission source control. Details of the air monitoring program are presented in the site-specific HASP. A brief summary of the monitoring program that is presented in the HASP includes both work area and perimeter air monitoring (vapor and particulate).

Soil that is stockpiled for re-use, or other material determined to be appropriate by an engineer will be used as backfill. It is anticipated that the backfill material will be compacted using a roller, vibratory plate compactor, the excavator bucket, and/or other appropriate equipment. Prior to using the excavated stock-piled soils and/or off-site material, samples will be collected to verify that proposed material meets the requirements of NYSDEC DER-10 *Technical Guidance for Site Investigations and Remediation*, Section 5.4(e).

The asphalt sub-base and asphalt pavement will be replaced meeting engineering requirements for the parking area.

#### **2.1.3.3 Confirmation Sampling**

Soil samples will be collected from the limits of the excavation to verify that soils that have been impacted by VOC's have been removed, and remaining soils meet the restricted commercial SCO's for the protection of groundwater set forth in Table 375-6.8(b) of 6 NYCRR Part 375.



The number of samples to be collected will be dependent upon the size of the excavation, and will be approved by NYSDEC Project Manager. Expediting the analytical results will assist in evaluating whether additional soils will need to be excavated.

#### **2.1.4 Task #4 - Site Characterization Investigation Data Summary**

Purpose: To finalize Task #5 well placements and determine any additional data needed to complete RI activities.

Prior to proceeding to Task #5, GeoLogic will prepare a Site Characterization Investigation Data Summary (SCIDS) as described in section 3.13(b)2 of DER-10. The SCIDS will present information collected in Tasks #1, #2 and #3 and recommendations for well placements, final parameters for well depths and construction, and the analytical program.

#### **2.1.5 Task #5 – Additional Subsurface Evaluation**

##### **2.1.5.1 Task #5A – Soil Borings**

Purpose: Further evaluate soil and groundwater quality at the Site.

Method: There are gaps in the groundwater quality data in the previously completed subsurface investigations. This gap exists between wells MW-2, MW-3 and MW-4 and the southern limits of the Site. It is in this area that the source area has been identified.

Five (5) soil borings are planned to be advanced at locations to be determined in Task #4. The actual number of borings and their locations may change based on the Task #1 and Task #2 findings. The borings will be advanced using a rotary drill rig with hollow stem augers. The Sampling and Analyses Plan (Appendix C) presents the sampling, screening and documentation procedures.

It is anticipated that three of the soil borings will be advanced to depths of at least (35 feet) to evaluate the presence of a confining layer, and soil and groundwater quality below the water table. If a confining layer is encountered, the boring will be terminated

to prevent penetration of the confining layer.

Soil samples will be selected from both zones of suspected contamination and zones expected to be “clean”. The analytical parameters for the soil samples will be dependent upon previous findings in Tasks #1, #2 and #3 and will include analysis for volatile organic compounds using EPA Method 8260 TCL + TIC’s.

#### **2.1.5.2 Task #5B - Install Monitoring Wells**

Purpose: Investigate direction of groundwater flow and water quality conditions beneath the Site.

Method: Monitoring well clusters are anticipated to be installed at three (3) of the boring locations advanced under Task #5A to further investigate groundwater quality and groundwater flow direction at the Site. The locations and depths of the wells will be determined in Task #4.

After the soil profiles have been characterized in Task #5A, monitoring well clusters will be installed at select borings. The wells will be constructed of 2-inch diameter PVC well screen and well pipe. The shallow water table well screens will be 10 feet long and have either 0.010-inch or 0.020-inch size slots. The well screens will be placed to straddle the water table at the time the borings are advanced. The screened portions of the water table wells will be set to intercept the water table. A medium-grade sandpack will be placed around the well screen from the bottom of the well to at least two feet above the top of the well screen. A minimum 2-foot bentonite seal will be placed above the sandpack and the remainder of the boring will be filled with a cement/bentonite grout. The well casings will be capped and flush-mounted curb boxes/or guard pipes will be placed over the wells for protection. The deeper monitoring well will be constructed similar to the shallow water table well except the deeper will have a 5-foot well screen that will be placed below the water table at an interval to be determined based on field observations of the soils encountered and the presence of a confining layer. Depths to water will be recorded.

The new monitoring wells will be developed using a submersible pump. Conductivity, pH and temperature will be measured periodically during the well development to assure that stability has been achieved. Efforts will be made to achieve turbidity of less than 50 NTU.

#### **2.1.5.3 Task #5C - Sample Monitoring Wells**

Method: Between 7 and 14 days after the new monitoring wells have been developed, water samples will be collected from all monitoring wells on the Site. At the time of sampling, the depths to water will be recorded.

Wells will be purged prior to sampling using a submersible pump or by manual bailing. New polyethylene tubing or disposable bailers with new nylon rope will be used to purge and sample each well. The wells will be purged of at least three well volumes prior to sampling. Temperature, pH, conductivity and turbidity measurements will assist in determining when the wells have been sufficiently purged. Samples will be submitted for analysis of volatile organic compounds by EPA Method 8260 TCL + TIC's. Additional analytical parameters may be required and will be determined in Task #4.

Water level data from the wells will be used to evaluate the direction of groundwater flow.

#### **2.1.5.4 Task #5D - Survey of Monitoring Wells and Soil Borings**

The locations and elevations of all soil borings and permanent monitoring points will be established by a licensed surveyor. Horizontal locations will be referenced to the New York State Plane Coordinate System using North American Datum (NAD) 83. Vertical elevations will be referenced to North Atlantic Vertical Datum (NAVD) 88.

#### **2.1.5.5 Task 5E - Hydraulic Conductivity Testing**

In-situ hydraulic conductivity testing will be conducted on selected wells to allow hydrogeologic characteristics to be assigned to the soils. The in-situ hydraulic

conductivity test methods and procedures will be determined after Task #3 is complete and will be described in the SCIDS.

#### **2.1.6 Task #6 - Qualitative Exposure Assessment**

Purpose: A Qualitative Exposure Assessment will be performed to identify potential exposure of on-site contamination that has migrated from the site.

The qualitative exposure assessment is required by ECL 27-1415(2)(b) and will be completed in accordance with Department guidance.

#### **2.1.7 Task #7 - Remedial Investigation Report**

Purpose: The RI and IRM report will summarize the data collected during the execution of this work plan and provide conclusions and recommendations regarding the disposition of areas of concern, exposure pathways, additional investigation and/or remedial alternatives analysis.

The RI/IRM will be prepared in accordance with the elements of DER-10, Section 3.14.

### **3 HEALTH AND SAFETY PLAN**

A Health and Safety Plan (HASP) prepared for personnel protection (both site workers and community), and safety practices and procedures for the field activities proposed in this Work Plan is attached in Appendix E. A Community Air Monitoring Program (CAMP) is included in the HASP.

### **4 QUALITY ASSURANCE/QUALITY CONTROL**

The Sampling and Analysis Plan (Appendix C) outlines quality assurance and quality controls for field sampling and measurements, general decontamination procedures, analytical methodologies techniques and the quality assurance project plan. The contract laboratory, Upstate Laboratories, Inc., Statement of Qualifications is presented in Appendix D

## 5 CITIZEN PUBLIC PARTICIPATION

A Citizen Public Participation Plan is contained in Appendix F.

## 6 SCHEDULE AND REPORTING

It is anticipated that it will take approximately 24 months to execute the complete Work Plan. An approximate schedule for completing Work Plan activities is provided in Appendix G.

## 7 PROJECT ORGANIZATION

**New York State Department of Environmental Conservation:** Division of Environmental Remediation, Region 7, 1679 NY Route 11, Kirkwood, NY 13795. Contact: Gary Priscott, Project Manager, (607) 775-2545.

**Environmental Consultant:** GeoLogic NY, Inc., P.O. Box 350, Homer, NY 13077. Contact: Susan M. Cummins, project manager, Forrest Earl, Principal-in-Charge; Christopher Maroney, P.E., Supervising Engineer; Christopher Gabriel, field supervision, (607) 749-5000.

**Property Owner/BCP Volunteer:** West Covina Royale, LP, 5150 Overland Avenue, Culver City, CA 90230, Contact: Kenneth Loesch, (310) 280-5087.

**Owner Counsel:** Hinman, Howard & Kattell, L.P., 700 Security Mutual Building, 80 Exchange Street, P.O. Box 5250, Binghamton, NY 13902-5250, (607) 723-5341.

## 8 REFERENCES

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Phase I/Limited Phase II Environmental Site Assessment, Town Square Body Shop and Hall Plumbing, Vestal, New York, prepared for Shippers Holding Company prepared by Gaynor Associates, Inc., January 1996.

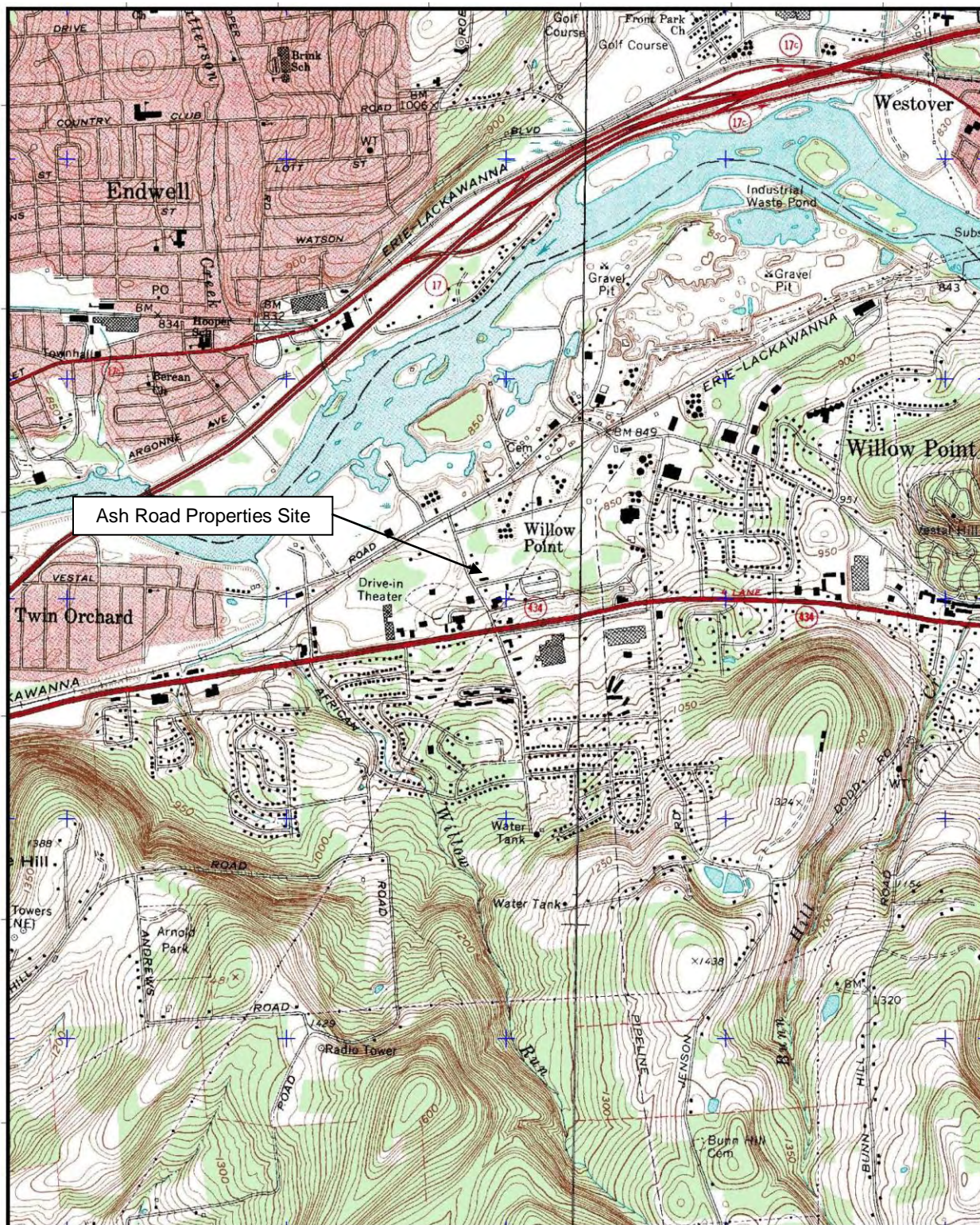
Phase I Environmental Site Assessment, Lowe's Home Center, Vestal, New York prepared for Shippers Holding Company and State Farm Life Insurance Company prepared by Gaynor Associates, Inc., October 1996.

Site Characterization Report, Ash Road Site 7-04-032, Vestal, New York, prepared for NYSDEC, Albany, New York prepared by EA Engineering, P.C., September 2009.

## **APPENDIX A**

### **Supporting Figures & Drawing**





Reference: Base Map USGS 7.5 MIN. Quad. Endicott, NY, 1976  
Approximate Scale: 1" = 2000'

**SITE LOCATION PLAN**  
**ASH ROAD PROPERTIES**  
**Town of Vestal, New York**  
**Site #C704032**  
**Drawing No. 1**







**Legend**



Former Building Footprint

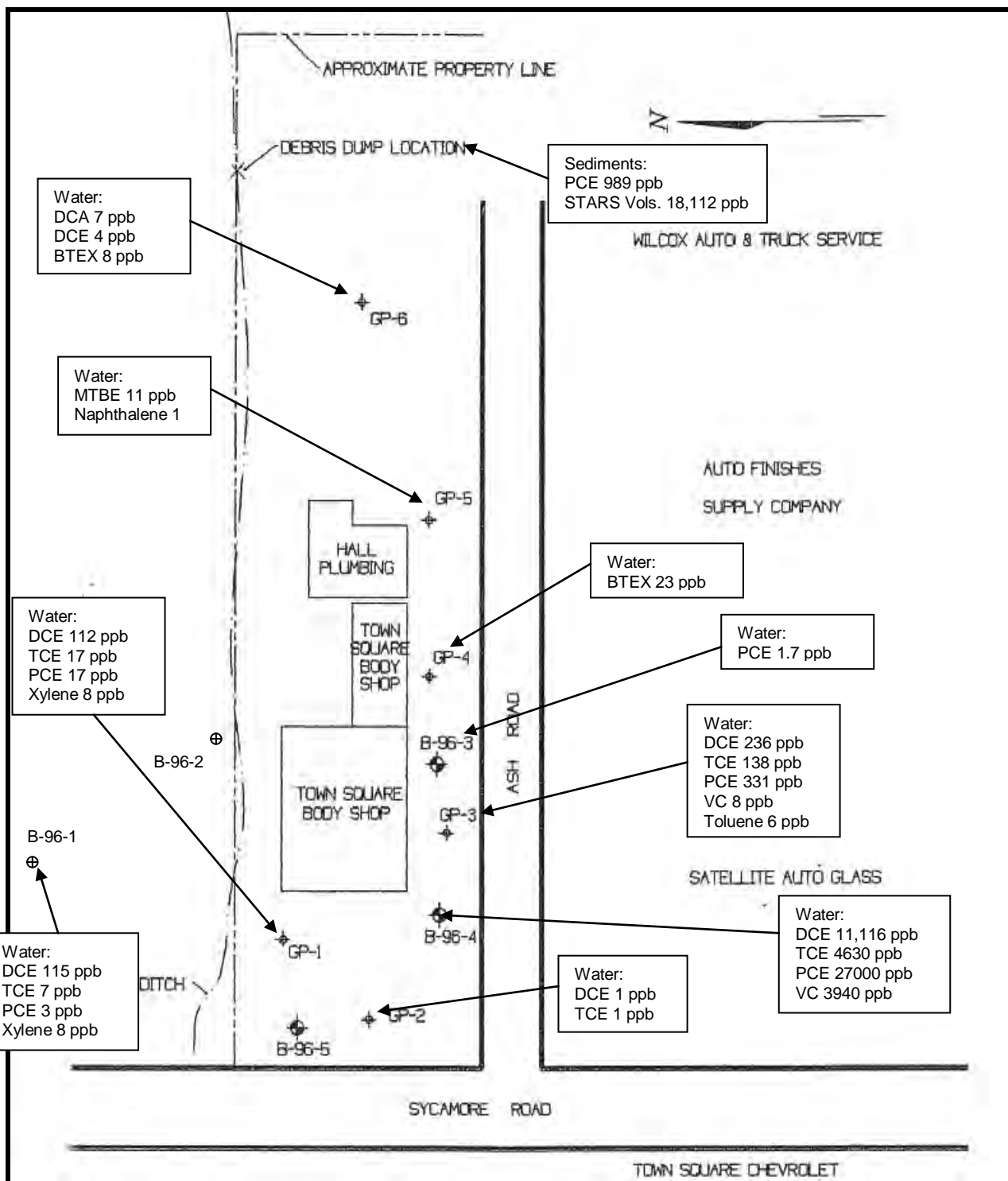


Approximate BCP Limits



**SITE PLAN**  
**ASH ROAD PROPERTIES**  
Town of Vestal, New York  
Site #C704032  
Drawing No. 2





DCA – Dichloroethane; DCE – Dichloroethene; TCE – Trichloroethene; PCE – Tetrachloroethene;  
VC – Vinyl Chloride; BTEX – Benzene, Toluene, Ethylbenzene and Xylene; MTBE - Methyl tert butyl ether

Note: Base Map prepared by Gaynor Associates, Inc., 1996

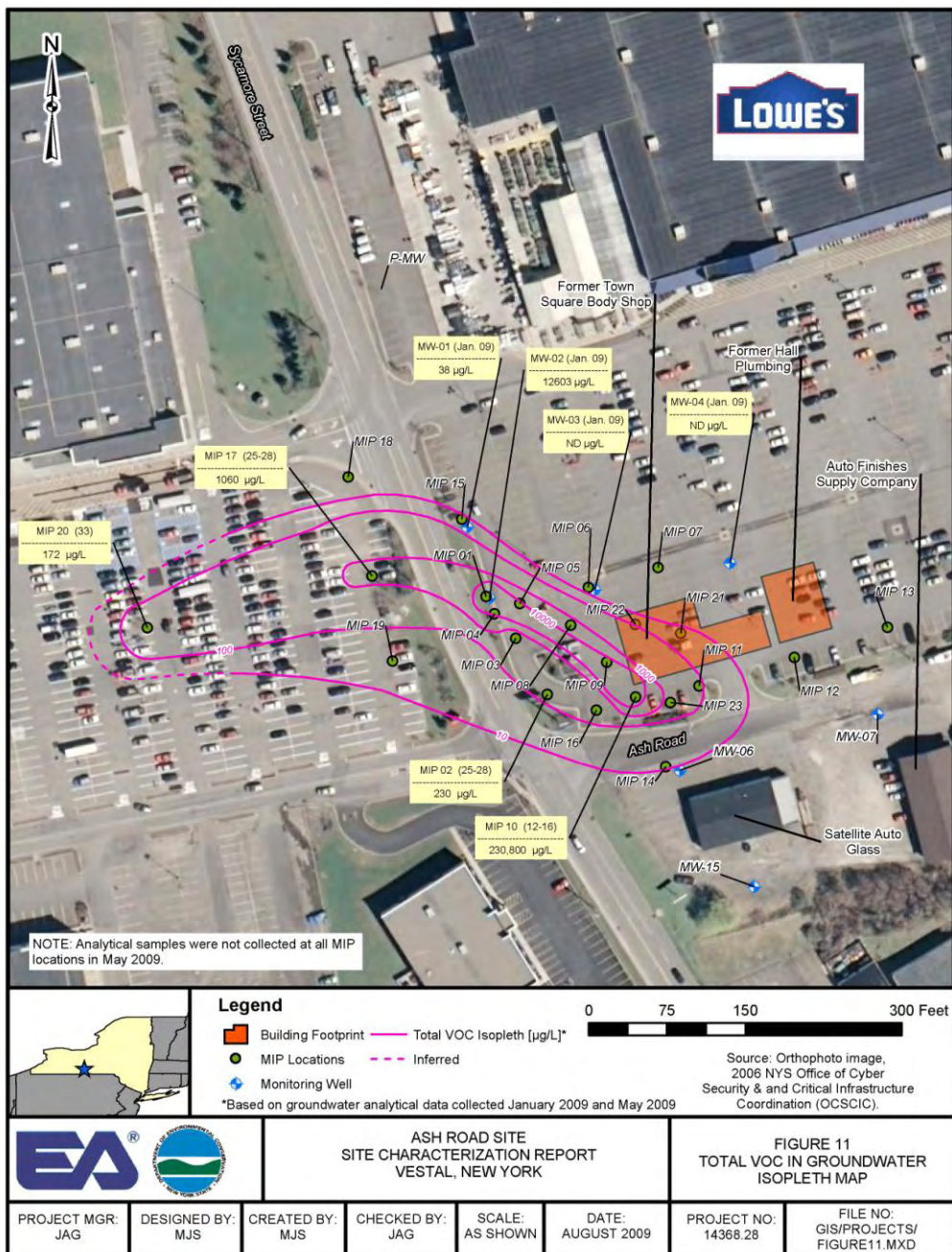
**JANUARY/FEBRUARY 1996 SITE PLAN**  
**ASH ROAD PROPERTIES**  
**Town of Vestal, New York**  
**Site #C704032**  
**Drawing No. 3**

**GeoLogic**



**FIGURE 5-BORING & MONITORING WELL LOCATION JANUARY 2009  
ASH ROAD PROPERTIES  
Town of Vestal, New York  
Site #C704032  
Drawing No. 4**





**FIGURE 11 TOTAL VOC IN GROUNDWATER ISOPLETH MAP  
ASH ROAD PROPERTIES  
Town of Vestal, New York  
Site #C704032  
Drawing No. 5**



**Legend**



Former Building Footprint



Area of Elevated Contaminants



Existing Monitoring Wells



PROPOSED SOIL BORING

**IRM BORING LOCATION PLAN  
ASH ROAD PROPERTIES  
Town of Vestal, New York  
Site #704032  
Drawing No. 6**



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## **APPENDIX B**

### **Tables**

**TABLE NO. 1**

**TASKS #1, #2, #3 and #5  
ANALYTICAL MATRIX  
RI AND IRM WORK PLAN**

**Ash Road Properties  
Town of Vestal, New York**

Task	Location	Matrix	Number of Samples <sup>(1)</sup>	Field Screening <sup>(2)</sup>	Analytical Parameters <sup>(3)</sup>			
					VOC's 8260	SVOC 8270	TAL Metals	PCB's 8082
Task #1	MW-1	Groundwater	1	T-C-pH-Tb	1			
	MW-2	Groundwater	1	T-C-pH-Tb	1			
	MW-3	Groundwater	1	T-C-pH-Tb	1			
	MW-4	Groundwater	1	T-C-pH-Tb	1			
	MW-5	Groundwater	1	T-C-pH-Tb	1			
	MW-6,7 and 8	Groundwater	3	T-C-pH-Tb	3			
		<b>Total</b>	<b>8</b>		<b>8</b>	<b>8</b>		<b>8</b>
Task #2	SA-10-1 through SA-10-9	Soil	25	PID	25	5	5	5
		<b>Total</b>	<b>25</b>		<b>25</b>	<b>5</b>	<b>5</b>	<b>5</b>
Task #3	Excavation	Soil	6	PID	6			
		<b>Total</b>	<b>6</b>		<b>6</b>			
Task #5A	SB-10-1 through SB-10-7	Soil	14	PID	14	<sup>(3)</sup>	<sup>(3)</sup>	<sup>(3)</sup>
		<b>Total</b>	<b>14</b>		<b>14</b>			
Task #5B	MW-1 through MW-5; MW-10-6 through MW-10-8	Groundwater	8	T-C-pH-Tb	8	<sup>(3)</sup>	<sup>(3)</sup>	<sup>(3)</sup>
		<b>Total</b>	<b>8</b>		<b>8</b>			

**Notes:**

1 – Number of samples are estimates, number may vary based on field conditions, number of borings and size of excavation.

2 - T-C-pH-Tb: temperature, conductivity, pH and turbidity.

3 –The actual parameters will be dependent upon the findings in Task #1, and #2.



**TABLE NO. 2**

**TASKS #1, #2, #3 and #5  
QA/QC SAMPLE SUMMARY  
RI AND IRM WORK PLAN**

**Ash Road Properties  
Town of Vestal, New York**

<b>Task</b>	<b>Matrix</b>	<b>Analytes &amp; Method ASP Category B Deliverables w/ DUSR</b>	<b>Number of Samples<sup>(1)</sup></b>	<b>Number of Duplicates</b>	<b>Number of Matrix Spikes</b>	<b>Number of Matrix Spike Duplicates</b>	<b>Number of Trip Blanks</b>
Task #1	Groundwater	VOC's 8260 TCL	8	1	1	1	1
Task #2	Soil	VOC's 8260 TCL	25	2	2	2	1
	Soil	SVOC's 8270 B/N	5	1	1	1	
	Soil	PCB's 8082	5	1	1	1	
	Soil	TAL Metals 6010/7471	5	1	1	1	
Task #3	Soil	VOC's 8260 TCL	6	1			1
Task #5A	Soil	VOC's 8260 TCL + TBD	14	1	1	1	1
Task #5B	Groundwater	VOC's 8260 TCL + TBD	8	1	1	1	1

**Notes:**

TBD – To be determined

1 – All numbers of samples are estimates, QA/QC samples will be analyzed at a frequency of 1 per 20 per matrix.

QA/QC for Category B, ASP Analysis includes trip blank, field duplicate, matrix spike and matrix spike duplicate.

## **APPENDIX C**

### **Sampling & Analyses Plan**



**SAMPLING AND ANALYSIS PLAN**

**FOR THE**

**REMEDIAL INVESTIGATION AND  
INTERIM REMEDIAL MEASURE WORK PLAN**

**Ash Road Properties  
221 Sycamore Road  
Town of Vestal, New York**

**Prepared By:**  
**GeoLogic NY, Inc.**  
**July 2010**

## **INTRODUCTION**

This Sampling and Analysis Plan is for the Ash Road Properties Brownfield Project in the Town of Vestal, Broome County, New York. The project involves a Remedial Investigation (RI) to further define contamination at the Site and an Interim Remedial Measure (IRM) to reduce the risk that the site contamination poses.

The Work Plan for the RI/IRM details the specific sampling and analyses for the Ash Road Properties Brownfield project.

## **QUALITY ASSURANCE PROJECT PLAN (QAPP)**

### **Project Description**

This Sampling and Analysis Plan includes identification of sampling locations and media; methods for collection, handling, and preservation; and the protocols to be used for sample analysis. Environmental media to be sampled includes soils, groundwater, and miscellaneous materials (e.g., waste sediments). The data will be utilized to form conclusions as to the presence, transport, and fate of site specific contaminants.

### **Field Sampling Procedures**

All sampling objectives, locations and procedures have been included as the Field Sampling Plan and described in this Sampling and Analysis Plan. Items include field measurement techniques, general field decontamination procedures, and sample acquisition and management.

### **Analytical Methodologies**

Analysis of samples collected during the RI will be consistent with the NYSDEC ASP 2005, Category B requirements. Sampling and analysis will be performed for the Superfund Target Compound List (TCL) parameters for volatile organic compounds by EPA Method 8260, base-neutral semi-volatile organic compounds by EPA Method 8270, PCB's by EPA Method 8082 and for Target Analyte Metals (TAL) by EPA Methods 6010 and 7471.

Trip blanks will accompany each shipment of aqueous samples for volatile organic compounds (VOC) analysis. Trip blanks are not necessary for soil samples. If several samples are collected for VOC analysis on any one day, all VOC samples will be packed in the same cooler with the trip blank. All trip blanks will be analyzed according to NYSDEC ASP (2005) protocol for volatile organics. All data will be presented in modified Category B reportables / deliverables format.

Duplicate samples will be obtained from groundwater (aqueous) and soil samples (solids). One matrix spike (MS) and one matrix spike duplicate (MSD) sample will be collected and analyzed for each twenty field samples collected for each matrix. MS and MSD samples must be referenced to a specific field sample. The ASP provides the following definitions for MS and MSD samples:

- Matrix spike - An aliquot of a sample (water or soil) spiked with known quantities of specific compounds (target analytes) and subjected to the entire analytical procedure in order to indicate the appropriateness of the method for the matrix by measuring recovery. The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.
- Matrix spike duplicate - A second aliquot of the same matrix as the Matrix Spike that is spiked with identical concentrations of target analytes as the Matrix Spike, in order to document the precision and bias of the method in a given sample matrix. With the present sampling schedule and sample quantities, one set of MS/MSD samples will be collected from a water sampling location and two sets of MS/MSD samples will be collected from soil sampling locations.

### **Laboratory Certification and Coordination**

All chemical analyses for samples collected will be completed by Upstate Laboratories, Inc., a CLP laboratory capable of performing project-specific analysis indicated in the QA/QC requirements. The project manager will be responsible for all project-related laboratory coordination.

### **Analytical Quality Control**

Analytical quality control will be consistent with the methodologies and quality assurance/quality control requirements in the NYSDEC ASP 2005. The remedial investigation analytical data will be subject to data usability reviews in general accordance with NYSDEC ASP Category B reportable and deliverable formats. Data Usability Summary Reports (DUSR) will be prepared in a manner consistent with NYSDEC's Guidance for Data Deliverables and Development of Data

Usability Summary Reports, NYSDEC DER-10, May 2010. The main objective of a DUSR is to determine whether the data presented meets the project-specific needs for data quality and data use.

## **FIELD SAMPLING PLAN**

### **Sampling Objectives**

Field sampling at the Ash Road Properties has been designed to obtain representative samples of environmental media to further assess the impact that the site may have upon human health and the environment. The field sampling plan includes sampling for groundwater and subsurface soils.

#### *Subsurface Soil*

Subsurface borings will be implemented using either direct push subsurface investigation techniques or conventional rotary drilling with continuous split-spoon sampling in accordance with ASTM D-1586-99. Conventional borings will be advanced using hollow-stem auger without the use of air or drilling fluids. Direct push or continuous split-spoon sampling will be conducted to define the unconsolidated geology. Direct push, 2-inch diameter, 4-foot steel tube sampler (macrocore) with single-use liners will be used for soil sample collection.

The recovered soils will be visually characterized for grain-size distribution and moisture. Indications of potential contamination (ex. visual or olfactory) will be noted on the subsurface logs. Drilling observations and changes, and depths to groundwater will also be recorded.

During the continuous sampling process, all soil samples will be field screened for the presence of volatile organic compounds using a PID. Soil samples for laboratory analysis will be selected in the field based on visual/olfactory examination of the samples and the results of PID screening. When conditions are encountered that indicate excavation would be a more effective way to investigate and sample the subsurface.

Drilling cuttings will be visually inspected and screened with a photoionization detector (PID). Consistent with DER-10, investigation derived waste will be disposed within the borehole of origin unless free product, NAPL or gross contamination is present. If those conditions are

evident or the borehole will be completed as a groundwater monitoring well, then excess spoils will be containerized for future characterization and disposal. If off-site disposal is needed, it will be completed within 90 days of the generation date.

### Groundwater

There are five existing groundwater monitoring wells on the site, and additional wells are proposed in the Work Plan. The manner in which the new groundwater monitoring wells will be constructed is described in Section 2.2.4.2 of the Work Plan. Water samples, plus appropriate QA/QC samples, will be collected from the wells. Section 2.2.1 of the RI Work Plan provides the groundwater monitoring well analysis protocol.

## **Sampling Procedures**

The following sections provide procedures for collecting soil and groundwater samples.

### Preparation for Sampling

The sample collection technique is of prime importance to assure the integrity of the collected sample. The following techniques include provisions so that:

- A representative sample is obtained;
- Contamination of the sample is minimized;
- The sample is properly preserved; and
- An acceptable Chain-of-Custody record is maintained.

The QA/QC Sampling Component of the Plan includes:

- Incorporation of accepted sampling techniques referenced in the sampling plan;
- Procedures for documenting any field actions contrary to the QA/QC Plan;
- Documentation of all preliminary activities such as equipment check-out, calibrations, and container storage and preparation;
- Documentation of field measurement quality control data (quality control procedures for such measurements shall be equivalent to corresponding QC procedures);
- Documentation of field activities;
- Documentation of post-field activities including sample shipment and receipt, field team debriefing, and equipment check-in;
- Generation of quality control samples including duplicate samples, field blanks, equipment blanks, and trip blanks; and

- The use of these samples in the context of data evaluation with details of the methods employed (including statistical methods) and of the criteria upon which the information generated will be judged.

The personnel responsible for collection of groundwater, soil, and miscellaneous media samples will be familiar with standard sampling procedures and follow the appropriate protocol. Field records will be maintained in bound notebooks with numbered pages to document daily instrument calibration, locations sampled, field observations, and weather conditions. Each page will be dated and signed by the sampler. Each notebook will be numbered and a log of notebooks will be maintained by the project manager.

Prior to sampling, all equipment must be procured and accommodations for sample container delivery, and sample shipment must be made. The following is a list of general equipment that would be on hand for sampling events. Special equipment for each sampling event is presented in the section describing that specific sampling event.

#### General Field Sampling Equipment

- Project Data Information/Plans
- Chain-of-Custody forms
- Nitrile/Vinyl gloves
- Photoionization detector (PID)
- Bio-degradable phosphate free detergent
- Coolers (with ice)
- Sample bottles
- Aluminum foil
- Tap water/Distilled water
- 5-gallon wash buckets
- Decontamination brushes
- Large disposal containers
- Large plastic sheets

### Groundwater Sample Collection

Groundwater samples will be collected using dedicated, disposable HDPE bailers following evacuation of three borehole volumes or complete purging of the well using low-flow purging techniques. All other related sampling equipment will be properly decontaminated in the field. The following equipment will be available for sampling of monitoring wells in addition to the general sampling equipment list:

- Well Data Information/Plans
- Dedicated disposable bailers/Peristaltic pump with disposable tubing
- Electronic water level indicator
- pH meter
- Thermometer
- Conductivity meter
- Turbidity meter
- Preserved sample containers
- Nitrile/Vinyl gloves

The following steps describe the sample preparation and collection of groundwater:

1. Obtain the sampling parameters for each well to be sampled.
2. Select the appropriate sample containers for the day's sampling.
3. Unlock and remove the well cap.
4. In order to obtain a representative sample of the formation water, the well must be purged of the static water within the well. Prior to purging, the static water level within the well must be measured and the measurement recorded in the field book. To determine the amount of water necessary to purge, find the liquid column height in the well to determine the total volume (three liquid column borehole volumes) of liquid to be purged.
5. Attach the single-use disposable nylon/polypropylene rope to the sample bailer OR attached single-use disposable tubing to the peristaltic pump.
6. Purge the well; lower bailer slowly into the well until it is below the water surface OR lower the tubing attached to the peristaltic pump and purge. Consistent with NYSDEC Guidance, purge waters will be containerized or passed through a granulated carbon filter prior to discharge to the ground surface.
7. Record the amount of water purged and the field parameter (pH, temperature, specific conductance, turbidity) in the field book.

8. If the well goes dry during bailing, allow for recovery and then sample. If recovery takes more than twenty minutes, proceed to next well but return to sample within 24 hours.
9. Fill the appropriate sample bottles according to the sampling schedule for each well. While filling the sample bottles, record the well number, type, volume of container, and the preservatives used.
10. Volatile organic analyses samples must be free of air bubbles. When a bubble-free sample has been obtained, it must be immediately chilled.
11. Collect the matrix spike duplicates and trip blanks. Take samples according to sampling schedule presented in the Work Plan.
12. Record all pertinent information in the field logbook (include color, odor, sediment content of sample, etc.). Any situations at the site that have the potential to interfere with the analytical results should also be recorded here.
13. Lock well, inspect well site, and note any maintenance required.
14. Dispose of potentially contaminated materials in designated containers for contaminated solids.

#### Soil Sampling

Soil samples collected from soil boring locations will be transferred from the boring sampling device (split-spoon sampler or acetate liner) by hand with a disposal glove. The retrieved soil sample will be placed directly into parameter-specific glass containers. Each sample container will be appropriately labeled and transported to the contracted laboratory in appropriate coolers.

Sampling for matrix spike/matrix spike duplicates shall be performed at least once with each sample set with a minimum of one for each twenty samples.

#### IRM Confirmation Samples

IRM confirmation soil samples from remedial excavations will be collected using disposable gloves or dedicated stainless steel spoons or hand trowels directly from the excavation equipment bucket. The retrieved soil sample will be placed directly into parameter-specific glass containers. Each sample container will be appropriately labeled and transported to the contracted laboratory in appropriate coolers. The following equipment will be required for the sampling of soil samples, in addition to the general sampling equipment list:

- Disposable gloves, stainless steel spoons or hand trowels; and
- PID



Duplicate samples shall be collected at least once with each field batch with a minimum of one for each twenty samples. The on-site NYSDEC representative will be allowed the opportunity to split any sample taken.

### **Field Measurement Techniques**

Water Level Measurement – Water elevations will be taken on all wells prior to purging and sampling. The procedure for measuring water levels in the monitoring wells is:

- Unlock and remove well cap;
- Measure water level to nearest 0.01 foot with a water level indicator (electronic);
- Water level indicators will be decontaminated before moving to next well. The tape and cable are decontaminated by washing in a bucket of potable water-biodegradable phosphate-free detergent solution, followed by a rinse with distilled water.

Specific Conductance Measurement/pH/Turbidity/Temperature – The meters will be field calibrated daily in accordance with the manufacturer's instructions. Sample aliquots for field measurements will be obtained directly from the sampling point in disposable glass containers.

Photoionization Detector (PID) – The PID will be calibrated daily (and more often as required by the manufacturer's data) prior to use in the field, using calibration test gases.

### **General Decontamination**

The following procedures will be performed for the decontamination of exploration equipment, sampling equipment, and personnel after each drilling/sampling event:

Drill Rig, Backhoe, and Excavator – The drill rig and direct-push Geoprobe and tooling will be cleaned prior to their entrance. Greases and oils will not be used on any down-hole equipment during drilling or exploration activities. A temporary decontamination pad with a transfer pump will be constructed for decontamination of larger drilling tools. The equipment will be steam-cleaned and the wash water will be collected into containers for characterization and disposal.

Exploration Equipment – To avoid cross contamination, use of a PID meter and cleaning between each sampling site will be employed on backhoe arms, buckets, hollow stem augers, casing drill rods, down-hole tools, and appurtenant equipment.

*Split-Spoon and Direct Push Samplers* – Sampler tools will be scrubbed, cleaned, and put through a series of rinses between each sampling event. A number of split-spoon samplers will be used so that one can be utilized for sampling while the others are being cleaned. Acetate sleeves are expected to be used in direct push samplers. Those sleeves are single-use and will be containerized and disposed.

*Reusable Equipment* – The following steps will be employed to decontaminate reusable equipment:

- Rinse equipment of soil or foreign material with potable water;
- Immerse and scrub equipment with bio-degradable phosphate-free detergent and potable water;
- Immerse and scrub in a potable water rinse without detergent; and
- The decontamination wash and rinse water will not be considered hazardous unless visual inspection or monitoring by the PID and other equipment indicate that contaminants may be present. The rinse waters can be discharged on-site if they are not contaminated. If contaminants are expected to be present, the rinsate waters will be passed through granulated carbon filter before discharging to the ground surface.

*Sample Containers* – Upon filling and capping sample bottles, the outside of the bottle will be wiped off with a clean paper towel. These towels will be disposed of in a dedicated container for contaminated solids.

*Personnel Decontamination* – The following procedures will be used to decontaminate sampling personnel:

- After each sampling event chemical-resistant gloves will be disposed of in a dedicated container for contaminated solids;
- At the end of each sampling day, Tyvek™ coveralls, if used, will be disposed of in a dedicated container for contaminated solids;
- Boots will be bagged and removed from the site for cleaning; and
- Personnel will be required to follow procedures outlined in the Health and Safety Plan.

## **Sample Management Plan**

The Sample Management Plan provides procedures to document and track samples and results obtained during this work effort. A series of pre-printed forms with the appropriate information serves as a vehicle for documentation and tracking. In order to accomplish this task, the

documentation materials will include sample labels, sample characterization and Chain-of-Custody sheets, daily field reports, and a sample log.

**Sample Label** – A sample label will be completed for each sample obtained and will be affixed to the sample container. The label is configured in a way to address various types of mediums. Information on the label includes, at a minimum, client name, location, sample description, sample number, date, time, grab sample, composite sample, notes, and sampler's name.

**Sample Characterization & Chain-of-Custody Sheet** – All pertinent field information will be entered into the field book and chain-of-custody (COC) sheets. The COC sheets will include client name, sample ID, sample description, location of sample, number of containers, container type, analysis required, and preservation. The Chain-of-Custody section of the form will document the sample's pathway of sample shipment which will include names of persons delivering/receiving, dates, and times. Copies of the completed forms will be retained by the Engineer and the analytical laboratory. Chain-of-Custody sheets will be included in the laboratory data package submittal. Information regarding the well including depth to water, well volume, sample pH, temperature, turbidity, specific conductance, color, etc. will be recorded in the field book.

**Sample Designation** – Each sample will have a unique sample code that will include, where appropriate, the sample media, and the sample location. The following codes may be used in the sample designation:

#### **Sample Media Code Sample Location Example**

Groundwater MW Monitoring Well: MW-(year)-1, MW-(year)-2, etc.

Subsurface Soil Borings or Test Trenches: B-(year)-1; TP-(year)-1, etc.

Field Blank: FB1, FB2, etc.

Matrix Spike and Matrix Spike Duplicate: MS MSD; MW-1 MS; B-2 MSD, etc.

Trip Blanks: TB - TB-1, TB-2, etc.

**Sample Handling** – Each collected sample will be dispensed into the appropriate sample containers for the type of analysis to be performed. Appropriate sample preservatives will be added to the sample containers by the contracted analytical laboratory prior to the delivery into

the field, except in cases where the sample preservative must be added after sample collection. All samples that require cool storage will be immediately placed in coolers with appropriate packaging materials so as to protect the breakage of sample containers during shipment. The sample coolers will be filled with cubed ice prior to leaving the sample collection location. Careful packaging techniques will be used to prevent sample containers from breakage during shipment. Materials such as cardboard, foam wrap, or Styrofoam may be used as packaging materials. All samples will be either hand-delivered to the contracted analytical laboratory or arrangement for pick-up by the laboratory will be made.

## **APPENDIX D**

### **Laboratory Certifications & Detection Limits**

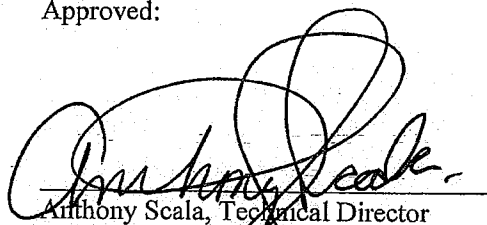
**Upstate Laboratories, Inc**  
6034 Corporate Drive  
East Syracuse, NY 13057

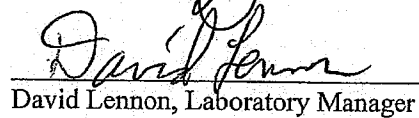
QC SOP No. : LQM-8  
Revision No. : 8  
Effective Date : 2/11/10  
Revision Date : 1/03/11

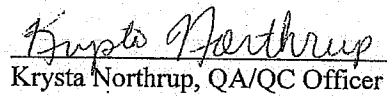
Quality Control Division

**Laboratory Quality Manual**

Approved:

  
Anthony Scala, Technical Director

  
David Lennon, Laboratory Manager

  
Krysta Northrup, QA/QC Officer

## 1. Quality Policy

It is the laboratory's objective to provide technically valid laboratory test results that accurately and precisely represent the quality of a client's sample being analyzed. The laboratory is committed to reaching and routinely performing laboratory work that is in conformance to the NELAC standards, resulting in the overall improvement of the laboratory's quality over time. Demonstration of the laboratory's commitment to reach its goal will result in the following:

- Adequately staffed and equipped facility,
- Successful participation in the proficiency testing programs operated by the New York State Environmental Laboratory Approval Program, the National Institute for Occupational Safety and Health and the US Environmental Protection Agency.
- Successful implementation of a NELAC compliant quality system,
- Annual internal audits with management review,
- Successful biennial assessments by the New York State Environmental Laboratory Approval Program,
- Timely reporting of laboratory test results to the regulating authorities,
- Laboratory test results that are supported by quality control data and documented laboratory testing procedures.

A copy of the quality policy is given to employees during the training of new hires. It is understood, implemented and maintained by employees at all levels. This is documented by management through the employee evaluation process, the training procedure, the internal audit process and the document control process.

## 2. Accredited Test Methods

Test	Method	Reference
Acidity	2310 B (4a)	9
Alcohols & Ketones	8015 A	3
Alkalinity, Titrametric	2320 B	9
Alkalinity, Colorimetric	310.2	1
Biological Oxygen Demand	5210 B	9
Bromide	300.0	11
Chemical Oxygen Demand	410.4	1
Chloride (Titration)	4500-Cl C	9
Chloride (Colorimetric)	4500-Cl E	9
Chloride (Auto)	LACHAT 10-117-07-1	
Chlorine	4500-Cl G	9
Chlorine Demand	2350 B	9
Color	2120 B	9
Corrosivity	2330	3
	1110	3
Cyanide	4500-CN E	9
	335.4	1
	LACHAT 10-204-00-1-A	
	9010 B	3
	9014	3

## 2. Accredited Test Methods Con't

Test	Method	Reference
Cyanide, Amenable	4500-CN G	9
	9014	3
Cyanide, Weak Acid Dissociable	4500-CN I	9
Flashpoint	1010	3
Fluoride	4500-F C	9
Formaldehyde	3500	12
Hardness, by Calculation	200.7	5
Herbicides-TCLP	8151A	3
Herbicides-Expanded List	8151A	3
Metals:		
Metals in Oil by ICP	D5185-91	10
Aluminum by ICP	200.7	5
	3010A	3
	6010B	3
Aluminum by ICP-MS	200.8	5
	3010A	3
	6020	3
Antimony by ICP	200.7	5
	3010A	3
	6010B	3
Antimony by ICP-MS	200.8	5
	3010A	3
	6020	3
Arsenic by ICP	200.7	5
	3010A	3
	6010B	3
Arsenic	200.8	5
	3010A	3
	6020	3
Barium by ICP	200.7	5
	3010A	3
	6010B	3
Barium by ICP-MS	200.8	5
	3010A	3
	6020	3
Beryllium by ICP	200.7	5
	3010A	3
	6010B	3
	NIOSH 7300	12
Beryllium by ICP-MS	200.8	5
	3010A	3
	6020	3
Boron	200.7	5
	6010B	3
Cadmium by ICP	200.7	5
	3010A	3
	6010B	3



## 2. Accredited Test Methods, continued

Test	Method	Reference
Cadmium by ICP-MS	200.8	5
	3010A	3
	6020	3
Calcium by ICP	200.7	5
	3010A	3
	6010B	3
Chromium, Hexavalent	3500-Cr D	9
	7196 A	3
Chromium by ICP	200.7	5
	3010A	3
	6010B	3
Chromium by ICP-MS	200.8	5
	3010A	3
	6020	3
	NIOSH 7300	12
Cobalt by ICP	200.7	5
	3010A	3
	6010B	3
Cobalt by ICP-MS	200.8	5
	3010A	3
	6020	3
Copper by ICP	200.7	5
	3010A	3
	6010B	3
Copper by ICP-MS	200.8	5
	3010A	3
	6020	3
Gold	200.7	1
Iron by ICP	200.7	5
	3010A	3
	6010B	3
Lead by ICP	200.7	5
	3010A	3
	3020-A	3
	6010B	3
Lead by ICP-MS	200.8	5
	3010A	3
	6020	3
Magnesium by ICP	200.7	5
	3010A	3
	6010B	3
Manganese by ICP	200.7	5
	3010A	3
	6010B	3
Manganese by ICP-MS	200.8	5
	3010A	3
	6020	3

## 2. Accredited Test Methods, continued

Test	Method	Reference
Mercury by AA Cold Vapor		
Water	245.2	5
	7470A	3
Solids	7471A	3
Air	245.2	5
Molybdenum by ICP	200.7	5
	6010B	3
Molybdenum by ICP-MS	200.8	5
	3010A	3
	6020	3
Nickel by ICP	200.7	5
	3010A	
	6010B	3
Nickel by ICP-MS	200.8	5
	3010A	3
	6020	3
Palladium	200.7	5
Platinum	200.7	5
Potassium by ICP	200.7	5
	3010A	3
	6010B	3
Selenium by ICP	200.7	5
	3010A	3
	6010B	3
Selenium by ICP-MS	200.8	5
	3010A	3
	6020	3
Silica (SiO <sub>2</sub> )	200.7	5
	6010B	3
Silver by ICP	200.7	5
	3010A	3
	6010B	3
Silver by ICP-MS	200.8	5
	3010A	3
	6020	3
Sodium by ICP	200.7	5
	3010A	3
Thallium by ICP	200.7	5
	3010A	3
	6010B	3
Thallium by ICP-MS	200.8	5
	3010A	3
	6020	3
Tin by ICP	200.7	5
	6010B	3
Titanium by ICP	200.7	5

## 2. Accredited Test Methods, continued

Test	Method	Reference
Vanadium by ICP	200.7	5
	3010A	3
	6010B	3
Vanadium by ICP-MS	200.8	5
	3010A	3
	6020	3
Zinc by ICP	200.7	5
	3010A	3
	6010B	3
Zinc by ICP-MS	200.8	5
	3010A	3
	6020	3
Nitrogen Dioxide	NIOSH 3,6700	12
Nitrogen Oxide	40CFR/60,1984 AppxA M7	
Nitrogen, Ammonia-Auto	350.1	1
	LACHAT 10-107-06-1-B	
Nitrogen, Ammonia-Titrametric	350.1	1
	4500-NH3 E	9
Nitrogen, Ammonia-Colorimetric	350.1	1
	4500-NH3 H	9
Nitrogen, Kjeldahl, Titrametric	351.2	1
	4500-NH3 E	9
	LACHAT 10-107-06-2	
Nitrogen, Nitrate (as N)	353.2	1
	4500-NO3 F	9
	4500-NO3 H	9
	LACHAT 10-107-04-1-C	
Nitrogen, Nitrate-Nitrite Automated Hydrazine	353.2	1
	4500-NO3 H	9
Nitrogen, Nitrite Spectrophotometric	354.1	1
	LACHAT 10-107-04-1-C	
	4500-NO2 B	9
Odor	353.2	1
	140.1	1
	2150 B	9
Oil & Grease in Water	1664A	15
	413.1	1
Oil & Grease in Solids	9071 A	3
Oil & Grease, Hydrocarbons	1664A	3
Oxygen, Winkler	4500-O C	9
Oxygen, Electrode	4500-O G	9
Particulates	40CFR/60,1985 APPxB	
Particulates, Suspended	40CFR/60,1985 APPxB	
Paint Filter Test	9095	8

## 2. Accredited Test Methods, continued

Test	Method	Reference
PCB (Only)	608	2
	8082	3
	NYS DOH 311-1	7
Pesticides & PCBs:		
Priority Pollutant	608	2
TCLP	8081	3
Target Compound List	8081	8
TCL by NYSDEC ASP	2005	8
NYSDEC Part 360- Expanded List	8081/8082	3
Petroleum Distillates:		
By Gas Chromatography	310.13	7
By 8021 (STARS)	8021B	3
PNAs (STARS)	8270C	3
BTX	8021B	3
Petroleum Distillates:		
BTU	D3286-85	10
	ASTM D2015-77	10
Sulfur	ASTM D1552	10
	ASTM D4239	10
	D3286-85	10
Viscosity	D445-86	10
% Ash	D482-87	10
% Chlorine (TOX)	D808-87	10
Hydrazine	D1385-86	10
pH in Water	4500-H B	9
	9040 B	3
pH in Solids	9045 B	3
Phenols (Phenolics)	420.4	1
	LACHAT 10-210-00-1-A	
Phosphorus, Total	4500-P E	9
	365.1	1
	LACHAT 10-115-01-E	
Phosphorus, Ortho	4500-P E	9
	365.1	1
	LACHAT 10-115-01-1A	
Reactivity:		
Cyanide	9010 B	3
Sulfide, Titrametric	9030 B	3
	SW-846 Ch7, Sec7.3	3
Semivolatile Organic Compounds by GC/MS:		
Priority Pollutants(B/N,A/E)	625	2
TCLP	8270C	3
NYSDEC Part 360- Expanded List	8270C	3
PNAs (STARS)	8270C	3
Target Compound List	8270C	8
TCL by NYSDEC ASP	2005	8

## 2. Accredited Test Methods, continued

Test	Method	Reference
Solids (Residues):		
Total and Volatile	2540 B	9
T and V-Suspended	2540 D	9
Dissolved	2540 C	9
Settable	2540 F	9
Total in Domestic Sludge	2540 G	9
Percent	2540 G	9
%solids	ASTM D2697-86	10
	ASTM D2216	10
Volatile Content	40CFR/P61,1984 AppxA Meth 24	24
% Water	ASTM D4006	10
Specific Conductivity		
	2510 C	9
	120.1	1
	9050	3
Standard Plate Count	9215B	9
Sulfate	ASTM D516-90	1
Sulfide, Colorimetric	4500-S D	9
	9030B	9
	376.2	1
Surfactants (MBAS)	5540 C	9
Sulfur Dioxide	40CFR/60,1984 AppxA M6	
TCLP	1311	3
Temperature	2550 B	9
TOC	5310 B	9
	5310 C	
	415.2	1
Total Organic Halogens	D808-87	10
Turbidity	2130 B	9
	180.1	1
EP Toxicity	SW-846 1310	3
Volatile Organic Compounds by GC:		
EPA Method 601/602	601/602	2
EPA Method 502.2	502.2	4
Trihalomethanes	502.2	4
EPA Method 8021	8021B	3
Petroleum (STARS)	8021B	3
EPA Method 8010/8020	8010/8020	3
BTX	8021B	3
Air Methods	NIOSH 2,	12

## 2. Accredited Test Methods, continued

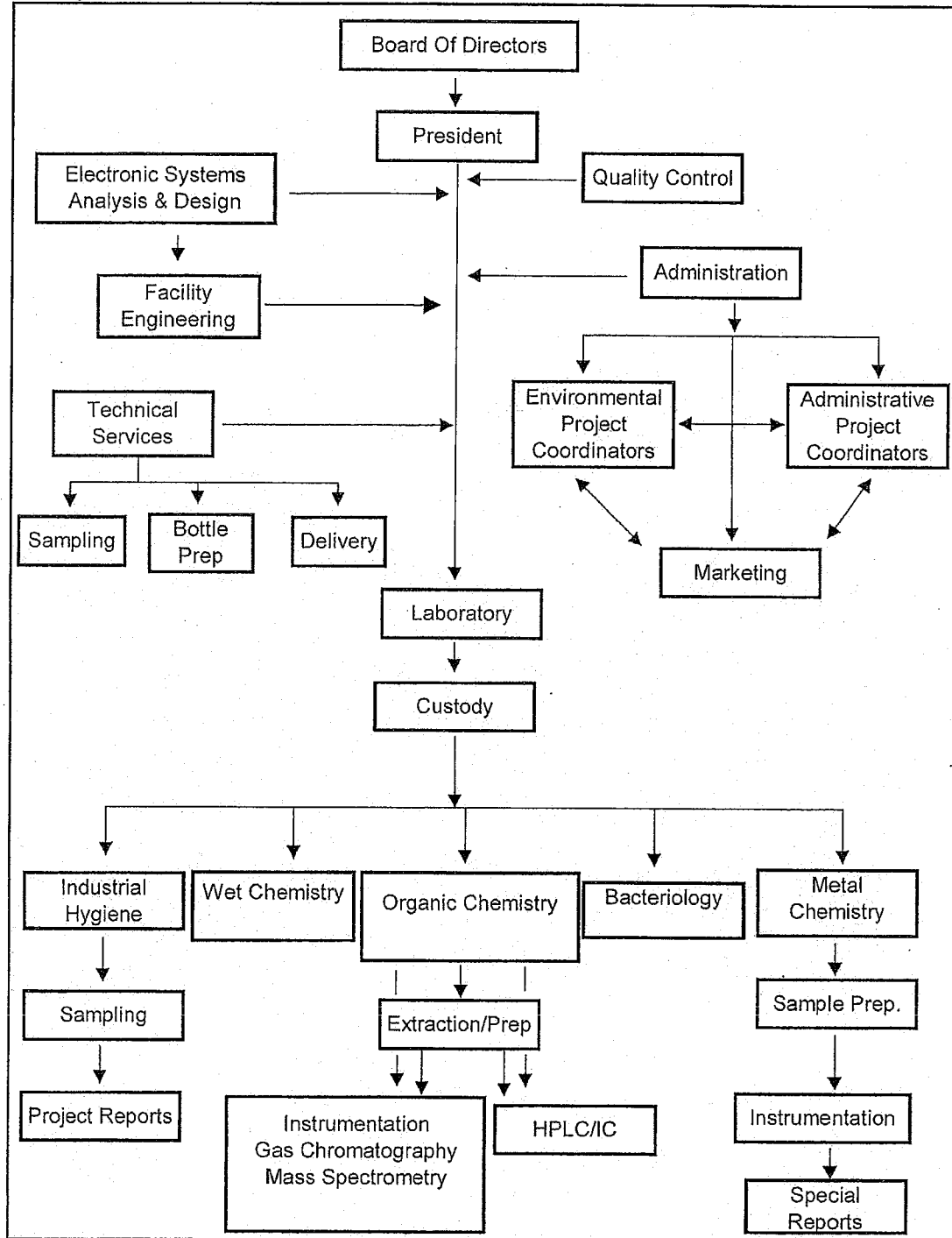
<u>Test</u>	<u>Method</u>	<u>Reference</u>
Volatile Organic Compounds by GC/MS:		
Priority Pollutants	624	2
TCLP	8260B	3
NYSDEC Part 360-		
Baseline & Expanded	8260B	3
EPA Appendix I & II	8260B	3
Target Compound List	8260B	8
TCL by NYSDEC ASP	2005	8
524.2	524.2	4
Air Methods	NIOSH 2, TO-14	12

#### References:

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- 1) "Methods for the Chemical Analysis of Water and Waste," USEPA, Environmental Monitoring Systems Laboratory, Cincinnati, EPA 600/4-79-020, revised March 1993.
- 2) "Guidelines Establishing Test Procedures for the Analyses of Pollutants Under the Clean Water Act," 40CFR Part 136, October 26, 1984.
- 3) "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," USEPA, SW-846, 3<sup>rd</sup> ED.
- 4) "Methods for the Determination of Organic Compounds in Drinking Water," USEPA, EMSL, Cincinnati, 600/4-88/039, December 1988.
- 5) "Methods for the Determination of Metals in Environmental Samples Supplement I," USEPA, ORD, Washington D.C., 600/R-94-111, May 1994.
- 7) "Analytical Handbook," Laboratory of Organic Analytical Chemistry, Wadsworth Center for Laboratories and Research, New York State Department of Health, August 1991.
- 8) "Analytical Services Protocol," New York State Department of Environmental Protection, 10/95 revision.
- 9) "Standard Methods for the Examination of Water and Wastewater," APHA, AWWA, WEF, 18<sup>th</sup> ED., 1992.
- 10) "Annual Book of ASTM Standards," American Society for Testing and Materials, Philadelphia, PA, 1989.
- 11) "Determination of Inorganic Anions by Ion Chromatography," Method 300.0, USEPA EMSL, August 1993, Revision 2.1.
- 12) "NIOSH Manual of Analytical Methods," NIOSH.
- 14) "Chemical Oxygen Demand," Method 8000, Hach Handbook of Water Analyses, 1979, Hach Chemical Company.
- 15) 40 CFR Part 136.5

### 3. Organization Chart





#### **4. Relationship Between Management, Technical Operations, Support Services and the Quality System**

- A. The lab director has the overall responsibility for the technical operation of the lab. The lab director is also responsible for arranging and overseeing all support services including instrument service contracts, subcontracting sample analysis and physical maintenance of the laboratory.
- B. The lab manager is responsible for providing supervision to all laboratory personnel to ensure adherence to documented laboratory procedures. When the lab manager is not present in the lab, one operator from each area is appointed that is familiar with the calibration and test procedures, the objective of the calibration or test and the assessment of test results. The lab manager reports directly to the lab director.
- C. The lab manager shall certify that personnel with the appropriate educational and/or technical background perform all tests for which the lab is accredited. Documentation includes college transcripts, past work experience, and on-site and off-site training certificates.
- D. The quality assurance officer shall ensure that the lab's policies and objectives for quality of testing services are documented in the Quality Manual. The QA officer shall also ensure that the Quality Manual is communicated to, understood and implemented by all personnel concerned. Documentation includes signed statements in each analyst's training file.
- E. The quality assurance officer is responsible for the quality system and its implementation. The QA officer has direct access to the highest level of management at which decisions are taken on lab policy and/or resources, and to the lab director. When the QA officer is not present, a deputy shall be appointed.

#### **5. Job Descriptions of Staff**

Laboratory / Technical Director – Responsible for the overall technical operation of the laboratory. The lab director is also in charge of overseeing all support services, physical maintenance of the building and interacting with all regulatory agencies.

Laboratory Manager – Responsible for providing supervision to all laboratory personnel to ensure adherence to documented policies and procedures. The lab manager is also in charge of hiring laboratory technicians and certifying that all personnel performing accredited tests have the appropriate educational and/or technical background.

Quality Assurance Officer – Responsible for the laboratory's quality system and its implementation. This includes, but is not limited to, the writing and revising of Standard Operating Procedures (SOPs), semi-annual internal audits, annual quality review meeting with management and preparation of laboratory control charts.

Environmental Project Coordinator (EPC) – Responsible for acting as a liaison between laboratory and clients. Duties include, but are not limited to, organizing sampling schedules and sample pick-up, writing work orders, writing price quotations, using data request forms to retrieve test results from the laboratory and verifying test results.

Administrative Project Coordinator (APC) – Responsible for compiling result data into final reports for clients, invoicing for projects completed, first draft reviews and secretarial work.

Laboratory Technician – Responsible for performing day to day tests on samples in accordance with the laboratory's quality system and method SOPs.

Sample Custodian – Responsible for properly accepting samples, assigning each sample a unique ULI sample number, storing samples in a secure walk-in cooler under conditions that ensure regulatory compliance, logging samples into the LIMS according to the chain of custody, and disposing of samples in an environmentally sound manner.

## 6. Deputy List

In the absence of key personnel, the following substitutions will occur:

Laboratory Manager – Dave Lennon

Deputy replacement – Anthony J. Scala (Laboratory Director)

Laboratory Director – Anthony J. Scala

Deputy replacement (Laboratory) – Dave Lennon

Deputy replacement (Administrative) – Carole Scala

Deputy replacement (Marketing) – Pete Rundell

Quality Assurance/Quality Control Officer – Krysta Northrup, Shane Quinn

Environmental Project Coordinator Manager – Pete Fricano

Deputy Replacement – Anthony Scala (Laboratory Director)

Sample Custodian – Kristina Crump

Office Manager – Carole Scala

Deputy replacement – April Brown (Environmental Project Coordinator)

Accounting Manager / Human Resource Manager – Mary Siver

Deputy replacement – Krysta Northrup

IT Director – David Saint Amour

Deputy replacement - Vendor

Maintenance Engineer – Jeff Ziegler

## 7. Document Control

All operating procedures, manuals (including this quality manual), and documents are subject to document control. Distribution of controlled documents is limited to those indicated on the document distribution list. Controlled documents are indicated by the paper color located in the footer of each page. Uncontrolled copies are indicated by reproduction on any other type paper. The Quality Assurance Officer controls the supply of paper used to produce controlled copies.

The purpose of the document control system is to ensure that only the most recent revisions are available to the appropriate personnel, revisions are made on a timely basis, and revisions receive the required approvals. All internal regulatory documentation, standard operating procedures, work instructions, service manuals and product instructions are under document control. The QA Officer is responsible for the document control system and keeps a master list of the current revision and location of all controlled documents in the laboratory. The Laboratory Director and the Quality Assurance Officer approve all newly released documents and revised documents. Any employee can request to change a document or policy. Where necessary, the Quality Assurance Officer may store retained obsolete documents, which may be kept for legal

reasons or knowledge preservation. Each page of documents produced by the laboratory will contain the effective date, revision number, document number and document title.

#### **8. Traceability of Measurements**

Verification and/or validation of equipment, such as balances, thermometers and spectrophotometers, shall be performed with the National Institute of Standards and Technology (NIST) traceable standards. Calibration certificates must indicate NIST Traceability along with measured results and the associated uncertainty. Reference standards, such as Class S weights and NIST traceable thermometers are used for calibration only and are calibrated by a company that can provide traceability to NIST.

#### **9. Review of All New Work**

All new work is initiated by the Laboratory Director who delegates responsibilities for the new work to his supporting staff members. Affected staff meets prior to initiation of new work in order to determine if the appropriate facilities, manpower and time for analysis are available. The plan for any new projects shall be reviewed and approved by the Laboratory Director before starting such work. For any new testing method, the designated employee shall write a standard operating procedure and demonstrate capability to perform those tests prior to reporting results. The SOP(s) shall be under document control and a Demonstration of Capability Statement(s) must be on file.

#### **10. Calibration/Verification of Test Procedures**

- A. Calibration and/or verification procedures are designed to ensure that the data will be of known quality and be appropriate for a given regulation or decision. Details of instrument calibration and/or test verification procedures including calibration range, standardizations, calculations and acceptance criteria are included or referenced in each test method SOP.
- B. Sufficient raw data are retained to reconstruct the calibration used to calculate the sample results.
- C. All calibrations are verified with a second source standard which is traceable to a national standard, when available.
- D. Calibration standards include a concentration at or below the regulatory/decision level, but above the laboratory's detection limit.
- E. Results of samples must be within the calibration range (bracketed by standards) or the results must be flagged as having less certainty.
- F. No data associated with a calibration that is out-of-control will be reported.
- G. Method Detection Limits (MDL) – the MDL has been determined by the laboratory and documented for each analyte where spiking solutions are available. MDL can be determined by the procedure presented in 40 CFR Part 136, Appendix B. All sample processing steps of the analytical methods are included in the determination of the MDL. The standard deviation of the analysis of seven portions of spiked reagent water is calculated. The spiked reagent water is at an estimated concentration between the actual MDL and 5 times the actual MDL. The MDL is the product of 3.14 times the calculated standard deviation. The MDL should be about one fifth of the practical and routinely achievable detection level that can be reported with relatively good certainty that any reported value is reliable.

## 11. Sample Handling

- A. Sample Acceptance Policy – One full-time sample custodian is responsible for the receipt of all samples collected by the outer offices, field technicians and the clients themselves. All samples are checked to see that they arrive at the proper temperature (1°C to 6°C) or on ice, are accompanied by a complete chain of custody form, are received intact and are sampled in the correct container with the proper volume for the parameter(s) requested. A sample receipt checklist is completed for all projects, and any problems with the samples is documented and brought to the attention of the Environmental Project Coordinator (EPC). The EPC then contacts the client to determine if the samples need to be re-collected or if the laboratory should continue with the analysis. Each sample container is uniquely identified with a durable label. The sample collection policy is available to all sample collectors. Obtaining sample aliquots from a submitted sample as part of the test methods is carried out using procedures as written in each method SOP. Appropriate techniques to obtain representative subsamples are employed and documented in the method SOP.

The samples must be submitted to the laboratory with records of field ID, location, date and time of collection, collector's name, preservation, sample type and remarks. Complete preservation and handling instructions are furnished to the sample collectors.

## Summary of Sampling and Handling Requirements

Analyte	Container	Preservation	Max. Holding Time
<b><u>PUBLIC DRINKING WATER REQUIREMENTS:</u></b>			
<b><u>Inorganic Tests:</u></b>			
Alkalinity	P,G	Headspace free-4°C	14 days
Antimony	P,G	HNO <sub>3</sub> to pH<2	6 mo
Arsenic	P,G	HNO <sub>3</sub> to pH<2	6 mo
Barium	P,G	HNO <sub>3</sub> to pH<2	6 mo
Beryllium	P,G	HNO <sub>3</sub> to pH<2	6 mo
Cadmium	P,G	HNO <sub>3</sub> to pH<2	6 mo
Calcium	P,G	HNO <sub>3</sub> to pH<2	6 mo
Chloride	P,G	None	28 days
Chlorine Residual	P,G	None	Immediately
Chromium	P,G	HNO <sub>3</sub> to pH<2	6 mo
Color	P,G	Cool, 4°C	48 hrs
Conductivity	P,G	Cool, 4°C	28 days
Copper	P,G	HNO <sub>3</sub> to pH<2	6 mo
Cyanide	P,G	Cool, 4°C NaOH To pH>12	14 days
Fluoride	P,G	None	28 days
Lead	P,G	HNO <sub>3</sub> to pH<2	6 mo
Mercury	P,G	HNO <sub>3</sub> to pH<2	28 days
Nickel	P,G	HNO <sub>3</sub> to pH<2	6 mo
Nitrate	P,G	Cool, 4°C	48 hrs
Nitrite	P,G	Cool, 4°C	48 hrs
pH	P,G	None	Immediately
Phosphorus (Ortho)	P,G	Cool, 4°C	48 hrs
Selenium	P,G	HNO <sub>3</sub> to pH<2	6 mo
Silica	P	Cool, 4°C	28 days
Sodium	P,G	HNO <sub>3</sub> to pH<2	6 mo
Silver	P,G	HNO <sub>3</sub> to pH<2	6 mo
Sulfate	P,G	Cool, 4°C	28 days
Thallium	P,G	HNO <sub>3</sub> to pH<2	6 mo
T- Filterable Residue	P,G	Cool, 4°C	7 days
Turbidity	P,G	None	48 hrs
<b><u>Organic Tests:</u></b>			
Trihalomethanes	G, with Teflon Lined Septum	0.008%Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	14 days
Volatile Halocarbons and Aromatics	G, with Teflon Lined Septum	Ascorbic Acid added to empty sample bottle Then add 1:1 HCl to pH<2. Cool 4°C	14 days
Method 525.2	G, free of plastic Tubing, gaskets	Cool, 4°C; Remove Cl residual. Adjust pH<2 with 6N HCl.	Extract within 14 days Analyze within 30 days of sample collection.

Analyte	Container	Preservation	Max. Holding Time
<b><u>ENVIRONMENTAL ANALYSES/WATER REQUIREMENTS:</u></b>			
<b><u>Inorganic Tests:</u></b>			
Acidity	P,FP,G	Headspace free Cool $\leq 6^{\circ}\text{C}$	14 days
Alkalinity	P,FP,G	Headspace free Cool $\leq 6^{\circ}\text{C}$	14 days
Ammonia	P,FP,G	Cool $\leq 6^{\circ}\text{C}$ $\text{H}_2\text{SO}_4$ to pH<2	28 days
BOD	P,FP,G	Cool $\leq 6^{\circ}\text{C}$	48 hrs
Bromide	P,FP,G	None	28 days
CBOD	P,FP,G	Cool $\leq 6^{\circ}\text{C}$	48 hrs
COD	P,FP,G	Cool $\leq 6^{\circ}\text{C}$ $\text{H}_2\text{SO}_4$ to pH<2	28 days
Chloride	P,FP,G	None	28 days
Chlorine Residual	P,G	None	within 15 min
Color	P,FP,G	Cool $\leq 6^{\circ}\text{C}$	48 hrs
Cyanide (Total & Amenable)	P,FP,G	Cool $\leq 6^{\circ}\text{C}$ NaOH to pH>12, 0.6g ascorbic acid	14 days
Fluoride	P	None	28 days
Hardness	P,FP,G	$\text{HNO}_3$ to pH<2 $\text{H}_2\text{SO}_4$ to pH<2	6 mo
pH	P,FP,G	None	within 15 min
Kjeldahl and Organic Nitrogen	P,FP,G	Cool $\leq 6^{\circ}\text{C}$ $\text{H}_2\text{SO}_4$ to pH<2	28 days
Metals, except Boron, $\text{Cr}^{+6}$ , & Mercury	P,FP,G	$\text{HNO}_3$ to pH<2	6 mo
Boron	P,FP, Quartz	$\text{HNO}_3$ to pH<2	6 mo
$\text{Cr}^{+6}$	P,FP,G	Cool $\leq 6^{\circ}\text{C}$	24 hrs
Mercury	P,FP,G	$\text{HNO}_3$ to pH<2	28 days
Nitrate	P,FP,G	Cool $\leq 6^{\circ}\text{C}$	48 hrs
Nitrite	P,FP,G	Cool $\leq 6^{\circ}\text{C}$	48 hrs
Oil & Grease	G	Cool $\leq 6^{\circ}\text{C}$ HCl or $\text{H}_2\text{SO}_4$ to pH<2	28 days
Organic Carbon	P,FP,G	Cool $\leq 6^{\circ}\text{C}$ , HCl $\text{H}_3\text{PO}_4$ or $\text{H}_2\text{SO}_4$ to pH<2	28 days
Orthophosphate	P,FP,G	Filter immediately Cool $\leq 6^{\circ}\text{C}$	48 hrs
Phenols	G	Cool $\leq 6^{\circ}\text{C}$ $\text{H}_2\text{SO}_4$ to pH<2	28 days
Phosphorus (Total)	P,FP,G	Cool $\leq 6^{\circ}\text{C}$ $\text{H}_2\text{SO}_4$ to pH<2	28 days
Solids, Total	P,FP,G	Cool $\leq 6^{\circ}\text{C}$	7 days
Solids, Filterable	P,FP,G	Cool $\leq 6^{\circ}\text{C}$	7 days
Solids, Nonfilterable	P,FP,G	Cool $\leq 6^{\circ}\text{C}$	7 days

Analyte	Container	Preservation	Max. Holding Time
<b><u>ENVIRONMENTAL ANALYSES/WATER REQUIREMENTS:</u></b>			
<b><u>Inorganic Tests:</u></b>			
Silica	P, Quartz	Cool $\leq 6^{\circ}\text{C}$	28 days
Specific Conductance	P, FP, G	Cool $\leq 6^{\circ}\text{C}$	28 days
Sulfate	P, FP, G	Cool $\leq 6^{\circ}\text{C}$	28 days
Sulfide	P, FP, G	Cool $\leq 6^{\circ}\text{C}$ , add Zinc acetate plus NaOH to pH > 9	7 days
Surfactants (MBAS)	P, FP, G	Cool $\leq 6^{\circ}\text{C}$	48 hrs
Temperature	P, FPG	None	within 15 min
Turbidity	P, FP, G	Cool $\leq 6^{\circ}\text{C}$	48 hrs
<b><u>Organic Tests:</u></b>			
Purgeable Halocarbons	G, Teflon Lined Septum	Cool $\leq 6^{\circ}\text{C}$ Ascorbic Acid for Residual Chlorine	14 days
Purgeable Aromatics	G, Teflon Lined Septum	Cool $\leq 6^{\circ}\text{C}$ , 0.008% $\text{Na}_2\text{S}_2\text{O}_3$ for Residual Chlorine	14 days
Acrolein & Acrylonitrile	G, Teflon Lined Septum	Cool $\leq 6^{\circ}\text{C}$ , 0.008% $\text{Na}_2\text{S}_2\text{O}_3$ for Residual Chlorine	14 days
Phenols	G, Teflon Lined Septum	Cool $\leq 6^{\circ}\text{C}$ , 0.008% $\text{Na}_2\text{S}_2\text{O}_3$ for Residual Chlorine	7 days until extraction, 40 days after extraction
Benzidines	G, Teflon Lined Septum	Cool $\leq 6^{\circ}\text{C}$ , 0.008% $\text{Na}_2\text{S}_2\text{O}_3$ for Residual Chlorine	7 days until extraction 7 days after extraction if stored under inert gas
Nitrosamines	G, Teflon Lined Septum	Cool $\leq 6^{\circ}\text{C}$ , store in dark, 0.008% $\text{Na}_2\text{S}_2\text{O}_3$ for Residual Chlorine For Diphenylnitrosamine add 0.008% $\text{Na}_2\text{S}_2\text{O}_3$ and adjust pH 7-10 with NaOH Within 24 hrs	7 days until extraction 40 days after extraction
Nitroaromatics and Isophorone	G, Teflon Lined Cap	Cool $\leq 6^{\circ}\text{C}$ , 0.008% $\text{Na}_2\text{S}_2\text{O}_3$ for Residual Chlorine, store in dark	7 days until extraction 40 days after extraction
PCB's	G, Teflon Lined cap	Cool $\leq 6^{\circ}\text{C}$	7 days until extraction, 40 days after extraction
Pesticides	G, Teflon Lined cap	Cool $\leq 6^{\circ}\text{C}$ Cool $\leq 6^{\circ}\text{C}$ pH 5-9 0.008% $\text{Na}_2\text{S}_2\text{O}_3$ for Residual Chlorine if Aldrin is to be determined	72 hr 7 days until extraction 40 days after extraction
Polynuclear Aromatic Hydrocarbons	G, Teflon Lined cap	Cool $\leq 6^{\circ}\text{C}$ 0.008% $\text{Na}_2\text{S}_2\text{O}_3$ For Residual Chlorine only, store in dark	7 days until extraction 40 days after extraction

Analyte	Container	Preservation	Max. Holding Time
<b><u>ENVIRONMENTAL ANALYSES/WATER REQUIREMENTS:</u></b>			
<b><u>Organic Tests:</u></b>			
Haloethers	G, Teflon Lined cap	Cool $\leq 6^{\circ}\text{C}$ , 0.008% $\text{Na}_2\text{S}_2\text{O}_3$ for Residual Chlorine	7 days until extraction 40 days after extraction
Chlorinated Hydrocarbons	G, Teflon Lined cap	Cool $\leq 6^{\circ}\text{C}$ , 0.008% $\text{Na}_2\text{S}_2\text{O}_3$ for Residual Chlorine	7 days until extraction 40 days after extraction

- B. Sample Receipt Protocol – Upon receipt, the condition of the samples, including all items specified in the sample acceptance policy, are checked and recorded. Samples with a temperature of  $1^{\circ}\text{C}$  to  $6^{\circ}\text{C}$  are acceptable if  $4^{\circ}\text{C}$  is specified. Samples that have not had time to cool are acceptable if they arrive on ice and cooling has begun. These samples are noted as “recently sampled” on sample receipt checklist and are immediately put on ice or placed in the walk-in cooler. VOC vials are checked for pH immediately upon receipt, instead they are check before analysis. Acid-preserved samples are acceptable if test with pH paper yields a pH of  $<2$ . Base-preserved samples are acceptable if test with pH paper yields a pH of  $>12$ . All samples that are improperly preserved are adjusted to the proper pH with the appropriate preservative and noted on sample receipt checklist. All samples that need preservation adjusting are recorded in the Sample Preservation Log.

Sample records are linked to the sample ID and include all required information specified by the sample acceptance policy. Samples are stored according to conditions specified in each test SOP. The laboratory has documented procedures and appropriate facilities to avoid deterioration, contamination, or damage to samples during storage, handling, preparation and testing. Storage conditions are maintained, monitored, and recorded.

C. Procedures for handling submitted samples

1. Obtaining sample aliquots from a submitted sample as part of the test method is carried out using procedures as written in each method SOP. Appropriate techniques to obtain representative subsamples are employed.
2. Each sample container is uniquely identified using a durable label. For this laboratory, the day of the year, the last two digits of the year, and the sample ID number (also written on the Chain of Custody) is used to identify all samples submitted.
3. The sample acceptance policy is documented and available to the sample collectors. If any samples do not meet any of the requirements of the acceptance policy, the data is flagged in a clear manner, which defines the nature of the problem.
4. The sample receipt protocol is documented. The condition of the sample, including any abnormalities or departures from standard condition as described in the relevant test method is recorded.
5. Receipt of all samples is recorded on the accompanying Chain of Custody form. This form contains the project name, date and time of collection and laboratory receipt, client ID, laboratory ID, and sample custodians' signatures.



6. Sample records, which are also available and linked to the sample ID, include all required information specified by the sample acceptance policy. These records are kept in the project draft folder with the Chain of Custody.
7. Samples are stored according to conditions specified in each test SOP. The laboratory has documented procedures and appropriate facilities to avoid deterioration, contamination or damage to samples during storage, handling, preparation and testing. Storage conditions are maintained, monitored and recorded where necessary.

## **12. Laboratory Environment**

- A. Calibration and testing occur only within the laboratory, designed, built and maintained as laboratory space. The laboratory space is maintained by the operations staff to the specifications required for laboratory space. Electronic balances are located away from drafts and doorways. In the bacteriological division of the laboratory, the biological sterility is measured using air density plates and recorded when necessary according to the bacteriological test method SOPs. Biological work areas are sterilized between uses. Neighboring test areas of incompatible activities are effectively separated. Specific work areas are defined and access to these areas is controlled. (Only authorized laboratory personnel and escorted signed-in visitors may enter the work area.) Smoking is prohibited throughout the entire building. Work areas include: entries to the laboratory, sample custody area, sample storage area, laboratory analysis area, chemical and waste storage area, data handling and storage area.
- B. All equipment and reference materials required for the accredited tests are available in the laboratory. Records are maintained for all equipment, reference measurement materials, and services used by the laboratory.
- C. Reference materials traceable to national standards of measurement or to national standard reference materials are stored away from heavy use areas or major equipment that may affect the proper operation of the materials. Certificates of Traceability are available for the reference thermometer and the Class S weights. The reference materials are used only for calibration to maintain the validity of performance.

## **13. Procedures for Calibration, Verification and Maintenance of Equipment**

- A. Equipment is maintained, inspected and cleaned according to the written Equipment Maintenance Procedures. Any defective item of equipment is clearly marked and taken out of service until it has been shown to perform satisfactorily.
- B. Each item of equipment or reference material is labeled to show its calibration status.
- C. Equipment and reference material records include:
  1. Name of item of equipment or reference material
  2. Manufacturer, identification, serial number
  3. Date received and placed in service
  4. Current location
  5. Condition when received
  6. Copy of manufacturer's instructions or manuals
  7. Dates and results of calibrations/verifications and date of next calibration/verification
  8. Details of maintenance carried out to date and planned for the future
  9. History of any damage, malfunction, modification or repair
- D. Service of equipment is performed by qualified service organizations. All records and certificates from service calls are retained.

- E. Support equipment is calibrated/verified annually using NIST traceable references over the range of use. Balances, ovens, refrigerators, freezers, incubators, and water baths are checked with NIST traceable references (where possible) daily and recorded. Mechanical volumetric dispensing devices are checked for accuracy quarterly and recorded. Autoclave cycles of chemical tests (digestions) are recorded by use of chemical indicators or temperature recorder and pressure gauge. The sterilization temperature, cycle time, and pressure of each autoclave run for biological tests are recorded by use of appropriate chemical or biological sterilization indicators.

#### **14. Proficiency Testing Participation and Use of Reference Materials**

- A. The laboratory participates in the in the proficiency testing programs operated by the New York State Environmental Laboratory Approval Program, the National Institute for Occupational Safety and Health, the US Environmental Protection Agency, and private vendors. The results are used to evaluate the ability of the laboratory to produce accurate data. All proficiency test results and raw data are retained at the laboratory.
- B. The laboratory purchases external reference samples. All reference samples are certified. The laboratory retains the manufacturer's Certificate of Analysis.

#### **15. Internal Quality Control Procedures**

The data acquired from quality control (QC) procedures are used to estimate the quality of analytical data, to determine the need for corrective action, and to interpret results after corrective actions are implemented. QC procedures and QC limits are clearly defined in each method SOP. QC limits are generated when no method limits exist. The QC limits for laboratory control samples (LCS) and matrix spikes (MS) are based on the historical mean recovery plus or minus three standard deviation units. Duplicate limits for precision range from zero to 3.27 times the mean of the historical differences or relative percent differences.

All quality control measures are assessed and evaluated on a continuous basis. The laboratory presents summaries of LCS and MS recoveries on control charts to monitor laboratory quality and map trends in results.

Method blanks are performed at a frequency of one per batch of twenty or fewer samples. The results are used to determine batch acceptance. When blanks exceed the method criteria, steps are taken to determine the source of contamination, and measures are made to minimize or eliminate the problem.

Laboratory control samples (LCS) are performed at a frequency of one per batch of twenty samples or less. Fewer are analyzed for certain parameters such as BOD and TKN. The results are used to determine batch acceptance.

Matrix spikes are performed at a frequency of one per twenty samples, or whenever they are requested by the client. The results are used to identify matrix interferences in the spike sample. Matrix interference is indicated when the LCS data is within limits, but the matrix spike data exceed QC criteria.

Laboratory duplicates and matrix spike duplicates (MSD) are performed at a frequency of one per twenty samples or less. MSDs are run for organic parameters. Both are a

measure of precision. If a duplicate result falls outside QC limits, the original sample and the duplicate sample is regarded as unreliable.

#### **16. Testing Discrepancies**

Specific corrective action procedures for handling QC limit exceedances are detailed in each method SOP. In addition, general procedures are followed to determine when departures from quality control have occurred. Protocol for documentation of such deviations is determined by the Corrective Action Procedure. Due to sample scheduling times and sample holding times, it is not always possible to repeat the analysis if all quality control measures are not found to be acceptable. Therefore, when data must be reported, the laboratory uses data qualifiers on the final report to notify clients when their samples are associated with outlying QC measures.

#### **17. Corrective Action Procedure**

Corrective action is the process of identifying, recommending, approving and implementing measures to counter unacceptable departures from policies and procedures or out of control QC performance which can affect data quality.

Each method SOP details QC acceptance criteria and specific protocols for corrective actions. Any QC measure that falls outside of acceptable limits needs a corrective action. This corrective action may be performed by the laboratory technician (as defined in the method SOP), and/or by the QA Officer. All discrepancies will be identified and the associated sample data will be flagged. The QA Officer will conduct an investigation into the cause of the discrepancy, and will help to implement the corrective action. Each corrective action will be documented in a log, and each log entry must be reviewed, signed and dated by the QA Officer. Corrective actions should be performed prior to the reporting of the affected data. However, in cases where the discrepancy is discovered after the results are released, an amended report may be sent to the client with the reanalysis results (if applicable).

#### **18. Permitted Departures from Standard Specifications or Documented Policies and Procedures**

The laboratory manager has responsibility for ensuring the lab's policies and procedures are adhered to. Arrangements for known and controlled departures from documented policies and procedures are allowed. Planned departures do not require audits; however, the departure must be fully documented and include the reason for the departure, the affected SOP(s), the intended results of the departure and the actual results. If the data reported to the client is affected adversely, it will be noted in writing. The procedures used to document any specific departure are the same as the corrective action procedure.

#### **19. Preventive Action**

Preventive action is the pro-active process to identify opportunities for improvement rather than a reaction to the identification of problems or complaints.

All employees have the authority to recommend preventive action. Recommendations are made to QAO. If warranted, the QAO develops an action pplan to develop, implement and monitor the action. The preventive action is audited under the direction of the QAO.

#### **20. Complaints**

All complaints about the laboratory's activities received from clients or other parties will be documented in a complaint file (contained in the Corrective Action Log) maintained

by the laboratory. The file will contain the date and person filing the complaint, a description of the complaint, source of the complaint, the resolution, and any written material accompanying the complaint.

The QA Officer is responsible for investigating all complaints by conducting an internal audit. All areas of the laboratory that are associated with the complaint are checked, and the written results of the investigation including actions taken by the laboratory are reviewed by the Laboratory Director and Laboratory Manager. The results of the investigation are signed and dated by the QA Officer.

## **21. Internal Audit and Data Review**

- A. Data Review – All data, including original observations, calculations, derived data, calibration records, QC records and a copy of the test report are kept for five years (ten years for drinking water) to allow historical reconstruction of the final result. All original observations and calculations are reviewed by the second analyst, Environmental Project Coordinator or QA Officer before the data are reported. The data is reviewed to ensure that all calculations are correct and to detect transcription errors. The second analyst (laboratory section supervisor or laboratory manager) must sign and date all reviewed data packages. The QA Officer evaluates the sample results and QC data for approximately 15 to 20% of the results that are reported due the large volume of samples this laboratory handles. Errors detected in the review process are referred to the analyst for corrective action. The QA Officer documents all corrective actions taken.
- B. Internal Quality System Audits – The QA Officer will conduct annual internal audits on the laboratory's quality system. The QA Officer, who is independent of the activities being audited, will carry out these audits. The QA Officer will use the requirements of the ELAP manual as a guideline to evaluate the laboratory procedures and SOPs. All audit results will be documented, along with any corrective actions. The Laboratory Manager will ensure that all corrective actions are implemented immediately.
- C. Managerial Review – The Laboratory Director and Laboratory Manager shall review the laboratory quality system and its testing and calibration activities annually to introduce any changes or improvements. The review will incorporate outcomes of recent internal audits, assessments by external bodies (NYSDOH, USEPA, NYSDCE), the results of proficiency tests, any changes in the volume or type of work performed, client feedback and corrective actions.

## **22. Training and Review of Personnel Qualifications**

Laboratory management reviews an applicant's level of qualification, experience and skills against the laboratory's job description requirements before assigning an employee to the laboratory. Each analyst must possess adequate experience and education in the appropriate field. Most laboratory technicians possess a minimum of a two-year degree in chemistry or a related field, with some general knowledge of laboratory operations, test methods, QC procedures and records management. The QA Officer and HR will keep the following personnel records:

The QC Department will maintain a training file which contains:

- 1. A Demonstration of Capability (DOC) for each employee for each accredited method that they perform.
- 2. Documentation of any training courses, seminars and/or workshops.

3. Documentation of each employee's continued proficiency to perform each test method by one of the following annually:
  - i. acceptable performance of a blind sample for each accredited method;
  - ii. another Demonstration of Capability;
  - iii. at least four consecutive Laboratory Control Samples with acceptable levels of precision and accuracy.
  - iv. if i-iii cannot be performed, analysis of authentic samples that have been analyzed by another trained analyst with statistically precise results.

Demonstration of Capability (DOC) – A DOC must be performed prior to using any test method, and any time there is a change in instrument type. The procedure will follow ELAP Certification Manual Item 233, and the DOC Certificate included in this procedure is completed for each analyst for each test method.

The HR Department will maintain a training file which contains

- 1) A statement from each employee that they have read and understood, the latest version of the Quality Manual. The statement will be signed and dated.
- 2) A statement from each employee that they have read, acknowledged and understood their personal ethical and legal responsibilities including the potential punishments and penalties for improper, unethical or illegal actions. The statement will be signed and dated.

### **23. Education and Training in Ethical and Legal Responsibilities Including the Potential Punishments and Penalties for Improper, Unethical or Illegal Actions**

All new employees that will be performing laboratory testing shall be given training from the QA Officer within the first two weeks of employment. A copy of the laboratory's Code of Ethical Conduct will be given to each employee (see Appendix B for the Code of Ethics). A record of training will be signed, indicating the employee read and understood the material presented to them. These signed records will be kept in the employee's training file.

### **24. Data Integrity**

Data Integrity/Ethics training shall occur for each employee required to perform laboratory testing either at the initial hiring orientation or within two weeks after assignment to laboratory functions. Annual training is also required for all employees. Training may be conducted in-house or externally. A record of training and a signed attestation by the trained employee shall be placed in the employee's training file. Topics covered are documented in writing and provided to all trainees. Key topics covered are the organizational mission and its relationship to the critical need for honesty and full disclosure in all analytical reporting, how and when to report data integrity issues and record keeping. Training includes discussion regarding all data integrity procedures, data integrity training documentation, in-depth data monitoring and data integrity procedure documentation.

Trainees are required to understand that any infractions of the laboratory data integrity procedures will result in a detailed investigation that could lead to very serious consequences including immediate termination, or civil/criminal prosecution.

## 25. Reporting Analytical Results

The results of each test carried out by the laboratory will be reported to the client and/or regulatory agency in an accurate, clear and unambiguous manner. Administrative Project Coordinators are responsible for compiling sample results into reports for review by client and/or validators.

Each test report shall include at least the following information, unless the laboratory has reasons for not doing so as indicated by section 3.10.1 a and b of the ELAP Certification Manual:

- a) Title;
- b) Name and address of laboratory, and location where the test was carried out if different from the address of the laboratory and phone number with name of contact person for questions;
- c) Unique identification of report and each page, including the total number of pages;
- d) Name and address of client, where appropriate and project name, if applicable description and unambiguous identification of the tested sample including the client identification code;
- e) Identification of results derived from any sample that did not meet sample acceptance requirements, such as, improper container, holding time, or temperature;
- f) Date of receipt of sample, date and time of sample collection, date(s) of performance test, and time of sample preparation and/or analysis if the required holding time for either activity is less than or equal to 72 hours.
- g) Identification of test method used, or unambiguous description of any non-standard method used;
- h) If the laboratory collected the sample, reference to the sampling procedure;
- i) Any deviations from (such as failed QC), additions to or exclusions from the test method (such as environmental conditions), and any non-standard conditions that may have affected the quality of the results, including the use and definitions of data qualifiers;
- j) Measurements, examinations and derived results, supported by tables, graphs, sketches and photographs as appropriate, and any failures identified; reporting units on a wet or dry basis;
- k) When required a statement of the estimated uncertainty of the result (radiochemistry);
- l) A signature and title, or an equivalent electronic identification of the person(s) accepting responsibility for the content of the report, and date of issue;
- m) Clear indication of data provided by outside sources, such as subcontracted laboratories, clients etc; and,
- n) Clear identification of numerical results with values outside of quantitation limits.

Subcontracted laboratories are identified by name and/or accreditation number on the report.

If errors are detected in the report, a subsequent revised report will be issued. The updated report will be titled "A Revised Report."

If the laboratory discovers equipment used to derive results in any report casts doubt on the validity of the result it shall notify the client(s) in writing.

The test results could be expressed in terms of measurement uncertainty, if requested. To take into account all components of variability, the standard deviation (SD) from the LCS control chart will be used. To express a result for a 95% confidence interval, use two

times the SD, for a 99% confidence interval, use three times the SD. The confidence interval for suspended solids will be taken from the duplicate control chart, the working (95%) or upper (99%) control limit. The sample result could be reported: result  $\pm 2 \times$  SD (95% confidence interval)

The laboratory shall, where clients require transmission of test results by telephone, telex, facsimile or other electronic or electromagnetic means, follow documented procedures that ensure that the above requirements are met and that confidentiality is preserved.

All employees are informed that all knowledge of client results and private information is the sole property of ULI and its client. No information can be shared without prior written approval by ULI and/or the client.

**26. Confidentiality and Proprietary Rights**

Reports of laboratory analysis will only be released to the named contact person on the sample submittal form or job contract. Proprietary information, if provided by the client, will be protected as Confidential Business Information in accordance with Title 40, Code of Federal Regulations, Part 2, Subpart B.

Government laboratory information is subject to the Freedom of Information Law. Requests for such information are directed to the Municipal Attorney for processing.

**27. Controlled Document Retention**

Controlled documents will be stored for 10 years if they pertain to drinking water and 5 years for all other documents. In the event that the business ownership is transferred, the new owners will be given the opportunity to keep the records. In the event the business is closed, clients will be given 30 days to pick-up their records.

NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER  
RICHARD F. DAINES, M.D.



Expires 12:01 AM April 01, 2010  
Issued April 01, 2009  
Revised December 11, 2009

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

MR. ANTHONY J. SCALA  
UPSTATE LABORATORIES INC  
6034 CORPORATE DRIVE  
EAST SYRACUSE, NY 13057

NY Lab Id No: 10170  
EPA Lab Code: NY00054

*is hereby APPROVED as an Environmental Laboratory in conformance with the  
National Environmental Laboratory Accreditation Conference Standards for the category  
ENVIRONMENTAL ANALYSES POTABLE WATER  
All approved analytes are listed below:*

**Drinking Water Metals I**

Arsenic, Total	EPA 200.7 Rev. 4.4
Barium, Total	EPA 200.7 Rev. 4.4
Cadmium, Total	EPA 200.7 Rev. 4.4
Chromium, Total	EPA 200.7 Rev. 4.4
Copper, Total	EPA 200.7 Rev. 4.4
Iron, Total	EPA 200.7 Rev. 4.4
Manganese, Total	EPA 200.7 Rev. 4.4
Mercury, Total	EPA 245.2 Rev. 1974
Selenium, Total	EPA 200.9 Rev. 2.2
Silver, Total	EPA 200.7 Rev. 4.4
Zinc, Total	EPA 200.7 Rev. 4.4

**Drinking Water Metals II**

Aluminum, Total	EPA 200.7 Rev. 4.4
Beryllium, Total	EPA 200.7 Rev. 4.4
Nickel, Total	EPA 200.7 Rev. 4.4
Vanadium, Total	EPA 200.7 Rev. 4.4

**Drinking Water Metals III**

Boron, Total	EPA 200.7 Rev. 4.4
Calcium, Total	EPA 200.7 Rev. 4.4
Magnesium, Total	EPA 200.7 Rev. 4.4
Potassium, Total	EPA 200.7 Rev. 4.4
Sodium, Total	EPA 200.7 Rev. 4.4

**Drinking Water Miscellaneous**

Odor	EPA 140.1 SM 18-20 2150B (97)
Organic Carbon, Total	EPA 415.2

**Drinking Water Miscellaneous**

Organic Carbon, Total	SM 18-21 5310B (00)
	SM 18-21 5310C (00)
Surfactant (MBAS)	SM 18-21 5540C (00)
Temperature	SM 18-21 2550B (00)

**Drinking Water Non-Metals**

Alkalinity	EPA 310.2
Calcium Hardness	EPA 200.7 Rev. 4.4
Chloride	EPA 325.2
	SM 18-20 4500-Cl- C
Color	SM 18-21 2120B (01)
Corrosivity	SM 18-19 2330
Cyanide, Total	EPA 335.4 Rev. 1.0
Hydrogen Ion (pH)	SM 18-21 4500-H B (00)
Nitrate (as N)	EPA 353.2 Rev. 2.0
	LACHAT 10-107-04-1-C
	SM 18-21 4500-NO3 F (00)
Orthophosphate (as P)	EPA 365.1 Rev. 2.0
	SM 18-21 4500-P E
Solids, Total Dissolved	SM 18-21 2540C (97)
Specific Conductance	EPA 120.1 Rev. 1982
Sulfate (as SO4)	ASTM D516-90, 02 & 07
	SM 18-21 4500-SO4 E (97)

**Drinking Water Trihalomethanes**

Bromodichloromethane	EPA 502.2
	EPA 524.2
Bromoform	EPA 502.2
	EPA 524.2

Serial No.: 40839

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NELAP Recognized



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**Drinking Water Trihalomethanes**

Chloroform	EPA 502.2
Dibromochloromethane	EPA 502.2
	EPA 524.2
Total Trihalomethanes	EPA 502.2

**Fuel Additives**

Methyl tert-butyl ether	EPA 502.2/ SEE ITEM 198.5
	EPA 524.2

**Volatile Aromatics**

1,2,3-Trichlorobenzene	EPA 502.2
	EPA 524.2
1,2,4-Trichlorobenzene	EPA 502.2
	EPA 524.2
1,2,4-Trimethylbenzene	EPA 502.2
	EPA 524.2
1,2-Dichlorobenzene	EPA 502.2
	EPA 524.2
1,3,5-Trimethylbenzene	EPA 502.2
	EPA 524.2
1,3-Dichlorobenzene	EPA 502.2
	EPA 524.2
1,4-Dichlorobenzene	EPA 502.2
	EPA 524.2
2-Chlorotoluene	EPA 502.2
	EPA 524.2
4-Chlorotoluene	EPA 502.2
	EPA 524.2
Benzene	EPA 502.2

**Volatile Aromatics**

Benzene	EPA 524.2
Bromobenzene	EPA 502.2
	EPA 524.2
Chlorobenzene	EPA 502.2
	EPA 524.2
Ethyl benzene	EPA 502.2
	EPA 524.2
Hexachlorobutadiene	EPA 502.2
	EPA 524.2
Isopropylbenzene	EPA 502.2
	EPA 524.2
n-Butylbenzene	EPA 502.2
	EPA 524.2
n-Propylbenzene	EPA 502.2
	EPA 524.2
p-Isopropyltoluene (P-Cymene)	EPA 502.2
	EPA 524.2
sec-Butylbenzene	EPA 502.2
	EPA 524.2
Styrene	EPA 502.2
	EPA 524.2
tert-Butylbenzene	EPA 502.2
	EPA 524.2
Toluene	EPA 502.2
	EPA 524.2
Total Xylenes	EPA 502.2
	EPA 524.2

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**Volatile Halocarbons**

1,1,1,2-Tetrachloroethane	EPA 502.2
	EPA 524.2
1,1,1-Trichloroethane	EPA 502.2
	EPA 524.2
1,1,2,2-Tetrachloroethane	EPA 502.2
	EPA 524.2
1,1,2-Trichloroethane	EPA 502.2
	EPA 524.2
1,1-Dichloroethane	EPA 502.2
	EPA 524.2
1,1-Dichloroethene	EPA 502.2
	EPA 524.2
1,1-Dichloropropene	EPA 502.2
	EPA 524.2
1,2,3-Trichloropropane	EPA 502.2
	EPA 524.2
1,2-Dichloroethane	EPA 502.2
	EPA 524.2
1,2-Dichloropropane	EPA 502.2
1,3-Dichloropropane	EPA 502.2
	EPA 524.2
2,2-Dichloropropane	EPA 502.2
	EPA 524.2
Bromochloromethane	EPA 502.2
	EPA 524.2
Bromomethane	EPA 502.2
	EPA 524.2
Carbon tetrachloride	EPA 502.2

**Volatile Halocarbons**

Carbon tetrachloride	EPA 524.2
Chloroethane	EPA 502.2
	EPA 524.2
Chloromethane	EPA 502.2
	EPA 524.2
cis-1,2-Dichloroethene	EPA 502.2
	EPA 524.2
cis-1,3-Dichloropropene	EPA 502.2
	EPA 524.2
Dibromomethane	EPA 502.2
	EPA 524.2
Dichlorodifluoromethane	EPA 502.2
	EPA 524.2
Methylene chloride	EPA 524.2
Tetrachloroethene	EPA 502.2
	EPA 524.2
trans-1,2-Dichloroethene	EPA 502.2
	EPA 524.2
trans-1,3-Dichloropropene	EPA 502.2
	EPA 524.2
Trichloroethene	EPA 502.2
	EPA 524.2
Trichlorofluoromethane	EPA 502.2
	EPA 524.2
Vinyl chloride	EPA 502.2

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*All approved subcategories and/or analytes are listed below:*

**Disinfection By-products**

Bromide EPA 300.0 Rev. 2.1

**Drinking Water Metals I**

Arsenic, Total EPA 200.8 Rev. 5.4  
Barium, Total EPA 200.8 Rev. 5.4  
Cadmium, Total EPA 200.8 Rev. 5.4  
Chromium, Total EPA 200.8 Rev. 5.4  
Copper, Total EPA 200.8 Rev. 5.4  
Lead, Total EPA 200.7 Rev. 4.4  
EPA 200.8 Rev. 5.4  
Manganese, Total EPA 200.8 Rev. 5.4  
Selenium, Total EPA 200.8 Rev. 5.4  
Silver, Total EPA 200.8 Rev. 5.4  
Zinc, Total EPA 200.8 Rev. 5.4

**Drinking Water Metals II**

Aluminum, Total EPA 200.8 Rev. 5.4  
Antimony, Total EPA 200.8 Rev. 5.4  
Beryllium, Total EPA 200.8 Rev. 5.4  
Nickel, Total EPA 200.8 Rev. 5.4  
Thallium, Total EPA 200.8 Rev. 5.4  
Vanadium, Total EPA 200.8 Rev. 5.4

**Drinking Water Non-Metals**

Chloride LACHAT 10-117-07-1

**Serial No.: 40840**

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NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER  
RICHARD F. DAINES, M.D.



Expires 12:01 AM April 01, 2010  
Issued April 01, 2009  
Revised December 11, 2009

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

MR. ANTHONY J. SCALA  
UPSTATE LABORATORIES INC  
6034 CORPORATE DRIVE  
EAST SYRACUSE, NY 13057

NY Lab Id No: 10170  
EPA Lab Code: NY00054

*is hereby APPROVED as an Environmental Laboratory for the category  
ENVIRONMENTAL ANALYSES NON POTABLE WATER  
All approved subcategories and/or analytes are listed below:*

**Wastewater Metals I**

Barium, Total	EPA 200.8 Rev. 5.4 EPA 6020
Cadmium, Total	EPA 200.8 Rev. 5.4 EPA 6020
Chromium, Total	EPA 200.8 Rev. 5.4 EPA 6020
Copper, Total	EPA 200.8 Rev. 5.4 EPA 6020
Lead, Total	EPA 200.8 Rev. 5.4 EPA 6020
Manganese, Total	EPA 200.8 Rev. 5.4 EPA 6020
Nickel, Total	EPA 200.8 Rev. 5.4 EPA 6020
Silver, Total	EPA 200.8 Rev. 5.4 EPA 6020

**Wastewater Metals II**

Aluminum, Total	EPA 200.8 Rev. 5.4 EPA 6020
Antimony, Total	EPA 200.8 Rev. 5.4 EPA 6020
Arsenic, Total	EPA 200.8 Rev. 5.4 EPA 6020
Beryllium, Total	EPA 200.8 Rev. 5.4 EPA 6020
Selenium, Total	EPA 200.8 Rev. 5.4 EPA 6020
Vanadium, Total	EPA 200.8 Rev. 5.4

**Wastewater Metals II**

Vanadium, Total	EPA 6020
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**Wastewater Metals III**

Cobalt, Total	EPA 200.8 Rev. 5.4 EPA 6020
Thallium, Total	EPA 200.8 Rev. 5.4 EPA 6020

Serial No.: 40841

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NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER  
RICHARD F. DAINES, M.D.



Expires 12:01 AM April 01, 2010  
Issued April 01, 2009  
Revised October 20, 2009

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UPSTATE LABORATORIES INC  
6034 CORPORATE DRIVE  
EAST SYRACUSE, NY 13057

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**Acrylates**

Acrolein (Propenal)	EPA 624
	EPA 8260B
Acrylonitrile	EPA 624
	EPA 8260B
Methyl acrylonitrile	EPA 8260B
Methyl methacrylate	EPA 8260B

**Amines**

1-Naphthylamine	EPA 8270C
2-Nitroaniline	EPA 8270C
3-Nitroaniline	EPA 8270C
4-Chloroaniline	EPA 8270C
4-Nitroaniline	EPA 8270C
5-Nitro-o-toluidine	EPA 8270C
Carbazole	EPA 8270C
Diphenylamine	EPA 8270C
Methapyrilene	EPA 8270C
Pronamide	EPA 8270C
Propionitrile	EPA 8260B
Pyridine	EPA 625
	EPA 8260B
	EPA 8270C

**Benzidines**

3,3'-Dichlorobenzidine	EPA 625
	EPA 8270C
3,3'-Dimethylbenzidine	EPA 8270C
Benzidine	EPA 625
	EPA 8270C

**Chlorinated Hydrocarbon Pesticides**

4,4'-DDD	EPA 608
	EPA 8081A
4,4'-DDE	EPA 608
	EPA 8081A
4,4'-DDT	EPA 608
	EPA 8081A
Aldrin	EPA 608
	EPA 8081A
alpha-BHC	EPA 608
	EPA 8081A
alpha-Chlordane	EPA 8081A
beta-BHC	EPA 608
	EPA 8081A
Chlordane Total	EPA 608
	EPA 8081A
Chlorobenzilate	EPA 8270C
delta-BHC	EPA 608
	EPA 8081A
Diallate	EPA 8270C
Dieldrin	EPA 608
	EPA 8081A
Endosulfan I	EPA 608
	EPA 8081A
Endosulfan II	EPA 608
	EPA 8081A
Endosulfan sulfate	EPA 608
	EPA 8081A
Endrin	EPA 608

Serial No.: 40626

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NELAP Recognized

NEW YORK STATE DEPARTMENT OF HEALTH  
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RICHARD F. DAINES, M.D.



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**Chlorinated Hydrocarbon Pesticides**

Endrin	EPA 8081A
Endrin Ketone	EPA 8081A
gamma-Chlordane	EPA 8081A
Heptachlor	EPA 608
	EPA 8081A
Heptachlor epoxide	EPA 608
	EPA 8081A
Isodrin	EPA 8270C
Kepone	EPA 8270C
Lindane	EPA 608
	EPA 8081A
Methoxychlor	EPA 608
	EPA 8081A
PCNB	EPA 8270C
Toxaphene	EPA 608
	EPA 8081A

**Chlorinated Hydrocarbons**

1,2,3-Trichlorobenzene	EPA 8260B
1,2,4,5-Tetrachlorobenzene	EPA 8270C
1,2,4-Trichlorobenzene	EPA 625
	EPA 8260B
	EPA 8270C
2-Chloronaphthalene	EPA 625
	EPA 8270C
Hexachlorobenzene	EPA 625
	EPA 8270C
Hexachlorobutadiene	EPA 625
	EPA 8270C

**Chlorinated Hydrocarbons**

Hexachlorocyclopentadiene	EPA 625
	EPA 8270C
Hexachloroethane	EPA 625
	EPA 8270C
Hexachloropropene	EPA 8270C
Pentachlorobenzene	EPA 8270C

**Chlorophenoxy Acid Pesticides**

2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dicamba	EPA 8151A

**Demand**

Biochemical Oxygen Demand	SM 18-20 5210B (01)
Carbonaceous BOD	SM 18-20 5210B (01)
Chemical Oxygen Demand	EPA 410.4 Rev. 2.0

**Fuel Oxygenates**

Methyl tert-butyl ether	EPA 8021B
	EPA 8260B

**Haloethers**

4-Bromophenylphenyl ether	EPA 625
	EPA 8270C
4-Chlorophenylphenyl ether	EPA 625
	EPA 8270C
Bis (2-chloroisopropyl) ether	EPA 625
	EPA 8270C
Bis(2-chloroethoxy)methane	EPA 625

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ENVIRONMENTAL ANALYSES NON POTABLE WATER  
All approved analytes are listed below:*

**Haloethers**

Bis(2-chloroethoxy)methane	EPA 8270C
Bis(2-chloroethyl)ether	EPA 625
	EPA 8270C

**Mineral**

Acidity	SM 18-20 2310B.4a (97)
Alkalinity	EPA 310.2
	SM 18-21 2320B (97)
Calcium Hardness	EPA 200.7 Rev. 4.4
Chloride	SM 18-20 4500-Cl- C
	SM 18-20 4500-Cl- E (97)
Fluoride, Total	SM 18-21 4500-F C (97)
Hardness, Total	EPA 200.7 Rev. 4.4

**Nitroaromatics and Isophorone**

1,3,5-Trinitrobenzene	EPA 8270C
1,3-Dinitrobenzene	EPA 8270C
1,4-Naphthoquinone	EPA 8270C
2,4-Dinitrotoluene	EPA 625
	EPA 8270C
2,6-Dinitrotoluene	EPA 625
	EPA 8270C
Isophorone	EPA 625
	EPA 8270C
Nitrobenzene	EPA 625
	EPA 8270C

**Nitrosoamines**

N-Nitrosodiethylamine	EPA 8270C
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**Nitrosoamines**

N-Nitrosodimethylamine	EPA 625
	EPA 8270C
N-Nitrosodi-n-butylamine	EPA 8270C
N-Nitrosodi-n-propylamine	EPA 625
	EPA 8270C
N-Nitrosodiphenylamine	EPA 625
	EPA 8270C
N-nitrosopiperidine	EPA 8270C
N-Nitrosopyrrolidine	EPA 8270C

**Nutrient**

Ammonia (as N)	EPA 350.1 Rev. 2.0
	LACHAT 10-107-06-1-B
	SM 18 4500-NH3 E
Kjeldahl Nitrogen, Total	EPA 351.2 Rev. 2.0
	LACHAT 10-107-06-2
Nitrate (as N)	LACHAT 10-107-04-1-C
	SM 18-20 4500-NO3 H (00)
Nitrite (as N)	EPA 353.2 Rev. 2.0
	EPA 354.1
	SM 18-21 4500-MQ2 B (00)
Orthophosphate (as P)	EPA 365.1 Rev. 2.0
	SM 18-21 4500-P E
Phosphorus, Total	EPA 365.1 Rev. 2.0
	SM 18-21 4500-P E

**Organophosphate Pesticides**

Atrazine	EPA 8141A
	EPA 8270C

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NEW YORK STATE DEPARTMENT OF HEALTH  
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**Organophosphate Pesticides**

Disulfoton	EPA 8270C
Famphur	EPA 8270C
Parathion methyl	EPA 8270C
Phorate	EPA 8270C

**Phthalate Esters**

Benzyl butyl phthalate	EPA 625
	EPA 8270C
Bis(2-ethylhexyl) phthalate	EPA 625
	EPA 8270C
Diethyl phthalate	EPA 625
	EPA 8270C
Di-n-butyl phthalate	EPA 625
	EPA 8270C
Di-n-octyl phthalate	EPA 625
	EPA 8270C

**Polychlorinated Biphenyls**

PCB-1016	EPA 608
	EPA 8082
PCB-1221	EPA 608
	EPA 8082
PCB-1232	EPA 608
	EPA 8082
PCB-1242	EPA 608
	EPA 8082
PCB-1248	EPA 608
	EPA 8082
PCB-1254	EPA 608

**Polychlorinated Biphenyls**

PCB-1254	EPA 8082
PCB-1260	EPA 608
	EPA 8082
PCB-1262	EPA 8082
PCB-1268	EPA 8082

**Polynuclear Aromatics**

3-Methylcholanthrene	EPA 8270C
7,12-Dimethylbenzyl (a) anthracene	EPA 8270C
Acenaphthene	EPA 625
	EPA 8270C
Acenaphthylene	EPA 625
	EPA 8270C
Anthracene	EPA 625
	EPA 8270C
Benzo(a)anthracene	EPA 625
	EPA 8270C
Benzo(a)pyrene	EPA 625
	EPA 8270C
Benzo(b)fluoranthene	EPA 625
	EPA 8270C
Benzo(ghi)perylene	EPA 625
	EPA 8270C
Benzo(k)fluoranthene	EPA 625
	EPA 8270C
Chrysene	EPA 625
	EPA 8270C
Dibenzo(a,h)anthracene	EPA 625
	EPA 8270C

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**Polynuclear Aromatics**

Fluoranthene	EPA 625
	EPA 8270C
Fluorene	EPA 625
	EPA 8270C
Indeno(1,2,3-cd)pyrene	EPA 625
	EPA 8270C
Naphthalene	EPA 625
	EPA 8270C
Phenanthrene	EPA 625
	EPA 8270C
Pyrene	EPA 625
	EPA 8270C

**Priority Pollutant Phenols**

2,3,4,6 Tetrachlorophenol	EPA 8270C
2,4,5-Trichlorophenol	EPA 625
	EPA 8270C
2,4,6-Trichlorophenol	EPA 625
	EPA 8270C
2,4-Dichlorophenol	EPA 625
	EPA 8270C
2,4-Dimethylphenol	EPA 625
	EPA 8270C
2,4-Dinitrophenol	EPA 625
	EPA 8270C
2,6-Dichlorophenol	EPA 8270C
2-Chlorophenol	EPA 625
	EPA 8270C
2-Methyl-4,6-dinitrophenol	EPA 625

**Priority Pollutant Phenols**

2-Methyl-4,6-dinitrophenol	EPA 8270C
2-Methylphenol	EPA 8270C
2-Nitrophenol	EPA 625
	EPA 8270C
3-Methylphenol	EPA 8270C
4-Chloro-3-methylphenol	EPA 625
	EPA 8270C
4-Methylphenol	EPA 8270C
4-Nitrophenol	EPA 625
	EPA 8270C
Cresols, Total	EPA 625
	EPA 8270C
Pentachlorophenol	EPA 625
	EPA 8270C
Phenol	EPA 625
	EPA 8270C

**Purgeable Aromatics**

1,2-Dichlorobenzene	EPA 624
	EPA 8260B
	EPA 8270C
1,3-Dichlorobenzene	EPA 624
	EPA 8260B
	EPA 8270C
1,4-Dichlorobenzene	EPA 624
	EPA 8260B
	EPA 8270C
Benzene	EPA 624
	EPA 8021B

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**Purgeable Aromatics**

Benzene	EPA 8260B
Chlorobenzene	EPA 624
	EPA 8260B
Ethyl benzene	EPA 624
	EPA 8021B
	EPA 8260B
Isopropylbenzene	EPA 8260B
Styrene	EPA 8260B
Toluene	EPA 624
	EPA 8021B
	EPA 8260B
Total Xylenes	EPA 624
	EPA 8021B
	EPA 8260B

**Purgeable Halocarbons**

1,1,1,2-Tetrachloroethane	EPA 8260B
1,1,1-Trichloroethane	EPA 624
	EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 624
	EPA 8260B
1,1,2-Trichloroethane	EPA 624
	EPA 8260B
1,1,2-Trifluoro-1,2,2-Trichloroethane	EPA 8260B
1,1-Dichloroethane	EPA 624
	EPA 8260B
1,1-Dichloroethene	EPA 624
	EPA 8260B
1,2,3-Trichloropropane	EPA 8260B

**Purgeable Halocarbons**

1,2-Dichloroethane	EPA 624
	EPA 8260B
1,2-Dichloropropane	EPA 624
	EPA 8260B
1,3-Dichloropropane	EPA 8260B
2,2-Dichloropropane	EPA 8260B
2-Chloroethylvinyl ether	EPA 624
	EPA 8021B
	EPA 8260B
3-Chloropropene (Allyl chloride)	EPA 8260B
Bromochloromethane	EPA 8260B
Bromodichloromethane	EPA 624
	EPA 8260B
Bromoform	EPA 624
	EPA 8260B
Bromomethane	EPA 624
	EPA 8260B
Carbon tetrachloride	EPA 624
	EPA 8260B
Chloroethane	EPA 624
	EPA 8260B
Chloroform	EPA 624
	EPA 8260B
Chloromethane	EPA 624
	EPA 8260B
cis-1,2-Dichloroethene	EPA 8260B
cis-1,3-Dichloropropene	EPA 624
	EPA 8260B

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**Purgeable Halocarbons**

Dibromochloromethane	EPA 624
	EPA 8260B
Dibromomethane	EPA 8260B
Dichlorodifluoromethane	EPA 624
	EPA 8260B
Methylene chloride	EPA 624
	EPA 8260B
Tetrachloroethene	EPA 624
	EPA 8260B
trans-1,2-Dichloroethene	EPA 624
	EPA 8260B
trans-1,3-Dichloropropene	EPA 624
	EPA 8260B
trans-1,4-Dichloro-2-butene	EPA 8260B
Trichloroethene	EPA 624
	EPA 8260B
Trichlorofluoromethane	EPA 624
	EPA 8260B
Vinyl chloride	EPA 624
	EPA 8260B

**Purgeable Organics**

1,4-Dioxane	EPA 8260B
2-Butanone (Methylethyl ketone)	EPA 8260B
2-Hexanone	EPA 8260B
4-Methyl-2-Pentanone	EPA 8260B
Acetone	EPA 8260B
Acetonitrile	EPA 8260B
Carbon Disulfide	EPA 8260B

**Purgeable Organics**

Cyclohexane	EPA 8260B
Isobutyl alcohol	EPA 8260B
Methyl acetate	EPA 8260B
Methyl iodide	EPA 8260B
Vinyl acetate	EPA 8260B

**Residue**

Solids, Total	SM 18-20 2540B (97)
Solids, Total Dissolved	SM 18-21 2540C (97)
Solids, Total Suspended	SM 18-20 2540D (97)

**Semi-Volatile Organics**

1,1'-Biphenyl	EPA 8270C
2-Methylnaphthalene	EPA 8270C
4-Amino biphenyl	EPA 8270C
Acetophenone	EPA 8270C
Benzaldehyde	EPA 8270C
Benzoic Acid	EPA 8270C
Benzyl alcohol	EPA 8270C
Caprolactam	EPA 8270C
Dibenzofuran	EPA 8270C
Ethyl methanesulfonate	EPA 8270C
Isosafrole	EPA 8270C
Methyl cyclohexane	EPA 8015 B
	EPA 8260B
Methyl methanesulfonate	EPA 8270C
O,O,O-Triethyl phosphorothioate	EPA 8270C
p-Dimethylaminoazobenzene	EPA 8270C
Phenacetin	EPA 8270C

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**Semi-Volatile Organics**

Safrole EPA 8270C

**Wastewater Metals I**

Barium, Total EPA 200.7 Rev. 4.4

EPA 6010B

Cadmium, Total EPA 200.7 Rev. 4.4

EPA 6010B

Calcium, Total EPA 200.7 Rev. 4.4

EPA 6010B

Chromium, Total EPA 200.7 Rev. 4.4

EPA 6010B

Copper, Total EPA 200.7 Rev. 4.4

EPA 6010B

Iron, Total EPA 200.7 Rev. 4.4

EPA 6010B

Lead, Total EPA 200.7 Rev. 4.4

EPA 6010B

Magnesium, Total EPA 200.7 Rev. 4.4

EPA 6010B

Manganese, Total EPA 200.7 Rev. 4.4

EPA 6010B

Nickel, Total EPA 200.7 Rev. 4.4

EPA 6010B

Potassium, Total EPA 200.7 Rev. 4.4

EPA 6010B

Silver, Total EPA 200.7 Rev. 4.4

EPA 6010B

Sodium, Total EPA 200.7 Rev. 4.4

EPA 6010B

**Wastewater Metals I**

Strontium, Total EPA 200.7 Rev. 4.4  
EPA 6010B

**Wastewater Metals II**

Aluminum, Total EPA 200.7 Rev. 4.4

EPA 6010B

Antimony, Total EPA 200.7 Rev. 4.4

EPA 6010B

Arsenic, Total EPA 200.7 Rev. 4.4

EPA 6010B

Beryllium, Total EPA 200.7 Rev. 4.4

EPA 6010B

Chromium VI SM 18-19 3500-Cr D

Mercury, Total EPA 245.2 Rev. 1974

Selenium, Total EPA 200.7 Rev. 4.4

EPA 6010B

Vanadium, Total EPA 200.7 Rev. 4.4

EPA 6010B

Zinc, Total EPA 200.7 Rev. 4.4

EPA 6010B

**Wastewater Metals III**

Cobalt, Total EPA 200.7 Rev. 4.4

EPA 6010B

Thallium, Total EPA 200.7 Rev. 4.4

EPA 6010B

Tin, Total EPA 200.7 Rev. 4.4

EPA 6010B

Titanium, Total EPA 200.7 Rev. 4.4

Serial No.: 40626

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NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER  
RICHARD F. DAINES, M.D.



Expires 12:01 AM April 01, 2010  
Issued April 01, 2009  
Revised October 20, 2009

**CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE**

*Issued in accordance with and pursuant to section 502 Public Health Law of New York State*

MR. ANTHONY J. SCALA  
UPSTATE LABORATORIES INC  
6034 CORPORATE DRIVE  
EAST SYRACUSE, NY 13057

NY Lab Id No: 10170  
EPA Lab Code: NY00054

*is hereby APPROVED as an Environmental Laboratory in conformance with the  
National Environmental Laboratory Accreditation Conference Standards for the category  
ENVIRONMENTAL ANALYSES NON POTABLE WATER  
All approved analytes are listed below:*

**Wastewater Metals III**

Titanium, Total EPA 6010B

**Wastewater Miscellaneous**

Boron, Total EPA 200.7 Rev. 4.4  
EPA 6010B  
Bromide EPA 300.0 Rev. 2.1  
Color SM 18-21 2120B (01)  
Corrosivity SM 18-19.2330  
Cyanide, Total EPA 335.4 Rev. 1.0  
EPA 9014  
LACHAT 10-204-00-1-A  
SM 18-21 4500-CN E (99)  
SM 18-21 4500-CN G (99)  
Hydrogen Ion (pH) EPA 9040B  
SM 18-21 4500-H B (00)

Oil & Grease Total Recoverable (HEM) EPA 1664A  
Organic Carbon, Total EPA 415.2  
SM 18-21 5310B (00)  
SM 18-21 5310C (00)  
Phenols EPA 420.4 Rev. 1.0  
LACHAT 10-210-00-1-A  
Specific Conductance EPA 120.1 Rev. 1982  
SM 18-21 2510B (97)  
Sulfide (as S) EPA 376.2  
SM 18-20 4500-S D (00)  
Surfactant (MBAS) SM 18-21 5540C (00)  
Temperature SM 18-21 2550B (00)

**Sample Preparation Methods**

EPA 3005A  
EPA 3010A  
EPA 3510C  
EPA 3520C  
EPA 5030B  
EPA 9010B

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ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE  
All approved analytes are listed below:*

**Acrylates**

Acrolein (Propenal)	EPA 8260B
Acrylonitrile	EPA 8260B

**Amines**

2-Nitroaniline	EPA 8270C
3-Nitroaniline	EPA 8270C
4-Chloroaniline	EPA 8270C
4-Nitroaniline	EPA 8270C
Carbazole	EPA 8270C

**Benzidines**

3,3'-Dichlorobenzidine	EPA 8270C
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**Characteristic Testing**

Corrosivity	EPA 9045C
Ignitability	EPA 1010
Reactivity	SW-846 Ch7 Sec. 7.3

**Chlorinated Hydrocarbon Pesticides**

4,4'-DDD	EPA 8081A
4,4'-DDE	EPA 8081A
4,4'-DDT	EPA 8081A
Aldrin	EPA 8081A
alpha-BHC	EPA 8081A
alpha-Chlordane	EPA 8081A
Atrazine	EPA 8081A
	EPA 8270C
beta-BHC	EPA 8081A
Chlordane Total	EPA 8081A
delta-BHC	EPA 8081A

**Chlorinated Hydrocarbon Pesticides**

Dieldrin	EPA 8081A
Endosulfan I	EPA 8081A
Endosulfan II	EPA 8081A
Endosulfan sulfate	EPA 8081A
Endrin	EPA 8081A
Endrin Ketone	EPA 8081A
gamma-Chlordane	EPA 8081A
Heptachlor	EPA 8081A
Heptachlor epoxide	EPA 8081A
Lindane	EPA 8081A
Methoxychlor	EPA 8081A
Toxaphene	EPA 8081A

**Chlorinated Hydrocarbons**

1,2,4,5-Tetrachlorobenzene	EPA 8270C
1,2,4-Trichlorobenzene	EPA 8260B
	EPA 8270C
2-Chloronaphthalene	EPA 8270C
Hexachlorobenzene	EPA 8270C
Hexachlorobutadiene	EPA 8270C
Hexachlorocyclopentadiene	EPA 8270C
Hexachloroethane	EPA 8270C

**Chlorophenoxy Acid Pesticides**

2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dicamba	EPA 8151A

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NY Lab Id No: 10170  
EPA Lab Code: NY00054

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ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE  
All approved analytes are listed below:*

**Haloethers**

4-Bromophenylphenyl ether	EPA 8270C
4-Chlorophenylphenyl ether	EPA 8270C
Bis (2-chloroisopropyl) ether	EPA 8270C
Bis(2-chloroethoxy)methane	EPA 8270C
Bis(2-chloroethyl)ether	EPA 8270C

**Metals I**

Barium, Total	EPA 6010B
Cadmium, Total	EPA 6010B
Calcium, Total	EPA 6010B
Chromium, Total	EPA 6010B
Copper, Total	EPA 6010B
Iron, Total	EPA 6010B
Lead, Total	EPA 6010B
Magnesium, Total	EPA 6010B
Manganese, Total	EPA 6010B
Nickel, Total	EPA 6010B
Potassium, Total	EPA 6010B
Silver, Total	EPA 6010B
Sodium, Total	EPA 6010B

**Metals II**

Aluminum, Total	EPA 6010B
Antimony, Total	EPA 6010B
Arsenic, Total	EPA 6010B
Beryllium, Total	EPA 6010B
Chromium VI	EPA 7196A
Selenium, Total	EPA 6010B
Vanadium, Total	EPA 6010B

**Metals II**

Zinc, Total	EPA 6010B
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**Metals III**

Cobalt, Total	EPA 6010B
Molybdenum, Total	EPA 6010B
Thallium, Total	EPA 6010B
Tin, Total	EPA 6010B

**Miscellaneous**

Cyanide, Total	EPA 9014
Hydrogen Ion (pH)	EPA 9045C
Lead in Dust Wipes	EPA 6010B
Lead in Paint	EPA 6010B
Phenols	EPA 9066

**Nitroaromatics and Isophorone**

2,4-Dinitrotoluene	EPA 8270C
2,6-Dinitrotoluene	EPA 8270C
Isophorone	EPA 8270C
Nitrobenzene	EPA 8270C

**Nitrosoamines**

N-Nitrosodi-n-propylamine	EPA 8270C
N-Nitrosodiphenylamine	EPA 8270C

**Phthalate Esters**

Benzyl butyl phthalate	EPA 8270C
Bis(2-ethylhexyl) phthalate	EPA 8270C
Diethyl phthalate	EPA 8270C
Dimethyl phthalate	EPA 8270C

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ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE  
All approved analytes are listed below:*

**Phthalate Esters**

Di-n-butyl phthalate	EPA 8270C
Di-n-octyl phthalate	EPA 8270C

**Polychlorinated Biphenyls**

PCB-1016	EPA 8082
PCB-1221	EPA 8082
PCB-1232	EPA 8082
PCB-1242	EPA 8082
PCB-1248	EPA 8082
PCB-1254	EPA 8082
PCB-1260	EPA 8082
PCB-1262	EPA 8082
PCB-1268	EPA 8082

**Polynuclear Aromatic Hydrocarbons**

Acenaphthene	EPA 8270C
Acenaphthylene	EPA 8270C
Anthracene	EPA 8270C
Benzo(a)anthracene	EPA 8270C
Benzo(a)pyrene	EPA 8270C
Benzo(b)fluoranthene	EPA 8270C
Benzo(ghi)perylene	EPA 8270C
Benzo(k)fluoranthene	EPA 8270C
Chrysene	EPA 8270C
Dibenzo(a,h)anthracene	EPA 8270C
Fluoranthene	EPA 8270C
Fluorene	EPA 8270C
Indeno(1,2,3-cd)pyrene	EPA 8270C
Naphthalene	EPA 8270C

**Polynuclear Aromatic Hydrocarbons**

Phenanthrene	EPA 8270C
Pyrene	EPA 8270C

**Priority Pollutant Phenols**

2,4,5-Trichlorophenol	EPA 8270C
2,4,6-Trichlorophenol	EPA 8270C
2,4-Dichlorophenol	EPA 8270C
2,4-Dimethylphenol	EPA 8270C
2,4-Dinitrophenol	EPA 8270C
2-Chlorophenol	EPA 8270C
2-Methyl-4,6-dinitrophenol	EPA 8270C
2-Methylphenol	EPA 8270C
2-Nitrophenol	EPA 8270C
4-Chloro-3-methylphenol	EPA 8270C
4-Methylphenol	EPA 8270C
4-Nitrophenol	EPA 8270C
Pentachlorophenol	EPA 8270C
Phenol	EPA 8270C

**Purgeable Aromatics**

1,2,4-Trimethylbenzene	EPA 8021B
1,2-Dichlorobenzene	EPA 8260B
	EPA 8270C
1,3,5-Trimethylbenzene	EPA 8021B
1,3-Dichlorobenzene	EPA 8260B
	EPA 8270C
1,4-Dichlorobenzene	EPA 8260B
	EPA 8270C
Benzene	EPA 8021B

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ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE  
All approved analytes are listed below:*

**Purgeable Aromatics**

Benzene	EPA 8260B
Chlorobenzene	EPA 8260B
Ethyl benzene	EPA 8021B
	EPA 8260B
Isopropylbenzene	EPA 8021B
	EPA 8260B
n-Butylbenzene	EPA 8021B
n-Propylbenzene	EPA 8021B
p-Isopropyltoluene (P-Cymene)	EPA 8021B
sec-Butylbenzene	EPA 8021B
Styrene	EPA 8260B
tert-Butylbenzene	EPA 8021B
Toluene	EPA 8021B
	EPA 8260B
Total Xylenes	EPA 8021B
	EPA 8260B

**Purgeable Halocarbons**

1,1,1-Trichloroethane	EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 8260B
1,1,2-Trichloroethane	EPA 8260B
1,1,2-Trifluoro-1,2,2-Trichloroethane	EPA 8260B
1,1-Dichloroethane	EPA 8260B
1,1-Dichloroethene	EPA 8260B
1,2-Dibromo-3-chloropropane	EPA 8260B
1,2-Dibromoethane	EPA 8260B
1,2-Dichloroethane	EPA 8260B
1,2-Dichloropropane	EPA 8260B
2-Chloroethylvinyl ether	EPA 8260B

**Purgeable Halocarbons**

Bromochloromethane	EPA 8260B
Bromodichloromethane	EPA 8260B
Bromoform	EPA 8260B
Bromomethane	EPA 8260B
Carbon tetrachloride	EPA 8260B
Chloroethane	EPA 8260B
Chloroform	EPA 8260B
Chloromethane	EPA 8260B
cis-1,2-Dichloroethene	EPA 8260B
cis-1,3-Dichloropropene	EPA 8260B
Dibromochloromethane	EPA 8260B
Dichlorodifluoromethane	EPA 8260B
Methylene chloride	EPA 8260B
Tetrachloroethene	EPA 8260B
trans-1,2-Dichloroethene	EPA 8260B
trans-1,3-Dichloropropene	EPA 8260B
Trichloroethene	EPA 8260B
Trichlorofluoromethane	EPA 8260B
Vinyl chloride	EPA 8260B

**Purgeable Organics**

1,4-Dioxane	EPA 8260B
2-Butanone (Methylethyl ketone)	EPA 8260B
2-Hexanone	EPA 8260B
4-Methyl-2-Pentanone	EPA 8260B
Acetone	EPA 8260B
Carbon Disulfide	EPA 8260B
Cyclohexane	EPA 8260B
Methyl acetate	EPA 8260B

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ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE  
All approved analytes are listed below:*

**Purgeable Organics**

Methyl tert-butyl ether	EPA 8260B
Vinyl acetate	EPA 8260B

**Semi-Volatile Organics**

1,1'-Biphenyl	EPA 8270C
2-Methylnaphthalene	EPA 8270C
Acetophenone	EPA 8270C
Benzaldehyde	EPA 8270C
Benzoic Acid	EPA 8270C
Benzyl alcohol	EPA 8270C
Caprolactam	EPA 8270C
Dibenzofuran	EPA 8270C
Methyl cyclohexane	EPA 8015 B
	EPA 8260B

**Sample Preparation Methods**

EPA 1310
EPA 1311
EPA 3005A
EPA 3010A
EPA 3050B
EPA 3540C
EPA 3550B
EPA 3580
EPA 3585
EPA 5030B
EPA 5035
EPA 9010B
EPA 9030B

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NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER  
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Expires 12:01 AM April 01, 2010  
Issued April 01, 2009  
Revised June 30, 2009

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ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE  
All approved subcategories and/or analytes are listed below:*

**Metals I**

Barium, Total	EPA 6020
Cadmium, Total	EPA 6020
Chromium, Total	EPA 6020
Copper, Total	EPA 6020
Lead, Total	EPA 6020
Manganese, Total	EPA 6020
Nickel, Total	EPA 6020
Silver, Total	EPA 6020

**Metals II**

Aluminum, Total	EPA 6020
Antimony, Total	EPA 6020
Arsenic, Total	EPA 6020
Beryllium, Total	EPA 6020
Selenium, Total	EPA 6020
Vanadium, Total	EPA 6020
Zinc, Total	EPA 6020

**Metals III**

Cobalt, Total	EPA 6020
Thallium, Total	EPA 6020

**Petroleum Hydrocarbons**

Diesel Range Organics	EPA 8015 B
Gasoline Range Organics	EPA 8015 B
Oil & Grease Total Recoverable (HEM)	EPA 9071 (Solvent:Hexane)

**Serial No.: 40284**

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NEW YORK STATE DEPARTMENT OF HEALTH  
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NY Lab Id No: 10170  
EPA Lab Code: NY00054

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ENVIRONMENTAL ANALYSES AIR AND EMISSIONS  
All approved analytes are listed below:*

**Fuels**

B.T.U.	ASTM D2015-77
Percent Sulfur	ASTM D1552
	ASTM D4239

**Surface Coating**

Volatile Content	40 CFR 60 METH 24
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**Metals I**

Lead, Total	EPA 200.7 Rev. 4.4
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**Metals II**

Beryllium, Total	NIOSH 7300
Mercury, Total	EPA 245.2 Rev. 1974

**Metals III**

Chromium, Total	NIOSH 7300
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**Miscellaneous Air**

Particulates	40 CFR PART 50 1985 APP. B
Suspended Particulates	40 CFR PART 50 1985 APP. B

**Polychlorinated Biphenyls**

PCB-1016	NYS DOH 311-1
PCB-1221	NYS DOH 311-1
PCB-1232	NYS DOH 311-1
PCB-1242	NYS DOH 311-1
PCB-1248	NYS DOH 311-1
PCB-1254	NYS DOH 311-1
PCB-1260	NYS DOH 311-1

**Surface Coating**

Density	ASTM D1475-60
Percent Solids	ASTM D2697-86
Percent Water	40 CFR 60 METH 24

**Serial No.: 38748**

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NELAP Recognized

Test Code: 8260ASP05\_S

Test Number: SW8260B

Test Name: ASP/CLP TCL Volatile Soil

Matrix: Solid Units: µg/Kg

**METHOD DETECTION /  
REPORTING LIMITS**

Updated:

Type	Analyte	MDL	PQL
A	1,1,1-Trichloroethane	1.21	5
A	1,1,2,2-Tetrachloroethane	3.03	5
A	1,1,2-Trichloroethane	1.2	5
A	1,1-Dichloroethane	1.53	5
A	1,1-Dichloroethene	1.88	5
A	1,2,4-Trimethylbenzene	5	5
A	1,2-Dichlorobenzene	0.62	5
A	1,2-Dichloroethane	0.98	5
A	1,2-Dichloropropane	1.11	5
A	1,3,5-Trimethylbenzene	5	5
A	1,3-Dichlorobenzene	0.61	5
A	1,4-Dichlorobenzene	0.59	5
A	1,4-Dioxane	100	100
A	2-Butanone	7.22	10
A	2-Hexanone	7.18	10
A	4-Methyl-2-pentanone	3	10
A	Acetone	10	10
A	Benzene	0.75	5
A	Bromodichloromethane	0.81	5
A	Bromoform	1.02	5
A	Bromomethane	1.32	5
A	Carbon disulfide	5	5
A	Carbon tetrachloride	0.84	5
A	Chlorobenzene	1.01	5
A	Chloroethane	1.52	5
A	Chloroform	1.42	5
A	Chloromethane	1.7	5
A	cis-1,2-Dichloroethene	0.82	5
A	cis-1,3-Dichloropropene	1.33	5
A	Dibromochloromethane	1.07	5
A	Ethylbenzene	0.84	5
A	m,p-Xylene	0.83	5
A	Methyl tert-butyl ether	5	5
A	Methylene chloride	5	5
A	n-Butylbenzene	5	5
A	n-Propylbenzene	5	5
A	o-Xylene	0.68	5
A	sec-Butylbenzene	5	5
A	Styrene	0.75	5
A	tert-Butylbenzene	5	5
A	Tetrachloroethene	0.95	5
A	Toluene	1.56	5

Test Code: 8260ASP05\_S

Test Number: SW8260B

Test Name: ASP/CLP TCL Volatile Soil

Matrix: Solid Units: µg/Kg

**METHOD DETECTION /  
REPORTING LIMITS**

Updated:

Type	Analyte	MDL	PQL
A	trans-1,2-Dichloroethene	0.72	5
A	trans-1,3-Dichloropropene	1.54	5
A	Trichloroethene	0.47	5
A	Vinyl chloride	1.22	5
I	1,4-Dichlorobenzene-d4	0	0
I	1,4-Difluorobenzene	0	0
I	Chlorobenzene-d5	0	0
I	Pentafluorobenzene	0	0
S	1,2-Dichloroethane-d4	0	0
S	4-Bromofluorobenzene	0	0
S	Toluene-d8	0	0

Test Code: 8260ASP05\_W

Test Number: SW8260B

Test Name: ASP/CLP TCL Volatile Water

Matrix: Aqueous Units: µg/L

**METHOD DETECTION /  
REPORTING LIMITS**

Updated:

Type	Analyte	MDL	PQL
A	1,1,1-Trichloroethane	1.21	5
A	1,1,2,2-Tetrachloroethane	3.03	5
A	1,1,2-Trichloroethane	1.2	5
A	1,1-Dichloroethane	1.53	5
A	1,1-Dichloroethene	1.88	5
A	1,2,4-Trichlorobenzene	5	5
A	1,2,4-Trimethylbenzene	5	5
A	1,2-Dibromo-3-chloropropane	5	5
A	1,2-Dibromoethane	5	5
A	1,2-Dichlorobenzene	5	5
A	1,2-Dichloroethane	0.98	5
A	1,2-Dichloropropane	1.11	5
A	1,3,5-Trimethylbenzene	5	5
A	1,3-Dichlorobenzene	5	5
A	1,4-Dichlorobenzene	5	5
A	1,4-Dioxane	100	100
A	2-Butanone	7.22	10
A	2-Hexanone	7.18	10
A	4-Methyl-2-pentanone	3	10
A	Acetone	10	10
A	Benzene	0.75	5
A	Bromodichloromethane	0.81	5
A	Bromoform	1.02	5
A	Bromomethane	1.32	5
A	Carbon disulfide	5	5
A	Carbon tetrachloride	0.84	5
A	Chlorobenzene	1.01	5
A	Chloroethane	1.52	5
A	Chloroform	1.42	5
A	Chloromethane	1.7	5
A	cis-1,2-Dichloroethene	0.82	5
A	cis-1,3-Dichloropropene	1.33	5
A	Cyclohexane	5	5
A	Dibromochloromethane	1.07	5
A	Dichlorodifluoromethane	5	5
A	Ethylbenzene	0.84	5
A	Freon-113	5	5
A	Isopropylbenzene	5	5
A	m,p-Xylene	0.83	5
A	Methyl Acetate	5	5
A	Methyl tert-butyl ether	5	5
A	Methylcyclohexane	5	5

Test Code: 8260ASP05\_W

Test Number: SW8260B

Test Name: ASP/CLP TCL Volatile Water

Matrix: Aqueous Units: µg/L

**METHOD DETECTION /  
REPORTING LIMITS**

Updated:

Type	Analyte	MDL	PQL
A	Methylene chloride	5	5
A	n-Butylbenzene	5	5
A	n-Propylbenzene	5	5
A	o-Xylene	0.68	5
A	sec-Butylbenzene	5	5
A	Styrene	0.75	5
A	tert-Butylbenzene	5	5
A	Tetrachloroethene	0.95	5
A	Toluene	1.56	5
A	trans-1,2-Dichloroethene	0.72	5
A	trans-1,3-Dichloropropene	1.54	5
A	Trichloroethene	0.47	5
A	Trichlorofluoromethane	5	5
A	Vinyl chloride	1.22	5
I	1,4-Dichlorobenzene-d4	0	0
I	1,4-Difluorobenzene	0	0
I	Chlorobenzene-d5	0	0
I	Pentafluorobenzene	0	0
S	1,2-Dichloroethane-d4	0	0
S	4-Bromofluorobenzene	0	0
S	Toluene-d8	0	0



**Upstate Laboratories, Inc.**

Date: 12-Jan-10

Test Code: 8270\_ASPTCL\_S

Test Number: SW8270C

Test Name: TCL-Semivolatile Organics

Matrix: Solid Units: µg/Kg

**METHOD DETECTION /  
REPORTING LIMITS**

Updated:

Type	Analyte	MDL	PQL
A	(3+4)-Methylphenol	0.82	330
A	1,2,4-Trichlorobenzene	0.75	330
A	1,2-Dichlorobenzene	0.48	330
A	1,3-Dichlorobenzene	0.33	330
A	1,4-Dichlorobenzene	0.34	330
A	2,4,5-Trichlorophenol	0.56	330
A	2,4,6-Trichlorophenol	0.63	330
A	2,4-Dichlorophenol	0.42	330
A	2,4-Dimethylphenol	0.29	330
A	2,4-Dinitrophenol	1.58	800
A	2,4-Dinitrotoluene	0.96	330
A	2,6-Dinitrotoluene	0.63	330
A	2-Chloronaphthalene	0.53	330
A	2-Chlorophenol	0.64	330
A	2-Methylnaphthalene	0.52	330
A	2-Methylphenol	0.6	330
A	2-Nitroaniline	0.18	800
A	2-Nitrophenol	1.09	330
A	3,3'-Dichlorobenzidine	0.57	330
A	3-Nitroaniline	0.4	800
A	4,6-Dinitro-2-methylphenol	1.69	800
A	4-Bromophenyl phenyl ether	0.89	330
A	4-Chloro-3-methylphenol	0.28	330
A	4-Chloroaniline	0.73	330
A	4-Chlorophenyl phenyl ether	0.51	330
A	4-Nitroaniline	0.55	800
A	4-Nitrophenol	0.88	800
A	Acenaphthene	0.18	330
A	Acenaphthylene	0.29	330
A	Anthracene	0.62	330
A	Benz(a)anthracene	0.3	330
A	Benzo(a)pyrene	0.34	330
A	Benzo(b)fluoranthene	0.97	330
A	Benzo(g,h,i)perylene	0.53	330
A	Benzo(k)fluoranthene	0.84	330
A	Bis(2-chloroethoxy)methane	0.67	330
A	Bis(2-chloroethyl)ether	0.83	330
A	Bis(2-chloroisopropyl)ether	0.7	330
A	Bis(2-ethylhexyl)phthalate	0.89	330
A	Butyl benzyl phthalate	1.04	330
A	Carbazole	0.16	330
A	Chrysene	0.41	330

Test Code: 8270\_ASPTCL\_S

Test Number: SW8270C

Test Name: TCL-Semivolatile Organics

Matrix: Solid Units: µg/Kg

**METHOD DETECTION /  
REPORTING LIMITS**

Updated:

Type	Analyte	MDL	PQL
A	Di-n-butyl phthalate	0.52	330
A	Di-n-octyl phthalate	1.08	330
A	Dibenz(a,h)anthracene	0.3	330
A	Dibenzofuran	0.37	330
A	Diethyl phthalate	0.45	330
A	Dimethyl phthalate	0.35	330
A	Fluoranthene	0.44	330
A	Fluorene	0.59	330
A	Hexachlorobenzene	0.35	330
A	Hexachlorobutadiene	0.4	330
A	Hexachlorocyclopentadiene	0.8	330
A	Hexachloroethane	0.53	330
A	Indeno(1,2,3-cd)pyrene	0.57	330
A	Isophorone	0.55	330
A	N-Nitrosodi-n-propylamine	0.28	330
A	N-Nitrosodiphenylamine	0.54	330
A	Naphthalene	0.31	330
A	Nitrobenzene	0.44	330
A	Pentachlorophenol	1.51	800
A	Phenanthrene	0.55	330
A	Phenol	0.52	330
A	Pyrene	0.38	330
I	1,4-Dichlorobenzene-d4	0	0
I	Acenaphthene-d10	0	0
I	Chrysene-d12	0	0
I	Naphthalene-d8	0	0
I	Perylene-d12	0	0
I	Phenanthrene-d10	0	0
S	1,2-Dichlorobenzene-d4	0	0
S	2,4,6-Tribromophenol	0	
S	2-Chlorophenol-d4	0	0
S	2-Fluorobiphenyl	0	
S	2-Fluorophenol	0	
S	4-Terphenyl-d14	0	
S	Nitrobenzene-d5	0	
S	Phenol-d5	0	

Test Code: 8270\_ASPTCL\_W

Test Number: SW8270C

Test Name: TCL-Semivolatile Organics

Matrix: Aqueous Units: µg/L

**METHOD DETECTION /  
REPORTING LIMITS**

Updated: 06-Jul-04

Type	Analyte	MDL	PQL
A	(3+4)-Methylphenol	0.82	10
A	1,2,4-Trichlorobenzene	0.75	10
A	1,2-Dichlorobenzene	0.48	10
A	1,3-Dichlorobenzene	0.33	10
A	1,4-Dichlorobenzene	0.34	10
A	2,4,5-Trichlorophenol	0.56	10
A	2,4,6-Trichlorophenol	0.63	10
A	2,4-Dichlorophenol	0.42	10
A	2,4-Dimethylphenol	0.29	10
A	2,4-Dinitrophenol	1.58	24
A	2,4-Dinitrotoluene	0.96	10
A	2,6-Dinitrotoluene	0.63	10
A	2-Chloronaphthalene	0.53	10
A	2-Chlorophenol	0.64	10
A	2-Methylnaphthalene	0.52	10
A	2-Methylphenol	0.6	10
A	2-Nitroaniline	0.18	24
A	2-Nitrophenol	1.09	10
A	3,3'-Dichlorobenzidine	0.57	10
A	3-Nitroaniline	0.4	24
A	4,6-Dinitro-2-methylphenol	1.69	24
A	4-Bromophenyl phenyl ether	0.89	10
A	4-Chloro-3-methylphenol	0.28	10
A	4-Chloroaniline	0.73	10
A	4-Chlorophenyl phenyl ether	0.51	10
A	4-Nitroaniline	0.55	24
A	4-Nitrophenol	0.88	24
A	Acenaphthene	0.18	10
A	Acenaphthylene	0.29	10
A	Anthracene	0.62	10
A	Benz(a)anthracene	0.3	10
A	Benzo(a)pyrene	0.34	10
A	Benzo(b)fluoranthene	0.97	10
A	Benzo(g,h,i)perylene	0.53	10
A	Benzo(k)fluoranthene	0.84	10
A	Bis(2-chloroethoxy)methane	0.67	10
A	Bis(2-chloroethyl)ether	0.83	10
A	Bis(2-chloroisopropyl)ether	0.7	10
A	Bis(2-ethylhexyl)phthalate	0.89	10
A	Butyl benzyl phthalate	1.04	10
A	Carbazole	0.16	10
A	Chrysene	0.41	10

Test Code: 8270\_ASPTCL\_W

Test Number: SW8270C

Test Name: TCL-Semivolatile Organics

Matrix: Aqueous Units: µg/L

**METHOD DETECTION /  
REPORTING LIMITS**

Updated: 06-Jul-04

Type	Analyte	MDL	PQL
A	Di-n-butyl phthalate	0.52	10
A	Di-n-octyl phthalate	1.08	10
A	Dibenz(a,h)anthracene	0.3	10
A	Dibenzofuran	0.37	10
A	Diethyl phthalate	0.45	10
A	Dimethyl phthalate	0.35	10
A	Fluoranthene	0.44	10
A	Fluorene	0.59	10
A	Hexachlorobenzene	0.35	10
A	Hexachlorobutadiene	0.4	10
A	Hexachlorocyclopentadiene	0.8	10
A	Hexachloroethane	0.53	10
A	Indeno(1,2,3-cd)pyrene	0.57	10
A	Isophorone	0.55	10
A	N-Nitrosodi-n-propylamine	0.28	10
A	N-Nitrosodiphenylamine	0.54	10
A	Naphthalene	0.31	10
A	Nitrobenzene	0.44	10
A	Pentachlorophenol	1.51	24
A	Phenanthrene	0.55	10
A	Phenol	0.52	10
A	Pyrene	0.38	10
I	1,4-Dichlorobenzene-d4	0	0
I	Acenaphthene-d10	0	0
I	Chrysene-d12	0	0
I	Naphthalene-d8	0	0
I	Perylene-d12	0	0
I	Phenanthrene-d10	0	0
S	1,2-Dichlorobenzene-d4	0	0
S	2,4,6-Tribromophenol	0	0
S	2-Chlorophenol-d4	0	0
S	2-Fluorobiphenyl	0	0
S	2-Fluorophenol	0	0
S	4-Terphenyl-d14	0	0
S	Nitrobenzene-d5	0	0
S	Phenol-d5	0	0

Test Code: 6010B-ASP

Test Number: SW6010B

Test Name: ICP Metals, Total ASP

Matrix: Solid Units: mg/Kg

**METHOD DETECTION /  
REPORTING LIMITS**

Updated: 01-Aug-06

Type	Analyte	MDL	PQL
A	Aluminum	20	20
A	Antimony	3	3
A	Arsenic	2	2
A	Barium	10	10
A	Beryllium	0.6	0.6
A	Boron	100	100
A	Cadmium	1	1
A	Calcium	500	500
A	Chromium	2	2
A	Cobalt	4	4
A	Copper	2	2
A	Iron	12	12
A	Lead	0.6	0.6
A	Magnesium	500	500
A	Manganese	2	2
A	Molybdenum	60	60
A	Nickel	6	6
A	Potassium	500	500
A	Selenium	1	1
A	Silver	2	2
A	Sodium	500	500
A	Thallium	2	2
A	Tin	60	60
A	Vanadium	6	6
A	Zinc	2	2
M	Hardness, Total(CaCO3)	0	1320

**Upstate Laboratories, Inc.**

Date: 12-Jan-10

Test Code: 7471A\_ASP  
Test Number: SW7471A  
Test Name: Total Mercury - Soil/Solid/Waste  
Matrix: Solid Units: mg/Kg

**METHOD DETECTION /  
REPORTING LIMITS**

Updated: 09-Apr-08

Type	Analyte	MDL	PQL
A	Mercury	0.05	0.05

Test Code: 200.7WTASP

Test Number: E200.7

Test Name: ICP Metals, Total ASP

Matrix: Aqueous Units: µg/L

**METHOD DETECTION /  
REPORTING LIMITS**

Updated: 13-Oct-09

Type	Analyte	MDL	PQL
A	Aluminum	100	100
A	Antimony	30	30
A	Arsenic	10	10
A	Barium	50	50
A	Beryllium	3	3
A	Boron	500	500
A	Cadmium	5	5
A	Calcium	5000	5000
A	Chromium	10	10
A	Cobalt	20	20
A	Copper	10	10
A	Iron	60	60
A	Lead	3	3
A	Magnesium	5000	5000
A	Manganese	10	10
A	Molybdenum	300	300
A	Nickel	30	30
A	Potassium	5000	5000
A	Selenium	5	5
A	Silver	10	10
A	Sodium	5000	5000
A	Thallium	10	10
A	Tin	300	300
A	Vanadium	30	30
A	Zinc	10	10
M	Hardness, Total(CaCO <sub>3</sub> )	7000	7000

Test Code: 245.2WTASP

Test Number: E245.2

Test Name: Total Mercury Waters ASP

Matrix: Aqueous Units: µg/L

**METHOD DETECTION /  
REPORTING LIMITS**

Updated: 25-May-06

Type	Analyte	MDL	PQL
A	Mercury	0.2	0.2



Test Code: 8082\_ASPS  
Test Number: SW8082  
Test Name: Polychlorinated Biphenyls in Soil/Sludge  
Matrix: Solid Units: µg/Kg

**METHOD DETECTION /  
REPORTING LIMITS**

Updated: 01-May-07

Type	Analyte	MDL	PQL
A	Aroclor 1016	1.7	33
A	Aroclor 1221	1.7	33
A	Aroclor 1232	1.7	33
A	Aroclor 1242	1.7	33
A	Aroclor 1248	1.7	33
A	Aroclor 1254	1.7	33
A	Aroclor 1260	1.7	33
S	Decachlorobiphenyl	0	1.7
S	Tetrachloro-m-xylene	0	1.7

Test Code: 8082\_ASPW

Test Number: SW8082

Test Name: Polychlorinated Biphenyls in Wastewater

Matrix: Aqueous Units:  $\mu\text{g/L}$ **METHOD DETECTION /  
REPORTING LIMITS**

Updated: 26-Nov-04

Type	Analyte	MDL	PQL
A	Aroclor 1016	1	1
A	Aroclor 1221	1	1
A	Aroclor 1232	1	1
A	Aroclor 1242	1	1
A	Aroclor 1248	1	1
A	Aroclor 1254	1	1
A	Aroclor 1260	1	1
S	Decachlorobiphenyl	0	0.05
S	Tetrachloro-m-xylene	0	0.05

## **APPENDIX E**

### **Health & Safety Plan**

# **HEALTH AND SAFETY PLAN**

**FOR THE**

## **REMEDIAL INVESTIGATION AND INTERIM REMEDIAL MEASURE WORK PLAN**

**Ash Road Properties  
221 Sycamore Road  
Town of Vestal, New York**

**Prepared By:**

**GeoLogic NY, Inc.**

**May 2010  
(Revised September 2010)**

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## **HEALTH AND SAFETY PLAN ASH ROAD PROPERTIES VESTAL, NEW YORK**

### **1. INTRODUCTION**

These health and safety guidelines are an accompaniment to GeoLogic NY, Inc.'s Health and Safety Policies that have been provided to all employees.

This Health and Safety Plan (HASP) has been developed to provide both general procedures and specific requirements to be followed by GeoLogic NY, Inc. (GeoLogic) personnel while performing the work set forth in the Remedial Investigation Work Plan. This HASP describes the responsibilities, training requirements, protective equipment and standard operating procedures to be used by GeoLogic personnel to address potential health and safety hazards that may be encountered while performing the remedial investigation activities. This HASP also specifies procedures and equipment to be used by GeoLogic personnel during work activities at the site, and emergency response to minimize exposures to hazardous materials.

A Site Location Map and a Site Plan are attached.

It is expected that officials from NYSDEC and NYSDOH will be visiting the site during site activities. GeoLogic does not guaranty the health and/or safety of any other person entering this site. Due to the potential hazards of this site and the activities occurring thereon, it is not possible to discover, evaluate, and provide protection for all possible hazards, which may be encountered. Strict adherence to the health and safety guidelines set forth herein, will reduce, but may not eliminate, the potential for injury at this site. The health and safety guidelines in this plan were prepared specifically for this site and should not be used on any other site. Copies are to be provided to NYSDEC and NYSDOH personnel prior to commencing field activities.

The HASP takes into account the specific hazards inherent to this project and presents procedures that are to be followed by GeoLogic Employees. The objective of this project is to perform an interim remedial measure via the excavation of impacted soils and a subsurface evaluation in order to determine the extent of soil, groundwater, and/or soil vapor contamination from past use, discharge or disposal of petroleum and hazardous substances.

The HASP is applicable to the following site activities:

- Soil excavations
- Subsurface soil sampling
- Drilling rig and Geoprobe operation
- Soil borings and monitoring well installation
- Groundwater sampling
- Real time air monitoring

This Health and Safety Plan covers all employees of GeoLogic who visit and/or work at this site.

## **2. SITE DESCRIPTION**

### **2.1 Physical Description and Site History**

The Ash Road Properties are located on Ash Road and Sycamore Road in the Town of Vestal, Broome County New York (Drawing No. 1). The Ash Road Properties currently occupy a portion of the greater parking area for the Lowe's Home Center. The Property is located in a well-developed commercial district with adjacent commercial properties. (Drawing No. 2).

The Ash Road Properties were formerly occupied by Town Square Body Shop and Hall Plumbing. The site buildings were demolished in 1996.

### **Environmental Summary:**

#### Ash Road Properties

Two former occupants of the Ash Road Properties include Town Square Body Shop and Hall Plumbing. Town Square Body Shop performed auto-body repairs as well as automotive painting, washing and waxing. The Hall Plumbing building was occupied by a contractor's office and warehouse.

### Ash Road Properties and Adjacent Properties

The summary of the field investigations completed by NYSDEC in 2009 indicates that there is a limited source area of primarily chlorinated compounds located in the western portion of the Ash Road Properties. The source area appears to have impacted groundwater quality migrating northwesterly along the flow path following a creek bed that has been channelized under existing pavement. NYSDEC recommends interim remedial measures and additional remedial investigation of the site.

The contaminants of concern are as follows:

Tetrachloroethene  
Trichloroethene  
*cis* and *trans*-1,2-Dichloroethene  
Vinyl chloride  
Petroleum/Benzene

## **2.2 Summary of Major Health and Safety Risks**

The major health and safety risks are physical risks associated with the following:

- Work around heavy equipment including excavators, soil sampling drill rig and hydraulic probe (Geoprobe).
- Entrapment, pinch points and electrical shock.
- Slip, trips and falls.
- Noise.
- Open excavations.



### **3. EMERGENCY CONTACTS & COMMUNICATIONS**

#### **3.1 Communications**

GeoLogic field personnel will be equipped with cellular telephones. This will enable field personnel to communicate directly with local emergency support units should an accident or injury occur during field operations.

The safety officer is Susan Cummins. The Principal-in-Charge is Forrest C. Earl, President. Both can be contacted at **(607) 749-5000**. The health and safety officer can be reached at (607) 836-6084 (night).

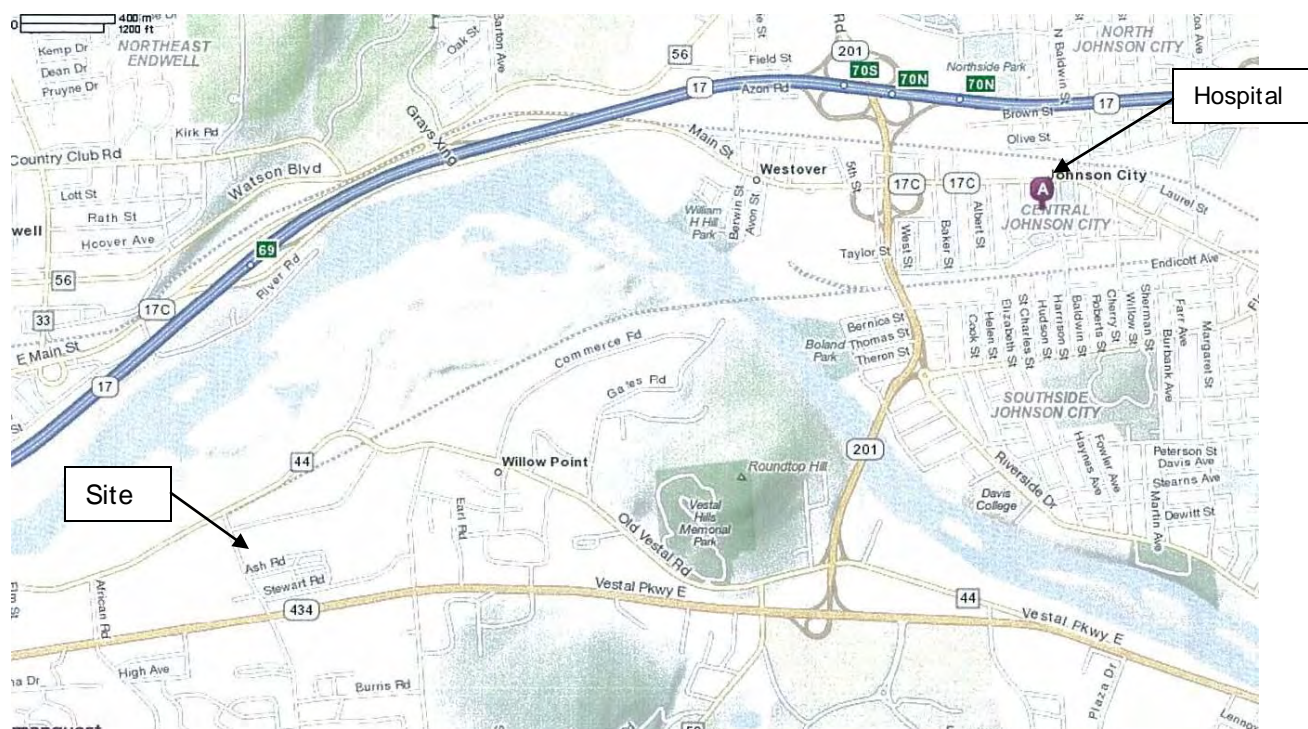
#### **3.2 Emergency Contacts**

Emergency Phone Numbers for this site are:

Police	911
Fire	911 - Local
Ambulance	911
Hospital	911 (see directions on following page)

United Health Services/Wilson Memorial Regional Medical  
33-57 Harrison Street, Johnson City, New York  
607-763-6000

Directions to hospital: Exit the site on to Sycamore Road heading south, taking a left at the traffic light on to Route 434; proceed east about 1.5 to 2 miles; enter Route 201 from the right lane and proceed north to the Route 17C exit ramp; at bottom of ramp take a right and proceed less than 1 mile; take a right on to Baldwin Street (past Harrison Street) for ambulatory services.



GeoLogic Office 607-749-5000

NYSDEC Spill Hotline 1-800-457-7362 (Spills must be reported within 2 hours of their discovery.)

The First Aid Kit provided by GeoLogic must be kept within a reasonable distance of personnel at all times.

### 3.3 Safety Items

During the initial site visit, GeoLogic will identify and record possible hazards that do, or may, exist at the site.

All accidents or injuries must be reported within a 24-hour period to the Health and Safety Officer (if not available, report to Forrest Earl or Staria Dixon-Warner, Office Manager). This includes even minor cuts and abrasions. Failure to immediately report accidents and injuries sustained on the job may result in the loss of workers compensation and disability benefits. All employees reporting an accident or injury will be required to fill out an accident report form.

All GeoLogic personnel working/visiting the site must sign this plan in the space provided below. A copy of this signed acknowledgement will be kept in each signatories personnel file and in the project file, GeoLogic **Job No. 209183**.

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NAME

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DATE

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NAME

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## **4. SITE HAZARD ASSESSMENT**

### **4.1 Physical Hazards**

The physical hazards associated with the work to be performed by GeoLogic are mainly associated with the operation of drill rigs and backhoes. Personnel will be experienced in the proper operation of the equipment and familiar with the equipment-specific hazards and the built-in safety mechanism of that equipment. The emergency kill switch on the drill rig will be checked daily to assure that it is in good working condition.

The hazards involved with the use of drill rigs and auxiliary equipment, that include steam cleaners/pressure washers and portable generators, are significant and include the hazards of pinch points, entrapment in the machinery, impact from moving parts, fatigue, electrocution from the equipment as well as from overhead power lines and buried utilities. The driller and the driller's helper are the only two people allowed to operate the drill rig. Other site personnel should not stand directly behind the drill rig to avoid falling or projected objects. Personnel near the drill rig should be aware of what is overhead during drilling procedures. GeoLogic shall require that other personnel entering the Work Zone make their presence known to the driller and driller's helper, and when possible, maintain visual contact with these persons.

The hazards involved with the backhoe include entrapment in the machinery, impact from moving parts, fatigue, electrocution from overhead power lines and buried utilities, and falling into the excavation. Site personnel should not stand directly behind or underneath the backhoe to avoid falling or projected objects, or next to the excavation to avoid falling into the open excavation. Personnel near the backhoe should be aware of what is overhead during excavation. GeoLogic shall require that personnel entering the Work Zone make their presence known to the backhoe operator, and when possible, maintain visual contact with these persons. Before leaving the site each day, if possible, all excavations should be backfilled. If backfilling is not possible, the excavation will be secured with fencing to prevent falling into the excavation.

For purposes of this Health and Safety Plan, "Work Zone" will be defined as the area within a 10-foot radius of the drilling and excavating equipment (drill rig, hydraulic probe or backhoe).

#### **4.1.1 Manual Lifting**

Manual lifting of heavy objects will be required. Failure to follow proper lifting techniques can result in back injuries and strains. Special attention will be given to the lifting and moving of heavy objects (drill casings, augers, drill rods and 55-gallon barrels). All personnel will be trained in the proper methods of lifting heavy objects.

#### **4.1.2 Utilities**

GeoLogic will be responsible for contacting Dig Safely NY to locate public utilities, both underground and aboveground. These locations shall be physically marked in the field. Location of boring points will take into consideration the degree of accuracy of these locations and provide adequate distances from the identified utilities. GeoLogic field personnel will have the right to make adjustments to boring locations should they feel there were safety issues associated with the designated location.

#### **4.1.3 Noise**

Noise is a potential health hazard associated with the operation of the drill rig and excavation activities. Physical responses to excessive noise can include an increase in heart rate, blood pressure and respiration rate, muscle tension and fatigue. Excessive noise can inhibit verbal communications between site personnel. Hearing protection will be worn during drilling operations. For other site activities, in the absence of instrumentation, an appropriate rule of thumb is that when normal conversation is difficult at a distance of 2 to 3 feet, hearing protection is required.

#### **4.1.4 Electrical Hazards**

Ground fault circuit interrupters will be used in the absence of proper ground circuitry or when electrical equipment is used in wet conditions. Electrical extension cords will be protected or guarded from damage and maintained in good condition.

#### **4.1.5 Vehicular Traffic**

The worksite is located along the perimeter of the parking area for the Lowe's Home Center. The access into the Lowe's Home Center is from both Sycamore and Ash Roads. Vehicles entering the Lowe's Home Center from Ash Road cross the work site. Vehicular traffic as well as any pedestrian traffic will be diverted around the work

site through the placement of signage and barricades. Regardless, awareness of traffic must be maintained at all times, and work site set-up will incorporate work practices that maintain visual contact with traffic flow.

#### **4.1.6 Excavation**

Excavations are part of the interim remedial measure. No geologic or subcontractor personnel will enter the excavations.

The physical hazards involved in excavating soils are related to the presence of overhead and underground utilities, the excavation itself and the operation of heavy equipment. Excavating equipment will maintain a safe distance between overhead power lines and the closest part of the excavation equipment. Underground utilities may be present in the work area. Dig Safely NY will be contacted as discussed above.

A chance exists for excavations to collapse, if not properly excavated, sloped, benched or shored. Even though no personnel will be entering the excavation, the excavation must be constructed as to not present a hazard to personnel working in the area or to the general public. This includes precautions to prevent a cave-in or collapse, which could impact people standing or working near the excavation, and barricading or using other precautions to protect from fall hazards.

All samples will be collected directly from the bucket, and visual inspections from a safe location outside the excavation.

#### **4.1.7 Temperature Extremes**

##### **Heat Stress**

Workers who are exposed to extreme heat or work in hot environments may be at risk of heat stress. Exposure to extreme heat can result in occupational illnesses and injuries. Heat stress can result in heat stroke, heat exhaustion, heat cramps, or heat rashes. Heat can also increase the risk of injuries in workers as it may result in sweaty palms, fogged-up safety glasses, and dizziness. Burns may also occur as a result of accidental contact with hot surfaces or steam.

Workers at greater risk of heat stress include those who are 65 years of age or older, are overweight, have heart disease or high blood pressure, or take medications that may be affected by extreme heat.

### ***Heat Stroke***

Heat stroke is the most serious heat-related disorder. It occurs when the body becomes unable to control its temperature: the body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. When heat stroke occurs, the body temperature can rise to 106 degrees Fahrenheit or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not given.

#### Symptoms

Symptoms of heat stroke include:

- Hot, dry skin (no sweating)
- Hallucinations
- Chills
- Throbbing headache
- High body temperature
- Confusion/dizziness
- Slurred speech

#### First Aid

Take the following steps to treat a worker with heat stroke:

- Call 911 and notify their supervisor.
- Move the sick worker to a cool shaded area.
- Cool the worker using methods such as:
  - Soaking their clothes with water.
  - Spraying, sponging, or showering them with water.
  - Fanning their body.

### ***Heat Exhaustion***

Heat exhaustion is the body's response to an excessive loss of the water and salt, usually through excessive sweating. Workers most prone to heat exhaustion are those that are elderly, have high blood pressure, and those working in a hot environment.

### Symptoms

Symptoms of heat exhaustion include:

- Heavy sweating
- Extreme weakness or fatigue
- Dizziness, confusion
- Nausea
- Clammy, moist skin
- Pale or flushed complexion
- Muscle cramps
- Slightly elevated body temperature
- Fast and shallow breathing

### First Aid

Treat a worker suffering from heat exhaustion with the following:

- Have them rest in a cool, shaded or air-conditioned area.
- Have them drink plenty of water or other cool, nonalcoholic beverages.
- Have them take a cool shower, bath, or sponge bath.

### ***Heat Syncope***

Heat syncope is a fainting (syncope) episode or dizziness that usually occurs with prolonged standing or sudden rising from a sitting or lying position. Factors that may contribute to heat syncope include dehydration and lack of acclimatization.

### Symptoms

Symptoms of heat syncope include:

- Light-headedness
- Dizziness
- Fainting

### First Aid

Workers with heat syncope should:

- Sit or lie down in a cool place when they begin to feel symptoms.
- Slowly drink water, clear juice, or a sports beverage.



### ***Heat Cramps***

Heat cramps usually affect workers who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture levels. Low salt levels in muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion.

#### Symptoms

Muscle pain or spasms usually in the abdomen, arms, or legs.

#### First Aid

Workers with heat cramps should:

- Stop all activity, and sit in a cool place.
- Drink clear juice or a sports beverage.
- Do not return to strenuous work for a few hours after the cramps subside because further exertion may lead to heat exhaustion or heat stroke.
- Seek medical attention if any of the following apply:
  - The worker has heart problems.
  - The worker is on a low-sodium diet.
  - The cramps do not subside within one hour.

### ***Heat Rash***

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather.

#### Symptoms

Symptoms of heat rash include:

- Heat rash looks like a red cluster of pimples or small blisters.
- It is more likely to occur on the neck and upper chest, in the groin, under the breasts, and in elbow creases.

#### First Aid

Workers experiencing heat rash should:

- Try to work in a cooler, less humid environment when possible.
- Keep the affected area dry.
- Dusting powder may be used to increase comfort.

## **Cold Stress**

Workers who are exposed to extreme cold or work in cold environments may be at risk of cold stress. Extreme cold weather is a dangerous situation that can bring on health emergencies in susceptible people, such as those without shelter, outdoor workers, and those who work in an area that is poorly insulated or without heat. Whenever temperatures drop decidedly below normal and as wind speed increases, heat can more rapidly leave your body. These weather-related conditions may lead to serious health problems.

### **Types of Cold Stress:**

#### ***Hypothermia***

When exposed to cold temperatures, your body begins to lose heat faster than it can be produced. Prolonged exposure to cold will eventually use up your body's stored energy. The result is hypothermia, or abnormally low body temperature. A body temperature that is too low affects the brain, making the victim unable to think clearly or move well. This makes hypothermia particularly dangerous because a person may not know it is happening and will not be able to do anything about it.

#### **Symptoms**

Symptoms of hypothermia can vary depending on how long you have been exposed to the cold temperatures.

#### **Early Symptoms**

- Shivering
- Fatigue
- Loss of coordination
- Confusion and disorientation

#### **Late Symptoms**

- No shivering
- Blue skin
- Dilated pupils
- Slowed pulse and breathing
- Loss of consciousness

### First Aid

Take the following steps to treat a worker with hypothermia:

- Alert the supervisor and request medical assistance.
- Move the victim into a warm room or shelter.
- Remove their wet clothing.
- Warm the center of their body first - chest, neck, head, and groin, using an electric blanket, if available; or use skin-to-skin contact under loose, dry layers of blankets, clothing, towels, or sheets.
- Warm beverages may help increase the body temperature, but do not give alcoholic beverages. Do not try to give beverages to an unconscious person.
- After their body temperature has increased, keep the victim dry and wrapped in a warm blanket, including the head and neck.
- If victim has no pulse, begin cardiopulmonary resuscitation (CPR).

### ***Frostbite***

Frostbite is an injury to the body that is caused by freezing. Frostbite causes a loss of feeling and color in the affected areas. It most often affects the nose, ears, cheeks, chin, fingers, or toes. Frostbite can permanently damage body tissues, and severe cases can lead to amputation. In extremely cold temperatures, the risk of frostbite is increased in workers with reduced blood circulation and among workers who are not dressed properly.

### Symptoms

Symptoms of frostbite include:

- Reduced blood flow to hands and feet (fingers or toes can freeze)
- Numbness
- Tingling or stinging
- Aching
- Bluish or pail, waxy skin

### First Aid

Workers suffering from frostbite should:

- Get into a warm room as soon as possible.
- Unless absolutely necessary, do not walk on frostbitten feet or toes - this increases the damage.
- Immerse the affected area in warm - not hot - water (the temperature should be comfortable to the touch for unaffected parts of the body).

- Warm the affected area using body heat; for example, the heat of an armpit can be used to warm frostbitten fingers.
- Do not rub or massage the frostbitten area; doing so may cause more damage.
- Do not use a heating pad, heat lamp, or the heat of a stove, fireplace, or radiator for warming. Affected areas are numb and can be easily burned.

### ***Trench Foot***

Trench foot, also known as immersion foot, is an injury of the feet resulting from prolonged exposure to wet and cold conditions. Trench foot can occur at temperatures as high as 60 degrees F if the feet are constantly wet. Injury occurs because wet feet lose heat 25-times faster than dry feet. Therefore, to prevent heat loss, the body constricts blood vessels to shut down circulation in the feet. Skin tissue begins to die because of lack of oxygen and nutrients and due to the buildup of toxic products.

### **Symptoms**

Symptoms of trench foot include:

- Reddening of the skin
- Numbness
- Leg cramps
- Swelling
- Tingling pain
- Blisters or ulcers
- Bleeding under the skin
- Gangrene (the foot may turn dark purple, blue, or gray)

### **First Aid**

Workers suffering from trench foot should:

- Remove shoes/boots and wet socks.
- Dry their feet.
- Avoid walking on feet, as this may cause tissue damage.

### ***Chilblains***

Chilblains are caused by the repeated exposure of skin to temperatures just above freezing to as high as 60 degrees F. The cold exposure causes damage to the capillary beds (groups of small blood vessels) in the skin. This damage is permanent

and the redness and itching will return with additional exposure. The redness and itching typically occurs on cheeks, ears, fingers, and toes.

### Symptoms

Symptoms of chilblains include:

- Redness
- Itching
- Possible blistering
- Inflammation
- Possible ulceration in severe cases

### First Aid

Workers suffering from chilblains should:

- Avoid scratching
- Slowly warm the skin
- Use corticosteroid creams to relieve itching and swelling
- Keep blisters and ulcers clean and covered

### **Recommendations for Workers**

When cold environments or temperatures cannot be avoided, workers should follow these recommendations to protect themselves from cold stress:

- Wear appropriate clothing.
  - Wear several layers of loose clothing. Layering provides better insulation.
  - Tight clothing reduces blood circulation. Warm blood needs to be circulated to the extremities.
  - When choosing clothing, be aware that some clothing may restrict movement resulting in a hazardous situation.
- Make sure to protect the ears, face, hands and feet in extremely cold weather.
  - Boots should be waterproof and insulated.
  - Wear a hat; it will keep your whole body warmer. (Hats reduce the amount of body heat that escapes from your head.)
- Move into warm locations during work breaks; limit the amount of time outside on extremely cold days.

- Carry cold weather gear, such as extra socks, gloves, hats, jacket, blankets, a change of clothes and a thermos of hot liquid.
- Include a thermometer and chemical hot packs in your first aid kit.
- Avoid touching cold metal surfaces with bare skin.
- Monitor your physical condition and that of your coworkers.

#### **4.2 Chemical Hazards**

Based on the known history of the site, the potential contaminants of concern are from chlorinated compounds and petroleum hydrocarbon. These contaminants may be encountered during the drilling and excavation activities and sampling the groundwater monitoring wells. There are several possible routes of exposure to persons working at the site that include dermal and respiratory routes, ingestion, and eye contact. The hazardous characteristic of the potential contaminants are summarized on Table 2. The personal protection equipment and monitoring to be used at this site are listed in Section 5.

### **5. LEVELS OF PROTECTION**

Since site personnel may be exposed to chemical contaminants released during the sampling activities, various levels of Personal Protection Equipment (PPE) may be necessary. The monitoring equipment and PPE to be used are determined based on the task being performed. It is anticipated that most work will be performed in Level D. The task-specific equipment and PPE are summarized below:

#### **Task: Excavation Oversight and Air Monitoring**

The initial PPE to be worn by GeoLogic personnel performing these activities will be at Level D and may include: hardhat, steel-toed boots and OSHA-approved eye, and ear protection, high visibility safety vest.

#### **Task: Subsurface Soil Sampling (Drilling and Excavation)**

The initial PPE to be worn by GeoLogic personnel performing these activities will be at Level D and may include: hardhat, steel-toed boots and OSHA-approved eye, ear protection and high visibility safety vest. Level C PPE will be immediately available for use, if monitoring results warrant use.

**Task: Monitoring Well Installation**

The initial PPE that will be worn by the driller and driller's helper during drilling activities will include: hardhat, steel-toed boots and OSHA-approved eye, ear protection and, high visibility safety vest. The PPE to be used by the supervisor may include: hardhat, and OSHA-approved eye protection and ear protection. Level C PPE will be immediately available for use by the driller, driller's helper and other GeoLogic field personnel, if monitoring results warrant use.

**Task: Sampling of Groundwater Monitoring Wells**

The PPE to be used during sampling operations will include chemically resistant gloves and OSHA-approved eye protection.

No confined-space entry will be allowed. No entry into test pit excavations will be allowed.

Recommended PPE are summarized in Table 1.

## **6. MONITORING**

Hazardous Characteristics of Potential Contaminants of Concern are summarized in Table 2.

### **6.1 Work Zone Monitoring**

The photoionization detector (PID) may be used during the drilling and sampling operations in order to determine the approximate concentrations of ionizable vapors emanating from the boring and/or well, and to check background conditions. The breathing zones occupied by all workers may be checked with the PID during sample retrieval and/or when petroleum or solvent-like odors are noticed.

If the concentrations detected by the PID are less than 5 ppm in the breathing zone, no breathing apparatus is necessary. If sustained concentrations are greater than 5 ppm, an air-purifying respirator with the appropriate cartridges must be worn. If the concentrations are greater than 500 ppm, all work must be stopped and the work area must be re-evaluated.

## **6.2 Community Air Monitoring Plan**

Excavation of impacted soils and soil borings will be completed as part of the Interim Remedial Measure and Remedial Investigation activities. These activities have the potential to generate organic vapor and airborne particles. As mentioned above, air monitoring will be conducted in the workers breathing zone to determine the level of protection required for personnel observing completion of the excavation and test borings. The New York State Department of Health (NYSDOH) Community Air Monitoring Program (CAMP) will be in accordance with NYSDEC DER-10, Appendix 1A and B (see NYSDOH CAMP Attachment). If action levels in the workers breathing zone are exceeded for organic vapors, or particulates, air monitoring will be required at various onsite/perimeter locations to determine appropriate response activities that are protective of on-site personnel as well as people at adjacent commercial sites.

## **7. SITE CONTROL**

It is important to minimize the possibility of human exposure to contamination, further contamination of the surrounding environment, and cross-contamination of equipment. This site has substantial vehicular traffic. Pylons and caution tape will assist in keeping unauthorized personnel and vehicles from entering the Work Zone during drilling activities.

Based on the anticipated levels of contamination to be encountered, the only "Work Zone" for the work proposed in the Investigation Work Plan will include the work area itself. For purposes of this Health and Safety Plan, the "Work Zone" is defined as the area within a 10-foot radius of the drilling equipment and excavation (drill rig, hydraulic probe, and backhoe).

Free-phase petroleum product is not anticipated at this site. However, sorbent pads will be readily available in case accidental spillage occurs.

## **8. DECONTAMINATION**

All disposable field equipment and clothing should be containerized in disposable plastic bags for disposal at GeoLogic's office dumpster.



All contaminated, reusable equipment and tools will be cleaned on site. Any contaminated equipment returned to the office will be cleaned immediately.

Drilling tools and equipment will be steam cleaned prior to the commencement of drilling operations and after the advancement of each boring (including the last boring drilled at the site).

Decontamination water will be containerized for characterization to determine disposal recommendations.

## **9. TRAINING**

Any GeoLogic personnel working at this site must have completed the basic 40-hour OSHA health and safety training course and, if applicable, the supplemental yearly 8-hour refresher courses.

All GeoLogic personnel who will be working at this site must go over site-specific details outlining the field procedures with the project manager prior to visiting and/or working at the site.

GeoLogic personnel authorized to work at this site include:

Susan Cummins – Health & Safety Officer, Project Manager  
Forrest Earl – Partner-in-Charge, Project Oversight  
Christopher Maroney, P.E.  
Joseph Menzel –Field Geologist  
Christopher Gabriel – Field Oversight  
Scott Breeds – Drill Rig Operator  
David Lyons – Drill Rig Operator  
John Winks – Drill Rig Helper  
Matthew Parkin – Drill Rig Helper

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**Table 1**  
**RECOMMENDED PPE**  
**ASH ROAD PROPERTIES**  
**TOWN OF VESTAL, NEW YORK**

<b>TASK TO BE PERFORMED</b>	<b>Anticipated Level of Protection</b>	<b>Coverall /Tyvek</b>	<b>Glove In/Out</b>	<b>Air Purifying Respirator Cartridge/Can</b>	<b>Other Personal Protective Equipment</b>
Drilling Soil Borings	D	Optional	Latex/ Vinyl	Not anticipated, will modify work area.	Hardhat, steel-toed boots, eye and hearing protection, high visibility vests.
Soil Sampling Using Hydraulic Probe	D	Optional	Latex/ Vinyl	Not anticipated, will modify work area.	Hardhat, steel-toed boots, eye and hearing protection, high visibility vests.
Installing Monitoring Wells	D	Optional	Latex/ Vinyl	Not anticipated, will modify work area.	Hardhat, steel-toed boots, eye and hearing protection, high visibility vests.
Observing Excavations	D	Optional	Latex/ Vinyl	Not anticipated, will modify work area.	Hardhat, steel-toed boots, eye and hearing protection, high visibility vests.

**Table 2**  
**HAZARD CHARACTERISTICS OF POTENTIAL CONTAMINANTS**  
**ASH ROAD PROPERTIES**  
**TOWN OF VESTAL, NY**

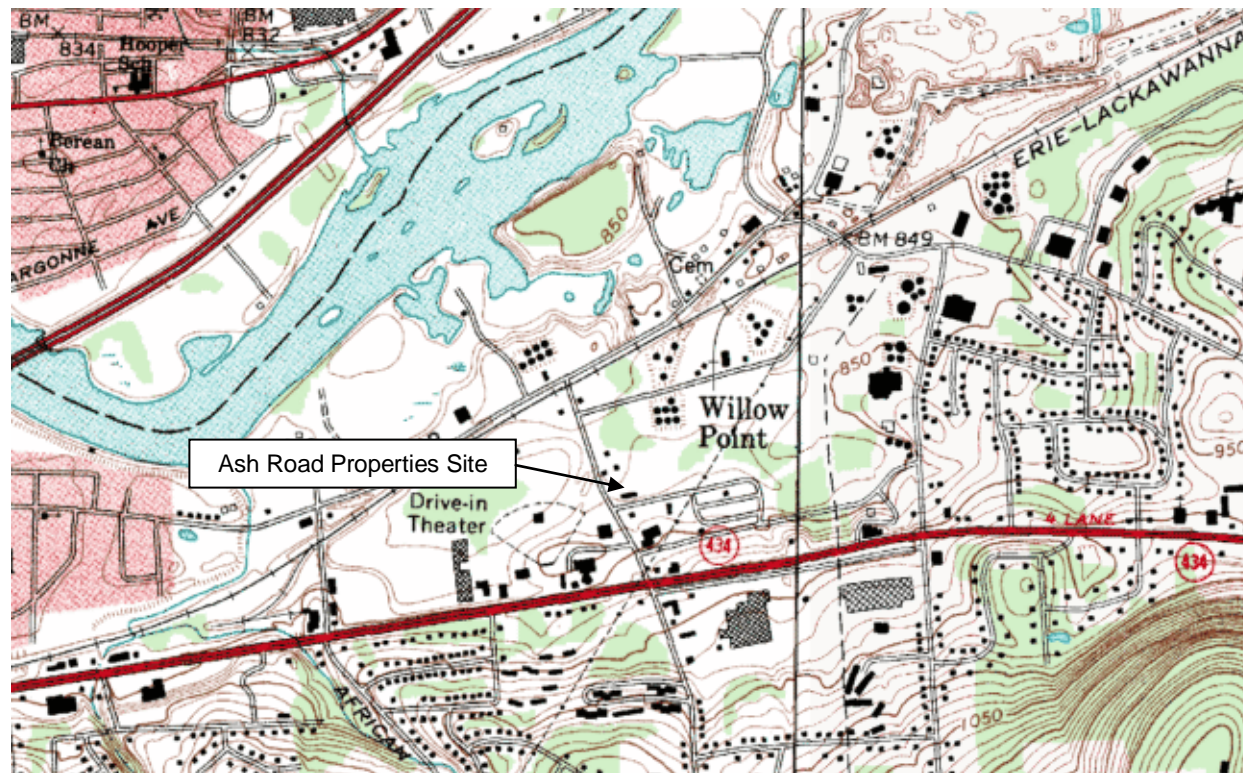
Compound	CAS No.	Toxicity	Maximum Identified Concentration, ppbv	Physical Characteristic/Symptoms
Tetrachloroethene	127-18-4	Cancer-causing IDLH 500 ppm PEL 100 ppm 200 ppm ceiling 300 ppm 5-min/3-hour peak	27 ppm Groundwater 14 ppm Soil	Colorless liquid; chloroform or sweet ether odor; non-flammable / irritant to mucous membranes; drowsiness, headaches, nausea.
Dichloroethene	540-59-0	IDLH 4000 ppm PEL 200 ppm	43 ppm Soil 11 ppm Groundwater	Colorless liquid; slight chloroform odor; non-flammable / irritant to mucous membranes, CNS depressant.
Trichloroethene	79-01-6	IDLH 1000 ppm PEL 100 ppm 200 ppm ceiling 300 ppm 5-min/3-hour peak	3 ppm 4 Soil 5 ppm Groundwater	Colorless liquid; chloroform odor, / irritant to mucous membranes, skin irritant; headache, nausea, visual disturbance.
Vinyl Chloride	75-01-4	IDLH N.D. PEL 1 ppm Ceiling 5 ppm	0.7 ppm Soil 8 ppb Groundwater	Colorless liquid with a pleasant odor in high concentrations / frostbite-like skin and eye irritant / weakness, abdominal pain, pallor or cyan of extremities.
Benzene	71-43-2	TWA PEL 10 ppm IDLH 2000 ppm	Less than 1 ppm Soil and Groundwater	Colorless liquid with an aromatic odor; irritated eye, nose, giddy, headache, nausea.

TLV-TWA – Threshold Limit Value Time Weighted Average.

OSHA-PEL – Occupational Safety and Health Administration - Permissible Exposure Limit.

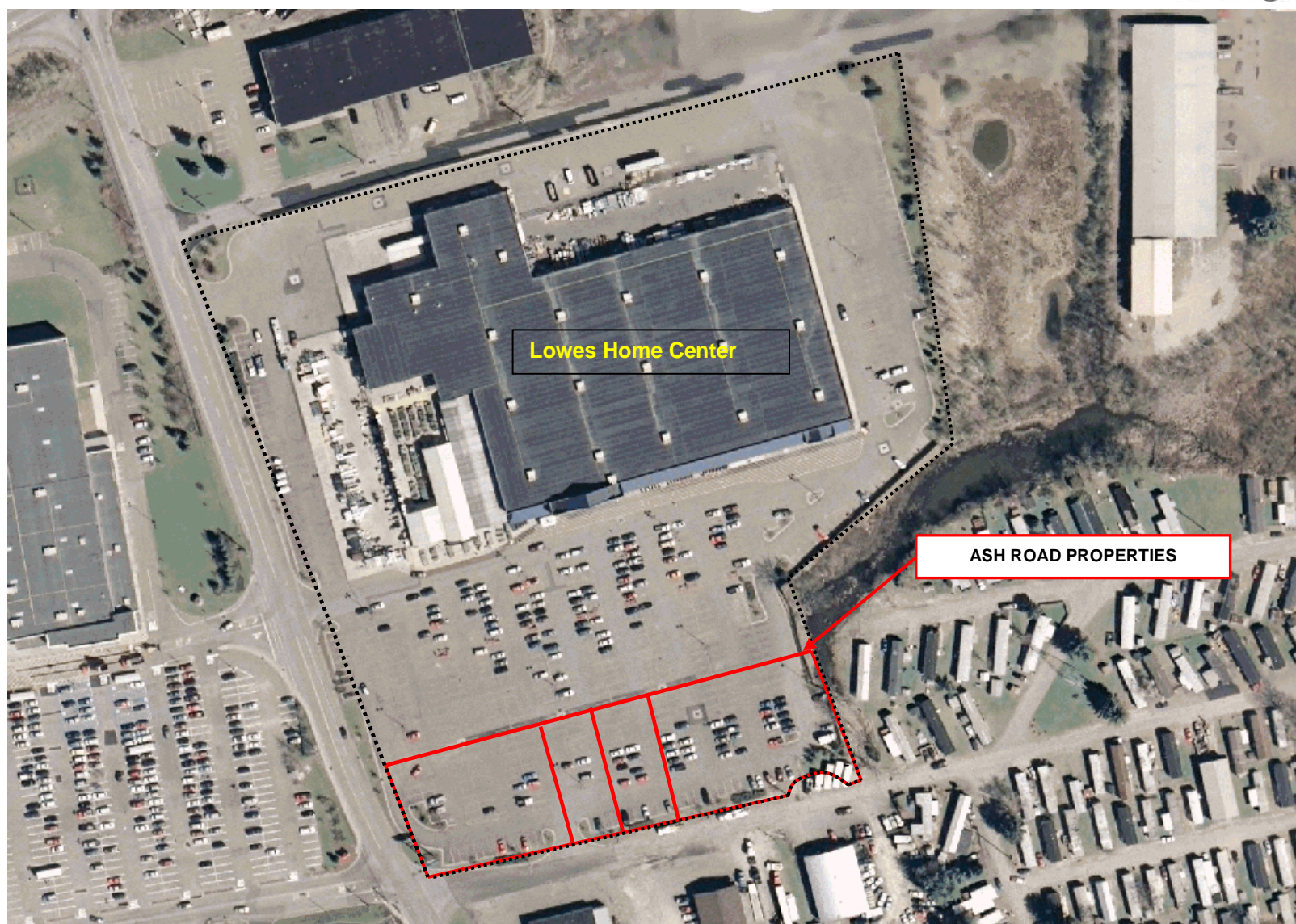
IDLH – Immediately Dangerous to Health & Life.

N/A – Not Applicable.

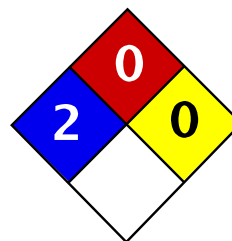


**Drawing No. 1**  
**Topographic Map**  
**Ash Road Properties**  
**Town of Vestal, New York**  
**Approximate Scale 1" = 2000'**





Drawing No. 2  
BCP Site  
Ash Road Properties  
Town of Vestal, New York



Health	2
Fire	0
Reactivity	0
Personal Protection	G

## Material Safety Data Sheet

### Tetrachloroethylene MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Tetrachloroethylene

**Catalog Codes:** SLT3220

**CAS#:** 127-18-4

**RTECS:** KX3850000

**TSCA:** TSCA 8(b) inventory: Tetrachloroethylene

**CI#:** Not available.

**Synonym:** Perchloroethylene; 1,1,2,2-Tetrachloroethylene; Carbon bichloride; Carbon dichloride; Ankilostin; Didakene; Dilatin PT; Ethene, tetrachloro-; Ethylene tetrachloride; Perawin; Perchlor; Perclene; Perclene D; Percosolvel; Tetrachloroethene; Tetraleno; Tetralex; Tetravec; Tetroguer; Tetropil

**Chemical Name:** Ethylene, tetrachloro-

**Chemical Formula:** C<sub>2</sub>-Cl<sub>4</sub>

#### Contact Information:

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**  
1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

##### Composition:

Name	CAS #	% by Weight
Tetrachloroethylene	127-18-4	100

**Toxicological Data on Ingredients:** Tetrachloroethylene: ORAL (LD<sub>50</sub>): Acute: 2629 mg/kg [Rat]. DERMAL (LD): Acute: >3228 mg/kg [Rabbit]. MIST(LC<sub>50</sub>): Acute: 34200 mg/m 8 hours [Rat]. VAPOR (LC<sub>50</sub>): Acute: 5200 ppm 4 hours [Mouse].

#### Section 3: Hazards Identification

##### Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion.

##### Potential Chronic Health Effects:

**CARCINOGENIC EFFECTS:** Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (anticipated carcinogen) by NTP.

**MUTAGENIC EFFECTS:** Mutagenic for bacteria and/or yeast.

**TERATOGENIC EFFECTS:** Not available.

**DEVELOPMENTAL TOXICITY:** Not available.

The substance may be toxic to kidneys, liver, peripheral nervous system, respiratory tract, skin, central nervous system (CNS).

Repeated or prolonged exposure to the substance can produce target organs damage.

#### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

**Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

**Serious Ingestion:** Not available.

#### Section 5: Fire and Explosion Data

**Flammability of the Product:** Non-flammable.

**Auto-Ignition Temperature:** Not applicable.

**Flash Points:** Not applicable.

**Flammable Limits:** Not applicable.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** Not applicable.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available.

Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:** Not applicable.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

**Small Spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal.

**Large Spill:**

Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

**Precautions:**

Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

**Personal Protection:**

Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

TWA: 25 (ppm) from OSHA (PEL) [United States]

TWA: 25 STEL: 100 (ppm) from ACGIH (TLV) [United States]

TWA: 170 (mg/m<sup>3</sup>) from OSHA (PEL) [United States]

Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.

**Odor:** Ethereal.

**Taste:** Not available.

**Molecular Weight:** 165.83 g/mole

**Color:** Clear Colorless.

**pH (1% soln/water):** Not available.

**Boiling Point:** 121.3°C (250.3°F)

**Melting Point:** -22.3°C (-8.1°F)

**Critical Temperature:** 347.1°C (656.8°F)



**Specific Gravity:** 1.6227 (Water = 1)

**Vapor Pressure:** 1.7 kPa (@ 20°C)

**Vapor Density:** 5.7 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** 5 - 50 ppm

**Water/Oil Dist. Coeff.:** The product is more soluble in oil; log(oil/water) = 3.4

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Not available.

**Solubility:**

Miscible with alcohol, ether, chloroform, benzene, hexane.

It dissolves in most of the fixed and volatile oils.

Solubility in water: 0.015 g/100 ml @ 25 deg. C

It slowly decomposes in water to yield Trichloroacetic and Hydrochloric acids.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Incompatible materials

**Incompatibility with various substances:** Reactive with oxidizing agents, metals, acids, alkalis.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:**

Oxidized by strong oxidizing agents.

Incompatible with sodium hydroxide, finely divided or powdered metals such as zinc, aluminum, magnesium, potassium, chemically active metals such as lithium, beryllium, barium.

Protect from light.

**Special Remarks on Corrosivity:** Slowly corrodes aluminum, iron, and zinc.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Absorbed through skin. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.

Acute oral toxicity (LD50): 2629 mg/kg [Rat].

Acute dermal toxicity (LD50): >3228 mg/kg [Rabbit].

Acute toxicity of the vapor (LC50): 5200 4 hours [Mouse].

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP.

MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast.

May cause damage to the following organs: kidneys, liver, peripheral nervous system, upper respiratory tract,

skin, central nervous system (CNS).

**Other Toxic Effects on Humans:**

Hazardous in case of skin contact (irritant), of inhalation.

Slightly hazardous in case of skin contact (permeator), of ingestion.

**Special Remarks on Toxicity to Animals:**

Lowest Published Lethal Dose/Conc:

LDL [Rabbit] - Route: Oral; Dose: 5000 mg/kg

LDL [Dog] - Route: Oral; Dose: 4000 mg/kg

LDL [Cat] - Route: Oral; Dose: 4000 mg/kg

**Special Remarks on Chronic Effects on Humans:**

May cause adverse reproductive effects and birth defects(teratogenic).

May affect genetic material (mutagenic).

May cause cancer.

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects:

Skin: Causes skin irritation with possible dermal blistering or burns. Symptoms may include redness, itching, pain, and possible dermal blistering or burns. It may be absorbed through the skin with possible systemic effects. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts.

Eyes: Contact causes transient eye irritation, lacrimation. Vapors cause eye/conjunctival irritation. Symptoms may include redness and pain.

Inhalation: The main route to occupational exposure is by inhalation since it is readily absorbed through the lungs. It causes respiratory tract irritation, . It can affect behavior/central nervous system (CNS depressant and anesthesia ranging from slight inebriation to death, vertigo, somnolence, anxiety, headache, excitement, hallucinations, muscle incoordination, dizziness, lightheadness, disorientation, seizures, emotional instability, stupor, coma). It may cause pulmonary edema

Ingestion: It can cause nausea, vomiting, anorexia, diarrhea, bloody stool. It may affect the liver, urinary system (proteinuria, hematuria, renal failure, renal tubular disorder), heart (arrhythmias). It may affect behavior/central nervous system with symptoms similar to that of inhalation.

Chronic Potential Health Effects:

Skin: Prolonged or repeated skin contact may result in excessive drying of the skin, and irritation.

Ingestion/Inhalation: Chronic exposure can affect the liver(hepatitis,fatty liver degeneration), kidneys, spleen, and heart (irregular heartbeat/arrhythmias, cardiomyopathy, abnormal EEG), brain, behavior/central nervous system/peripheral nervous system (impaired memory, numbness of extremities, peripheral neuropathy and other

## Section 12: Ecological Information

**Ecotoxicity:**

Ecotoxicity in water (LC50): 18.4 mg/l 96 hours [Fish (Fathead Minnow)]. 18 mg/l 48 hours [Daphnia (daphnia)]. 5 mg/l 96 hours [Fish (Rainbow Trout)]. 13 mg/l 96 hours [Fish (Bluegill sunfish)].

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The product itself and its products of degradation are not toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**DOT Classification:** CLASS 6.1: Poisonous material.

**Identification:** : Tetrachloroethylene UNNA: 1897 PG: III

**Special Provisions for Transport:** Marine Pollutant

## Section 15: Other Regulatory Information

### Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute:

Tetrachloroethylene

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Tetrachloroethylene

Connecticut hazardous material survey.: Tetrachloroethylene

Illinois toxic substances disclosure to employee act: Tetrachloroethylene

Illinois chemical safety act: Tetrachloroethylene

New York release reporting list: Tetrachloroethylene

Rhode Island RTK hazardous substances: Tetrachloroethylene

Pennsylvania RTK: Tetrachloroethylene

Minnesota: Tetrachloroethylene

Michigan critical material: Tetrachloroethylene

Massachusetts RTK: Tetrachloroethylene

Massachusetts spill list: Tetrachloroethylene

New Jersey: Tetrachloroethylene

New Jersey spill list: Tetrachloroethylene

Louisiana spill reporting: Tetrachloroethylene

California Director's List of Hazardous Substances: Tetrachloroethylene

TSCA 8(b) inventory: Tetrachloroethylene

TSCA 8(d) H and S data reporting: Tetrachloroethylene: Effective date: 6/1/87; Sunset date: 6/1/97

SARA 313 toxic chemical notification and release reporting: Tetrachloroethylene

CERCLA: Hazardous substances.: Tetrachloroethylene: 100 lbs. (45.36 kg)

### Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

### Other Classifications:

#### WHMIS (Canada):

CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).

CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

#### DSCL (EEC):

R40- Possible risks of irreversible effects.

R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S23- Do not breathe gas/fumes/vapour/spray

S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S37- Wear suitable gloves.

S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

#### HMIS (U.S.A.):

**Health Hazard:** 2

**Fire Hazard:** 0

**Reactivity:** 0

**Personal Protection:** g

**National Fire Protection Association (U.S.A.):**

**Health:** 2

**Flammability:** 0

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves.

Lab coat.

Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Safety glasses.

**Section 16: Other Information**

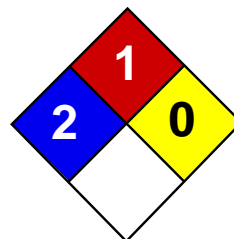
**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/10/2005 08:29 PM

**Last Updated:** 11/06/2008 12:00 PM

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Health	2
Fire	1
Reactivity	0
Personal Protection	H

## Material Safety Data Sheet

### Trichloroethylene MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Trichloroethylene

**Catalog Codes:** SLT3310, SLT2590

**CAS#:** 79-01-6

**RTECS:** KX4560000

**TSCA:** TSCA 8(b) inventory: Trichloroethylene

**CI#:** Not available.

**Synonym:**

**Chemical Formula:** C<sub>2</sub>HCl<sub>3</sub>

#### Contact Information:

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

##### Composition:

Name	CAS #	% by Weight
Trichloroethylene	79-01-6	100

**Toxicological Data on Ingredients:** Trichloroethylene: ORAL (LD50): Acute: 5650 mg/kg [Rat]. 2402 mg/kg [Mouse]. DERMAL (LD50): Acute: 20001 mg/kg [Rabbit].

#### Section 3: Hazards Identification

**Potential Acute Health Effects:** Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

##### Potential Chronic Health Effects:

**CARCINOGENIC EFFECTS:** Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH.

**MUTAGENIC EFFECTS:** Not available. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not available.

The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage.

#### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

**Skin Contact:**

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

**Inhalation:** Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

**Ingestion:**

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** 420°C (788°F)

**Flash Points:** Not available.

**Flammable Limits:** LOWER: 8% UPPER: 10.5%

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>), halogenated compounds.

**Fire Hazards in Presence of Various Substances:** Not available.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

**Small Spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal.

**Large Spill:**

Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

**Precautions:**

Keep locked up Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/

spray. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

**Storage:**

Keep container dry. Keep in a cool place. Ground all equipment containing material. Carcinogenic, teratogenic or mutagenic materials should be stored in a separate locked safety storage cabinet or room.

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

**Personal Protection:**

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

TWA: 50 STEL: 200 (ppm) from ACGIH (TLV) TWA: 269 STEL: 1070 (mg/m<sup>3</sup>) from ACGIH Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** 131.39 g/mole

**Color:** Clear Colorless.

**pH (1% soln/water):** Not available.

**Boiling Point:** 86.7°C (188.1°F)

**Melting Point:** -87.1°C (-124.8°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 1.4649 (Water = 1)

**Vapor Pressure:** 58 mm of Hg (@ 20°C)

**Vapor Density:** 4.53 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** 20 ppm

**Water/Oil Dist. Coeff.:** The product is equally soluble in oil and water; log(oil/water) = 0

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water, methanol, diethyl ether, acetone.

**Solubility:**

Easily soluble in methanol, diethyl ether, acetone. Very slightly soluble in cold water.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Not available.

**Corrosivity:**

Extremely corrosive in presence of aluminum. Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** No.

## Section 11: Toxicological Information

**Routes of Entry:** Dermal contact. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

Acute oral toxicity (LD50): 2402 mg/kg [Mouse]. Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit].

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract.

**Other Toxic Effects on Humans:** Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Passes through the placental barrier in human. Detected in maternal milk in human.

**Special Remarks on other Toxic Effects on Humans:** Not available.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are more toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

## Section 14: Transport Information

**DOT Classification:** CLASS 6.1: Poisonous material.

**Identification:** : Trichloroethylene : UN1710 PG: III



**Special Provisions for Transport:** Not available.

## Section 15: Other Regulatory Information

### Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Trichloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Trichloroethylene Pennsylvania RTK: Trichloroethylene Florida: Trichloroethylene Minnesota: Trichloroethylene Massachusetts RTK: Trichloroethylene New Jersey: Trichloroethylene TSCA 8(b) inventory: Trichloroethylene CERCLA: Hazardous substances.: Trichloroethylene

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

### Other Classifications:

#### WHMIS (Canada):

CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

#### DSCL (EEC):

R36/38- Irritating to eyes and skin. R45- May cause cancer.

#### HMIS (U.S.A.):

**Health Hazard:** 2

**Fire Hazard:** 1

**Reactivity:** 0

**Personal Protection:** h

#### National Fire Protection Association (U.S.A.):

**Health:** 2

**Flammability:** 1

**Reactivity:** 0

**Specific hazard:**

#### Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/10/2005 08:54 PM

**Last Updated:** 11/06/2008 12:00 PM

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# MATERIAL SAFETY DATA SHEET

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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**MATHESON TRI-GAS, INC.**  
**150 Allen Road Suite 302**  
**Basking Ridge, New Jersey 07920**  
**Information: 1-800-416-2505**

**Emergency Contact:**  
**CHEMTREC 1-800-424-9300**  
**Calls Originating Outside the US:**  
**703-527-3887 (Collect Calls Accepted)**

**SUBSTANCE: TRANS-1,2-DICHLOROETHYLENE**

**TRADE NAMES/SYNONYMS:**

MTG MSDS 196; TRANS-ACETYLENE DICHLORIDE; TRANS-DICHLOROETHYLENE; TRANS-1,2-DICHLOROETHENE; 1,2-DICHLOROETHYLENE; RCRA U079; C<sub>2</sub>H<sub>2</sub>CL<sub>2</sub>; MAT23670; RTECS KV9400000

**CHEMICAL FAMILY:** halogenated, aliphatic

**CREATION DATE:** Jan 24 1989

**REVISION DATE:** Dec 11 2008

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## 2. COMPOSITION, INFORMATION ON INGREDIENTS

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**COMPONENT:** TRANS-1,2-DICHLOROETHYLENE

**CAS NUMBER:** 156-60-5

**PERCENTAGE:** 100.0

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## 3. HAZARDS IDENTIFICATION

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**NFPA RATINGS (SCALE 0-4):** HEALTH=2 FIRE=3 REACTIVITY=2



**EMERGENCY OVERVIEW:**

**COLOR:** colorless

**PHYSICAL FORM:** liquid

**ODOR:** pleasant odor

**MAJOR HEALTH HAZARDS:** respiratory tract irritation, skin irritation, eye irritation, central nervous system depression

**PHYSICAL HAZARDS:** Flammable liquid and vapor. Vapor may cause flash fire. May react on contact with air, heat, light or water.

**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

**SHORT TERM EXPOSURE:** irritation, nausea, vomiting, drowsiness, symptoms of drunkenness

**LONG TERM EXPOSURE:** no information on significant adverse effects

**SKIN CONTACT:**

**SHORT TERM EXPOSURE:** irritation

**LONG TERM EXPOSURE:** same as effects reported in short term exposure

**EYE CONTACT:**

**SHORT TERM EXPOSURE:** irritation

**LONG TERM EXPOSURE:** same as effects reported in short term exposure

**INGESTION:**

**SHORT TERM EXPOSURE:** symptoms of drunkenness

**LONG TERM EXPOSURE:** no information on significant adverse effects

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## 4. FIRST AID MEASURES

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**INHALATION:** If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

**SKIN CONTACT:** Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

**EYE CONTACT:** Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

**INGESTION:** If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

**NOTE TO PHYSICIAN:** For ingestion, consider gastric lavage. Consider oxygen.

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## 5. FIRE FIGHTING MEASURES

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**FIRE AND EXPLOSION HAZARDS:** Severe fire hazard. Vapor/air mixtures are explosive above flash point. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

**EXTINGUISHING MEDIA:** regular dry chemical, carbon dioxide, water, regular foam

Large fires: Use regular foam or flood with fine water spray.

**FIRE FIGHTING:** Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any

discoloration of tanks due to fire. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Water may be ineffective.

**FLASH POINT:** 36 F (2 C) (CC)

**LOWER FLAMMABLE LIMIT:** 9.7%

**UPPER FLAMMABLE LIMIT:** 12.8%

**AUTOIGNITION:** 860 F (460 C)

**FLAMMABILITY CLASS (OSHA):** IB

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## 6. ACCIDENTAL RELEASE MEASURES

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### **OCCUPATIONAL RELEASE:**

Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

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## 7. HANDLING AND STORAGE

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**STORAGE:** Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106. Grounding and bonding required. Keep separated from incompatible substances.

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## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

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### **EXPOSURE LIMITS:**

#### **TRANS-1,2-DICHLOROETHYLENE:**

#### **1,2-DICHLOROETHYLENE (ALL ISOMERS):**

200 ppm (790 mg/m<sup>3</sup>) OSHA TWA

200 ppm ACGIH TWA

200 ppm (790 mg/m<sup>3</sup>) NIOSH recommended TWA 10 hour(s)

**VENTILATION:** Provide local exhaust ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits.

**EYE PROTECTION:** Wear splash resistant safety goggles with a faceshield. Provide an emergency eye

wash fountain and quick drench shower in the immediate work area.

**CLOTHING:** Wear appropriate chemical resistant clothing.

**GLOVES:** Wear appropriate chemical resistant gloves.

**RESPIRATOR:** The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

2000 ppm

Any supplied-air respirator operated in a continuous-flow mode.

Any powered, air-purifying respirator with organic vapor cartridge(s).

Any air-purifying respirator with a full facepiece and an organic vapor canister.

Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.

Any self-contained breathing apparatus with a full facepiece.

Any supplied-air respirator with a full facepiece.

Emergency or planned entry into unknown concentrations or IDLH conditions -

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

**Escape -**

Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.

Any appropriate escape-type, self-contained breathing apparatus.

**For Unknown Concentrations or Immediately Dangerous to Life or Health -**

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**PHYSICAL STATE:** liquid

**COLOR:** colorless

**ODOR:** pleasant odor

**MOLECULAR WEIGHT:** 96.94

**MOLECULAR FORMULA:** C<sub>2</sub>H<sub>2</sub>CL<sub>2</sub>

**BOILING POINT:** 118 F (48 C)

**FREEZING POINT:** -58 F (-50 C)

**VAPOR PRESSURE:** 400 mmHg @ 31 C

**VAPOR DENSITY (air=1):** 3.34

**SPECIFIC GRAVITY (water=1):** 1.2565

**WATER SOLUBILITY:** slightly soluble

**PH:** Not available

**VOLATILITY:** Not available

**ODOR THRESHOLD:** Not available

**EVAPORATION RATE:** Not available

**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not available

**SOLVENT SOLUBILITY:**

**Soluble:** ethanol, ether

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## 10. STABILITY AND REACTIVITY

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**REACTIVITY:** May decompose on contact with air, light, moisture, heat or storage and use above room temperature. Releases toxic, corrosive, flammable or explosive gases.

**CONDITIONS TO AVOID:** Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Keep out of water supplies and sewers.

**INCOMPATIBILITIES:** bases, metals, combustible materials, oxidizing materials, acids

**HAZARDOUS DECOMPOSITION:**

Thermal decomposition products: phosgene, halogenated compounds, oxides of carbon

**POLYMERIZATION:** May polymerize. Avoid contact with incompatible materials.

---

## 11. TOXICOLOGICAL INFORMATION

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**TRANS-1,2-DICHLOROETHYLENE:**

**IRRITATION DATA:** 500 mg/24 hour(s) skin-rabbit moderate; 10 mg eyes-rabbit moderate

**TOXICITY DATA:** 24100 ppm inhalation-rat LC50; >5 gm/kg skin-rabbit LD50; 1235 mg/kg oral-rat LD50

**LOCAL EFFECTS:**

Irritant: inhalation, skin, eye

**ACUTE TOXICITY LEVEL:**

Moderately Toxic: ingestion

Slightly Toxic: inhalation

**TARGET ORGANS:** central nervous system

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** respiratory disorders

**MUTAGENIC DATA:** Available.

**REPRODUCTIVE EFFECTS DATA:** Available.

---

## 12. ECOLOGICAL INFORMATION

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**ECOTOXICITY DATA:**

**INVERTEBRATE TOXICITY:** <110000 ug/L 48 hour(s) (Mortality) Water flea (Daphnia magna)

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### 13. DISPOSAL CONSIDERATIONS

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Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U079.

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### 14. TRANSPORT INFORMATION

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**U.S. DOT 49 CFR 172.101:**  
**PROPER SHIPPING NAME:** Trichlorobenzenes, liquid  
**ID NUMBER:** UN2321  
**HAZARD CLASS OR DIVISION:** 6.1  
**PACKING GROUP:** III  
**LABELING REQUIREMENTS:** 6.1



**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**  
**SHIPPING NAME:** Trichlorobenzenes, liquid  
**UN NUMBER:** UN2321  
**CLASS:** 6.1  
**PACKING GROUP/CATEGORY:** III

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### 15. REGULATORY INFORMATION

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**U.S. REGULATIONS:**  
**CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):** Not regulated.

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B):** Not regulated.

**SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C):** Not regulated.

**SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):**

ACUTE: Yes  
CHRONIC: No  
FIRE: Yes  
REACTIVE: Yes  
SUDDEN RELEASE: No

**SARA TITLE III SECTION 313 (40 CFR 372.65):**  
**1,2-DICHLOROETHYLENE (ALL ISOMERS)**

**OSHA PROCESS SAFETY (29 CFR 1910.119):** Not regulated.

**STATE REGULATIONS:**

**California Proposition 65:** Not regulated.

**CANADIAN REGULATIONS:**

**WHMIS CLASSIFICATION:** Not determined.

**NATIONAL INVENTORY STATUS:**

**U.S. INVENTORY (TSCA):** Listed on inventory.

**TSCA 12(b) EXPORT NOTIFICATION:** Not listed.

**CANADA INVENTORY (DSL/NDSL):** Not determined.

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**16. OTHER INFORMATION**

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## Appendix 1A

### New York State Department of Health Generic Community Air Monitoring Plan

#### Overview

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 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 DEC/NYSDOH 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, particularly if wind direction changes. 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.

1. 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.
2. 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.
3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.
4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) 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.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter ( $\text{mcg}/\text{m}^3$ ) 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.

2. 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.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

## **Appendix 1B**

### **Fugitive Dust and Particulate Monitoring**

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive 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. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.
3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM<sub>10</sub>) with the following minimum performance standards:
  - (a) Objects to be measured: Dust, mists or aerosols;
  - (b) Measurement Ranges: 0.001 to 400 mg/m<sup>3</sup> (1 to 400,000 µg/m<sup>3</sup>);
  - (c) Precision (2-sigma) at constant temperature: +/- 10 µg/m<sup>3</sup> for one second averaging; and +/- 1.5 g/m<sup>3</sup> for sixty second averaging;
  - (d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mm<sub>d</sub>= 2 to 3 µm, g= 2.5, as aerosolized);
  - (e) Resolution: 0.1% of reading or 1g/m<sup>3</sup>, whichever is larger;
  - (f) Particle Size Range of Maximum Response: 0.1-10;
  - (g) Total Number of Data Points in Memory: 10,000;
  - (h) Logged Data: Each data point with average concentration, time/date and data point number
  - (i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
  - (j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
  - (k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
  - (l) Operating Temperature: -10 to 50° C (14 to 122° F);
  - (m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.
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 remedial party 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<sup>3</sup> (15 minutes average). 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<sup>3</sup>, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m<sup>3</sup> 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<sup>3</sup> continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

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<sub>10</sub> at or above the action level. Since this situation has the potential to allow for the migration of 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:

- (a) Applying water on haul roads;
- (b) Wetting equipment and excavation faces;
- (c) Spraying water on buckets during excavation and dumping;
- (d) Hauling materials in properly tarped or watertight containers;
- (e) Restricting vehicle speeds to 10 mph;
- (f) Covering excavated areas and material after excavation activity ceases; and
- (g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m<sup>3</sup> action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is 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 additional 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.

## **APPENDIX F**

### **Citizen Participation Plan**



**New York State Department of Environmental Conservation**

**THE BROWNFIELD CLEANUP PROGRAM**

**CITIZEN PARTICIPATION PLAN**

**For**

**ASH ROAD PROPERTIES**

**221 SYCAMORE ROAD  
TOWN OF VESTAL  
BROOME COUNTY, NEW YORK**

**July 2010**

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5	INVESTIGATION AND CLEANUP PROCESS .....	9

**Note:** The Information presented in the Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site investigation and cleanup process



Applicant: **West Covina Royale, LP**

Site Address: **221 Sycamore Road, Vestal, New York**

Site County: **Broome County**

Site Number: **C704032**

## **1 WHAT IS NEW YORK BROWNFIELD CLEANUP PROGRAM?**

New York Brownfield Cleanup Program (BCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as “brownfields” so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants that conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at: <http://www.dec.ny.gov/chemical/8450.html> .

## **2 CITIZEN PARTICIPATION ACTIVITIES**

### ***Why NYSDEC Involves the Public and Why It Is Important***

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision makers form or adopt final positions.

Involving the citizens affected and interest in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment;
- Improving public access to, and understanding of, issues and information related to a particular site and that site's investigation and cleanup process;
- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process;
- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community;
- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

### ***Project Contacts***

Appendix A identifies NYSDEC project contact(s) to which the public should address questions or request information about the site investigation and cleanup program. The public suggestions about this CP Plan and the CP program for the site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

### ***Locations of Reports and Information***

The locations of the reports and information related to the site investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC web

site. If this occurs, NYSDEC will inform the public in fact sheets distributed about the site and by other means, as appropriate.

### ***Site Contact List***

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.

The site contact list includes, at a minimum:

- chief executive officer and planning board chairperson of each county, city, town and village in which the site is located;
- residents, owners, and occupants of the site and properties adjacent to the site;
- the public water supplier which services the area in which the site is located;
- any person who has requested to be placed on the site contact list;
- the administrator of any school or day care facility located on or near the site for purposes of posting and/or dissemination of information at the facility;
- locations of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contacts identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

### ***CP Activities***

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the site investigation and cleanup program. The flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant

points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.
- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site investigation and cleanup.

The public is encouraged to contact project staff at any time during the site investigation and cleanup process with questions, comments, or requests for information.

This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned citizen participation activities.

### ***Technical Assistance Grant***

NYSDEC must determine if the site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the site, as described in Section 5.

If the site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the site.

For more information about TAGs, go online at <http://www.dec.ny.gov/regulations/2590.html>

Note: The table identifying the citizen participation activities related to the site's investigation and cleanup program follows:

Citizen Participation Requirements (Activities)	Timing of CP Activities
<p align="center"><b>Application Process:</b></p> <ul style="list-style-type: none"> <li>• Prepare site contact list.</li> <li>• Establish document repositories.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period.</li> <li>• Publish above ENB content in local newspaper.</li> <li>• Mail above ENB content to site contact list.</li> <li>• Conduct 30-day public comment period.</li> </ul>	
<p align="center"><b>After Execution of Brownfield Site Cleanup Agreement:</b></p> <ul style="list-style-type: none"> <li>• Prepare Citizen Participation (CP) Plan.</li> </ul>	
<p align="center"><b>Before NYSDEC Approves Remedial Investigation (RI) Work Plan:</b></p> <ul style="list-style-type: none"> <li>• Distribute fact sheet to site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan.</li> <li>• Conduct 30-day public comment period.</li> </ul>	
<p align="center"><b>After Applicant Completes Remedial Investigation:</b></p> <ul style="list-style-type: none"> <li>• Distribute fact sheet to site contact list that describes RI results.</li> </ul>	
<p align="center"><b>Before NYSDEC Approves Remedial Work Plan (RWP):</b></p> <ul style="list-style-type: none"> <li>• Distribute fact sheet to site contact list about proposed RWP and announcing 45-day public comment period.</li> <li>• Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager).</li> <li>• Conduct 45-day public comment period.</li> </ul>	
<p align="center"><b>Before Applicant Starts Cleanup Action:</b></p> <ul style="list-style-type: none"> <li>• Distribute fact sheet to site contact list that describes upcoming cleanup action.</li> </ul>	
<p align="center"><b>After Applicant Completes Cleanup Action:</b></p> <ul style="list-style-type: none"> <li>• Distribute fact sheet to site contact list that announces that cleanup action has been completed and that summarizes the Final Engineering Report.</li> <li>• Distribute fact sheet to site contact list announcing issuance of Certificate of Completion (COC).</li> </ul>	

### 3 MAJOR ISSUES OF PUBLIC CONCERN

No major issues of public concern have been identified at the site to date. Major issues of public concern may be identified during the course of the site investigation and cleanup process.

### 4 SITE INFORMATION

Appendix C contains a map identifying the location of the site.

#### ***Site Description***

Location:           **Ash Road Properties (portion of Lowe's Home Center)**  
                          **221 Sycamore Road**  
                          **Vestal, New York 13850**  
                          **Broome County**

Estimated Size: **1.54 acres**

Setting:           **Suburban**

Adjacent Properties Uses:  
                          **Commercial and Residential**

#### ***History of Site Use, Investigation, and Cleanup***

West Covina Royale, LP is a Volunteer in the Brownfield Cleanup Program (BCP). The Ash Road Properties BCP site is a portion of the Lowe's Home Center property located at 221 Sycamore Road in the Town of Vestal, Broome County, New York. The Lowe's Home Center occupies a 14.47-acre parcel. The Ash Road Properties site encompasses approximately 1.54 acres situated along the southern boundary of the 14.47-acre parcel. The Ash Road Properties site is currently occupied by perimeter parking for the Lowe's Home Center.

A portion of the BCP site was formerly occupied by automotive repair garages that included automotive painting, washing and waxing. The BCP site was also occupied by a plumbing contractor's office and warehouse. There was an intermittent stream that flowed west along the northern boundary of the Ash Road Properties. This drainage was channelized during Lowe's redevelopment of the parcel.

Investigations undertaken by previous property owners identified that a former occupant, Town Square Body Shop, had numerous containers of paints, cleaning solvents, petroleum distillates, thinners and lacquers in their building. Minor amounts of gasoline/kerosene (<5 gallons) were observed at Hall Plumbing. No bulk storage tanks were observed or reported at these two businesses.

Floor drains were present in the Town Square Body Shop and at Hall Plumbing that discharged to the subsurface and ground surface. Dumping of sediments by an off-site business in the intermittent stream on the Hall Plumbing property was also reported. Chlorinated and petroleum compounds were identified in the groundwater at levels that exceed NYSDEC Water Quality Standards.

A Site Characterization Report was completed by NYSDEC in 2009 that included the Ash Road Properties site. The summary of the field investigations indicated that there was a limited source area of primarily chlorinated compounds located in the western portion of the Ash Road Properties site. The contaminants of concern identified as part of this characterization included tetrachloroethene, trichloroethene, *cis* and *trans*-1, 2-dichloroethene, and vinyl chloride. The source area appears to have impacted groundwater quality migrating northwesterly. NYSDEC recommended interim remedial measures and additional remedial investigation of the site.

## **5 INVESTIGATION AND CLEANUP PROCESS**

### ***Application***

The Applicant has applied for and been accepted into New York Brownfield Cleanup Program as a Volunteer. This means that the Applicant was not responsible for the disposal or discharge of the contaminants or whose ownership or operation of the site took place after the discharge or disposal of contaminants. The Volunteer must fully characterize the nature and extent of contamination onsite, and must conduct a qualitative exposure assessment, a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the site and to contamination that has migrated from the site.

The Applicant in its Application proposes that the site will be used for restricted purposes. To achieve this goal, the Applicant will conduct investigation and cleanup activities at the site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement executed by NYSDEC and the

Applicant sets forth the responsibilities of each party in conducting these activities at the site.

### ***Investigation***

The Applicant will conduct an investigation of the site officially called a “remedial investigation” (RI). This investigation will be performed with NYSDEC oversight. The Applicant must develop a remedial investigation workplan, which is subject to public comment.

The site investigation has several goals:

- 1) define the nature and extent of contamination in soil, surface water, groundwater and any other parts of the environment that may be affected;
- 2) identify the source(s) of the contamination;
- 3) assess the impact of the contamination on public health and the environment; and
- 4) provide information to support the development of a proposed remedy to address the contamination or the determination that cleanup is not necessary.

When the investigation is complete, the Applicant will prepare and submit a report that summarizes the results. This report also will recommend whether cleanup action is needed to address site-related contamination. The investigation report is subject to review and approval by NYSDEC.

NYSDEC will use the information in the investigation report to determine if the site poses a significant threat to public health or the environment. If the site is a significant threat, it must be cleaned up using a remedy selected by NYSDEC from an analysis of alternatives prepared by the Applicant and approved by NYSDEC. If the site does not pose a significant threat, the Applicant may select the remedy from the approved analysis of alternatives.

### ***Remedy Selection***

When the investigation of the site has been determined to be complete, the project likely would proceed in one of two directions:

1. The Applicant may recommend in its investigation report that no action is necessary at the site. In this case, NYSDEC would make the investigation report available for public comment for 45 days. NYSDEC then would complete its review, make any necessary revisions, and, if appropriate,



approve the investigation report. NYSDEC would then issue a Certificate of Completion (described below) to the Applicant.

**or**

2. The Applicant may recommend in its investigation report that action needs to be taken to address site contamination. After NYSDEC approves the investigation report, the Applicant may then develop a cleanup plan, officially called a Remedial Work Plan. The Remedial Work Plan describes the Applicant proposed remedy for addressing contamination related to the site.

When the Applicant submits a proposed Remedial Work Plan for approval, NYSDEC would announce the availability of the proposed plan for public review during a 45-day public comment period.

### ***Cleanup Action***

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy. The Applicant may then design and perform the cleanup action to address the site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a final engineering report that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the site.

### ***Certificate of Completion***

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the site, it will approve the final engineering report. NYSDEC then will issue a Certificate of Completion (COC) to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelop the site after it receives a COC.

## ***Site Management***

Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management may be conducted by the Applicant under NYSDEC oversight, if contamination will remain in place. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan.

An institutional control is a non-physical restriction on use of the site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the site suitable for some, but not all uses.

An engineering control is a physical barrier or method to manage contamination. Examples include: caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that is pumping and treating groundwater. Site management continues until NYSDEC determines that it is no longer needed.

## **Appendix A**

### **Project Contacts and Locations of Reports and Information**

#### **Project Contacts**

For information about the site investigation and cleanup program, the public may contact any of the following project staff:

#### **New York State Department of Environmental Conservation (NYSDEC):**

Gary Priscott  
Project Manager  
NYSDEC Region 7 – Kirkwood Sub-office  
Division of Environmental Remediation  
1679 NY Route 11  
Kirkwood, New York 13795  
(607) 775-2545

Diane Carlton  
Citizen Participation Specialist  
NYSDEC Region 7  
615 Erie Boulevard West  
Syracuse, New York 13240-2400  
(315) 426-7413

#### **New York State Department of Health (NYSDOH):**

Melissa Menettii  
Project Manager  
NYSDOH  
Bureau of Environmental Exposure Investigation  
547 River Street  
Troy, New York 12180-2216  
(800) 458-1158, Ext.27860

The facilities identified below are being used to provide the public with convenient access to important project documents:

Vestal Public Library  
320 Vestal Parkway East  
Vestal, New York 13850  
(607) 754-4243  
Hours:  
Monday 2:00pm to 9:00pm  
Tuesday – Thursday 9:00am to 9:00pm  
Friday 9:00am to 6:00pm  
Saturday 9:00am to 5:00pm  
Sunday 1:00pm to 5:00pm  
(Hours may vary seasonally, etc.)

NYSDEC Region 7 – Kirkwood Sub-office  
Division of Environmental Remediation  
1679 NY Route 11  
Kirkwood, New York 13795  
Gary Priscott  
(607) 775-2545

Please call for an appointment

## Appendix B Site Contact List

### **Local Public Officials:**

Barbara J. Fiala  
County Executive  
Sixth Floor  
Broome County Office Building  
60 Hawley Street  
PO Box 1766  
Binghamton, New York 13901  
(607) 778-2109

### **Local Public Officials (cont.):**

Frank Evangelisti  
Acting Commissioner-Planning  
Fifth Floor  
Broome County Office Building  
60 Hawley Street  
PO Box 1766  
Binghamton, New York 13901  
(607) 778-2114

Pete Andreasen  
Town of Vestal Supervisor  
605 Vestal Parkway West  
Vestal, New York 13850  
(607) 748-1514

Joyce Majewski, Chairperson  
Town of Vestal Planning  
c/o Town Clerk  
605 Vestal Parkway West  
Vestal, New York 13850  
(607) 748-1514

### **Local News Media:**

Press & Sun Bulletin  
4421 Vestal Parkway east  
Vestal, New York 13850  
(607) 798-1234

WBHG TV  
560 Columbia Drive  
Johnson City, New York 13701  
(607) 729-8812

WSKG TV  
601 Gates Road  
Vestal, New York 13850  
PO Box 3000  
Binghamton, New York 13902  
(607) 729-0100

Citadel Broadcasting Company  
59 Court Street  
PO Box 4141  
Binghamton, New York 13902  
[includes WHWK/WNBF/WAAL/WYOS]  
(607) 770-8850

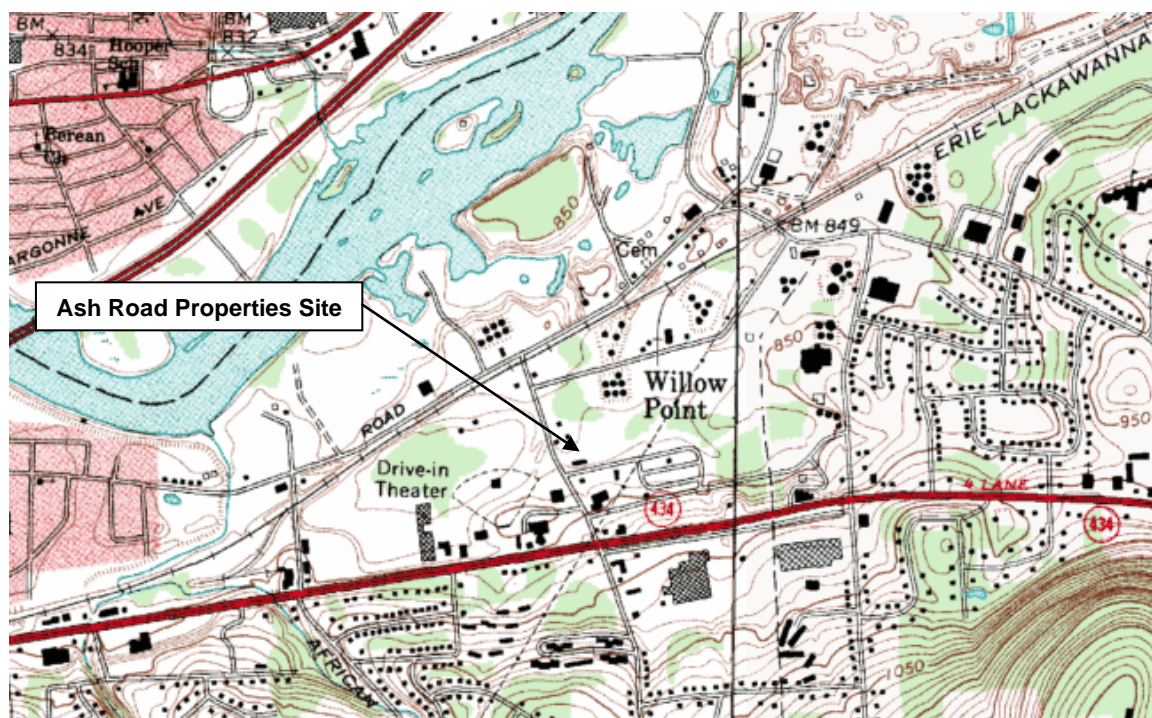
**Public Water Supplier:**

Scott Groats, Superintendent  
Vestal Water Department  
Town of Vestal  
605 Vestal Parkway West  
Vestal, New York 13850  
(607) 748-1514

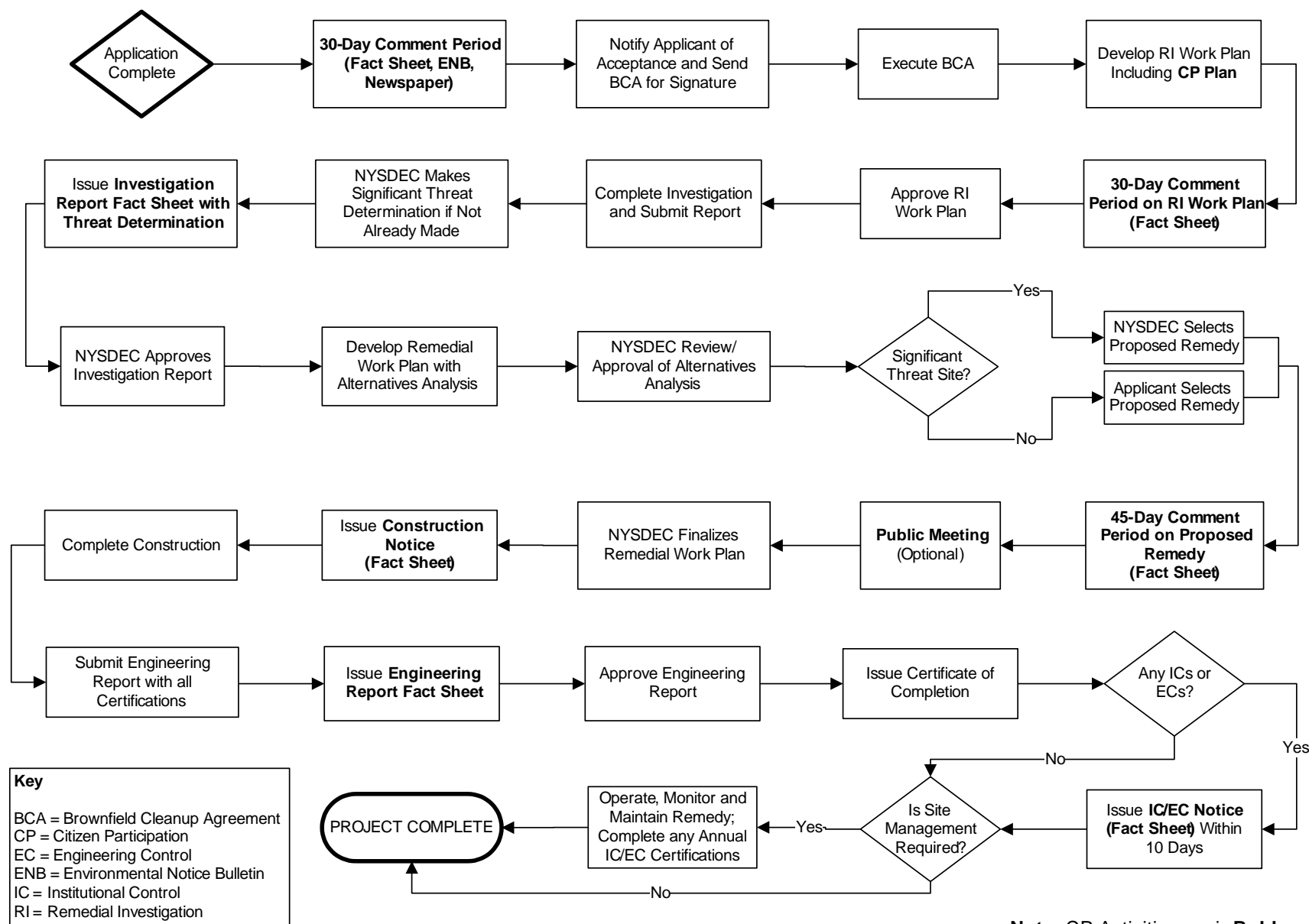
**School Administrators/Daycare Facilities:**

None

## Appendix C Site Location Map



## Appendix D– Brownfield Cleanup Program Process





**New York State Department of Environmental Conservation**

**Division of Environmental Remediation, Region 7**

1679 NY Route 11, Kirkwood, New York 13795-1602

Phone: (607) 775-2545 • Fax: (607) 775-2019

Website: [www.dec.ny.gov](http://www.dec.ny.gov)



Alexander B. Grannis  
Commissioner

July 15, 2010

Susan M. Cummins  
GeoLogic NY, Inc.  
37 Copeland Avenue  
Homer, New York 13077

Re: Ash Road Properties, C704032  
Town of Vestal, Broome County

Dear Susan:

The Department has reviewed the Citizen Participation (CP) Plan that you submitted by electronic mail on June 30, 2010 for the referenced site. As a result of the Department's review, you and I had a phone conversation today and discussed modifications to the text in CP Plan Sections 4 and 5. Additionally, by electronic mail today I provided the New York State Department of Health contact information to be included in Appendix A of the CP Plan.

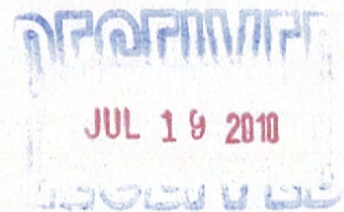
Based on the Department's review, the CP Plan is hereby approved with the understanding that the discussed text modifications will be implemented and Appendix A will include the new contact information.

Please do not hesitate to contact me if you have any questions.

Respectfully,

Gary Priscott  
DER Project Manager

cc: Gregg Townsend  
Barbara McGinn, Esq.  
Melissa Menetti  
Kenneth Loesch  
Katherine Fitzgerald, Esq.





## **APPENDIX G**

### **Schedule**

SC / IRM WORK PLAN/RI/IRM SCHEDULE  
ASH ROAD PROPERTIES  
Town of Vestal, New York

	2010				
TASK	AUG	SEP	OCT	NOV	DEC
Submit SC/RI Work Plan					
DEC Review & Public Review					
Work Plan Revisions					
Work Plan Approval					
Field Activities, Task #1					
Field Activities, Task #2					
Field Activities, Task #3					

	2011											
TASK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Field Activities, Task #3												
SCIDS Submission, Task #4												
SCIDS Approval												
Field Activities Task #5A & 5B												
Field Activities, Task #5C ,5D, & 5E												
RI/IRM Report												
RI/IRM DEC Review & Public Comment												
RI/IRM Revisions & Final Submittal												

	2012											
TASK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
RI/IRM Revisions & Final Submittal												

	Potential overlap in schedule activities
	Scheduled time to complete task

Delay in completing individual Tasks #1 and #2 may post-pone completing Task #3 due to seasonal conditions.